

Assuring destruction forever 2014 edition

An update to Assuring destruction
forever: nuclear weapon modernization
around the world

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This publication is an update to the executive summary of Assuring
destruction forever: nuclear weapon modernization around the world.
That full report and the 2013 and 2014 updates can be found at
www.reachingcriticalwill.org.

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Reaching Critical Will

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Introduction

Ray Acheson

As the chapters in this volume show, all of the nuclear-armed states are modernizing their nuclear arsenals, and some are continuing to expand them.¹ China, the Democratic People's Republic of Korea, France, India, Israel, Pakistan, Russia, the United Kingdom, and the United States collectively possess approximately 17,300 nuclear weapons.² They are preparing to spend an estimated one trillion USD on nuclear weapons over the next decade.³

At the same time, social security programmes like food stamps (in the US), Independent Living Fund (in the UK), and other social welfare programmes are significantly or even entirely cut. Despite states' legal obligations to use resources to ensure the economic, social, and cultural rights of their population, social programmes are the first to be cut in national budgets all over the world, while military expenditure and nuclear weapons spending increases.

While the nuclear-armed states pour grossly inflated sums into nuclear weapons, the fulfillment of disarmament commitments lies fallow. France and the UK have "capped" their arsenals and Russia and the US have somewhat reduced their deployed weapons under the New Strategic Arms Reduction Treaty. However,

their modernization planning and spending undermines the idea that these governments are committed in any way to achieving disarmament. Instead, they have each normalized into their political and economic architectures "smaller but still potentially world-destroying nuclear arsenals," despite post-Cold War social and political changes that were expected to make nuclear disarmament possible.⁴

The programmes and policies of the nuclear-armed states are designed to perpetuate their possession of these weapons into the indefinite future. Internationally, these governments have backed the interests that sustain these programmes by adopting inflexible political positions against pursuing initiatives to ban and eliminate nuclear weapons, or even to discuss the humanitarian impact of nuclear weapons. They have argued that any activities not explicitly found within the 2010 NPT Action Plan will distract and detract from "progress" on the actions articulated in that plan—which are based on steps that have been on the international agenda since the 1950s.⁵ However, most of the incremental steps that have been agreed to have not been implemented. And actions such as modernization have actually resulted in steps backwards.

As laid out in article VI of the NPT, it is the responsibility of all states to pursue effective measures for nuclear disarmament. Failure by the nuclear-armed states to do so must be met with resolve for concrete action by non-nuclear weapon states so as to avoid further entrenchment of the indefinite possession of nuclear weapons.⁶ All governments have the responsibility to prevent a humanitarian tragedy.

Above all else, banning and eliminating nuclear weapons is a humanitarian imperative.

The reasons are clear:

- **The immediate effects of even a single nuclear weapon detonation are horrifying and overwhelming.** One detonation will cause tens of thousands of casualties and inflict immediate and irreversible damage to infrastructure, industry, livelihoods, and human lives. The effects will persist over time, devastating human health, the environment, and our economies for years to come. These impacts will wreak havoc with food production and displace entire populations.⁷
- **The existence of nuclear weapons generates great risk.** There have been many instances of near-misses and potential accidental nuclear detonations.⁸ There have also been a number of recent reports of the declining operational atmosphere and disturbing behaviour of those in supposed "command and control" of these arsenals.⁹ Furthermore,

the policies of "nuclear deterrence" and military doctrines of nuclear-armed states and their allies require preparations for the use of nuclear weapons. The potential use of nuclear weapons in a conflict between their possessors or in pre-emptive or retaliatory strikes against others is not a threat of the past.

- **Nuclear weapons waste money.** The money spent on nuclear weapons not only detracts from the resources available to tackle ecological, social, economic, and energy crises, but also reinforces the institutions that benefit from weapons and war. The maintenance and modernization of nuclear weapons undermine development and the achievement of global economic and social equality.

The overwhelming majority of states have rejected nuclear weapons. They do not see them as instruments of security but rather of destruction. Yet unlike the other weapons of mass destruction, nuclear weapons have not been categorically banned. Now is the time to address this anomaly, which has been allowed to persist for far too long.

In 2012, Reaching Critical Will published the first report on global nuclear weapon modernization. This briefing paper provides an update of the summaries of each of the countries covered by that report. A full account of each country's nuclear weapon programmes can still be found in the 2012 report at www.reachingcriticalwill.org.

China

Hui Zhang

Current status

There are various estimates on the size of China's nuclear arsenal. Some estimates suggest China currently has approximately 170 nuclear warheads including approximately 110 operationally deployed nuclear missiles, approximately 60 warheads stored for its submarine-launched ballistic missiles, and bombers. Each of those nuclear ballistic missiles carries a single warhead, which are normally separated from the missiles.¹⁰ The Federation of American Scientists argues that China has a total stockpile of 250 nuclear weapons.¹¹ In April 2013, China published a new white paper that gives an overview of China's military strategy and arms control policy. As in previous defence papers and other official documents the white paper does not reveal any basic information on the size of China's current nuclear capability or nuclear arsenal.¹² Unlike the other nuclear weapon states, which are maintaining their current arsenal levels or are slowly decreasing, China is believed to be slowly increasing the size of its nuclear weapons arsenal.¹³

China has not declared publicly that it has ended the production of highly enriched uranium (HEU) and plutonium for nuclear weapons, though it is believed that China stopped production of HEU in 1987 and plutonium by 1990. China's military

inventory would be about 16 ± 4 tons of weapon-grade HEU and 1.8 ± 0.5 tons of weapon-grade plutonium.¹⁴

Modernization

China's April 2013 white paper notes that a strategic task of its modernisation efforts is to build a strong defence and powerful armed forces.¹⁵ It is concerned with maintaining what it sees as a "limited" and "effective" nuclear arsenal and its modernization programme has focused on increasing the "survivability" of its land-based strategic missiles. It is reportedly phasing out its older missiles and replacing them with new ones in order to increase their range and sophistication.¹⁶ It is expected that after this is accomplished, China will speed up the modernization of its sea-based strategic force. China has been reported to be replacing its first generation ballistic nuclear missile-carrying submarines.¹⁷ US missile "defence" plans will be a major driving force for China's nuclear weapon modernization, as some Chinese officials are concerned that even a limited missile "defence" system could neutralize China's nuclear force.

