Dr.

Benn Tannenbaum

AAAS
ADVANCING SCIENCE, SERVING SOCIETY

Outline

Government 101

How does one get involved?

What did I do?

What do I do?

What else can you do?

Government 101

The US Federal government has three branches:

Executive

Enforces laws

Spends money

Legislative

Writes laws

Approves money

Judicial

Interprets laws

Executive Branch 101

The Executive Branch implements policy set by an administration and laws passed by Congress

Done through a variety of agencies

Some have cabinet secretaries as head

- State, Defense, Labor, Energy, Homeland Security, Health and Human Services, etc

Some do not

- National Science Foundation, Agency for International Development, Office of the US Trade Representative

Remember ☞ Only one person in the whole EB is elected; everyone else works for him

Congress 101

Congress has two Houses (bicameral)

- House
  - 435 voting members, ~1 / 500,000 people
  - 4 additional non-voting delegates
    - District of Columbia
    - Guam
    - U.S. Virgin Islands
    - Puerto Rico
  - 232 Republicans, 202 Democrats, 1 Independent
- Senate
  - 100 members, two for each state
  - 55 Republicans, 44 Democrats, 1 Independent

Congress 101

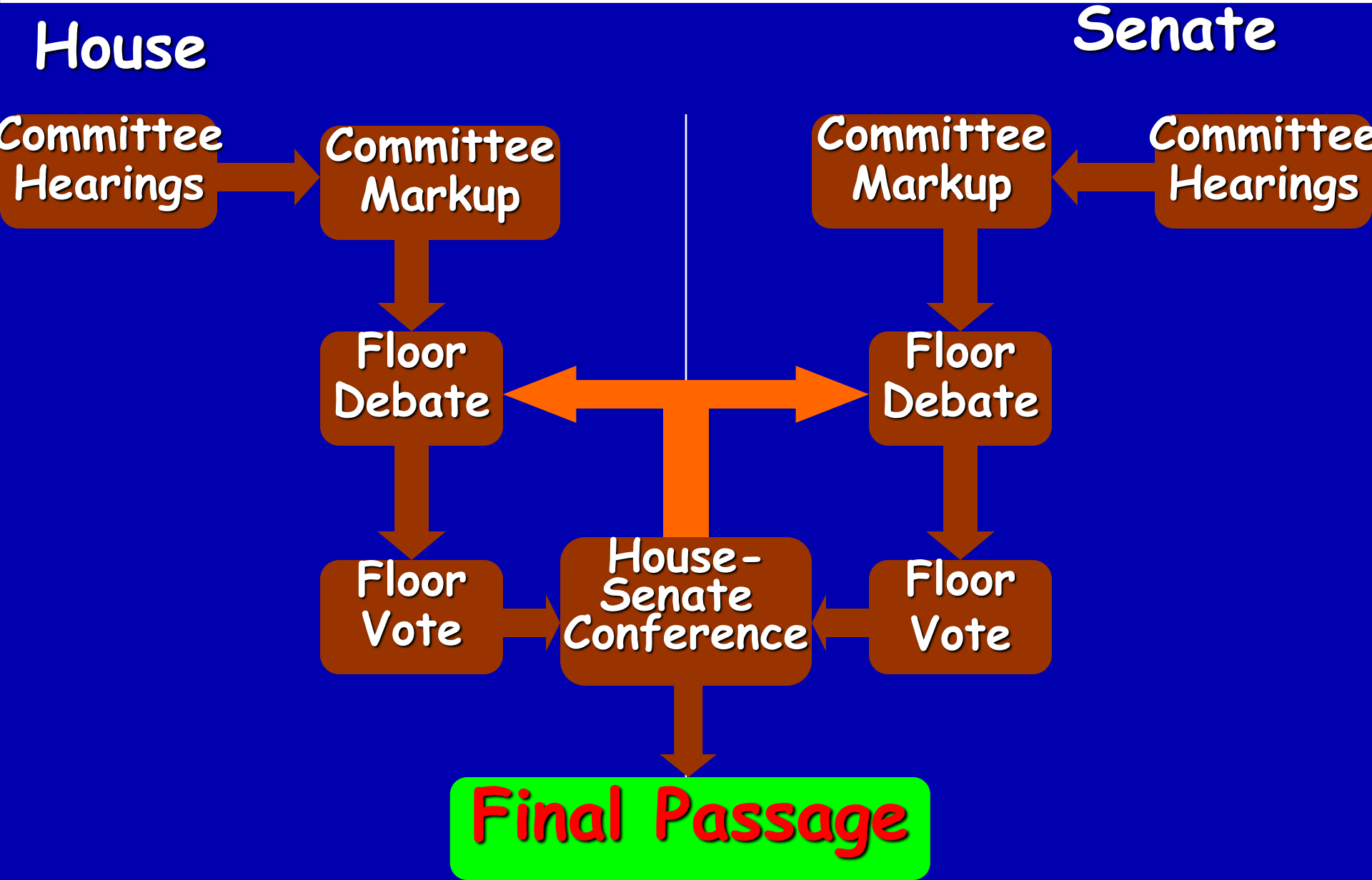
Everything comes down to three things

- Policy
  - What we want to do (make laws)
- Politics
  - Why we want to do it
- Procedure
  - How we do it (rules of House & committees)

Think about it this way

- Policy = publishing papers
- Politics = theory
- Procedure = building & running experiments

Making laws


House
Senate
Committee Hearings
Committee Markup
Committee Markup
Committee Hearings
Floor Debate
Floor Debate
Floor Vote
House-Senate Conference
Floor Vote
Final Passage

How does Congress make decisions?

Relevant Subcommittees and Committees will have hearings

- Hearings generally only last a few hours
- Typically have 1-6 witnesses
- Rarely get more than a handful of Members at a hearing

So many issues come before a typical Congress that each Member doesn't have time– or even staff time– to become expert in them all

Members will specialize in different topics

They follow each other's leads on certain topics

(un)Informed Decision Making

There is another problem…

Vast majority of Senators and Representatives are lawyers, not scientists, doctors, or much else

Further, only few hundred of nearly 10,000 staffers on the Hill have any science or engineering background

☞ Neither Members nor staff scientifically sophisticated

Language a problem

How scientists and engineers use language often different from how same words used in law

What can *you* do?

