

Nuclear Weapons: At What Cost ?

1. little do we know
2. rough estimates: cost over time
3. recent estimates: cost at a given time
4. nuclear weapon states at one glance
5. proportions to think about
6. what about disarmament ?

the little we know

- most everything is classified
- collusion of interest amongst political elite
- little or no effective public debate

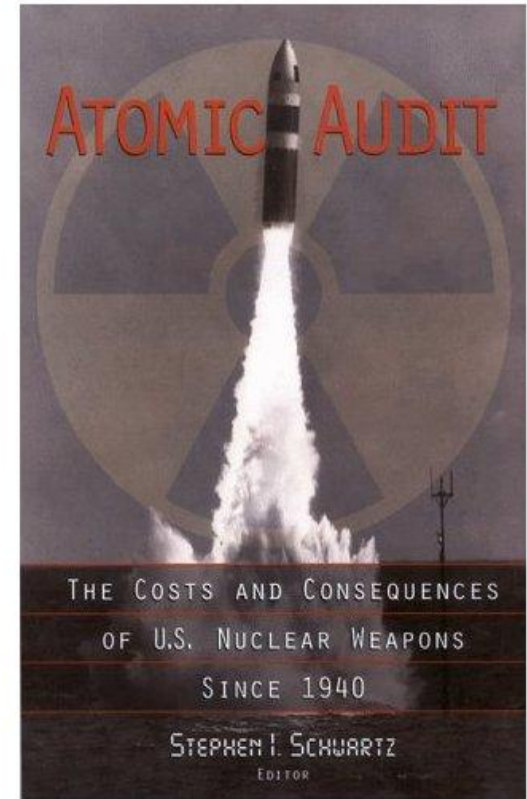
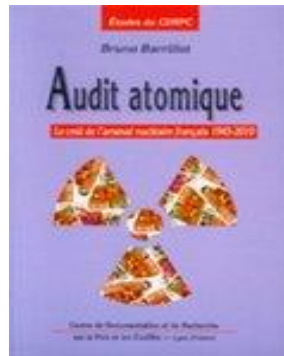
- no regular numbers, no accounting, no official statistics
- no authoritative think tank or research institution (e.g., SIPRI, IISS)
- no stock of literature
- only just a few individuals

nuclear warheads in 2009

United States	9'400	2'500
Russia	12'000	4'600
United Kingdom	225	160
France	300	
China	240	180
Israel	≤ 200	
India	60-80	
Pakistan	70-90	
North Korea	≤ 10	

estimates: cost over time

- Stephen I. Schwartz (ed.)
Atomic Audit, 1998
- Bruno Barillot,
Audit Atomique, 1999



e.g., United States

From 1940 until 1996, the US spent approximately \$5,5 trillion on its nuclear weapons program, that is, 5 500 000 000 000 dollars [i.e., roughly one hundred billion dollars a year] **

