5. National governance of nuclear weapons: opportunities and constraints

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I. Introduction[1]

More than 60 years after the dawn of the nuclear age, the governance of nuclear weapons is an issue that is ripe for revisiting. In this chapter the term 'governance' encompasses not only the functions of those who possess the power to make decisions of various kinds regarding nuclear weapons, but also the functions of those who have the practical means and the physical opportunity to execute these decisions. Nuclear weapons continue to hold a prominent place in the security concerns of both nuclear weapon states and non-nuclear weapon states, despite the end of the cold war and the indefinite prolongation of the 1968 Treaty on the Non-proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT).[2] This chapter focuses in a broader way, and with a governance rather than a security perspective, on the whole spectrum of political oversight and control mechanisms that may apply within and, to some extent, between nuclear weapon states. Drawing on the notions of civilian control and of democratic accountability that have become established in the context of efforts for security sector reform,[3] it examines the roles and requirements not just of the state executive, the military and specialized civilian institutions, but also of parliamentary institutions and civil society at large.

In the calculation of the risks involved for regional and global security, the question of who commands and controls nuclear forces—and what this means for their possible use—is important.[4] Civilian control and democratic account-

[1] This chapter draws on the preliminary results of a research project by the Geneva Centre for the Democratic Control of Armed Forces (DCAF), which will conclude in 2007 with the publication of *Governing Nuclear Weapons: Opportunities and Constraints for Democratic Accountability and Civilian Control of Nuclear Weapons*. On the project and DCAF see URL <http://www.dcaf.ch/civnuc/_index.cfm>. See also Born, H., 'Civilian control and democratic accountability of nuclear weapons', eds H. Hänggi and T. Winkler, *Challenges of Security Sector Governance* (LIT Verlag: Münster, 2003). The author wishes to thank DCAF colleagues Heiner Hänggi and Wendy Robinson for their help in preparing this text.

[2] As defined in Article IX of the NPT, only states that manufactured and exploded a nuclear device before 1 Jan. 1967 are recognized as nuclear weapon states. By this definition, China, France, Russia, the United Kingdom and the United States are the nuclear weapon states parties to the treaty. For the signatories and parties to the NPT see annex A in this volume. The full text is available at URL <http://www.iaea.org/Publications/Documents/Treaties/npt.html>.

[3] See Hänggi and Winkler (note 1); and Caparini, M., 'Security sector reform and NATO and EU enlargement', *SIPRI Yearbook 2003: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2003), pp. 237–60.

[4] See, e.g., Blair, B., *The Logic of Accidental Nuclear War* (Brookings Institution: Washington, DC, 1993); and Bracken, P., *The Command and Control of Nuclear Forces* (Yale University Press: New Haven, Conn., 1983).

ability of nuclear weapons is a sparsely researched domain. Most of the existing studies have a national focus, usually on the United States, and address executive control,[5] while other studies discuss emerging nuclear weapon states.[6] Robert Dahl and other authors have addressed the interplay and compatibility between democracy and nuclear 'guardianship', including the question of how greater democracy might promote the aims of arms control and disarmament.[7] These studies have highlighted several grounds for concern about the *process* of nuclear weapon development and nuclear policy making, in addition to the evident reasons for worrying about the number of weapons still extant today and the risks of both 'horizontal' and vertical' proliferation.[8] Even in advanced democracies, the balance between secrecy and openness has arguably tilted in a way that largely exempts national decisions on nuclear weapon capabilities from normal democratic controls.[9] Countries with authoritarian governments and hostile neighbours commonly perceive tight central control of nuclear weapon programmes as a requisite for regime survival and regional stability. The different degrees of non-transparency and curtailment of democracy that result point *inter alia* to the scope for 'nuclear learning' about governance solutions between new and older nuclear weapon possessors.[10] At the international level, it has been argued since cold war times that a lack of internal debate and control correlates with greater uncertainty and risk regarding the external behaviour of the state in question. In the current security environment, further arguments could be added about the way in which secretive and undemocratic handling of nuclear decisions may aggravate the scope both for new weapon acquisition and for drift towards greater nuclear dependence in the nuclear weapon states; while differing governance practices and degrees of openness also obstruct progress in regional and global cooperation against dangers (like nuclear terrorism and nuclear smuggling) that are common to all.