Come to Washington: Policy *is* a viable career for scientists

Spend a sabbatical in DC

Demand good science from media

- Write letters to editors; get to know local reporters
- Reporters don't know anything: they're conduits

Demand good science from government

- Last year's Union of Concerned Scientists report on scientific integrity

Get to know your government

- Call your Congressman! Visit your Senator!

Lobby through APS or other groups

- ☞But remember, lobbying is a process, not an event☜

What can *you* do?

AAAS

Apply to be a Fellow

- Anyone with a Ph.D. in a physics-related topic can apply for the APS and AIP Congressional Science Fellowships (must be US citizen) or any of the AAAS Fellowships
- Prefer recent grads or someone who will work at least 5 more years (*i.e.* not final step to retirement!)
- Prefer at least Associate Professor-level candidates for AIP State Department Fellow

What's a Fellow?

Fellows bring experience or education to an office that has no other way of getting it

Fellows are often "detailees" from Agency X to Agency Y, or from an Agency to Congress…

What's a Fellow?

There are also American Association for the Advancement of Science (AAAS) Science & Technology Fellows

31 year old program; 1700 total Fellows!

- Most recent years have seen ~100 new AAAS Fellows
- All have the highest degree possible in their field
  - Some have more than one– there are a couple PhD/JD, PhD/MD, types…
- Vast array of fields represented
  - Physical Sciences: Physics, Chemistry, Geology, Materials Science
  - Biological Sciences: Biology, Medicine, Food Science, Veterinary Medicine, Agriculture, Primatology
  - Social Sciences: Communications, Sociology, Anthropology, Psychology
  - Engineering: Electrical, Civil, Mechanical, Nuclear

So… where do they work?

~Thirty of the Fellows are in Congress

The remaining 70 are scattered throughout the Executive Branch

- Defense
- State
- U.S. Association for International Development
- National Science Foundation
- Education
- National Institutes of Health
- Office of Science and Technology Policy
- Environmental Protection Agency

There are no Fellows in the Judicial Branch

How does one get to be a Fellow?

Applications due in January to AAAS or other sponsoring society

Two round selection process

3 week orientation session in September

- Meet other Fellows
- Learn how government works…

How did I find an office?

AAAS has reception in the Capitol for Fellows & interested offices

Met interesting people there….

Decided I wanted to work on homeland security, defense, intelligence, or science in the context of foreign relations

Dropped off about 20 resumes

Scored about 10 staff-level interviews

Got 3 Member interviews (Holt, Markey, Schiff)

Got 2 offers (Holt, Markey)

Landed with Rep. Edward J. Markey (D-MA)

What does a Fellow do?

- 30 Congressional AAAS Fellows in both Houses and on both Member and Committee staff
  - Fellows trend towards Democratic offices, but about $^1/_4$ land in Republican offices
- Sometimes get Fellows working for Congressional Research Service
- Work on a vast array of issues
  - Space
  - Depleted Uranium
  - Arms Control
  - Health Care
  - Transportation
  - Environment
  - Science
  - Education
- Role is to understand science or technology of underlying issue & make judgments on that

What did I do?

Mr. Markey sits on the Energy & Commerce, Resources, and Homeland Security committees

That's where he does most of his work; has staff to cover those issues. I covered the remainders

Veterans Affairs
- Mainly answering constituent mail
- Meet with constituents
- Cosponsor bills for constituents
- Casework handled by district office

Science & Technology
- Meet with constituents
- Sign on to appropriate bills
- Explain science of appropriate bills

Defense
- Really means "defense appropriations"
- People come hat-in-hand with crazy & not so crazy ideas for military funding requests
- Try to help good constituent ideas get funding
- Also go to military "events" for briefings

Anything else?

Nonproliferation!

Mr. Markey co-chairs (with Christopher Shays [R-CT]) Bipartisan Task Force on Nonproliferation

Mainly a study group that has briefings for Members & staff

- Held briefings on dirty bombs, Iran, North Korea, Biological Weapons Convention, future of arms control, unilateralism versus multilateralism…

Follow & work on all legislation dealing with nuclear weapons, nuclear power, international nonproliferation efforts, etc

Oversight of international nuclear issues

That's not physics!

Yep… had to learn a whole bunch of new stuff…

Had good set of teachers…

Rep. Markey has had Fellows since 1980

- Two current Fellows
- Two one former Fellows on staff [one just left for the Center for American Progress]