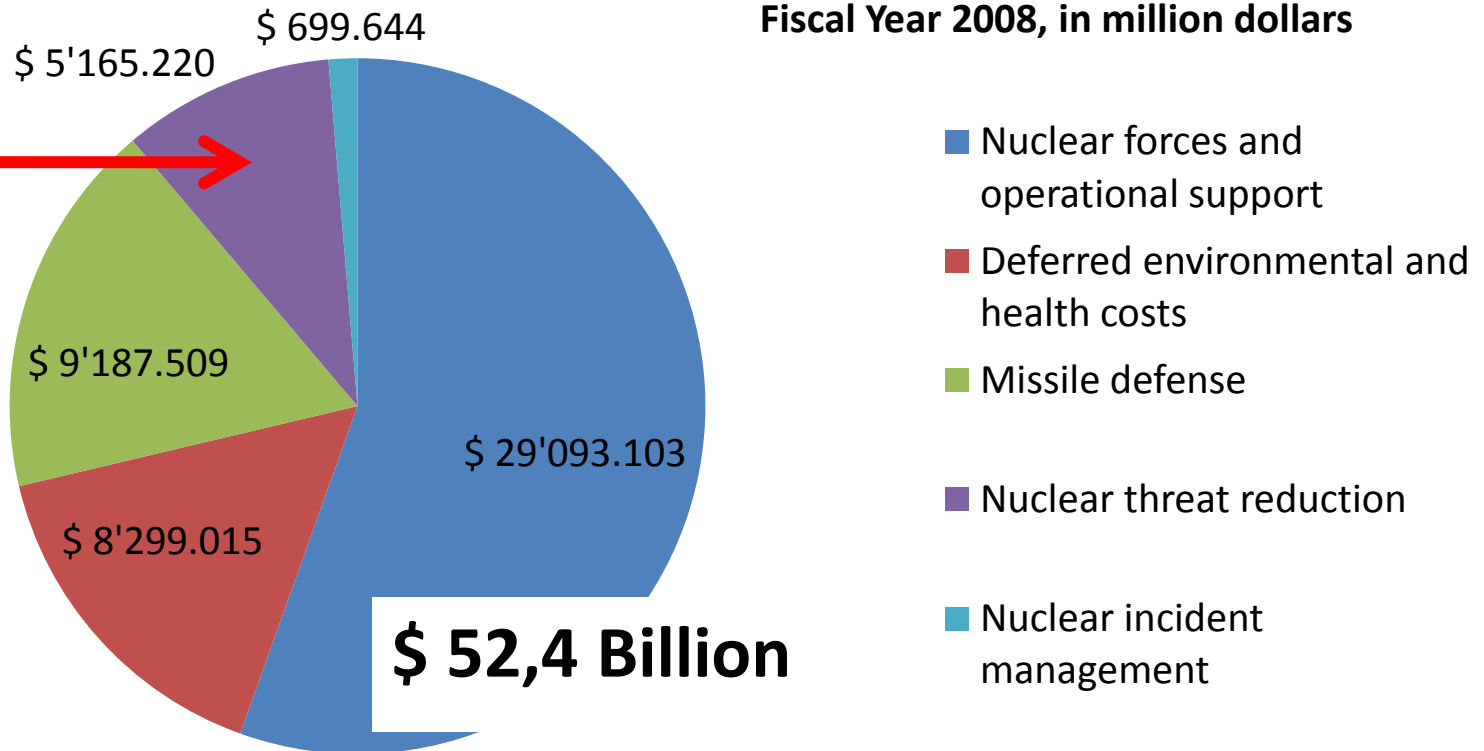
components of that cost:

- 07% for developing, testing, building warheads
- 56% for delivery systems, i.e., the deployment of these weapons aboard aircraft, missiles, and submarines
- 14% for command, control, communications, intelligence systems
- 16% for various means of securing nuclear arsenals and defending against nuclear attack (air and missile defense, protecting installations)

what's missing here?

recent estimates: cost at a given time

U.S. Nuclear Weapons-Related Appropriations
Fiscal Year 2008, in million dollars



health and environment – \$ 8.3 Billion

- mills and mines
- production sites with fissile material
- testing and related fallout
- land occupied by nuclear weapon bases and facilities

→ related cost:

- clean-up
- waste-management
- health care
- compensation of victims



\$320 billion

estimated future-year costs
for the storing and disposing
of more than six decades'
worth of accumulated toxic
and radioactive waste

the big picture: nuclear spending 2008

	per capita, \$	total, \$	
Israel	215	1.6	Billion
United States	181	52.4	Billion
France	70	4.7	Billion
United Kingdom	60	3.6	Billion
Russia	47	6.9	Billion
North Korea	23	0.5	Billion
Pakistan	6,5	1.5	Billion
China	4	5.4	Billion
India	3	3.3	Billion

proportions to think about

Military spending, share of GDP (2007)

North Korea	?
Israel	8 %
China	4.5 %
United States	4.1 %
Russia	3.9 %
Pakistan	3.2 %
UK	2.6 %
India	2,5 %
France	2.4 %

**cost of nuclear forces
vs.
total military spending ?**

so much money, how come?