[5] Feaver, P., *Guarding the Guardians: Civilian Control of Nuclear Weapons in the United States* (Cornell University Press: Ithaca, N.Y., 1992).

[6] E.g., Lavoy, P., Sagan, S. and Wirtz, J., *Planning the Unthinkable: How New Powers Will Use Nuclear, Biological and Chemical Weapons* (Cornell University Press: Ithaca, N.Y., 2000); and Feaver, P., 'Command and control in emerging nuclear nations', *International Security*, vol. 17, no. 3 (winter 1992/93), pp. 160–87.

[7] Dahl, R., *Controlling Nuclear Weapons: Democracy Versus Guardianship* (Syracuse University Press: Syracuse, N.Y., 1985). See also Sagan, S. and Waltz, K., *The Spread of Nuclear Weapons: A Debate Renewed* (Norton: New York, N.Y., 2003); Müller, H., 'Nuclear disarmament: the case for incrementalism', eds. J. Baylis and R. O'Neill, *Alternative Nuclear Futures: The Role of Nuclear Weapons in the Post-Cold War World* (Oxford University Press: Oxford, 2000), pp. 125–44; and Sagan, S., Center for International Security and Arms Control (CISAC), *Civil–Military Relations and Nuclear Weapons*, CISAC report (Stanford University, CISAC: Stanford, Calif., June 1994).

[8] For information on nuclear forces and planned developments see appendix 13A in this volume; and for a discussion of current proliferation concerns see chapter 13 in this volume.

[9] According to Dahl, the 'crucial choices about nuclear weapon strategy have been made by a very small group of decision makers, including those of the president, have been subject only weakly, if at all, to democratic procedures . . . For all practical purposes, on these matters, no public opinion existed and the democratic process was inoperable'. Dahl (note 7), p. 34.

[10] On 'nuclear learning' processes in nuclear weapon states see Nye, J. S., 'Nuclear learning and US–Soviet security regimes', *International Organisation*, vol. 41 (summer 1987), pp. 378–85; and Gaddis, J. L. et al. (eds), *Cold War Statesmen Confront the Bomb: Nuclear Diplomacy Since 1945* (Oxford University Press: Oxford, 1999).

Section II of this chapter addresses aspects of national governance in the five NPT-defined nuclear weapon states—the USA, Russia, China, France and the United Kingdom—and in three de facto nuclear possessor states—India, Israel and Pakistan.[11] This selection considers states that have widely varying nuclear arsenals (in quantity and quality) as well as different internal systems and historical, cultural and geographical backgrounds. Section III discusses four different indicators of accountability: command and control arrangements, executive control, parliamentary control and the role of the public. It also examines the controls inherent in international instruments and relationships. The conclusions are presented in section IV. Throughout this analysis, it is necessary to recognize the problems placed in the way of comparative research by the culture of confidentiality, and sometimes of deliberate ambiguity and misdirection, that characterizes the field of nuclear weapon decision making.

II. Governance in the states possessing nuclear weapons

The United States[12]

In 1945 the USA became the first state to carry out a nuclear weapon test as well as the first (and still the only) state to use such weapons. From the outset the USA has emphasized the political control of its nuclear assets. In the early 1950s nuclear weapons were stored separately from the delivery vehicles by the Atomic Energy Commission (AEC), not by the military. Under the provisions of the 1946 Atomic Energy Act only the president could authorize the transfer of nuclear weapons to the military (as happened, for example, in 1950, shortly after the Korean War broke out). However, over time attitudes to nuclear weapons became to some extent 'conventionalized', allowing gradual delegation of control, until today the military has physical custodianship over the US nuclear arsenal. Nevertheless, the National Nuclear Security Administration (NNSA), within the Department of Energy (DOE), remains responsible for research, development, production, modernization and dismantling of US nuclear weapons.[13] The employment of nuclear weapons is controlled by a system of permissive action links (PALs) that use an electronic code that can be released to military personnel only on the president's authority. PALs, other safety devices and various elements of physical protection are designed to shield the weapons against accident as well as theft or unauthorized use.

The president is the final authority on nuclear doctrine, development and operational status but relies heavily on a collection of statutory policy advisers, notably the Office of the Secretary of Defense and the Joint Chiefs of Staff. The Department of State and the DOE also have a decision-making role

[11] In Feb. 2005 North Korea announced that it possessed operational nuclear weapons. This claim has not been independently confirmed.