Chief of Staff has Law degree

Legislative Director has Masters degree

Another has MBA

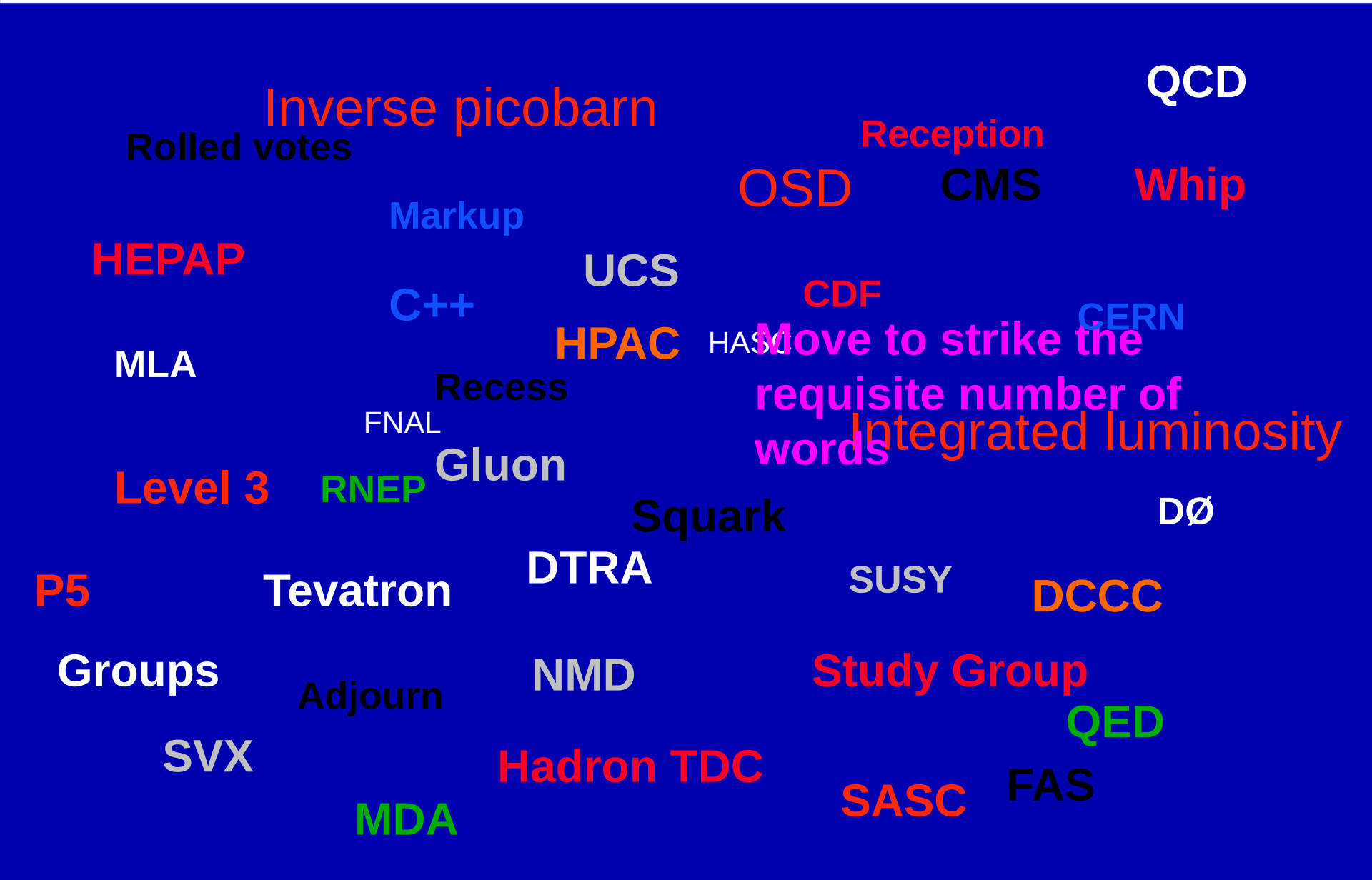
That's rare on the Hill

Chief of Staff with Mr. Markey for > 12 years

Legislative Director there for > 18 years…

That's unique on the Hill!

Had to learn new jargon



Started reading new journals

AAAS

Example:Nuclear Bunker Busters

Some claim need nuclear weapons to destroy hardened & deeply buried targets or to destroy chemical & biological weapon stockpiles