- cycles of technological development
- cost/effect ratio: "more bang for a buck"
- nuclear weapons: "free goods"
- perceived threat (Communism, Cold War)
- interservice, intraservice rivalries (memorable year 1957)
- corporate lobbying
- pork barrel politics
- no real market-forces
- no effective public debate

and last but not least:

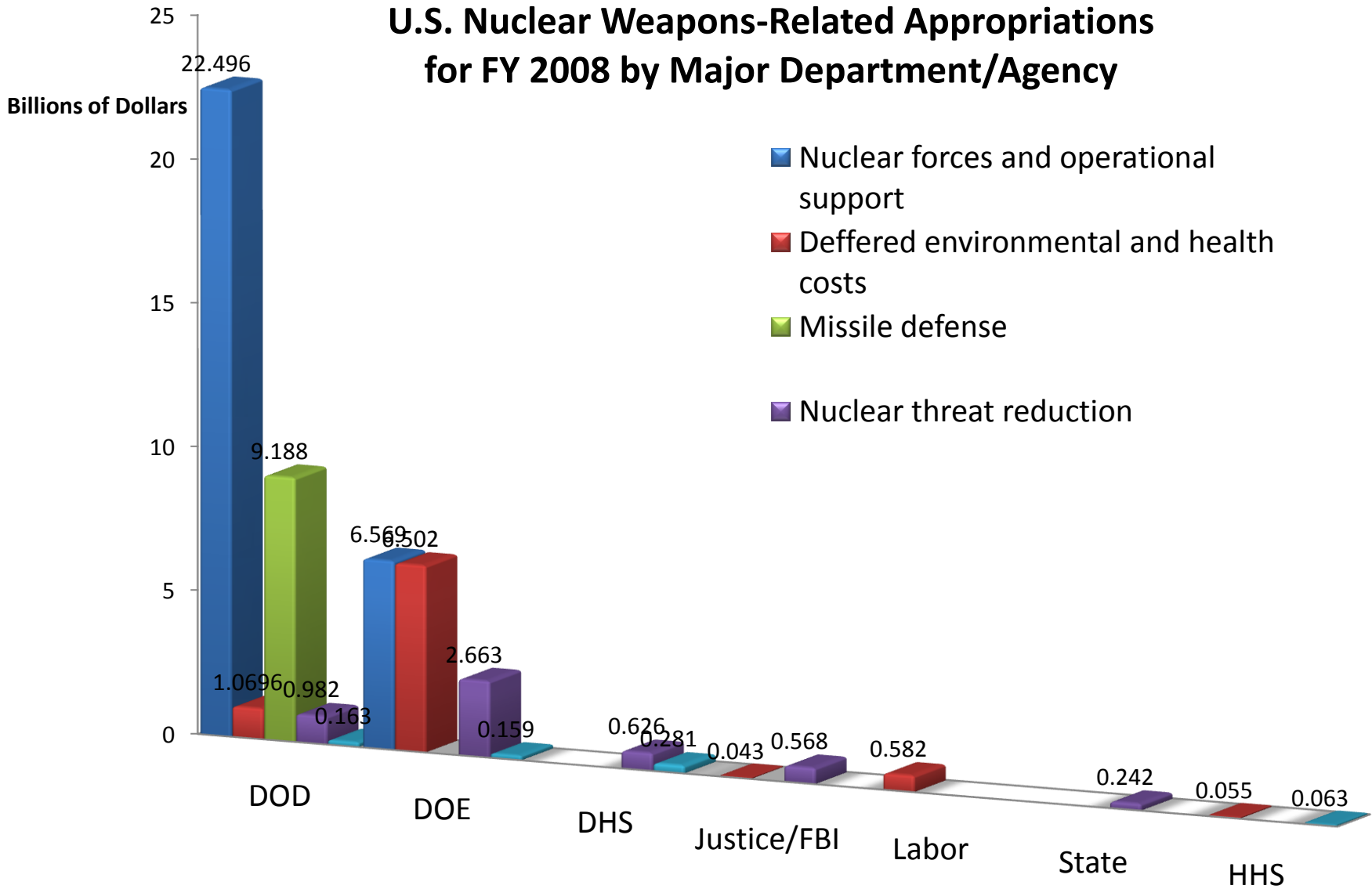
a remarkable lack of understanding of what these programs were going to cost

