



FIRST INTERNATIONAL SYMPOSIUM

SECURITY MEASURES & TECHNICAL SOLUTIONS FOR MAJOR EVENTS AND EXPANDING CITIES

Enhancing Public-Private Partnerships

Abu Dhabi, UAE - 18-20 May 2009

MAJOR EVENTS, MASS GATHERINGS
How can technology assist to counter new threats?

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Major Events, Mass Gatherings: How can technology assist to counter new threats?

- * **Mass Gatherings - definition**
- * **New threats & targets**
- * **CBRN threats in urban environment**
 - ✓ **Scenario 1: Chemical attack**
 - ✓ **Scenario 2: Biological attack**
 - ✓ **Scenario 3: Dirty bomb attack**
- * **Athens' 2004 Olympic Games experience**
- * **Conclusions – The future ahead**

**Contribution of technology
to counter new threats**

Mass Gatherings - DEFINITION I

Congregation or assembly of more than **1,000 people** in an open space for a period of **more than 24 hours**

BMJ 1999

Am Coll of Emergency Phys, 2002

Communicable disease alert and response for mass gatherings

Key considerations

June 2008



Mass Gatherings - DEFINITION II

A congregation or assembly of more than **5,000 people*** in an open space or open air** for a period of more than 24 hours***

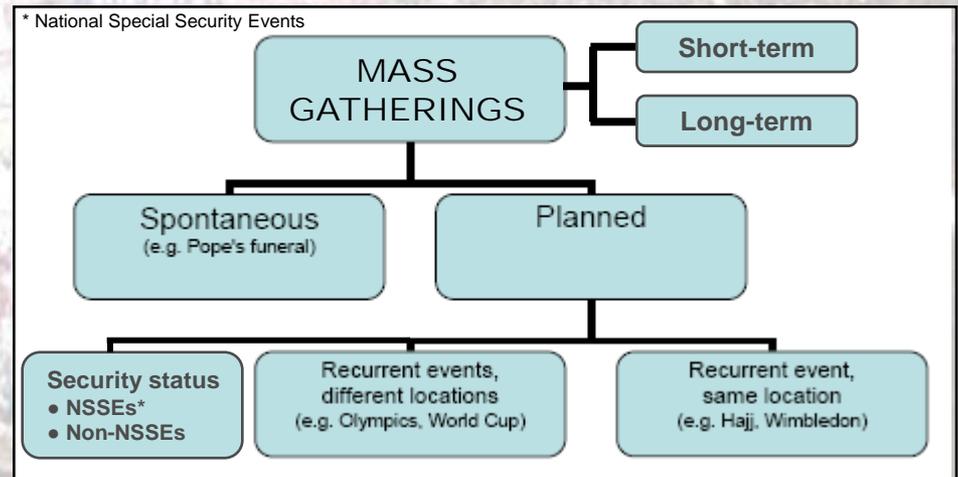


* Does apply to a permanent stadium with an adjacent campground that hosts an annual event that has, within the previous 5 years, attracted crowds in excess of 70,000 people – “stadium” includes speedways and drag ways

** Not in permanent buildings or structures designed or intended for use by a large number of people

*** Begin when the people expected to attend are first permitted on the land of the major event and end when they are expected to depart