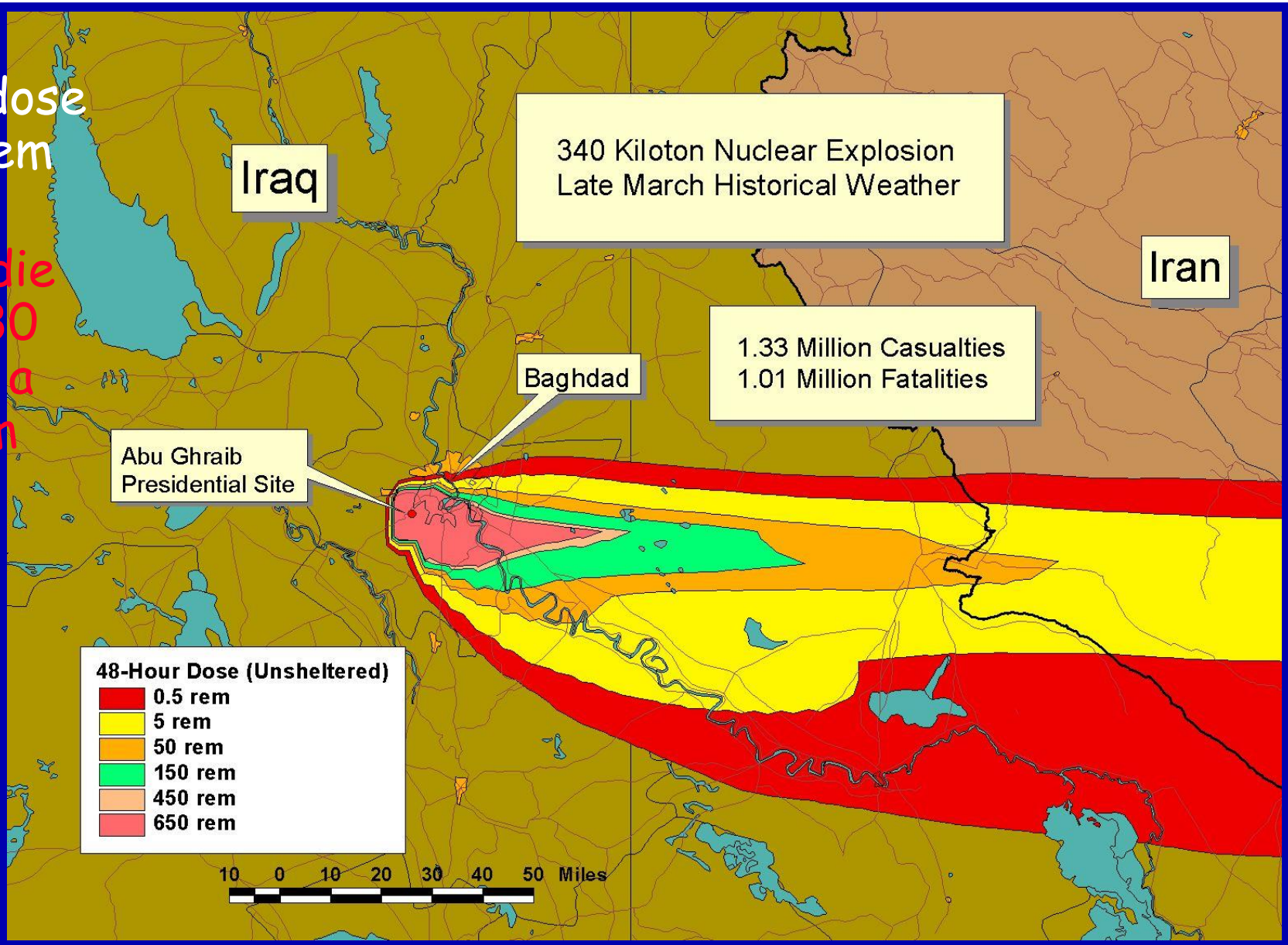
Just a few problems with that

- Nothing can penetrate deep enough have contained nuclear explosion
- 1 kiloton nuke would toss 1 million tons of radioactive debris over several square kilometers
- Doesn't destroy chemical or biological weapons unless within ~15 feet/ton$^{1/3}$; just spreads instead
- Many bunkers in densely populated areas
- Suggested weapons are 340 kT and 1 MT weapons
- Military doesn't want the weapon!

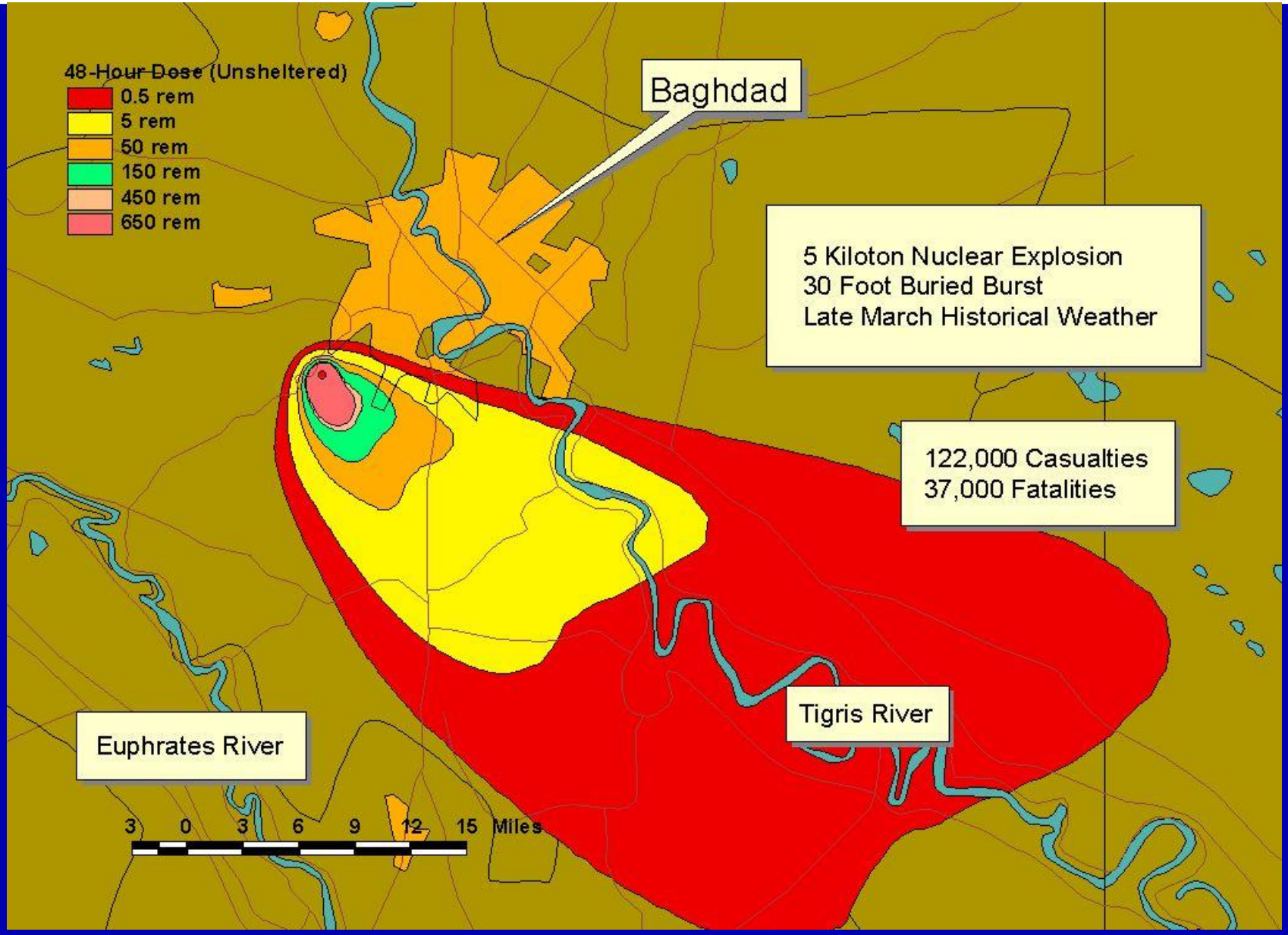
HPAC: 340 kT weapon on Saddam's palace

Typical annual dose is 0.5 rem

50% of people die within 30 days of a 200 rem dose



HPAC: 5 kT weapon on Saddam's palace



Bunker Busters on Floor

Wrote sign-on letter to HASC on bunker busters

Got 78 Members to sign (previous year's had 40)

Amendment to move money came to floor

Wrote Dear Colleagues, contacted speakers, etc

Wrote floor speech, designed props, etc

2002 amendment lost 172-243

2003 amendment lost 199-226: progress!