China was reported to be phasing out its older missiles, DF-3A and the DF-4, and replacing them with new DF-21

medium range missiles, approximately 55–60 of which are nuclear capable.¹⁸ In addition, China has deployed four other nuclear-capable ballistic missiles, the DF-5A, DF-31, DF-31A, and JL-2.¹⁹ These developments in missile capability will both increase the range and sophistication of land-based systems and nuclear-powered ballistic missile submarines.²⁰ Estimates in November 2013 indicate that China has about 148 land-based nuclear ballistic missiles that can carry one warhead each. China also has additional warheads for their submarine launched ballistic missiles (SLBMs) as well as bombs for air delivery.²¹

A 2013 US Department of Defense report states that China may be developing intercontinental ballistic missiles (ICBM) with multiple independently targetable re-entry vehicles (MIRV) capability, as well as other technologies to counter other countries' ballistic missile defence systems.²² China has also been reported to be replacing its first generation ballistic nuclear missile-carrying submarines.²³ Some analysts have argued that China is currently modernizing its sea-based strategic force in order to secure a second-strike force.²⁴

Economics

It is difficult to estimate the cost of China's nuclear weapon force, however, assuming that China consistently maintains 5% of its overall military expenditure for its nuclear weapons programme, China would have spent between US\$4.5 and \$9 billion on its nuclear programme in 2011.²⁵ A recent report by Global Zero estimates that China's nuclear cost to be \$7.6 billion in 2011.²⁶

International law and doctrine

China has signed but not ratified the Comprehensive Test Ban Treaty (CTBT). Most estimates assume China will ratify the CTBT only after the United States does. China officially supports the commencement of negotiations of a fissile materials cut-off treaty (FMCT) at the Conference on Disarmament, but US plans to develop its missile "defence" capabilities will likely affect China's willingness to participate in FMCT negotiations. If China remains concerned about US missile "defence," it could seek to develop more fissile materials to fuel additional ICBMs. In terms of disarmament, China is bound by article VI of the NPT to negotiate the elimination of its arsenal, though has consistently demanded the US and Russia reduce their arsenals first.

Public discourse and multilateral engagement

China is one of the least transparent of the nuclear-armed states. There is scant public debate about nuclear weapons in China. After US President Obama outlined his "vision" of a nuclear weapon free world, an online survey conducted by the People's Daily newspaper indicated that 51% of respondents wanted nuclear disarmament while 49% did not.²⁷ China has not attended either of the conferences on the humanitarian impact of nuclear weapons in Norway or Mexico and has not commented publicly on this initiative or the accompanying joint statements in multilateral fora. It also did not participate in the open-ended working group on nuclear disarmament in 2013.

France

Hans Kristensen

Current status

France possesses approximately 300 nuclear warheads, approximately 290 of which are deployed or operationally available for deployment on short notice.²⁸ Its delivery vehicles consist of approximately 40 aircraft assigned to a total of 40 cruise missiles; and four nuclear-powered ballistic missile submarines (at least two of which are always fully operational) equipped with nuclear-armed long-range ballistic missiles.²⁹ The French stockpile is expected to decrease to around 290 warheads within the next few years.³⁰ France has stated that it has no additional nuclear reserves, although FAS estimates that it does have a small inventory of spare warheads.³¹ France is no longer thought to be producing fissile materials for nuclear weapons. It is believed to have an estimated 6 tons of plutonium and 26 ± 6 tons of HEU.³²

Modernization

In its latest white paper of April 2013, the French government reaffirmed its position that “nuclear deterrence” is a means of protecting France’s vital interests.³³ France is the middle of a broad modernization of its nuclear forces involving submarines, aircraft, missiles, warheads, and production facilities that will continue for another decade.

The modernization programme will ensure that it can maintain its capability until at least the 2030s.³⁴

The new Le Triomphant submarines are quieter and the M45 missiles are gradually being replaced with longer-range M-51 missiles. The M-51s will be modified, starting in 2015, to the Tête nucléaire océanique.³⁵ In addition to modernizing its submarine-based nuclear forces, France is also introducing a new and more

capable delivery platform to its nuclear air force that is both aircrafts and missiles. This modernization is expected to result in a quantitative reduction of nuclear-capable aircrafts. France is also introducing a new nuclear warhead to its air-based nuclear deterrent (Tête nucléaire aéroportée) as it is to its sea-launched ballistic missiles.³⁶

Economics

The French government has indicated that it spends approximately US\$4.6 billion on its nuclear forces each year,³⁷ though a recent report from Global Zero estimates that the total cost for 2011 was approximately \$6 billion.³⁸ The government announced in November 2011 that the deficit would have to be cut by 20% in 2012 with half of the savings coming from spending cuts,³⁹ but the nuclear weapons budget will reportedly only see a 1.3% decrease.⁴⁰

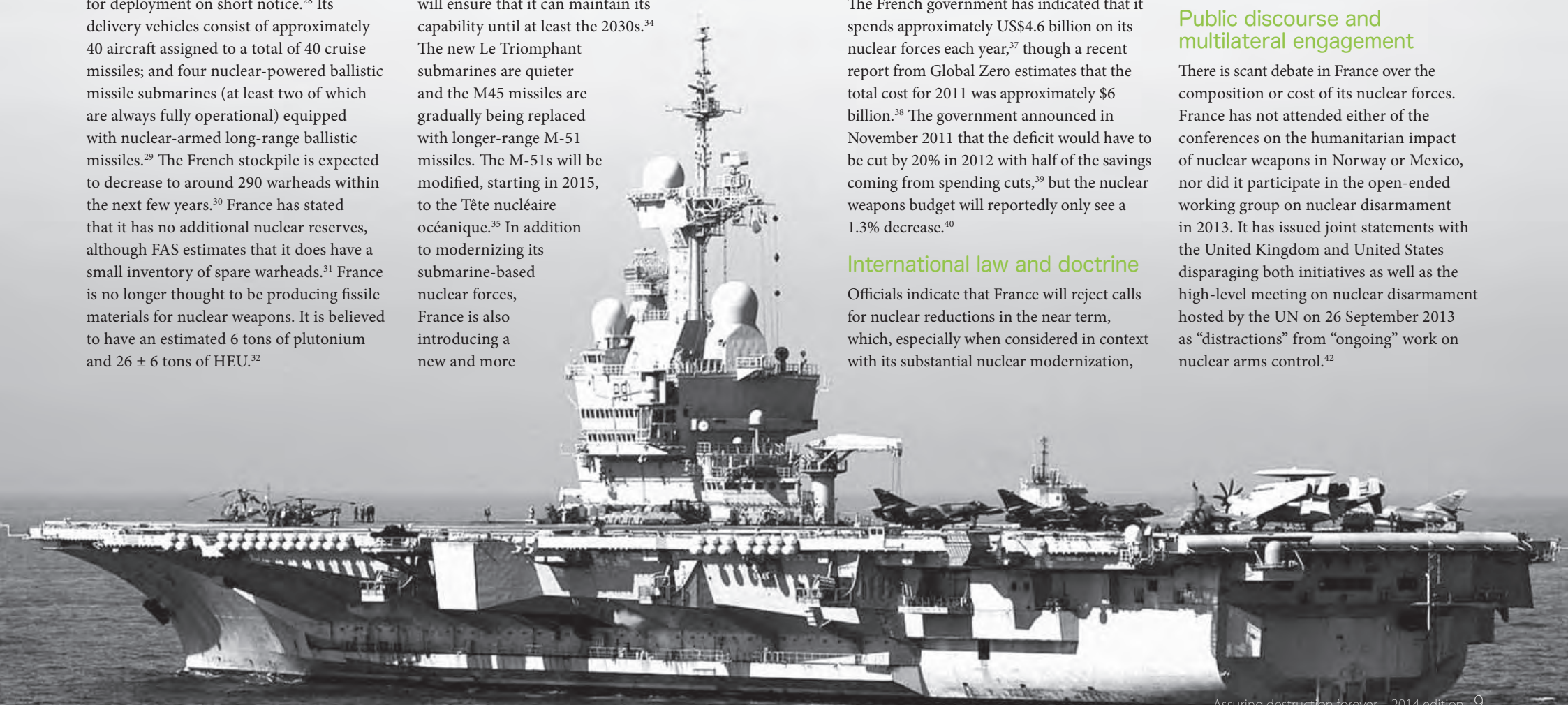
International law and doctrine

Officials indicate that France will reject calls for nuclear reductions in the near term, which, especially when considered in context with its substantial nuclear modernization,