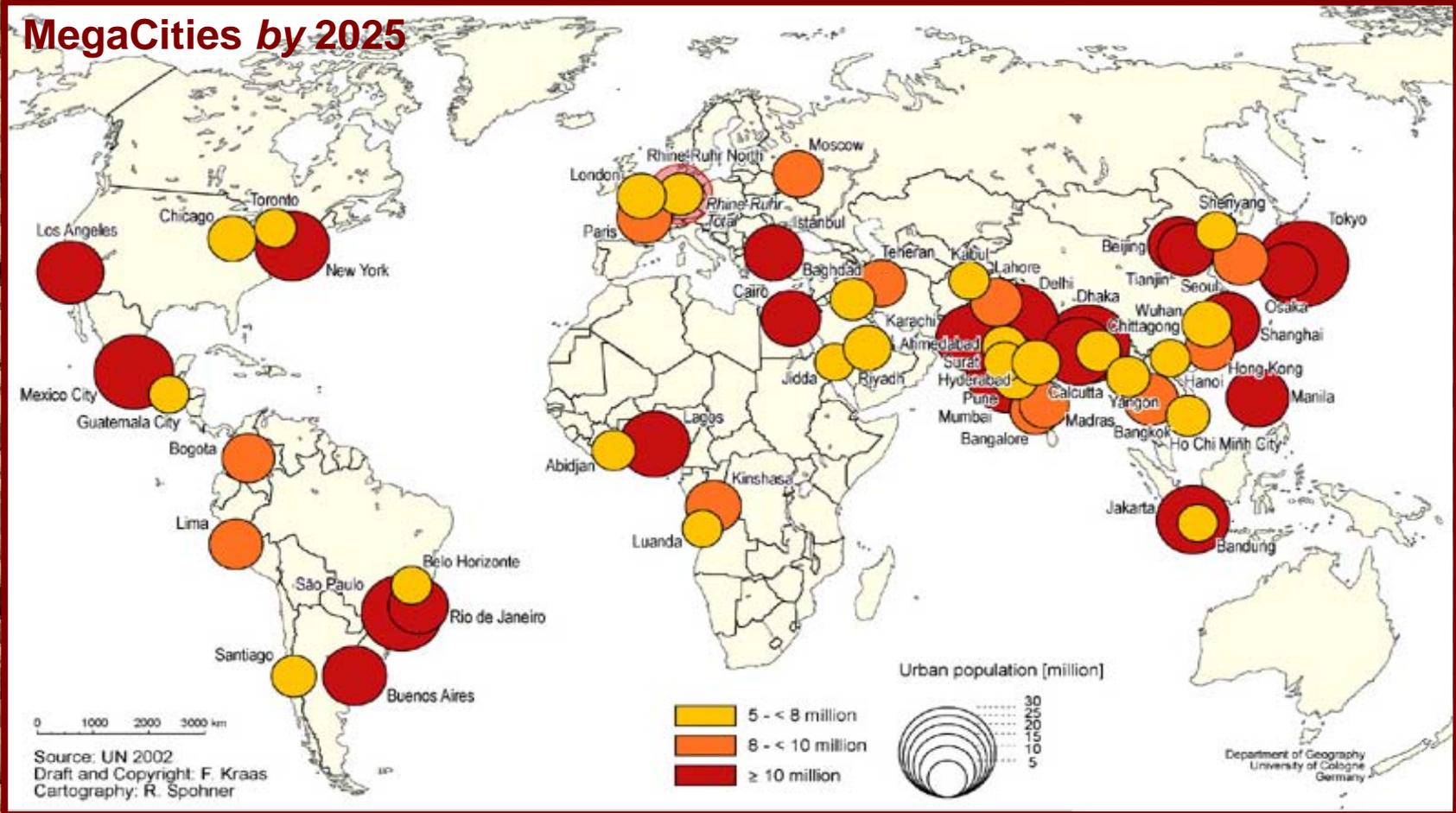
CLASSIFICATION



Mass Gatherings & Mega-Cities



MegaCities by 2025

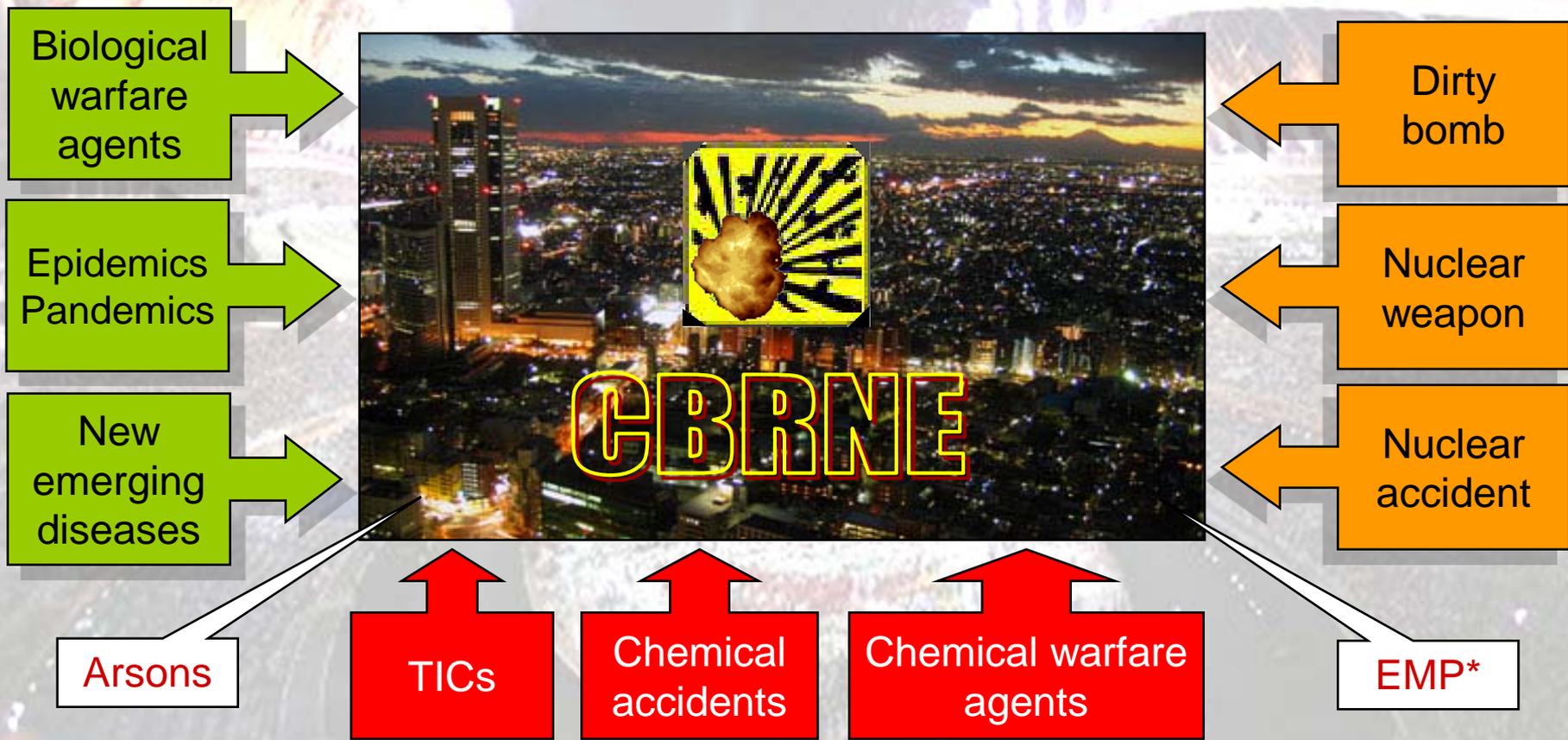


Megacity: a metropolitan area with a total population in excess of 10 million people (at least 2,000 persons/square km)

MASS GATHERINGS – Targets & New Threats



Mass transportation	State/residential buildings	Industrial infrastructure	
Airports & Harbors	Malls & Shopping streets	Electronic communication	Hotels & Resorts
Hospitals	Sporting venues	Water & Sewage	Cultural facilities



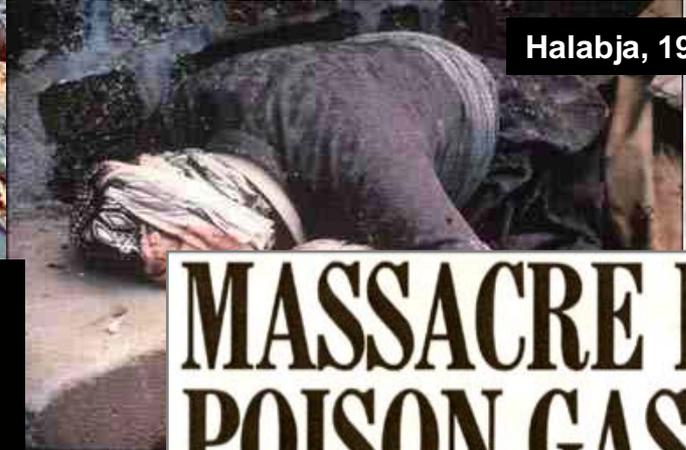
*ElectroMagnetic Pulse

WW-I



The past...

Gulf War



Halabja, 1988



DECEMBER 17, 1984

TIME

India on the Tantalus
A Miraculous Sympathy

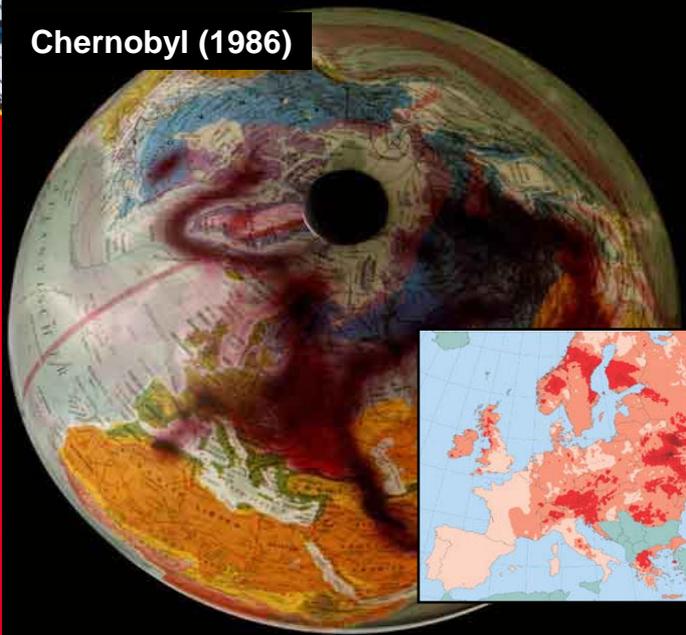
INDIA'S DISASTER

THE NIGHT OF DEATH

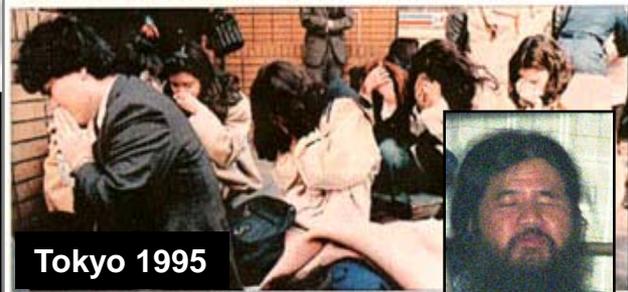
A GLOBAL WORRY

Bohpal (1984)

Chernobyl (1986)



MASSACRE BY POISON GAS



Tokyo 1995

Many die, 1,200 collapse in Tokyo Tube attack

SIX people died today and more than 1,200 people suffered commotio cordis as clouds of toxic nerve gas swept through Tokyo's rush-hour subway system.

The gas, a mysterious aerosol and liquid, appeared in a crowded subway station in Tokyo after the Japanese government announced the attack on the subway system.