2004 amendment lost 204-214: even more progress!

Real battle was during Energy and Water Appropriations: Subcommittee Chairman David Hobson (R-OH) zeroed funding

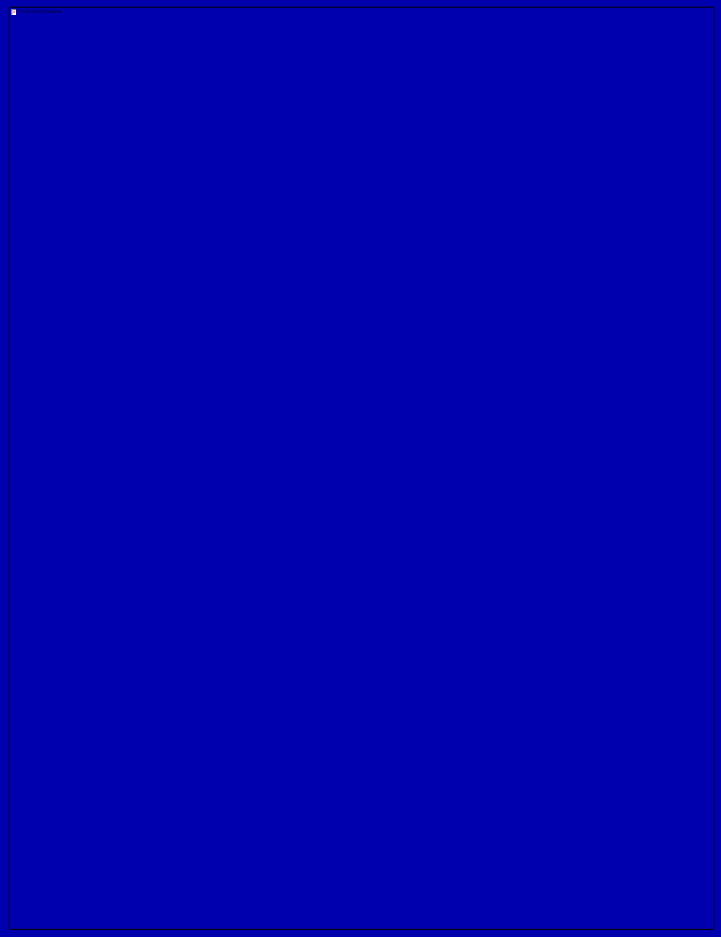
After House-Senate conference the **funding was kept at zero**!

After the fellowship…

I spent a year at the Federation of American Scientists

- I co-wrote a book on science advising
- Helped FAS with Congressional outreach
- Studied nuclear weapons testing & the stockpile stewardship program
  - I'll be speaking on this topic at the April APS meeting

I am now at AAAS, working more broadly on science & security



Science & Security: Some History

- During the Cold War, physicists roamed the halls of power and were heard– and were very effective
  - Physicists had found ways of killing people more effectively than anyone else
  - Physicists also established contacts with Soviet scientists
    - Track Two diplomacy
- Post-Cold War, the story is much different
  - Other sciences have 'caught up'
  - Far fewer scientists *want* to speak to power
  - No monolithic adversary
- Have enormous need!

History of the Center for Science, Technology & Security Policy

- Planning Workshop at AAAS in April 2003
  - Confirmed need for policy hub on S & T and security
- AAAS proposal submitted in September 2003
- Grant received in January 2004
  - $2.25M over 3 years
    - Part of MacArthur's Science, Technology and Security Initiative - $50M over 6 years
    - Key goals are to develop new cadres of scientists working on security policy issues and to provide useful inputs to national policy formation