[12] This section draws on the contributions of Peter Feaver and Kirstin Thompson Sharp to the DCAF research project on governing nuclear weapons (note 1).

[13] See the NNSA website at URL <http://www.nnsa.doe.gov>.

on nuclear issues, as does the National Security Council. As commander-in-chief of the armed forces, the president also has an operational role; this includes approving targeting policy, setting the alert rate of US nuclear forces and authorizing the release of nuclear weapons to military units. A suitcase (the 'nuclear football') containing nuclear access codes and launch options is close to the president at all times.

Arrangements are in place to safeguard the continuity and power of action of the US Government should an attack occur, and there is little doubt that the president has the right *inter alia* to pre-delegate authority to launch nuclear weapons.[14] Pre-delegation was conceived as a way of using the military chain of command to solve command and control problems in the event of a nuclear attack. It set out a specific set of circumstances under which the president authorized in advance the use of nuclear weapons. The civilian authorities still retained overall control of the process because they specified the circumstances for pre-delegating nuclear launch authority to military commanders. Recently declassified documents at the National Security Archives show that pre-delegation happened under presidents Dwight D. Eisenhower and John F. Kennedy and supposedly continued until the late 1980s.[15] It is unclear to what extent it currently occurs.

To date no documents have been declassified that reveal plans for reconnecting the president or the president's successor with the National Command Authority (NCA) after a pre-delegated nuclear retaliatory strike. In addition, the NCA's devolution of command for authorizing the release of nuclear weapons does not match the line of presidential succession set out in the US Constitution. This presents a potential problem for democratic governance of nuclear weapons in grave or extreme circumstances.

The power of the president as commander-in-chief concerning nuclear weapons is constitutionally limited by the powers of the US Congress. Under the Constitution, the Congress declares war, raises armies and has the power (in this instance only the Senate) to consent to treaty ratification as well as to approve high-level civilian and military appointments. The Congress also controls the federal budget, including defence spending. The power of the purse was recently demonstrated when the Congress denied funding requested by the administration for a programme to develop a new nuclear warhead for the third consecutive year.[16] More generally, the Congress has a constitutional mandate to oversee the executive branch's activities. In order to fulfil this function, the Congress has set up a number of bodies, such as the Congressional Research Service (CRS) and the Congressional Budget Office (CBO), to provide members with independent information and advice. In addition, the Government Accountability Office (GAO) is directly engaged in auditing the

[14] Feaver (note 5), p. 48.

[15] Blair (note 4).

[16] The programme was for the robust nuclear earth penetrator (RNEP) warhead. See Norris, R. S. and Kristensen, H. M., 'U.S. nuclear forces 2006', *Bulletin of the Atomic Scientists*, vol. 62, no. 1 (Jan./Feb. 2006), pp. 68–71.

executive branch's implementation of congressionally approved policies and programmes, including in the national security field.

In comparison with some other nuclear weapon states, the USA has a vigorous civil society with the potential for demonstrable impact on the nuclear debate. The 'revolving door' system whereby a new president can place his or her own appointees (often from non-official backgrounds) into even quite modest-level official posts maintains a two-way traffic between officials dealing with nuclear matters and individuals with positions outside of government. Nuclear weapons have become a major issue in some presidential elections: *vide* the alleged 'missile gap' in President Kennedy's 1960 campaign, the play made with President Jimmy Carter's 'softness on defence' by the 1980 campaign of Ronald Reagan and the issue of missile defence in the campaign for the 2000 election. These elements of a strong democratic system, combined with relative openness about US nuclear systems and plans—and the USA's record of cooperative international engagement, notably, with Russia[17]—have made the USA something of a reference point and yardstick for investigations of nuclear governance in other less transparent states.[18] Nevertheless, elements of secrecy within the system, and the centralization of operational power in the hands of the president, pose challenges to democratic governance even in the US case.

Russia[19]

The Russian Federation is the legal successor state to the Soviet Union, which was the second state to test a nuclear weapon, in 1949.[20] Its challenges in nuclear governance reflect not only the difficult and still inchoate course of its democratic transition, but also a strategic setting in which nuclear weapons have come to be seen as one of the last symbols of Russia's status as a superpower. These factors tend to concentrate nuclear decision making in the hands of a tight official circle outside public scrutiny: but, paradoxically, the very relevance of nuclear capability to the nation's general fate and self-image makes it an actively debated topic among experts and the general public.