Continued on Page 7 Col 6





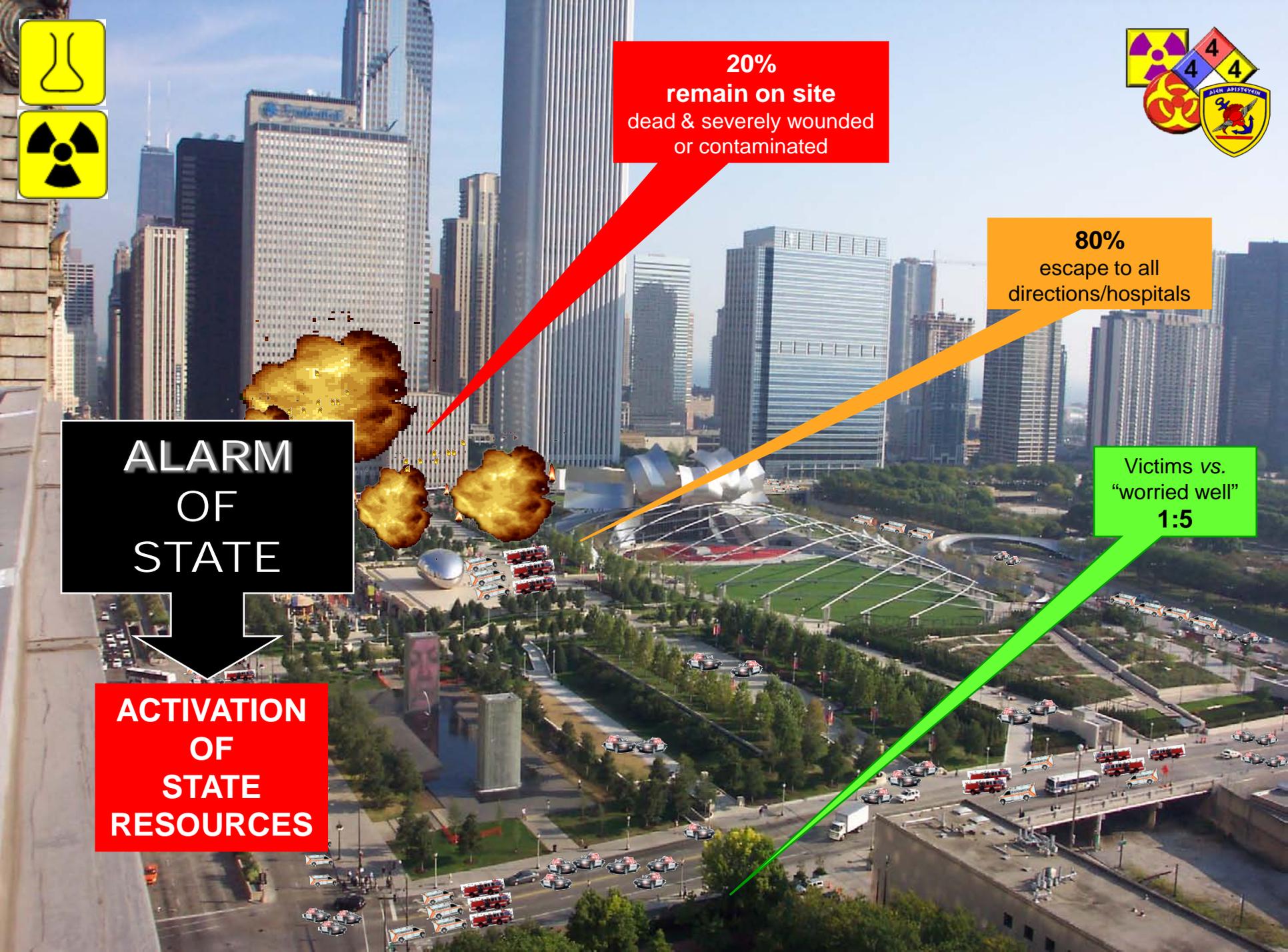
20%
remain on site
dead & severely wounded
or contaminated