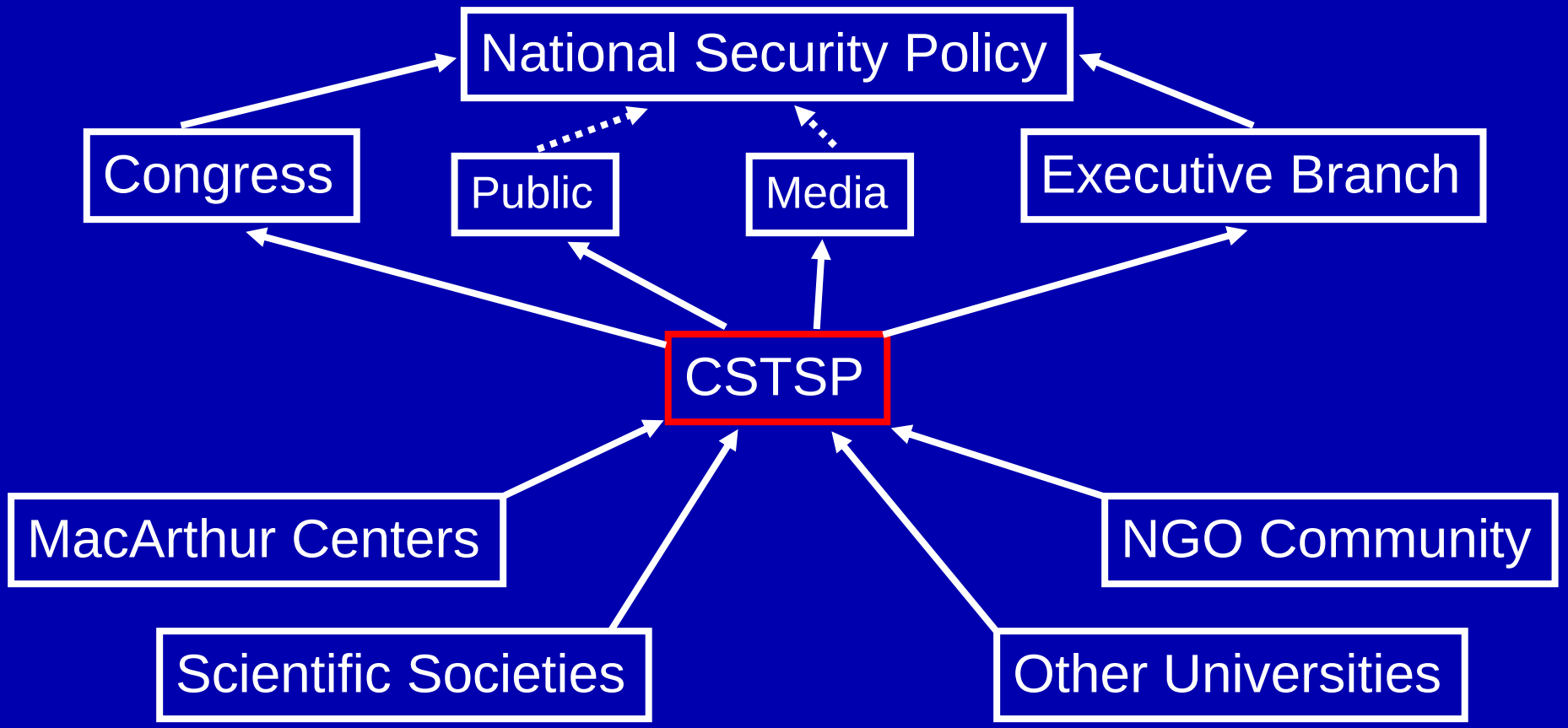
CSTSP CONCEPT

To serve as a smart, two-way portal between the research on science and security in academic and other policy centers and the Washington policy community

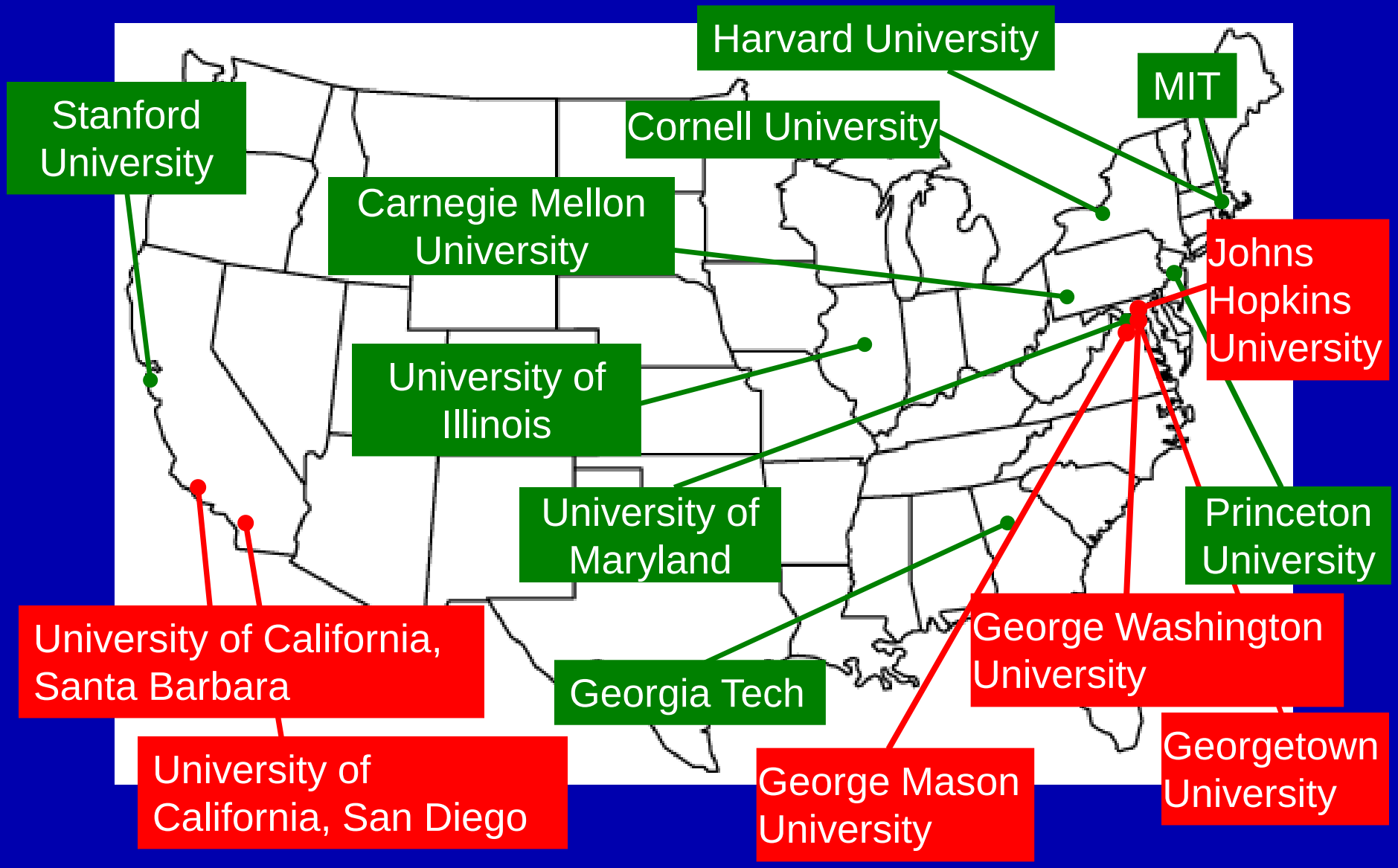
- Provide objective S & T information and advice to Congress and executive branch agencies
- Coordinate efforts among academic centers
- Update centers on Washington issues
- Provide a Washington base for academic visitors
- Help place post-docs, fellows and interns into Washington policy positions

Goal is to achieve more effective science and technology inputs into US national security policy