[17] The USA and the Soviet Union/Russia are the only nuclear weapon states to have concluded formal, reciprocal nuclear arms control agreements, in some cases entailing verified reductions. While the USA has recently moved away from such formal commitments (see chapter 12 in this volume), current cooperative programmes between the USA and Russia for the security and disposition of surplus nuclear weapons and weapon-usable nuclear material have served to increase transparency in their respective arsenals. See Zarimpas, N. (ed.), SIPRI, *Transparency in Nuclear Warheads and Materials: The Political and Technical Dimensions* (Oxford University Press: Oxford, 2003).

[18] Swiss Foundation for World Affairs and the Geneva Centre for the Democratic Control of Armed Forces, Report on the Conference on Governing Nuclear Weapons: Addressing Political Control, Military Prerogatives, and Scientific Lobbies, Johns Hopkins University, Washington, DC, 11 Apr. 2005.

[19] This section draws on the contribution of Alexei G. Arbatov to the DCAF research project on governing nuclear weapons (note 1).

[20] On the status of the Soviet Union's nuclear weapons after its dissolution in Dec. 1991 see Lockwood, D., 'Nuclear arms control', *SIPRI Yearbook 1994* (Oxford University Press: Oxford, 1994), pp. 639–72; and Goldblat, J., SIPRI and International Peace Research Institute, Oslo, *Arms Control: The New Guide to Negotiations and Agreements* (SAGE Publications: London, 2002), p. 90. See also the details of the Treaty on the Reduction and Limitation of Strategic Offensive Arms (START I Treaty) in annex A in this volume.

The Russian president has the formal decision-making power over all major aspects of the nuclear weapon cycle, including the development, production, storage, deployment and use of nuclear weapons. The president takes decisions on funding and the size of the nuclear arsenal. In constitutional terms, the president's authority over military policy is exercised with the support of a Security Council including the prime minister, the defence minister, the foreign minister and the director of the Federal Security Services (Federal'naya Sluzhba Bezopasnosti, FSB). In contrast with the US president, the Russian president does not have the sole authority to use nuclear weapons. The suitcase containing the release codes is under joint control of the president, the defence minister and the chief of the general staff.[21] In practice, another limitation on the president's role as the civilian arbiter of nuclear policy is the lack of well-qualified and independent civilian advice. This problem has been exacerbated by the rise during President Vladimir Putin's term of office of the *siloviki* (military and civilian security and intelligence officials), who now almost monopolize the top posts. This situation has some parallels with the fusion of civilian and military leadership in China and in Pakistan (see below).

The institutional responsibilities and competences of the Russian military in relation to the civilian leadership have been curtailed in recent years. In the past, war planning and nuclear modernization programmes were left largely to the military—within the given budget limits—and arguably led to a needless proliferation of weapon types. The June 2004 amendments to the 1996 law 'On Defence'[22] unequivocally put the general staff under the authority of the civilian defence minister.

The problems related to the physical control of Russia's nuclear forces remain a serious concern, given the fragmentation of the former Soviet system (e.g., five out of eight former Soviet early-warning radars are now outside Russia) and the lack of funds, which has allowed satellite systems and other physical assets to degrade.[23] Concern about the security of Russia's nuclear arsenal, in particular its tactical nuclear weapons, has spurred but not been fully resolved by programmes of international non-proliferation and disarmament assistance to the states of the former Soviet Union.[24] However, the physical security of Russian warheads is generally considered to be adequate. There is no evidence to counter the Russian statements that all Russian warheads have been consolidated at storage sites, and the USA has worked with Russia to upgrade the security of these sites. The current problems with phys-

[21] Waller, J., 'Changing the nuclear command', *Insight on the News*, vol. 17, issue 7 (Feb. 2001), p. 14; and Collina, T., 'Nuclear terrorism and warhead control in Russia', *Survival*, vol. 44, no. 2 (spring 2002), p. 75.

[22] Russian Federation Ministry of Defence, Federal Law 'On Defence', no. 61-FZ, 31 May 1996, URL <http://www.mil.ru/articles/article3863.shtml> (in Russian).