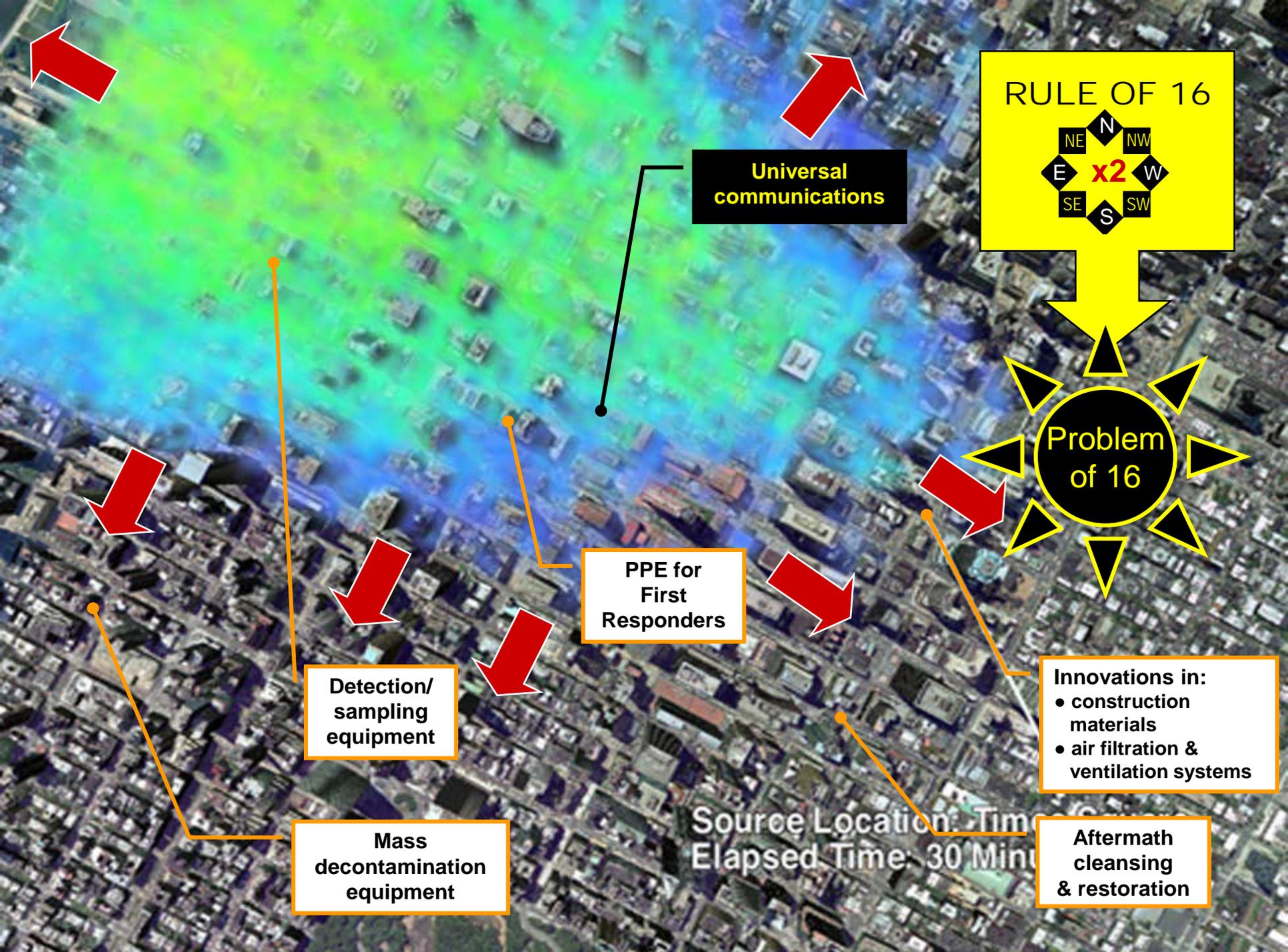
80%
escape to all
directions/hospitals

Victims vs.
"worried well"
1:5

**ALARM
OF
STATE**

**ACTIVATION
OF
STATE
RESOURCES**





RULE OF 16



Universal communications



PPE for First Responders

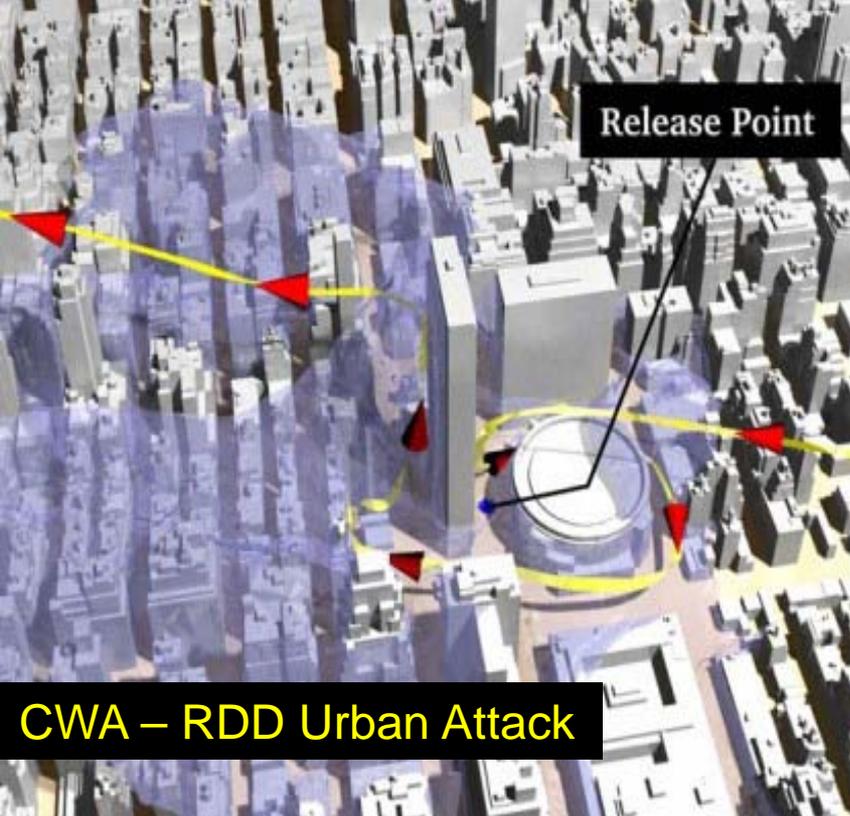
Detection/sampling equipment

Innovations in:
• construction materials
• air filtration & ventilation systems

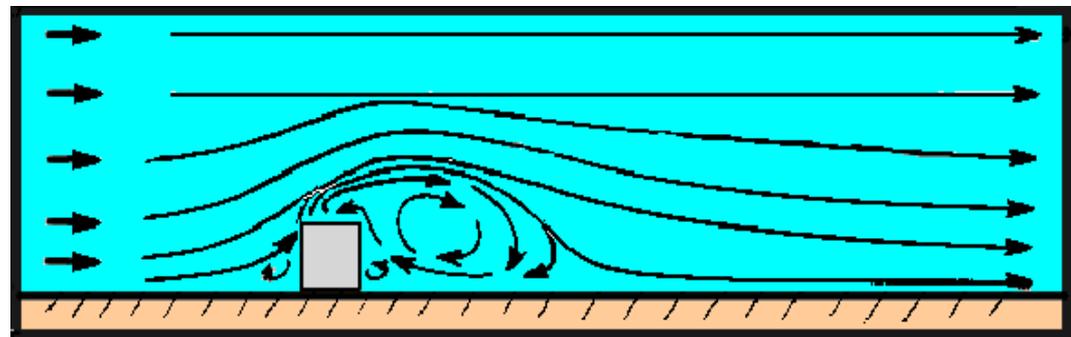
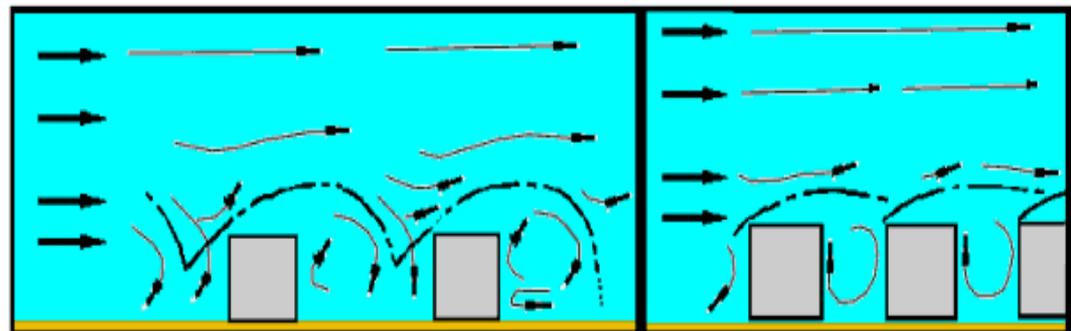
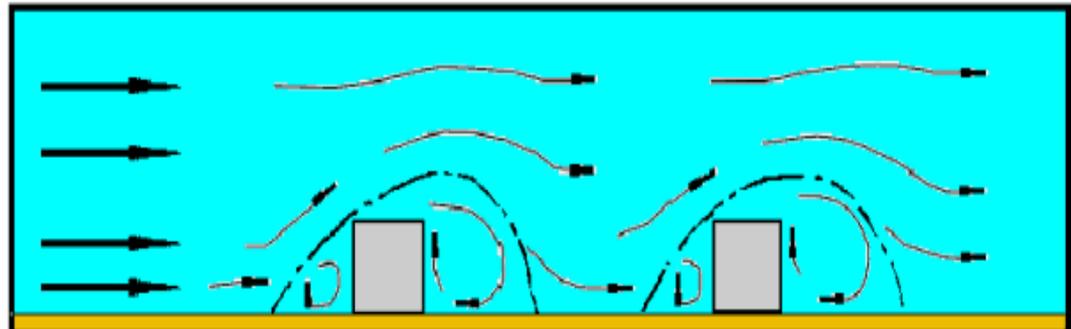
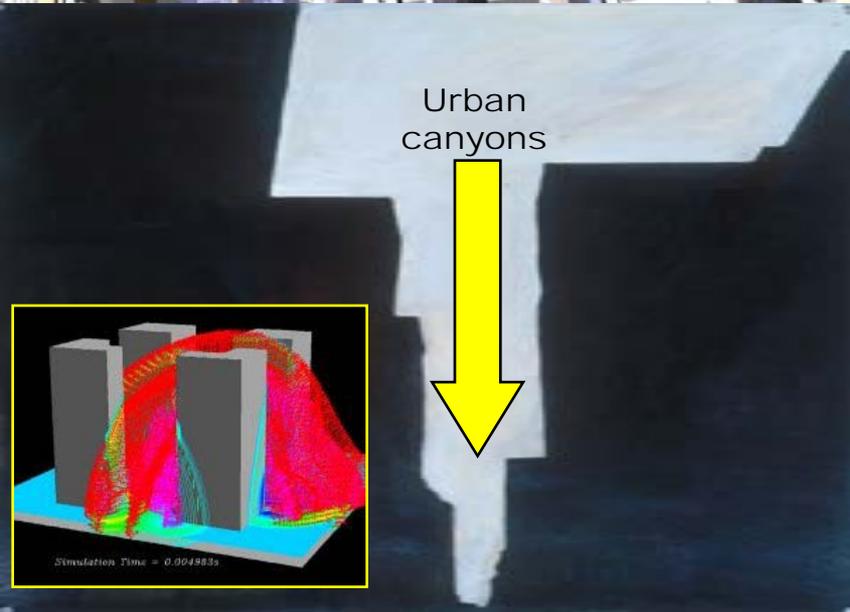
Mass decontamination equipment

Aftermath cleansing & restoration

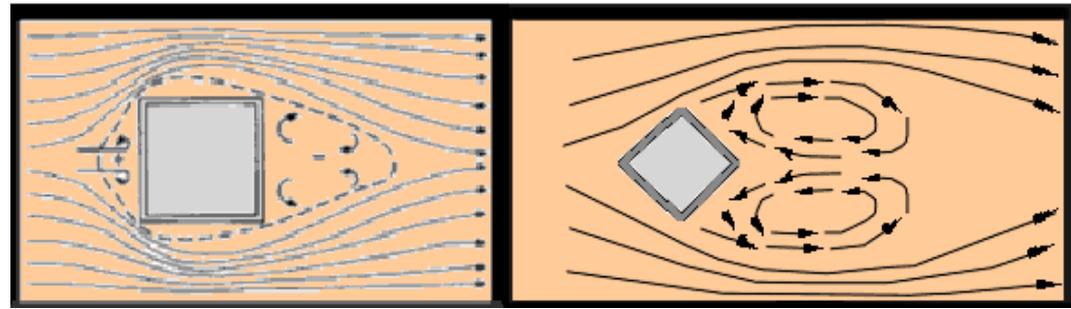
Source Location: Time 0
Elapsed Time: 30 Min