is in conflict with France’s obligations under the NPT to negotiate disarmament. In April 2013 France released a new white paper that highlights the importance of “nuclear deterrence” as a strictly defensive protection from aggressions by another state against France’s vital interests and, thus, the “ultimate guarantee” for the country’s sovereignty. However, vital interests are not specifically defined in the white paper.⁴¹

Public discourse and multilateral engagement

There is scant debate in France over the composition or cost of its nuclear forces. France has not attended either of the conferences on the humanitarian impact of nuclear weapons in Norway or Mexico, nor did it participate in the open-ended working group on nuclear disarmament in 2013. It has issued joint statements with the United Kingdom and United States disparaging both initiatives as well as the high-level meeting on nuclear disarmament hosted by the UN on 26 September 2013 as “distractions” from “ongoing” work on nuclear arms control.⁴²



India

M.V. Ramana

Current status

India is estimated to have 90–110 nuclear warheads.⁴³ It is also developing a range of delivery vehicles, including land- and sea-based missiles, bombers, and submarines. There are no official estimates of the size of India's stockpile of fissile materials, though it is known that India produces both HEU for its nuclear submarines and plutonium for weapons. India is estimated to have a stockpile of 2.4 ± 0.9 tons of HEU as of the end of 2012.⁴⁴ With regard to plutonium, India is estimated to have a stockpile of 0.54 ± 0.18 tons of weapon-grade plutonium by the end of 2012.⁴⁵ There has been speculation that India has used reactor-grade plutonium in its nuclear weapons, in which case, the nuclear arsenal could potentially be much larger: as of the end of 2012, between 4.7 tons of reactor-grade plutonium is estimated to have been separated from its power reactors.⁴⁶ Its fast breeder reactor programme also provides another potential source of producing weapon-grade plutonium; however, construction of the first Prototype Fast Breeder Reactor has experienced a series of delays and it is now expected to be commissioned only in late 2014 or early 2015, about five years after the initial projection.⁴⁷

Modernization

The primary focus of modernization has been on increasing the diversity, range, and sophistication of nuclear delivery vehicles. In April 2012, India conducted its first test of its Agni-V nuclear-capable ballistic missile, with a range of over 5,000 km.⁴⁸ This was followed with another test in September 2013. In January 2013, India conducted its first publicly announced test of a submarine-launched ballistic missile with a range of 700 km; this was followed by one more test in March 2014.⁴⁹ India's Defense Research and Development Organization (DRDO) is reportedly also working on the development of the sixth missile in the Agni family, the Agni-VI, with an estimated range of up to 10,000 kilometers (6,200 miles). The Indian navy is reported to be examining the possibility of developing a nuclear-powered aircraft carrier.⁵⁰ According to the DRDO, India's first nuclear submarine and the Agni-V missile are expected to be ready for military induction by 2015.⁵¹ There are also plans to expand the nuclear weapons and missile production complex as well as the capacity to enrich uranium. The nuclear establishment is in the process of building a new complex in the eastern city of Vishakhapatnam, which will host two research reactors, including one that "will be similar in design to the existing Dhruva research reactor" that is used to produce plutonium for weapons.⁵²

Economics

The expansion of India's nuclear and missile arsenals are part of a larger military build-up and consistently-increasing military spending. However, there is no reliable public estimate on nuclear weapon spending in India. Historically, the nuclear and defence research establishments have wielded considerable social, political, and economic power. They have been joined in recent decades by government laboratories, public sector and private companies, and universities, to form a burgeoning and powerful military-industrial complex.

International law and doctrine

Dating back to 2003, India's official nuclear doctrine is very brief and gives little detail on what it envisions for its nuclear arsenal.⁵³ However, a draft report from the National Security Advisory Board released a few years earlier is far more detailed.⁵⁴ It calls for India's nuclear forces to be deployed on a triad of delivery vehicles of "aircraft, mobile land-based missiles and sea-based assets" that are structured for "punitive retaliation" so as to "inflict damage unacceptable to the aggressor".

Since the 1974 nuclear test, the Indian government's focus in arms control diplomacy has been to resist signing onto any international treaties that impose any obligations on its nuclear arsenal. This allows the government to maintain that it is a responsible member of the international community because it has not breached any agreement. It also interprets this as meaning there are no legal constraints on any modernization activities that may

affect the quantity or quality of its nuclear weapons. However, its activities may not be in complete concordance with international law; the 1996 advisory opinion of the International Court of Justice maintained that the obligation for disarmament is not restricted to signatories of the NPT.

Public discourse and multilateral engagement

Over the years, the idea that India has a right to possess nuclear weapons has become widely shared across much of the political spectrum. While nuclear weapons used to be seen as a "necessary evil," there is now more enthusiasm for India to become a bonafide nuclear weapon power that can exercise its military might in the region. India attended both conferences on the humanitarian impact of nuclear weapons in Norway and Mexico and participated in the open-ended working group on nuclear disarmament and the high-level meeting in 2013. However, its positions have not changed to reflect these developments, and while the government continues to promote the 1988 Rajiv Gandhi plan for nuclear disarmament, this is somewhat hypocritical when viewed in the light of its ongoing modernization plans.

Israel

Merav Datan

Current status

Estimates about the size of the arsenal are based on the power capacity of the nuclear reactor near Dimona. Experts and analysts outside of Israel estimate that Israel's current nuclear force ranges from 60–80 weapons at the low end to over 400 at the

high end. The most recently cited figure is 80 warheads.⁵⁵ It is assumed that Israel has a triad of delivery systems: land, air, and sea. It is estimated that, Israel could have produced approximately 840 kg of weapons-grade plutonium.⁵⁶ Estimates of HEU production are even more difficult

to make though public information suggests Israel has a uranium enrichment programme.⁵⁷ A recent estimate has assumed Israel possesses approximately 300 kg of HEU.⁵⁸

Modernization

In light of current and planned nuclear capabilities, it seems that the country is continuing to “enhance” its triad of delivery systems.⁵⁹ Nuclear weapons modernization is related to modernization activities in the security sector generally, including in areas of information technology, advanced military technology, and outer space technology.

Economics

There is no reliable public estimate on nuclear weapon spending in Israel.