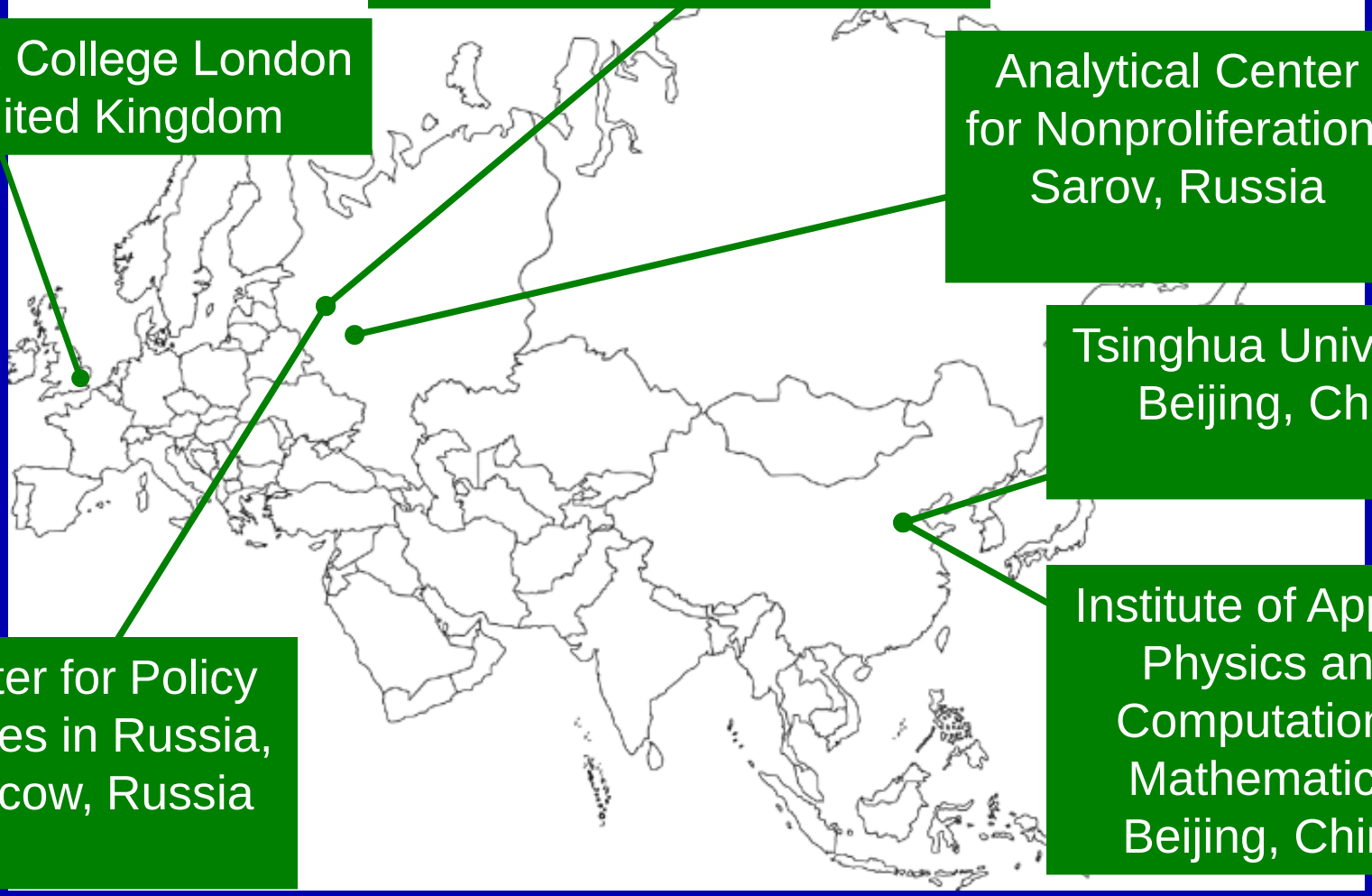
UNDERSTANDING THE CSTSP UNIVERSE



MacArthur Funded Centers (Domestic)



MacArthur Funded Centers (Int'l)



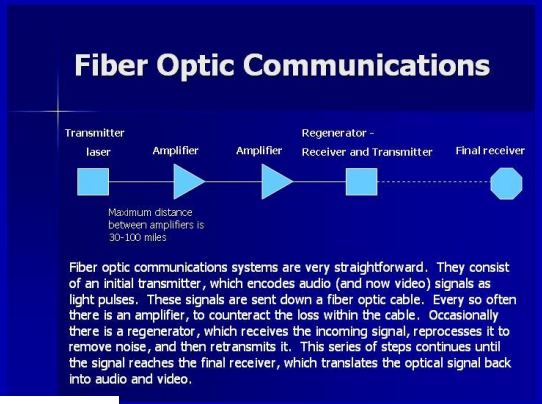
CONGRESSIONAL ACTIVITIES

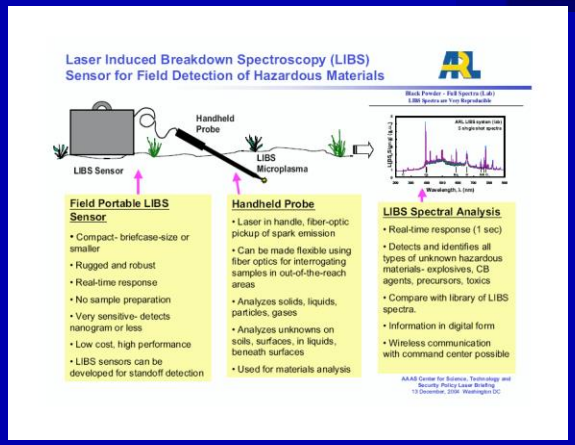
- Briefing on hafnium isomer bomb
- Briefing on nuclear waste disposal
- Located expert on flu vaccine manufacture
- Briefing on Pulsed Fast Neutron Analysis
- Briefing of House Science Committee Staff satellite export controls by UMD group
- Working on space weapons briefing series
- Studying dangers of off-shore Liquefied Natural Gas terminals
- Found experts on use of Amtrak to destroy Supreme Court
- Studying radiation portal monitors

CONGRESSIONAL ACTIVITIES

LANL Director Emeritus Siegfried Hecker spoke on nonproliferation

Luncheon tutorial on lasers, especially lasers in the military





CONGRESSIONAL ISSUES

HOT

- Bankruptcy
- Social Security & Medicare
- Bioshield II (various bills)
- BRAC

WARM

- Reliable Replacement Warheads
- RNEPs
- Cybersecurity
- Border Control
- Nuclear Testing
- Intelligence Reform
- Port Security
- Force Protection

- Veterans
- Budget
- Terry Schiavo
- Steroids in baseball

- Iraq
- Iran
- North Korea
- Bolton Nomination
- Missile Defense
- Space Weapons
- Expanding CTR
- Biosecurity (Frist)

LINTON BROOKS ON RNEP (3 MARCH)

ArmsControlWonk | an arms control weblog: Brooks on RNEP - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

Brooks on RNEP

Director of the National Nuclear Security Administration Linton Brooks testified yesterday on Robust Nuclear Earth Penetrator (RNEP).