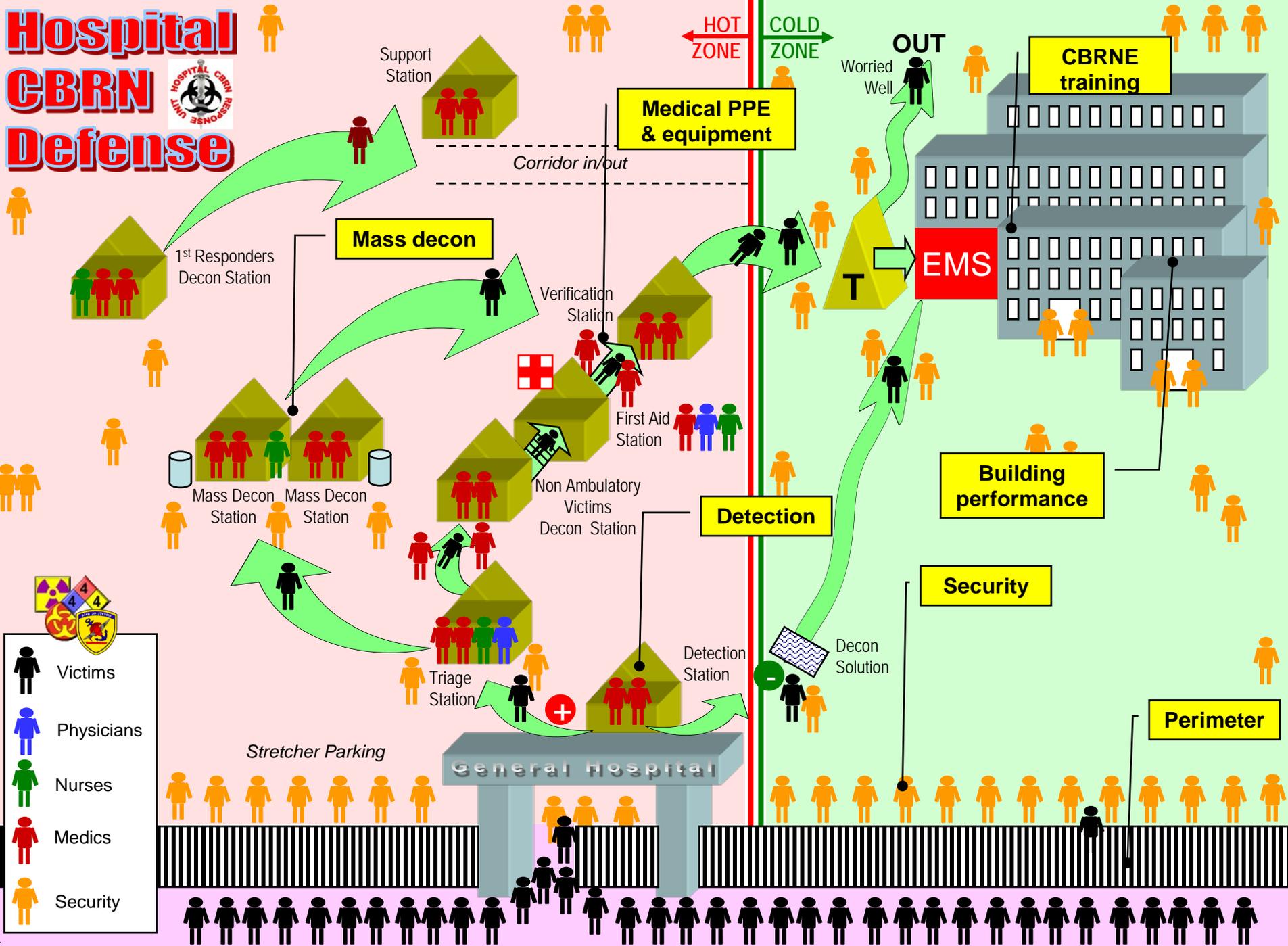
CWA – RDD Urban Attack



Flow Pattern: Side View Wind Against Face



Hospital CBRN Defense



- Victims
- Physicians
- Nurses
- Medics
- Security



BWA release

Medical training

"Syndromic" surveillance

A system based on broad clinical disease categories (e.g. fever, bloody diarrhea) rather than on diagnoses confirmed by laboratory analysis



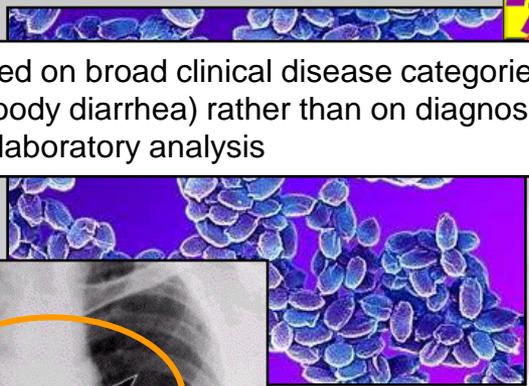
Casualties start visiting hospitals

Incubation period

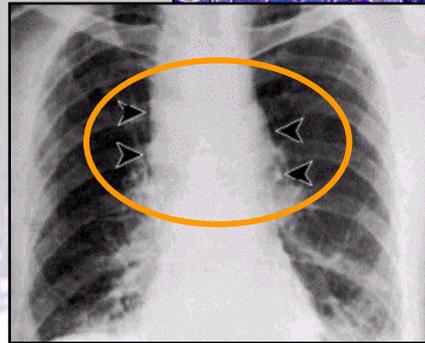
1st wave

State activation

State realizes magnitude of problem



B. anthracis



Medical PPE & equipment
▶ P(-) wards
▶ Quarantine

Labs

2nd wave

Casualties overwhelm hospitals

3rd wave

Vaccines

Epidemic
Pandemic

4th wave

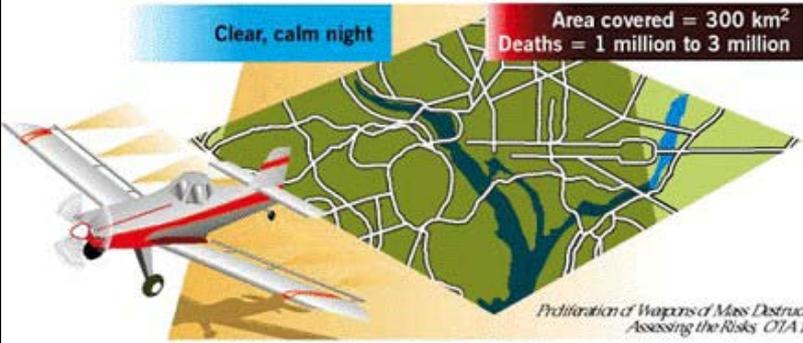
Morgue management

Imminent Anthrax Attack on Los Angeles

100 kilograms of spores

Clear, calm night

Area covered = 300 km²
Deaths = 1 million to 3 million



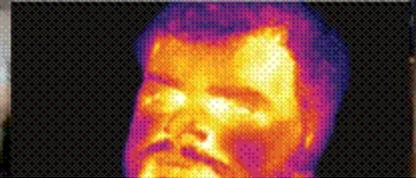
Proliferation of Weapons of Mass Destruction: Assessing the Risks, OTA 1993

Clear, sunny day, light breeze

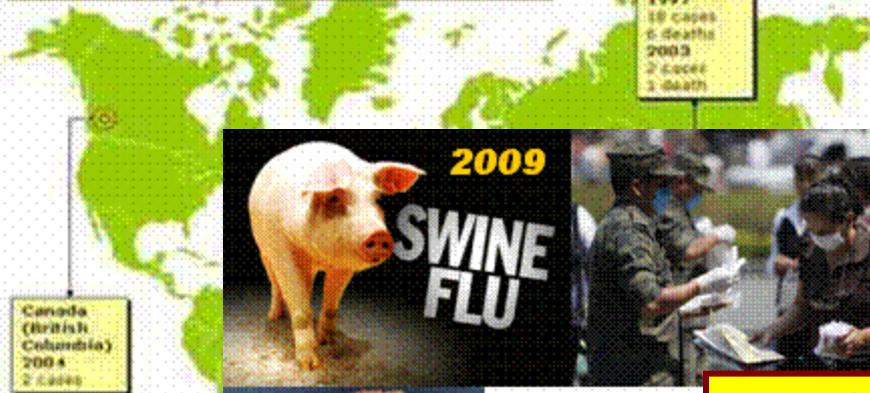
Area covered = 46 km²
Deaths = 130 000 to 460 000