International law and doctrine

Israel has not signed or ratified the NPT and interprets this as meaning it is not bound by the article VI disarmament obligation. Israel has signed but not ratified the CTBT, citing concern with the as-yet incomplete development of the verification regime and potential abuse of this regime; Israel's status in the policy making organs of the Treaty; and concerns with the regional security situation in the Middle East.⁶⁰ It is party to a number of non-proliferation-related agreements, on the basis of which it projects itself domestically and internationally as a responsible non-proliferant. Its position of opacity means it has no public nuclear weapon doctrine.

Public discourse and multilateral engagement

The policy of opacity entails a nuclear weapons capability about which “everyone knows” (domestically and internationally) and an umbrella of secrecy covering the physical and doctrinal elements of this capability. The secrecy surrounding Israel's nuclear programme has taken on a life of its own at the domestic level with Israelis practicing self-censorship on a wide range of nuclear issues. At the same time, a discourse does exist at the academic level and increasingly in the media, driven in large part by debate over Iran's nuclear programme. This discourse relies primarily on foreign sources. Historically, public opinion polls have indicated support for the nuclear option though a new survey has indicated that 65% of Israelis would prefer a nuclear weapon free Middle East to the current situation.⁶¹

Israel did not attend either of the conferences on the humanitarian impact of nuclear weapons in Norway or Mexico, nor did it participate in the open-ended working group on nuclear disarmament in 2013. Through General Assembly resolutions it has supported the concept of the development of a WMD free zone in the Middle East and has engaged in informal discussions to establish such a zone through the process mandated by the 2010 NPT Review Conference. However, it has been clear that it does not consider itself to be bound by the decisions of this Conference, and its future willingness to participate in any formal meetings stemming from the 2010 outcome remains unclear.



Pakistan

Zia Mian

Pakistan is currently estimated to have 100–120 nuclear weapons.⁶² It has a number of short-range, medium, and longer-range road-mobile ballistic missiles as well as ground and air-launched cruise missiles in various stages of development. It is estimated that Pakistan could have a stockpile of 3 ± 1.2 tonnes of weapon-grade HEU⁶³ and may be producing about 150 kg of HEU per year.⁶⁴ Estimates suggest Pakistan has produced a total of about 0.15 ± 0.5 tonnes of plutonium.⁶⁵

Modernization

Pakistan has been rapidly developing and expanding its nuclear arsenal, increasing its capacity to produce plutonium, and testing and deploying a diverse array of nuclear-capable ballistic and cruise missiles. Pakistan is moving from an arsenal based wholly on HEU to greater reliance on lighter and more compact plutonium-based weapons, which is made possible by a rapid expansion in plutonium production capacity. Pakistan is also moving from aircraft-delivered nuclear bombs to nuclear-armed ballistic and cruise missiles and from liquid-fueled to solid-fueled medium-range missiles and to cruise missiles. Pakistan also has a growing nuclear weapons research, development, and production infrastructure. A long-term concern now driving Pakistan's nuclear programme is the US policy of cultivating a stronger strategic relationship with

India to counter the rise of China. This may tie the future of Pakistan and India's nuclear weapons to the emerging contest between the United States and China.

Economics

There is almost no information about the funding of Pakistan's nuclear weapons programme. It is clear that a significant fraction of Pakistan's financial resources go to its nuclear weapons, but that this cost is not a large share of its overall military spending. Estimates indicate that Pakistan may spend about US\$2.5 billion a year on nuclear weapons. Despite extensive foreign military assistance, Pakistan's effort to sustain its conventional and nuclear military programmes has come at increasingly great cost to the effort to meet basic human needs and improve living standards. The 2013–2014 budget increased military spending by 10% to over 627 billion rupees (\$6.3 billion), making it larger share of national government expenditure than the Public Sector Development Programme which covers social and economic development projects.

International law and doctrine

Pakistan is not a signatory to the NPT nor has it signed the CTBT and it appears to recognize no legal obligation to restrain or end its nuclear weapons and missile programme.

The government has, however, said it supports negotiation of a nuclear weapons convention. Pakistan has blocked negotiations of a fissile material cut-off treaty at the Conference on Disarmament, arguing that it would only further entrench asymmetries between the nuclear-armed weapon states. It has indicated it would allow talks to start if were granted an exemption from the nuclear trade sanctions implied by the Nuclear Suppliers Group as India has been.

Public discourse and multilateral engagement

The government has sought to create a positive image of the nuclear weapons programme, often by linking it to national

pride and identity. Pakistan's major political parties publicly support the nuclear weapons programme. The central thrust of most public debate about Pakistan's nuclear weapons is the struggle with India. Pakistan's nuclear weapons are widely seen as a response to India's.

Pakistan attended the conferences in Norway and Mexico on the humanitarian impact of nuclear weapons and participated in the open-ended working group on nuclear disarmament and the high-level meeting in 2013. It has also nominated a representative to the fissile materials cutoff treaty Group of Government Experts established in 2014. However, its positions have not changed to reflect these developments.



Russian Federation

Pavel Podvig

Current status

Russia is estimated to have a total stockpile of 8000 nuclear warheads, of which about 4300 are believed to be in active stockpile.⁶⁶ In the New START data exchange Russia reported that in September 2013 it had 473 operationally deployed launchers and 1400 accountable warheads.⁶⁷ According to best estimates based on data exchange under New START and other expert assessments, Russia has, as of January 2014, 489 operational strategic launchers—311 ICBMs, 112 SLBMs, and 66 bombers. It has about 1700 strategic warheads associated with these launchers—1078 on ICBMs, 416 SLBM warheads, and about 200 nuclear weapons that could be delivered by bombers.⁶⁸ Russia is estimated to have about 695±120 tons of HEU and 128±8 tons of weapon-grade plutonium (plus 50 tons of reactor-grade plutonium).⁶⁹

Modernization

President Putin announced in November 2013 that Russia should replace its Soviet-built arsenals with modern weapons to counter new evolving threats.⁷⁰ Under this process, Russia will allocate about \$700 billion to a broader military rearmament,

which will include 400 new ICBMs and eight SSBNs.⁷¹ Russia's modernization plans indicate that it is determined to maintain parity with the United States in terms of number of warheads and delivery systems. Most of the currently operational ICBMs are being retired but new multiple-warheads missiles are being deployed to replace them. One new solid-propellant ICBM is undergoing flight tests.⁷² The government also made a commitment to development of a new multiple-warhead liquid-fuel ICBM, which is supposed to be ready for deployment in 2018.⁷³ Russia is also upgrading its SSBN fleet with a planned construction of eight new submarines of Project 955 Borey class, carrying 16 Bulava missiles.⁷⁴ In 2013 the first two Borey submarines formally joined the Russian Navy (although none of the submarines has ballistic missiles on board).⁷⁵ Russia is working on an overhaul of its current strategic bomber fleet and is also reported to have started preliminary work on a new-generation strategic bomber.⁷⁶

Economics

Modernization of the nuclear arsenal is part of a broader rearmament programme

that is expected to spend about US\$700 billion on various military systems in 2011–2020. About 10% of these funds will be spent on strategic force modernization.⁷⁷ Financial constraints could affect the scale of these plans, though the rearmament effort appears to have strong support of the political leadership and public, so significant cuts to the modernization programme are unlikely. This situation may change if political environment in Russia would allow an open discussion of government spending priorities and the role of nuclear weapons in the national security policy, but so far this discussion has been very limited.