an expert's plea

Effective oversight of government nuclear security programs is impossible without complete, reliable data on their comprehensive annual and cumulative costs. Such an accounting has never been available to decision makers.

Stephen I. Schwartz, 2009 for the Carnegie Endowment

U.S. Nuclear Weapons-Related Appropriations for FY 2008 by Major Department/Agency

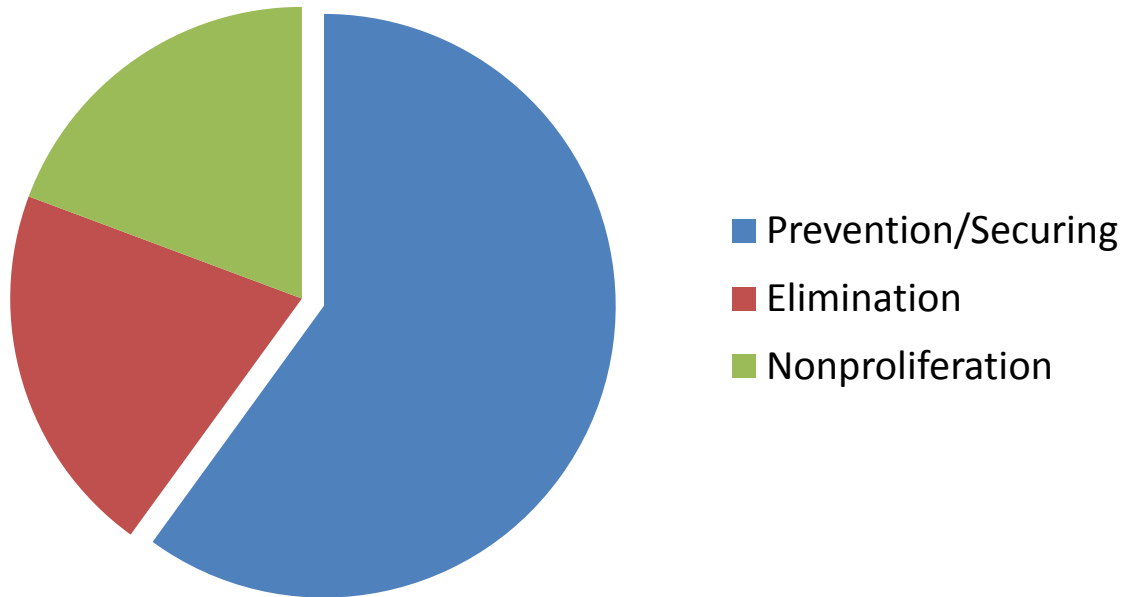


what about the cost of disarmament ?

- diplomatic initiatives
- preventive diplomacy: non-proliferation
- implementing arms control treaties:
dismantling weapon systems *
- intelligence / verification, monitoring

* “If weapons disposal costs are recognised as an inevitable component of the life-cycle cost of a weapon system, then the real cost of disarmament becomes greatly reduced.” Alan Krass

Nuclear Threat Reduction - \$5.2 Billion



e.g., Iran



Non Proliferation Treaty: two pillars of nuclear order

1. a managed system of deterrence

- to prevent war and maintain stability
- ABM treaty as central element
- conscious acknowledgment of restraints

for the haves

2. a managed system of abstinence

- to prevent proliferation
- abdication in return for benefits („basic bargain“)
- NPT and safeguards as central elements
- institutions of multilateral control

for the have-nots

→ two worlds, two legitimacies