[23] E.g., in 1995 the launch of a Norwegian research rocket put Russia's command and control mistakenly on alert status. Sokov, N., *Could Norway Trigger a Nuclear War? Notes on the Russian Command and Control System*, PONARS Policy Memo 24 (Center for Nonproliferation Studies, Monterey Institute: Monterey, Calif. 1997).

[24] Anthony, I. and Fedchenko, V., 'International non-proliferation and disarmament assistance', *SIPRI Yearbook 2005: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2005), pp. 675–98; and Russian Federation Ministry of Defence (note 22).

ical security relate to weapon-usable material and the question of whether all weapons were accounted for in the very special circumstances in the former Soviet Union in the early to mid-1990s.

The role of the State Duma (the lower house of the Russian Parliament), is confined to routinely approving the government's decisions. Members of the Duma can examine the annual armaments programme documents, but most of them lack the expertise to independently assess the programme while secrecy laws effectively prevent them from engaging experts. The staff of the Duma's Defence Committee are either former or active military personnel. As a result of all these factors, the Duma has little say in nuclear doctrine and strategy, and its annual debate on the defence budget leads to few if any changes. In comparison, as a result *inter alia* of three decades of arms control negotiations with the USA, a rather large body of nuclear-relevant information is available to non-governmental experts outside parliament and to the media: but they have no channel to influence government decisions and risk being imprisoned if they disclose 'state secrets'.[25] Journalists and scholars are now understandably reluctant to comment on the nuclear topic.

China[26]

China conducted its first nuclear weapon test in 1964, the last of the five NPT-defined nuclear weapon states to do so. Its nuclear decision-making system has been described as one of 'civilian control with Chinese characteristics', but one which is not 'democratically accountable'. Although the Chinese Communist Party (CCP) stays firmly 'in control of the gun', the military possesses a critically important, although not necessarily determinant, role in nuclear weapon affairs.

The way in which the Chinese executive handles nuclear decisions reflects the close symbiosis of the CCP with the military, which goes back to the party's origins. President Hu Jintao, the General Secretary of the CCP, also heads the two top decision-making bodies for defence policy—the Politburo Standing Committee (PBSC) and the Central Military Commission (CMC). All members of the two bodies are party members, meaning that civilian control equates closely with party control. Nuclear weapon decision making is based largely on consensus among the 'collective leadership' in these bodies, and the channels for its execution at the military level are direct and tightly controlled. According to US intelligence officials, 'an unauthorized or accidental launch of . . . Chinese strategic missiles is highly unlikely . . . China keeps its missiles un-fuelled and without warheads mated'.[27] The commander

[25] 'Russian gets 15 years for spying', BBC News Online, 7 Apr. 2004, URL <http://news.bbc.co.uk/1/3606649.stm>.

[26] This section draws on the contributions of Bates Gill and Evan Medeiros to the DCAF research project on governing nuclear weapons (note 1).

[27] Briefing by Robert Walpole, US National Intelligence Officer for Strategic and Nuclear Programs, Carnegie Endowment for International Peace, 17 Sep. 1998, URL <http://www.ceip.org/programs/npp/walpole.htm>.

of the Second Artillery Corps, which has responsibility for the nuclear launch units, is a member of the CMC. According to David Shambaugh, the units will not take action—for instance, to 'mate' the warheads with the missiles—without separate orders from both the CMC and the general staff.[28] Only since the 1989 Tiananmen Square uprising has the Chinese leadership reportedly begun to provide for maintaining control of nuclear weapons in the event of a national crisis (e.g., by introducing US-style PALs).[29]

The question is whether this well-established picture could change as China itself changes. The generation of CCP leaders who were military heroes has died out and the civilian leaders must maintain their authority by new means, including bureaucratic bargaining and appointments. China's fast-growing economy combined with its new global ambitions allows for a rapid modernization of its nuclear force structure and posture. However, while in the future China will have the material means for an accelerated nuclear modernization programme, there is no evidence that such a programme has been approved.[30] A larger, more accurate and more mobile arsenal could in turn call for more professional—and, perhaps, delegated—military control. There are reasons to believe that the role of the People's Liberation Army (PLA) in nuclear doctrine, development and procurement could grow as a result of, rather than in spite of, the PLA's growing professionalism and depoliticization.