International law and doctrine

Official documents of the Russian government do not question Russia's right to possess nuclear weapons, though they also recognize its responsibilities as an NPT nuclear weapon state including to pursue a world free of nuclear weapons as a means of achieving security for all. Official policy assumes the right of first use of nuclear weapons, though the policy has a limited range of scenarios under which this would be considered. Both Russia and the United States consider their bilateral arsenal reductions to contribute toward the goal of article VI of the NPT. Russia's position on nuclear weapons is directly linked to a number of security concerns, such as US ballistic missile defence, US advantage in terms of conventional weapon systems, NATO expansion, and in the long run, China's position in the region.⁷⁸ The last Russian military doctrine published was released in February 2010. It indicates

that Russia could respond to the use of any weapon of mass destruction with the use of nuclear weapons or even conventional weapons.⁷⁹ In February 2012 the Chief of the Russian General Staff, Nikolai Makarov, said that Russia would use nuclear weapons in response to any imminent threat to its national security.⁸⁰

Public discourse and multilateral engagement

Public opinion in Russia tends to support the nuclear status of the country—according to a poll conducted in 2006, 76 percent of all the respondents believed that Russia “needs nuclear weapons.”⁸¹ More than half of the population consider nuclear weapons to be the main guarantee of the security of the country and about 30 percent of respondents believe that nuclear weapons play an important, although not a decisive, role. To a large extent, the lack of critical assessment of the role of nuclear weapons is a result of the lack of an open and informed discussion of national security priorities and policies that would involve independent voices. While there are non-governmental research organizations that are involved in the discussion of defence policies, there are no independent public organizations that would have nuclear weapons related issues on the agenda. Russia has not attended either of the conferences on the humanitarian impact of nuclear weapons in Norway or Mexico, nor did it participate in the open-ended working group on nuclear disarmament in 2013. It has issued statements disparaging such initiatives as naïve and unrealistic.⁸²

United Kingdom

John Ainslie

Current status

In September 2010, the UK government announced that it had “not more than 225” Trident nuclear warheads and that this would be reduced to “not more than 180” by the mid 2020s.⁸³ The UK’s only delivery system is the Trident D5 missile. Until 2010 each of the two or three armed Vanguard class submarines carried around 12 operational D5 missiles. This will be reduced to 8 missiles per submarine over the next few years.⁸⁴ It is estimated that the UK has 3.2 tons of separated plutonium in its military stockpile and 4.4 tons of civilian plutonium. It also has 21.2 tons of highly-enriched uranium, over half of which it acquired from the United States.⁸⁵

Modernization

The UK is upgrading its current warheads in conjunction with the United States. Between 2015 and 2020 the UK will decide on the development of a new nuclear warhead—the decision has been postponed until after the next election in 2015. US modernization of the D5 missile system will apply equally to the missiles on British submarines. There is an expanding programme to develop a new submarine, to replace the Vanguard class.⁸⁶ The formal decision on whether to build the new vessels is due in 2016. Facilities at the Atomic

Weapons Establishment (AWE) are being upgraded and annual expenditure at AWE has doubled to £1 billion per year.⁸⁷ On 22 May 2012 the UK Ministry of Defence announced the award of a contract to BAE Systems, Babcock and Rolls Royce worth £350 million for the design of successor submarines. The key contract, worth £328 million, was awarded to BAE Systems.⁸⁸ If the Trident renewal programme is approved, the delivery of the first submarines will take place in 2028.

Economics

Annual expenditure on the UK nuclear weapons programme, which was £2.1 billion in 2010/11, is due to increase over the decade. Meanwhile, public expenditure will be cut by 5.3% between 2011/12 and 2016/17. Ministers from the two Coalition parties in the UK government have publicly disagreed over whether to cut welfare benefits or Trident.⁸⁹ In accordance with current plans, in 2021, 35% of the MOD’s core budget for capital expenditure will be spent on the Trident replacement.⁹⁰ Despite the fact that no formal decision has been made on the outcome of the project for new submarines, the Ministry of Defence is already spending £2 billion on new nuclear weapons plans. The plans include a £734 million facility for dismantling and

assembling of warheads, a £634 million plant that will handle enriched uranium and a £231 million high explosive factory. The new spending has caused some debate in the UK on how crucial military spending decisions can be pushed through parliament without a proper parliamentary procedure.⁹¹ In July 2013 the Cabinet Office of the UK Government released a “Trident Alternatives Review,” which looked at “credible” alternatives to a submarine-based deterrent and the effect of any such alternatives on the credibility of the nuclear deterrent.⁹² However, it did not consider the option of not replacing its trident system.⁹³

International law and doctrine

The UK government plan is not to keep nuclear weapons for a short period of a few years, pending multilateral progress on disarmament, but to introduce a new system that can remain in service until 2067.⁹⁴ This implies that the UK government thinks it can continue indefinitely to retain and modernize its nuclear forces. While stating in the 2010 Strategic Defence and Security Review that the UK should retain a “credible, continuous and effective minimum nuclear deterrent,”⁹⁵ the government also restated that the UK makes it clear that it will only use their weapons in extreme circumstances of self-defence, including the defence of its NATO allies. The 2010 review also stated that the United Kingdom would retain and renew its independent nuclear deterrent—“the United Kingdom’s ultimate insurance policy in this age of uncertainty.”⁹⁶

Public discourse and transparency

Political support for the Trident replacement plan has declined since the start of the project in 2007. One of the major UK political parties argues that the original proposal is no longer affordable.⁹⁷ A second party is reviewing its policy.⁹⁸ Two former Defence Ministers have spoken out against the current posture of keeping one Trident submarine at sea at all times.⁹⁹ A third has described the replacement plan as “nonsense”.¹⁰⁰ The Trident force operates from Faslane in Scotland. On 20 March 2013 the Scottish Parliament voted to reject the Trident nuclear weapon system.¹⁰¹ On 18 September 2014 a referendum will be held on Scottish independence. The Scottish National Party has proposed that the constitution of an independent Scotland would include a ban on nuclear weapons.¹⁰² Furthermore, some public discourse acknowledges that retention of nuclear weapons suggests a willingness to use those weapons. A recent study found that an attack on Moscow from one UK submarine could result in 5.4 million fatalities.¹⁰³

The UK government has not attended either of the conferences on the humanitarian impact of nuclear weapons in Norway or Mexico, nor did it participate in the open-ended working group on nuclear disarmament in 2013. It has issued joint statements with France and United States disparaging both initiatives as well as the high-level meeting on nuclear disarmament hosted by the UN on 26 September 2013 as “distractions” from “ongoing” work on nuclear arms control.