Brooks admitted RNEP will produce a huge amount of fallout:

> TAUSCHER: "Is there any way an RNEP of any size that we would drop will not produce a huge amount of radioactive debris?"
>
> BROOKS: No, there's not. ...
>
> [snip]
>
> BROOKS: I really must apologize for my lack of precision if we in the administration have suggested that it was possible to have a bomb that penetrated far enough to trap all fallout...I don't believe the laws of physics will ever let that be true. It is certainly not what we're trying to do now. What we are trying to get in the ground is far enough so that the energy goes deep into the ground to hold at risk the deeply buried facilities."

FUTURE PLANS

- Be 1-800-SCIENCE for Congressional staff
- Define best relationship with international centers
- Expand email bulletin and website (www.aaas.org/cstsp)
- Collaborate with scientific societies
- Involve other universities doing science and security work
- Key element is to establish credibility and reputation for responsiveness and reliability

WEEKLY EMAIL BULLETIN

- Currently 120 subscribers
- Contains upcoming science & security events in Washington, jobs, funding opportunities
- Announced >100 events, >40 grant and 40 fellowship opportunities, >40 internships and >225 jobs in 5 months
- Major news developments

But enough about me….

Are there other ways ***you*** can get involved?

Here's a faculty job!

Lecturer or Researcher in War Studies
King's College London
JOB CODE: 10691

Lecturer or Researcher in War Studies (2-year appointment)

The King's College London Centre for Science & Security Studies seeks to appoint a Lecturer or Research Fellow to work on quantitative studies of science related to policy issues in the fields of national and international security. In addition to research and teaching the successful applicant will be expected to help obtain research funding and develop new research. Requirements include a PhD or equivalent terminal degree as a physical scientist (physicist preferred), mathematician or engineer, the ability to work as part of a multi-disciplinary team, as well as interest and experience in at least some of the following research areas: nuclear and biological weapons, space and space arms control, strategic arms control agreements, verification, multilateral arms control agreements. Science and security experience in government or at a major NGO is desirable, the ability to communicate scientific ideas and concepts to a non-specialist is essential. Appointment as Lecturer or as Research Associate/Fellow will depend on the candidate's qualifications and experience. For an informal discussion please contact Professor Peter Zimmerman at peter.zimmerman@kcl.ac.uk. Application forms and details can be obtained from Personnel Department, King's College London, Strand, London WC2R 2LS, email strand-recruitment@kcl.ac.uk fax 020 7848 1352. The closing date for receipt of applications is 31 March 2005. Please quote Reference A2/DAW/160/04. Equality of opportunity is College policy.

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You can also help me!

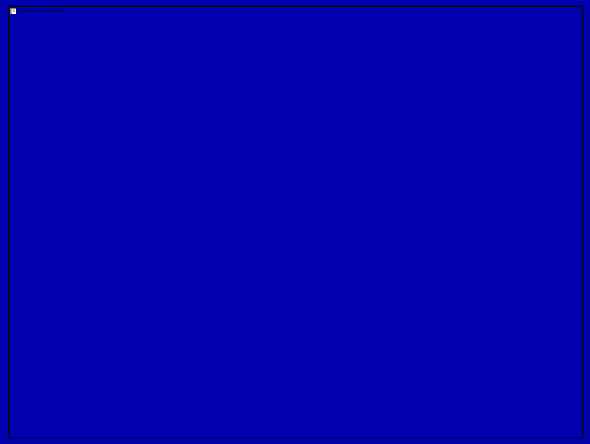
We have been tasked by two Congressmen to study radiation portal monitors to see if they really can detect smuggled fissile material

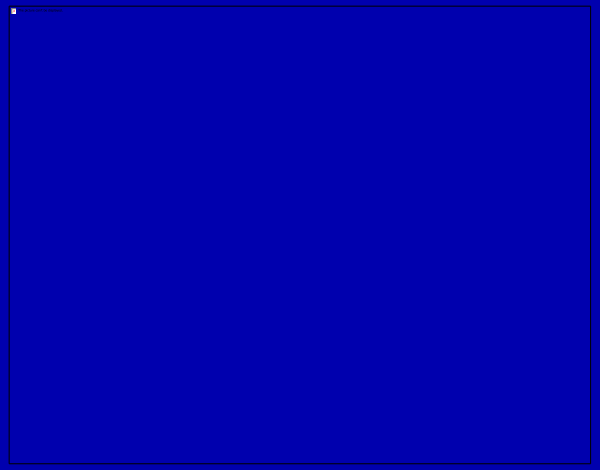
It's unclear, as fissile material tends to be alpha-emitter, not beta or gamma…

Also have long half-lives, so production of elements that do have more energetic decays is slow

I am assembling a panel of experts to study the problem

Could use a particle physicist!





Final Thoughts…

We really do get the government we deserve

We, as scientists, benefit greatly from living and working in the United States

We, as scientists, have many talents to offer

Challenge: ***Get Involved!***

- Get to know local reporters
- Get to know your Congressperson & Senators
- Work on a campaign
- Run for elected office

☞But remember, politics is a process, not an event☜