As for the legislative branch, the constitution formally grants the National People's Congress (NPC) wide constitutional powers that amount to parliamentary supremacy in decision making. In reality, under the dominance of a single party, the NPC has never sought to exercise such a role and merely rubber-stamps executive decisions on matters of high policy. There is no publicly available evidence of legislation or parliamentary debate on the subject of nuclear weapons. As for the public at large, China has neither an informed civil society nor non-governmental organizations (NGOs) capable of offering policy alternatives. Moreover, the media remain under the direction of the CCP. As a result, nuclear affairs in China remain subject to extreme secrecy. This is amplified by the fact that China has never engaged in international disarmament talks and has not participated in joint weapon development and procurement with a democratic country.

France[31]

France carried out its first nuclear weapon test in 1960. France's political system is a 'presidential democracy' that gives strong powers to the president, particularly in foreign affairs and defence policy, including nuclear weapon

[28] Shambaugh, D., *Modernizing China's Military: Progress, Problems and Prospects* (University of California Press: Berkeley, Calif., 2003), pp. 166–67.

[29] Coll, S. and Ottaway, D., 'Will the United States, Russia, and China be nuclear partners or rivals in the 21st Century?', *Washington Post*, 11 Apr. 1995.

[30] On China's nuclear modernization programme see appendix 13A in this volume.

[31] This section draws on the contribution of Bruno Tertrais to the DCAF research project on governing nuclear weapons (note 1).

decision making. The president appoints the prime minister, chairs the Council of Ministers and can dissolve the National Assembly. Because of the role that nuclear responsibilities have played in reinforcing this pre-eminence, the French presidential system has been nicknamed the 'nuclear monarchy'.[32]

No French nuclear weapon can be physically moved without political authorization, and the president has to personally approve any change in alert status. Unlike their US counterparts, for instance, the commanders of France's nuclear-armed ballistic missile submarines cannot launch their missiles without a presidential command that combines authorization with an enabling code. No weapon can be physically detonated without both the presidential code and a military code.[33] In exercising nuclear authority, the French president is supported by a small private military staff and by the Defence Council, which includes the prime minister, the minister of defence and the minister of foreign affairs. The military industry and the scientific establishment have no seats on this body. Decisions concerning the use of nuclear weapons would generally involve only three people: the president, the chief of the presidential military staff and the chief of the defence staff. Constitutionally, if the president were unable to exercise these powers, they would devolve to the president of the Senate and then to the government.

According to Article 34 of the Constitution, the French Parliament shall 'determine the fundamental principles of the general organization of national defence'. However, a presidential decree of 1964 excludes parliament from involvement in the president's mandate and power over nuclear weapons.[34] Parliament was not consulted when President Charles de Gaulle started the nuclear programme in 1958. However, the parliament votes on the annual defence budget and on the five-yearly military procurement programmes, which set the budget guidelines for the development and maintenance of the nuclear arsenal. Parliamentary reports on nuclear weapon issues can be critical of government policy, but without material consequences. Nevertheless, they help to provide members of parliament and the general public with authoritative information about nuclear affairs.

Over the years, a roughly two-thirds majority (60–70 per cent) of the French public has continued to support the nuclear weapon programme,[35] but it is hard to assess how informed this attitude may be. Think tanks play a limited role in public debate on nuclear weapons and, although non-proliferation issues are well covered, information on France's own nuclear arsenal seldom appears in the media.

[32] Cohen, S., *La monarchie nucléaire: Les coulisses de la politique étrangère sous la Vielle République* [The nuclear monarchy: what goes on behind foreign policy under the fifth republic] (Hachette: Paris, 1986), pp. 15–32.

[33] Isnard, J., 'Le code d'engagement de la force nucléaire' [The code for launching the nuclear force], *Le Monde*, 20 May 1981.

[34] Décret no. 64-46 du 14 janvier 1964 relatif aux forces aériennes stratégiques [Decree no. 64-46 of 14 January 1964 concerning strategic air forces]. The decree was abrogated and replaced by Décret no. 96-520 du 12 juin 1996 portant détermination des responsabilités concernant les forces nucléaires [Decree no. 96-520 of 12 June 1996 on the allocation of responsibilities pertaining to nuclear forces].

[35] See the 1984 and 1996 opinion polls, cited in Sinnott, R., *European Public Opinion and Security Policy*, Chaillot Paper no. 28 (Institute for Security Studies of the Western European Union: Paris, 1997).