United States

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Current status

As of 1 September 2013, the United States deployed 1688 warheads on 809 strategic delivery vehicles and 1015 deployed and non-deployed launchers.¹⁰⁴ By adding the numbers of warheads not covered by New START, the United States possesses around 7400 warheads, around 2700 of which are “retired,” awaiting dismantlement or possible reactivation. The US is estimated to have 450 Minuteman III ICBMs carrying 470 warheads with the capacity for additional warheads to be uploaded, 14 Trident missile submarines each with 24 launch tubes for the Trident D5 submarine launched ballistic missile with 1152 warheads deployed, and 113 nuclear capable strategic bombers, 20 B2s and 93 B52Hs. Of these, 60 bombers (44 B-52Hs and 16 B-2s) have been assigned nuclear roles. Independent estimates indicate the US stockpile has about 500 non-strategic weapons, with about 200 deployed at air bases in NATO countries in Europe.¹⁰⁵ In addition, the US stores more than 15,000 plutonium pits from dismantled nuclear weapons, thousands of which could be reused.¹⁰⁶ The US has produced or acquired approximately 850 metric tons (MT) of highly-enriched uranium (HEU) and 112 MT of weapon-grade plutonium, of which 609 MT and 95 MT remain, respectively

(current HEU stock is exclusive of HEU in spent naval reactor fuel).¹⁰⁷

Modernization

The US government is officially committed to modernizing its nuclear bombs and warheads; the submarines, missiles, and aircraft that carry them; and the laboratories and plants that design, maintain, and manufacture nuclear weapons. US policy and budget documents all manifest an intent to keep some thousands of nuclear weapons in service for the foreseeable future, together with the capability to bring stored weapons back into service and to design and manufacture new weapons should they be desired.

The US also has been engaged for more than a decade in efforts aimed at taking advantage of improvements in the accuracy of long range missiles and re-entry vehicles to develop the means to deliver non-nuclear weapons anywhere on earth in short order. Early last year, an Air Force solicitation for next-generation land-based nuclear missiles, for example, called for nuclear missile concepts that could share components with non-nuclear “prompt global strike” systems, asked contractors to explore new basing modes including mobile missiles, and stated

that proposed replacement systems should “provide or enable new capabilities.”¹⁰⁸ Since then, the aspiration to field a new ICBM prior to 2030, as opposed to incrementally upgrading Minuteman III systems, appears to be an early casualty of budget shortfalls.

However, there is a great difference between modernization aspirations on the one hand and practical accomplishment on the other. Over the past two years, virtually all the warhead and infrastructure modernization projects in the Department of Energy (DOE) have experienced serious cost overruns and schedule delays that have eroded congressional and military support and caused the DOE to downscale or indefinitely defer several projects in question.

Economics

The DOE budget request for fiscal year 2015 includes \$8.315 billion for nuclear weapons activities, not including \$293 million in related administrative costs. This is a 7% increase from 2014 and is higher (in constant dollars) than the last surge in nuclear weapons spending under President Reagan in 1985. An additional \$504 million in potential warhead spending is also being requested over and above limits for the 2015 fiscal year that Congress established in a late 2013 budget deal.¹⁰⁹

Over the past years many reports and studies on the cost of the US nuclear programme and possible options for savings have been published.¹¹⁰ In December 2013 the Congressional Budget

Office (CBO) published a report assessing the projected costs of the US nuclear forces for the 2014–2023 timeframe, utilizing long-term cost databases maintained by CBO and with full access to Department of Defense data.¹¹¹ CBO’s estimates are thus the most authoritative to date. According to CBO, current US stockpile plans will cost \$355 billion over the decade, including about \$76 billion for modernization. Since most modernisations efforts are still in the initial phase, annual costs are expected to increase over the decade and continue to increase afterward.¹¹² CBO’s estimate is broadly consistent with the January 2014 independent study from the James Martin Center, which concluded that the 30-year cost of the U.S. stockpile would fall in the range of \$1 trillion dollars.¹¹³

In July 2012 increased costs for the B61 life extension project were announced. The project consolidates the existing B61-3, B61-4, B61-7, and B61-10 to one upgraded model of the B61-4, the B61-12. About 400 B61-12s are planned, resulting in \$28 million per bomb including the cost of tail kit, one of the costliest elements of the modernisation of the B61 and intended to increase accuracy of the new B61.¹¹⁴ These financial commitments in light of budgetary difficulties face more and more doubts from all sides.¹¹⁵ Other US nuclear warheads are also undergoing modernisation and so-called life extension programmes. They are set to be replaced by new warheads and bombs as part of the so-called “3+2” stockpile plan, although the future of this ambitious plan is now in severe doubt.¹¹⁶ Estimates based on the latest Stockpile Stewardship and



Management Plan of 2014 put the cost for this enterprise at \$275 billion over the next 25 years.¹¹⁷ Regardless of programme retrenchments, this year's budget request continues to reflect these spending goals.

Delivery system costs are also increasing. Costs for developing the Joint Strike Fighter have continued to spiral upward. With estimated total present and future acquisition costs approaching \$400 billion and life-cycle costs of \$1.5 trillion or more, the F-35 is the costliest weapons system ever.¹¹⁸ Costs of the B61 modernization programme have also grown far beyond original estimates, from \$4 billion to \$11 billion, with production delayed until at least 2020.¹¹⁹ In its 2012 Deterrent and Defense Posture Review (DDPR) NATO declared that "Allies concerned will ensure that all components of NATO's nuclear deterrent remain safe, secure and effective,"¹²⁰ which in this context is seen as a "green light" for the modernisation of the B61s currently also deployed in Europe.¹²¹ In January 2014, US Air Force Chief of Staff, General Norton Schwartz, confirmed that the modernized B61 will have improved military capabilities to attack targets with greater accuracy and less radioactive fallout. Since the 2010 NPR pledged that nuclear weapon life extension programmes "will not support new military missions or provide for new military capabilities," this confirmation violates the NPR pledge and contradicts US and NATO goals of reducing the role of nuclear weapons.¹²²

The main obstacle to US nuclear weapons modernization plans may be the erosion

of the ability of the US military-industrial complex to complete ever-more complex manufacturing and industrial projects. Work on a major plutonium facility on which more than \$600 million already had been spent was postponed for at least five years after costs ballooned to more than ten times or more original estimates, and the project appears unlikely to be resumed. A total of eight different plans to replace and modernize production of plutonium pits in the US have failed over the past 25 years.¹²³ Construction of a new Uranium Processing Facility (UPF) has been delayed more than a decade and its costs too have increased more than tenfold. UPF is now being down-scoped and final plans are currently in limbo.¹²⁴

International law and doctrine

More than four decades after the United States signed and ratified the NPT, it retains a nuclear arsenal large enough to end civilization in short order. None of its recent bilateral reduction agreements with Russia fundamentally change the character of nuclear weapon deployments. The US has signed but not ratified the CTBT; ratification was rejected by the US Senate in 1999 even after a bargain was made to modernize its nuclear weapons infrastructure in exchange for ratification. The Obama administration has stated that CTBT ratification "remains a top priority for the United States."¹²⁵ If the past is any guide, an attempt to obtain consent for ratification from the Senate is likely to be accompanied by new programmatic and funding commitments to the nuclear

weapons establishment. At the conclusion of the 2000 NPT Review Conference, the US agreed that a no-backtracking "principle of irreversibility" applies to nuclear disarmament. Yet endless modernization of the research laboratories and factories necessary to design and produce nuclear weapons is inherently incompatible with any "principle of irreversibility" in regard to disarmament. Doing so with the express intention of being able to re-arm, to permanently hold open the potential to reconstitute large nuclear arsenals throughout the course of disarmament, also is inconsistent with an "unequivocal undertaking" to eliminate nuclear arsenals. The US announced its withdrawal from the Anti-Ballistic Missile Treaty in 2001; continuing US development and deployment of ballistic missile defence systems is a serious impediment to further disarmament progress.