Overcast day or night, moderate wind

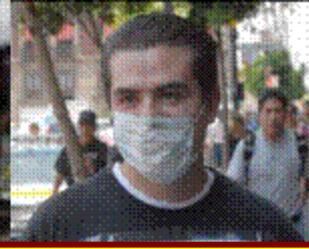
Area covered = 140 km²
Deaths = 420 000 to 1 400 000



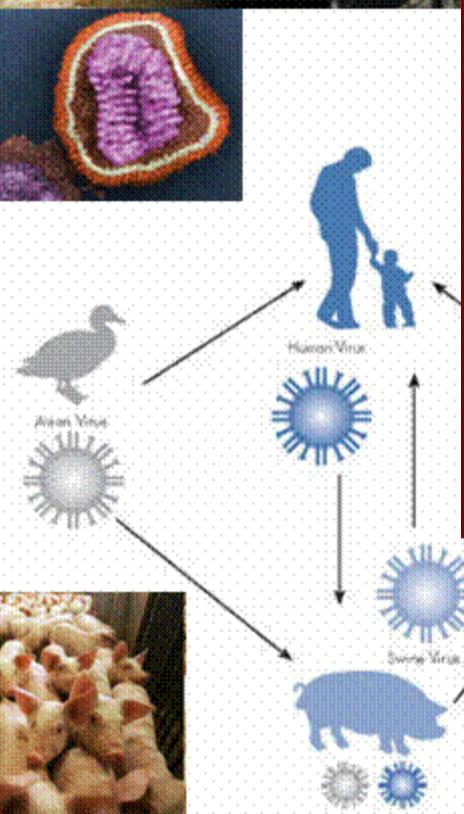
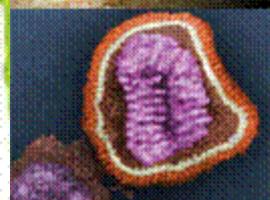
Documented Avian Influenza infections in humans



LATEST TERRORIST THREAT



- H5N1
- H7N7
- H9N2
- H7



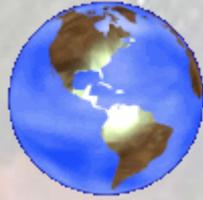
As of May 16, 2009

- ▶ 8.451 cases
- ▶ 36 countries

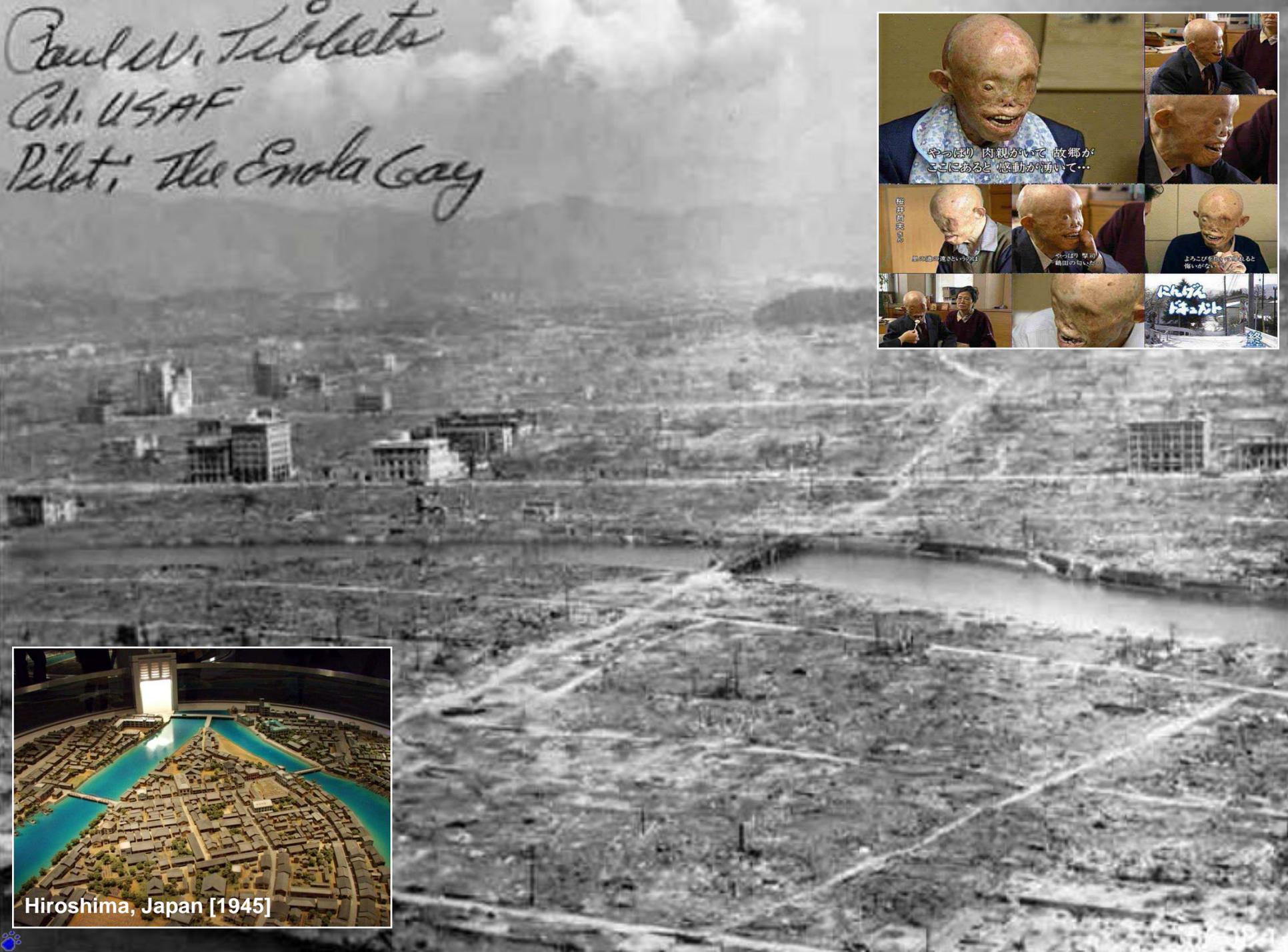
72D

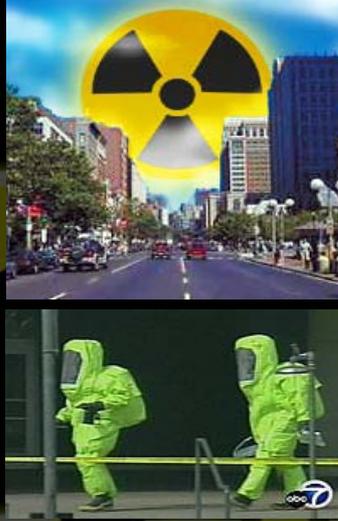
Confirmed deaths (WHO)

- Mexico : 66 [2.895]
- USA : 4 [4.714]
- Canada : 1 [496]
- Costa Rica : 1 [9]



Paul W. Tibbets
Col. USAF
Pilot, The Enola Gay





Official says terrorists doing all they can to get dirty bomb

By Steven Gutkin
Associated Press

JAKARTA, INDONESIA | Terrorists have the will and some of the expertise to make a chemical, biological, radiological or nuclear weapon, and are "doing everything they can" to acquire the materials, the U.S. State Department's top anti-terror official said in an interview.

Cofe Black, U.S. ambassador at large for anti-terrorism, said that al-Qaeda is still dangerous even though more than two-thirds of its leaders from the time of the Sept. 11, 2001 attacks have been killed or arrested.

Speaking in Jakarta, Mr. Black said he and other U.S. officials are "killing ourselves" to make sure terrorists don't get a so-called "dirty bomb" or other unconventional weapons, but the threat remains.

"We know beyond a shadow of a doubt that a number of these groups, if they had it, would use

"We know beyond a shadow of a doubt that a number of these groups, if they had it, would use it."

it," said Mr. Black, who accompanied U.S. Attorney General John Ashcroft to an Asia Pacific anti-terror summit on the Indonesian island of Bali last week.

"They've got the will. A lot of these guys seek the expertise, and there's a reasonable amount of that out there, but what you're really looking for is the coming together of all the factors: the will, the expertise and the materials," he said.



Black

Authorities fear terrorists could create a dirty bomb, which would use conventional explosives to disperse a plume of radioactive dust over a city. Unlike a nuclear weapon, a dirty bomb would not ignite an atomic chain reaction and would not require highly enriched uranium or plutonium, which are hard to obtain.

The materials could be a lower-grade isotope, like those used in medicine or research.

Mr. Black's comments follow recent revelations that the father of Pakistan's nuclear program, Abdul Qadeer Khan, sold equipment related to centrifuges, used to enrich uranium for nuclear weapons, to Iran, Libya and North Korea.

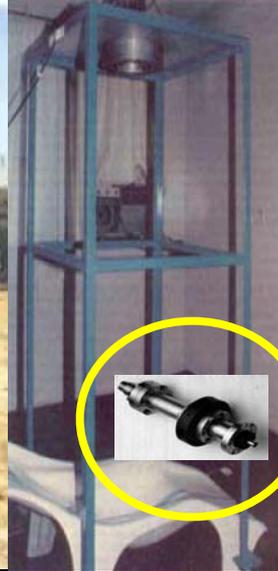
Experts say the same black market that enabled those countries to obtain nuclear weapons technology might also have supplied bomb components or plans to terrorists.

"If al-Qaeda were to put together a radiological device, they're going to use it," Mr. Black said. "We know that they have the determination, they've killed large numbers before, their objective is to kill more, they're doing everything they can to acquire this type of weapon and we are working to try to prevent it."

He said that anti-terror officials use the initials CBRN to rank the threats' order of probability: "chemical, bacteriological, radiological and nuclear - chemical the most likely and nuclear the least."

Goiania

Brazil 1987



Population: 1 million

- Abandoned cancer therapy clinic
- Tele-therapy unit with **Cesium-137**
- During the demolition of the clinic [1984] the source was stolen and opened
- Cesium contamination was unavoidable

- ✓ 250 people exposed
- ✓ 28 people: signs of radiation sickness
- ✓ 104 people: internal contamination
- ✓ **4 fatalities**
- ✓ Many with burns to the hands and chest
- ✓ **112.800 people scanned in city's stadium**
- ✓ 120 had contamination





Alex Litvinenko
Nov 2006

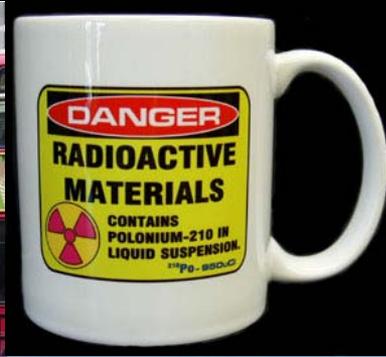


“Dirty Man”



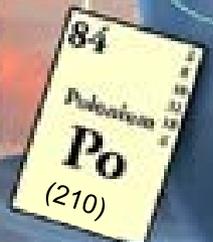
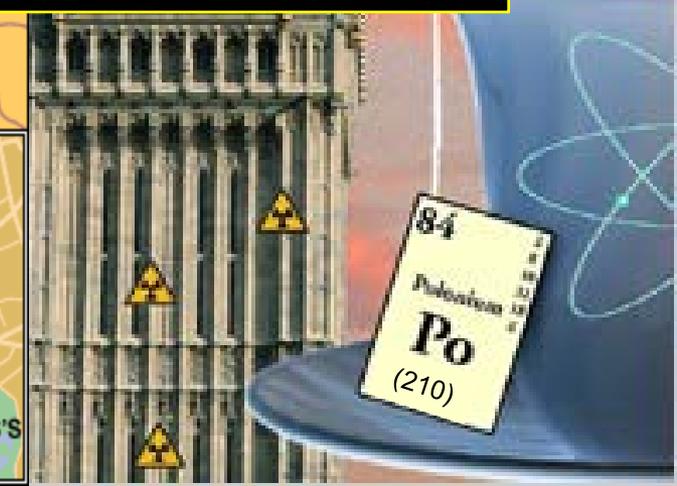
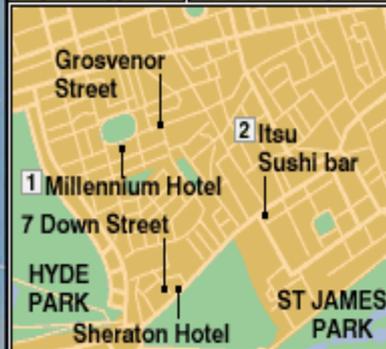
R-Sources control