The US 2010 Nuclear Posture Review (NPR) states that the US will keep relying on its nuclear weapons as an important part of its national security and will also do this for the foreseeable future.¹²⁶ On 19 June 2013 President Obama announced in Berlin that his administration would, together with its NATO allies, seek "bold reductions in US and Russian tactical nuclear weapons in Europe."¹²⁷ On the same day, however, the US administration published a report on President Obama's new guidance on the employment of nuclear weapons.¹²⁸ Among other things, the report reaffirmed that "as long as nuclear weapons exist," the United States will maintain a "safe, secure and effective arsenal for its protection and that of its allies."¹²⁹

Public discourse and multilateral engagement

In the broader populace, there is little debate about US nuclear weapons policies or spending. The absence of a disarmament movement has made progress on an ambitious abolition agenda unlikely. What public discussion there is about US nuclear weapons policy is dominated by specialists and is skewed towards drumming up fear of nuclear weapons coming into the possession of non-nuclear weapon states or non-state actors rather than pointing to the very real dangers posed by nuclear weapons held as central elements of national security policies in the hands of the world's most powerful states. In the United States, disarmament remains an abstract aspiration; the pursuit of global military dominance backed by constantly modernized nuclear weapons remains the concrete reality.

The US government has not attended either of the conferences on the humanitarian impact of nuclear weapons in Norway or Mexico, nor did it participate in the open-ended working group on nuclear disarmament in 2013. It has issued joint statements with France and United Kingdom disparaging both initiatives as well as the high-level meeting on nuclear disarmament hosted by the UN on 26 September 2013 as "distractions" from "ongoing" work on nuclear arms control.¹³⁰



International law

John Burroughs

NPT Article VI provides that “cessation of the nuclear arms race” is to be achieved at an “early date” through good-faith negotiations. When the NPT was adopted, it was envisaged that the quantitative build-up and qualitative improvement of nuclear arsenals was to be ended prior to their elimination. The principal means were a ban on nuclear testing, a ban on production of fissile materials for nuclear weapons, and caps on nuclear arsenals. Non-nuclear weapon states also insisted that cessation of the nuclear arms race encompasses halting improvement of warheads and delivery systems.

While NPT nuclear-armed states have endorsed in principle the Comprehensive Test Ban Treaty (CTBT), fissile material cut-off treaty (FMCT), and capping and reducing nuclear arsenals, they have resisted specific commitments with respect to qualitative modernization. Thus the 2010 NPT Review Conference could only record the “legitimate interest” of non-nuclear weapon states in “constraining” development and improvement of nuclear arsenals.

The CTBT reinforces the NPT obligation of cessation of the nuclear arms race. Its preamble recognizes that ending nuclear testing will “constrain the development and qualitative improvement of nuclear weapons”. Also, the 2010 NPT Review Conference made a vague commitment to refrain from “the use of new

nuclear weapons technologies” in connection with the CTBT.

The unanimously adopted Final Document of the General Assembly’s first special session on disarmament, held in 1978, holds that it “is essential to halt and reverse the nuclear arms race” and calls for agreements on “cessation of the qualitative improvement and development of nuclear-weapon systems.”

Under the fundamental legal principle of good faith, acts at cross-purposes with the achievement of agreed objectives are proscribed. Plans for replacement of nuclear forces decades into the future violate the principle of good faith; they erode the trust required to carry out the nuclear disarmament enterprise. Modernization of infrastructures for the purpose of making a build-up of nuclear forces possible also violates the principle of irreversibility adopted by NPT review conferences.

There is no international institutional mechanism for assessment of nuclear weapons programmes and the state of their compliance with international law. The establishment of such a mechanism would help develop reliable information and a shared understanding of applicable standards, and thus the trust and cooperation needed for a workable process of ending arms racing and effectuating disarmament.

Divestment

Susi Snyder

The nine nuclear-armed states are planning to spend more than USD 1,000,000,000,000 over the next decade to maintain, and modernize their nuclear weapons. While the majority of that money comes from taxpayers in the nuclear-armed countries, the Don't Bank on the Bomb report¹³¹ shows that the private sector is also investing over USD 314,349,920,000 in the private companies¹³² that produce, maintain, and modernize the nuclear arsenals in France, India, the United Kingdom, and the United States. These investments are made by banks, pension funds, and asset managers. What can be done to stop this modernisation? What can the public do?

A wide range of financial institutions operate in our globalised world. These include privately owned companies and state-owned institutions, banks, insurance companies, investment funds, investment banks, pension funds, export credit agencies and many others. As a large majority of companies rely on the financial markets and financial institutions to provide them with operating capital, these financial institutions play a key role in every segment of human activity. In choosing which companies and projects they will finance and invest in, financial institutions play a significant role in our increasingly interconnected world. Choosing to avoid investment in controversial items- from

tobacco to nuclear arms, can result in changed global policies- and reduces the chances of humanitarian harm.

Public pressure can change the policies of financial institutions and encourage the development of policies that prohibit any investment in nuclear weapons. Simply alerting financial institution clients of these investments can change the policies, and lead to divestment from nuclear weapon producers. Almost every member of the public has a bank account or is part of a pension plan: Therefore, if their bank or pension fund is investing in nuclear weapon producers, so are they. Divestment campaigns are a way to bring an abstract issue such as nuclear disarmament back to personal decisions on where people put their own money.

Banks have a large customer base which means that campaigners have large numbers of potential campaign supporters. If enough people take action and express concern over their bank or pension fund investing in nuclear weapons, or if enough customers threaten to withdraw their funds and change their bank accounts, this can have a real impact a bank's decision to divest from nuclear weapons producing companies.

While it is unlikely that divestment by a single financial institution would create



sufficient pressure on a company for it to end its involvement in nuclear weapons work, divestment by even a few institutions based on the same ethical objection can have a significant impact on a company's strategic direction. Exclusions by financial institutions do have a stigmatizing effect and can convince directors to decide to reduce reliance on nuclear weapons contracts and expand into other areas.