- Internet distribution
- Lost/stolen sources
- Unguarded remote facilities

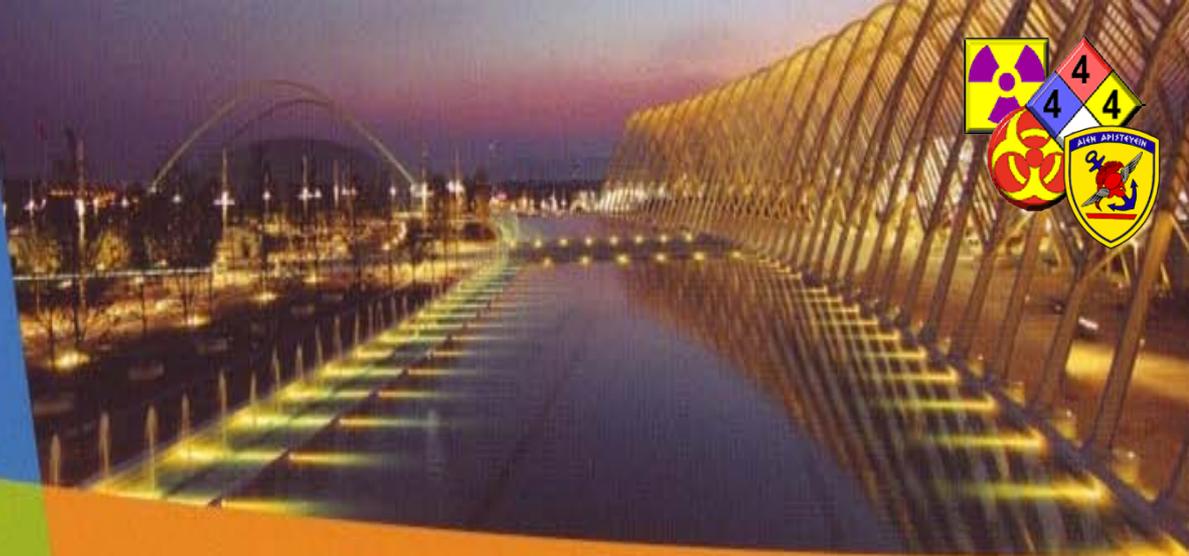
£2 m

33.000 passengers / 30 countries

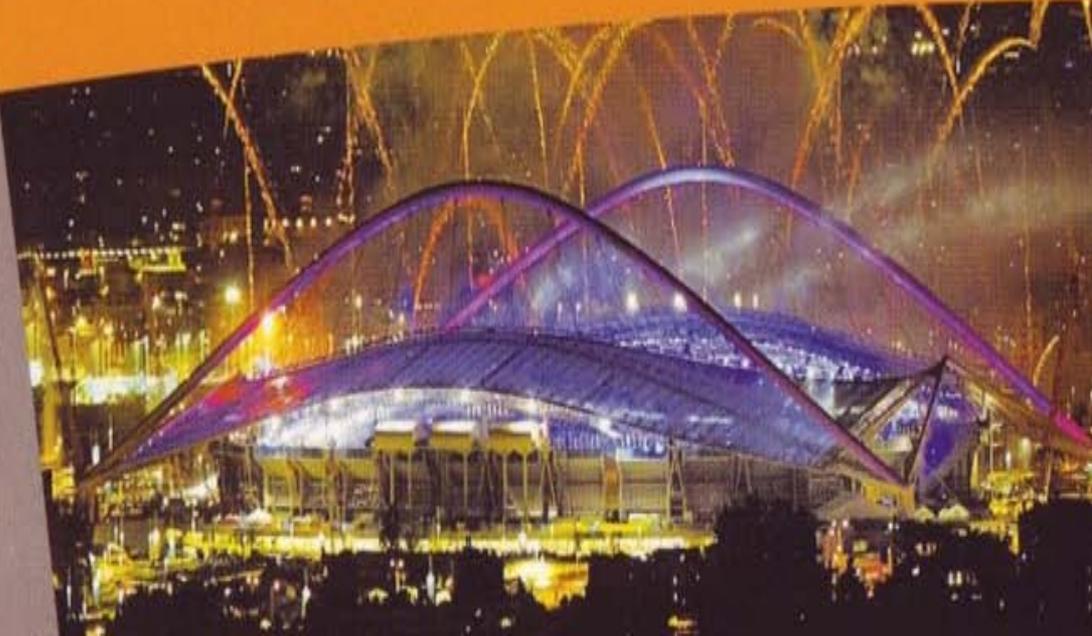




ATHENS 2004



Lessons identified
Athens' 2004 Olympic Games





THE CHALLENGE



- ✓ The biggest international multi-sport event
- ✓ First Summer Olympics post 9-11
- ✓ Second smallest country to host (~ 10.6 million)
- ✓ Approximately 2 million foreign visitors
- ✓ Billions of TV spectators worldwide
- ✓ 202 countries
- ✓ 10.500 athletes – escorts
- ✓ 4.000 Para-Olympic athletes
- ✓ 6.700 technical officials
- ✓ 5.800 dignitaries & IOC members
- ✓ 21.600 journalists
- ✓ 35.000 sponsors
- ✓ 37 events in 28 sports
- ✓ 35 venues
- ✓ 5 Olympic cities (50% of total country's population)

75
Organizations
and entities
involved

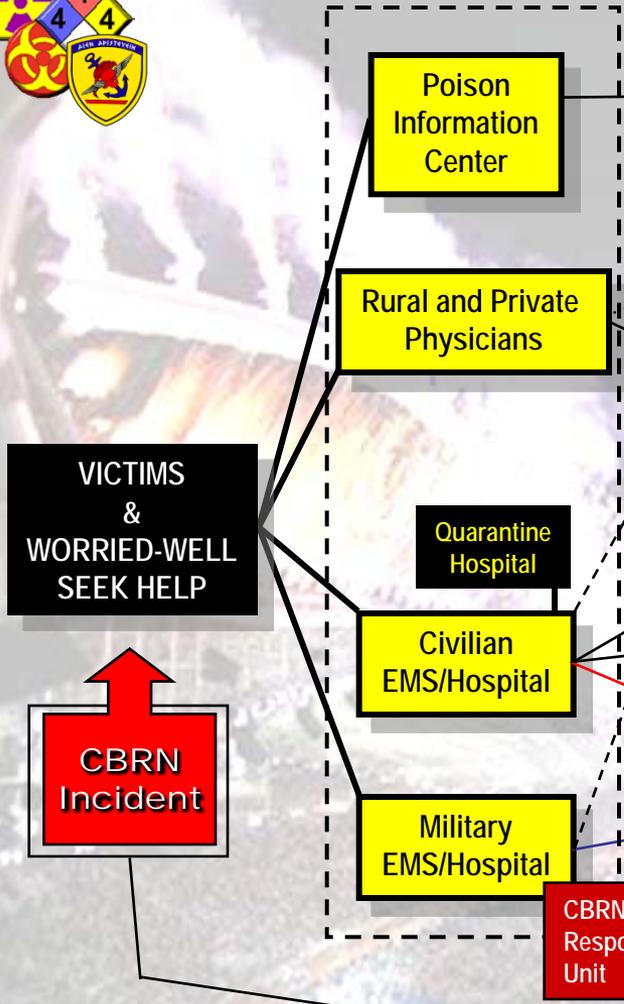


TERRORISM CBRN INCIDENT
MEDICAL RESPONSE ALGORITHM 



VICTIMS
&
WORRIED-WELL
SEEK HELP

CBRN
Incident



---> Inform
-> Report to

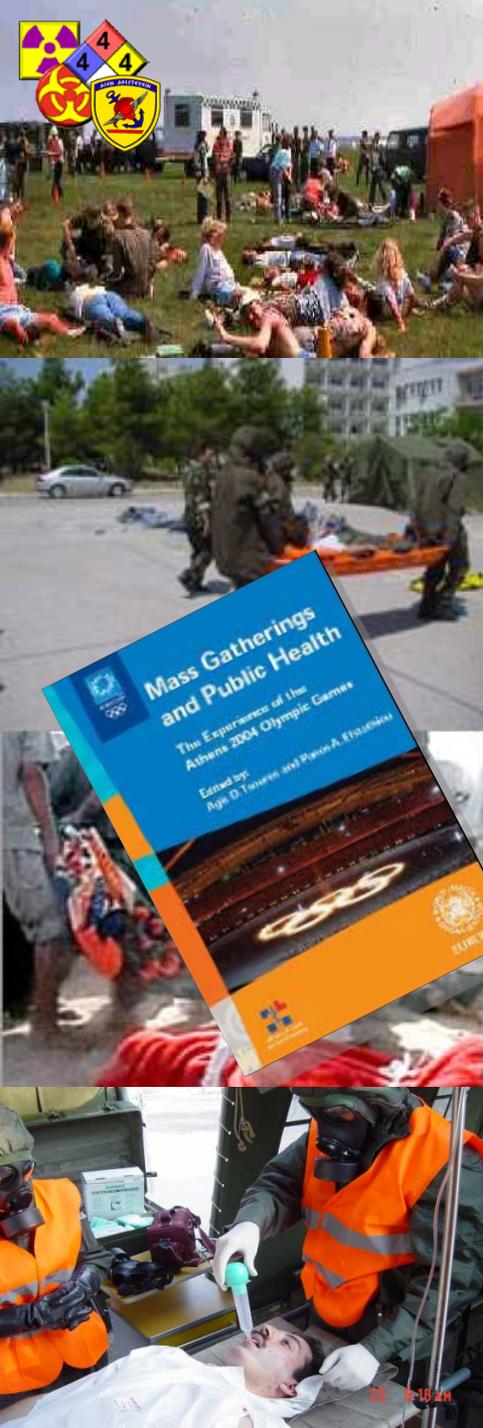
HAEC = Hellenic Atomic Energy Committee
CIDC = Center of Infectious Disease Control

* National Health Operations Center



LESSONS IDENTIFIED

- ▶ Lack of **cooperation** between civilian and military medical and operational/response systems – mandatory !
- ▶ Lack of **integration** between national and international medical and operational/response systems
- ▶ Reluctance of **civilian medical personnel** to interfere with CBRN defense
- ▶ Realization that “**medical CBRN defense**” is indeed a new medical specialty that should be taught into medical schools
- ▶ Urban CBRN **equipment** poses certain peculiarities compared to that used in the military
- ▶ Multilevel emergency **communications** represented a yet unsolved crucial problem
- ▶ Mass gatherings’ organizers must realize the “cinematographic” dimension of an emergency during a major event – and plan accordingly





1. Develop effective **treatments** and preventatives for known pathogens for which current responses are unavailable and for potential emerging diseases
2. Develop, test, and implement an intelligent, adaptive **electric-power** grid
3. Advance the practical utility of data fusion and data mining for intelligence analysis, and enhance information security against **cyber-attacks**
4. Develop new and better technologies for **emergency first responders**
5. Advance engineering design technologies and fire-rating standards for blast-, fire- and CBRN-**resistant buildings**



6. Develop **sensor** and **surveillance systems** that create useful information for emergency officials and decision makers
7. Develop new methods and standards for filtering air against both chemicals and pathogens as well as better methods and standards for decontamination
8. Education/participation/integration of the **public** via modern/new technologies
- 9. Close cooperation of all entities involved is mandatory !**



Thank you very much for your attention !

شكرا جزىلا على اهتمامكم



igalatas@yahoo.com

We have to be lucky all the time.
They have to be lucky only once!

When planning, think as a terrorist!
When implementing, think as a victim!

Hope for the best.
Prepare for the worst!

900,000 YEARS AGO



2009



Michael
100 / 03