Looking at the period starting January 2010, 298 banks, insurance companies, pension funds, and asset managers from 30 countries were found that invest significantly in the nuclear weapon industry. 175 are based in North America, 65 in Europe, 47 in Asia Pacific, 10 in the Middle East, one in Africa, and none in Latin America or the Caribbean.¹³³

The ten most heavily invested financial institutions world wide are all based in the United States, with State Street, Capital Group of Companies, and Blackrock topping the ranks. The top ten US financial institutions alone provided more than USD 126 billion to

the identified nuclear weapon producers. Top-ranked in Europe are Royal Bank of Scotland (UK), BNP Paribas (France), and Deutsche Bank (Germany) and in Asia Mitsubishi UFJ Financial (Japan), Life Insurance Corporation of India, and Sumitomo Mitsui Banking (Japan).

Divestment is not the only step that needs to be taken on the path to a world without nuclear weapons, but it is an important one. A coordinated global effort for divestment from nuclear weapons producers can help put a halt to modernization programmes, strengthen the international norm against nuclear weapons, and build momentum towards negotiations on a nuclear weapons ban. Some financial institutions, including government funds, have already opted to exclude nuclear weapons companies from their investment portfolios.¹³⁴ It is time for others to end their voluntary involvement in the companies that are involved in the production and maintenance of the global weapons of mass destruction arsenal.

Civil society

Ray Acheson

When it comes to nuclear weapons, people around the world have overwhelmingly rejected their creation, their use, and their continued possession. Public mobilization against these weapons of terror has been a consistent force through most of the nuclear age. There was first the moral horror of scientists who worked on the Manhattan project in advance of the US bombings of Hiroshima and Nagasaki.¹³⁵ In the 1950s and 1960s, there was a movement to achieve a ban on nuclear weapons testing. In the late 1960s and early 1970s, protests emerged against the deployment of ballistic missiles. In the 1980s, the movement focused on getting the US and Soviet governments to stop building nuclear weapons and delivery systems during the height of the arms race, and demanded nuclear disarmament.¹³⁶

Since the end of the Cold War, however, there has only been one instance of large-scale mass mobilization around the issue of nuclear weapons: in the early 1990s, people around the world reacted en masse to protest the plans of the major nuclear powers to resume nuclear testing.¹³⁷

Since then, despite the continued possession of nuclear weapons by nine countries, and despite vast sums of money being poured into their maintenance

and modernization, the movement for nuclear disarmament seems to have been largely silenced. Anti-nuclear activism has been overshadowed by mobilizations around issues of climate change, governance and economic structures, and global inequalities. Given the interconnected nature of these challenges, the opportunities for collaboration are abundant. But laying the groundwork for such collaboration is a complex task requiring purposeful and concerted effort. And in the meantime, groups working to abolish nuclear weapons must overcome significant challenges to their own work.

With the end of the Cold War, most publics and many activists assumed that the dissolution of the Soviet Union would lead to the dismantlement of the enormous arsenals both sides had built up during the arms race. Even some prominent government and military establishment elite assumed disarmament would be the most logical step.¹³⁸

Instead, the industrial and military establishments in the nuclear-armed countries have sought new justifications and roles for nuclear weapons and have insisted on the continuing relevance of nuclear “deterrence” doctrines.¹³⁹ In response, governments have poured

billions of dollars into their maintenance and modernization.

At the same time, the popular anti-nuclear movement diminished. Perceptions of the immediate danger posed by nuclear weapons diminished among the general public, membership of popular peace and disarmament organizations shrank, and some of these organizations adopted other priorities.¹⁴⁰ In addition, many civil society groups eschewed social mobilization in favour of competing within established political institutions.¹⁴¹

Some grassroots organizations and activists kept monitoring nuclear weapon laboratories and tried to raise awareness that operations were not only continuing but becoming more sophisticated.¹⁴² However, in most of the nuclear-armed states where civil society had once been active on this issue, policy elites increasingly consolidated their control over information, engagement, and funding around nuclear weapon issues. While the earlier waves of anti-nuclear activism had been composed of diverse and largely nonspecialized coalitions, after the Cold War these issues were predominantly taken up by professionalized, single-issue organizations.¹⁴³

This has limited the engagement of grassroots activists as well as groups working on disparate issues such as poverty, inequality, humanitarian aid, climate change, ecology, peace, or even other disarmament issues. It has also meant that the civil society discourse on

nuclear weapons was curtailed. Advocates calling for disarmament were shunned; thus to retain institutional access many started working for arms control or reductions that were in conformity with government comfort levels.¹⁴⁴ These barriers make social movement organizing extraordinarily difficult. Coupled with increasingly bleak economic and material circumstances today that make voluntary activism financially infeasible for many people, the demobilization of grassroots activists and the institutionalization and professionalism of civil society has made it increasingly difficult to build up popular constituencies on key subjects, including nuclear weapons.

Furthermore, it is unclear if mass mobilization will be truly effective for achieving nuclear disarmament in any near-term scenario. The millions of voices clamoring for disarmament in the 1980s had only partial effect, and those trying to prevent the Iraq war in 2003 failed entirely.

In this challenging context, it is imperative that civil society create connections between international and national activism on nuclear weapons.

Campaigners with the International Campaign to Abolish Nuclear Weapons (ICAN), currently active in over 90 countries through more than 350 civil society organizations, are working together to affect both the international and domestic contexts. At the international level, the campaign seeks to change the political and economic environment



in which nuclear weapons exist, by consolidating international norms and making it generally illegal to research, develop, acquire, test, manufacture, deploy, use, possess, or finance nuclear weapons. This could affect political and economic calculations in the nuclear-armed states: successful international stigmatization would alter political incentives within the nuclear armed states, boosting the effectiveness of coordinated domestic action against nuclear weapons.

The campaign's assessment is that a treaty banning nuclear weapons, even if entirely negotiated, adopted, and implemented by nuclear-free states, will alter incentives within the nuclear-armed states. It will make it harder for them to justify and sustain domestically their continued possession and modernization of these weapons. A ban would undermine the concept of "nuclear deterrence," which was developed after the invention of nuclear weapons to provide an intellectual justification for the retention of nuclear weapons. In the same way, it will also make it more difficult for these governments to continue pouring money into their arsenals, especially if the ban prohibits financial investment in nuclear weapons. The divestment campaign accompanying the treaty banning cluster munitions has been useful in affecting the financial interests of corporations producing these weapon systems and related components. Some governments have already begun divesting from nuclear weapons producers.

Of course, it is the countries that possess these weapons that will have to eliminate

them. This means that while campaigners internationally are generating momentum for outlawing nuclear weapons, activists in the nuclear-armed states will need to simultaneously undertake initiatives that put pressure on strategic points of power and influence in the nuclear weapons enterprise. This will include actions aimed at preventing the construction of new nuclear weapons facilities and new nuclear weapons and preventing financial investments to these ends. Strategic pressure will also require undermining domestic arguments for maintaining nuclear weapons in the twenty-first century. Just as the international discourse is actively reframing nuclear weapons as a humanitarian threat, activists in nuclear-armed states will need to stigmatize their governments' policy of mass destruction and portray nuclear weapons as a symbol and manifestation of the violence, inequality, and injustice of the political and economic systems that sustain them.

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Notes:

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