The United Kingdom[36]

The UK has had operational nuclear weapons since 1956 (it conducted its first test of a nuclear weapon in 1952), but it gradually cut back its arsenal after the collapse of the Soviet Union. In 1998 the Labour government announced the results of a Strategic Defence Review that mandated reductions in the size and the operational readiness of the UK's submarine-launched ballistic missile force.[37] The stated purpose of British nuclear weapons continues to be to serve as a 'minimum nuclear deterrent'.[38] Under the 1958 Mutual Defence Agreement between the UK and the USA, the UK maintains independent control over its nuclear forces but is dependent on the USA for weapon technology and maintenance.[39] In addition, US nuclear weapons are based in the UK. In accordance with the policy of the North Atlantic Treaty Organization (NATO), the USA has full custody over these weapons, and it is believed that the USA is committed to consult the UK—time and circumstances permitting—before releasing these weapons for use.

The main decisions on defence policy in the UK, including all aspects of its nuclear weapon programme, are taken by the prime minister and the Cabinet. Peter Hennessey claims that each prime minister, at the start of his or her term, writes a 'beyond the grave' letter instructing the commander of the on-duty nuclear submarine as to what to do should all communications from the UK cease.[40] However, there is no pre-delegation of launch authority to the military. All missiles on British nuclear submarines are de-targeted, and missiles can only be fired by turning multiple keys (held by different officers) on receipt of a command message. Reportedly, these command and control arrangements were reviewed after the events of 11 September 2001, and the deputy prime minister was nominated to be responsible for nuclear-use decisions if the prime minister is unable to act as a consequence of an attack on the UK.[41]

Although the British Parliament 'has the ultimate power to refuse to endorse government expenditure', in practice this power is very rarely, if ever, exercised in relation to defence policy. Parliament 'does not analyse specific programmes in detail and cannot exercise advance control'. Rather, its role remains limited to performing an audit after decisions have been made by the executive, as well as questioning on an ad hoc basis current policy and deci-

[36] This section draws on the contributions of John Simpson and Jenny Nielsen to the DCAF research project on governing nuclear weapons (note 1).

[37] British Ministry of Defence (MOD), *Strategic Defence Review* (MOD: London, July 1998), URL <http://www.mod.uk/issues/sdr/deterrence.htm>.

[38] British Ministry of Defence (note 37), para. 60.

[39] Harris, R., 'The state of the special relationship', *Policy Review*, June 2002, URL <http://www.policyreview.org/JUN02/harris.html>. See the text of the Mutual Defence Agreement at URL <http://www.basicint.org/nuclear/1958MDA.htm>.

[40] Hennessey, P., *The Secret State: Whitehall and the Cold War* (Penguin: London, 2003), pp. 208–10.

[41] Hennessey (note 40), pp. 206–208.

sions.[42] The House of Commons Defence Committee has closely overseen the development of the current Trident nuclear weapon system, and various members of parliament have already made clear that they will closely watch the decision required shortly on its possible replacement.[43] In addition, the authority of the Commons Public Accounts Committee to ensure that government expenditure is compliant with both legal and parliamentary stipulations may extend to the nuclear deterrent.

According to public opinion polls, 58 per cent of the respondents believe that the UK should keep its nuclear weapons until the other nuclear weapon states disarm.[44] NGOs both in favour of and opposing nuclear weapons have played a prominent part in mobilizing public interest and debate. For example, during the cold war the Campaign for Nuclear Disarmament influenced mainstream politics via the Labour Party.[45] However, secrecy clauses limit the possibility of an informed debate in the public domain, a particularly important question at a time when the modernization of British nuclear forces is under review. This is partly remedied by the 2000 Freedom of Information Act, although the government may, and does, hold back some nuclear-related documents from disclosure.

At the international level, British policy operates within the constraints of various bilateral and regional alliance structures as well as those of global governance and arms control arrangements. As a member of NATO, the UK's current nuclear posture allows for nuclear first-use, and the Labour Party dropped its opposition to a no-first-use policy after taking over government in 1997.

Israel[46]

Having started its nuclear programme in the mid-1950s, Israel was generally considered by 1970 to have achieved an operational nuclear weapon capability. Since 1986, after the disclosures of Mordechai Vanunu,[47] Israel is believed to have a mature nuclear weapon programme. Estimates of the size of its nuclear arsenal vary, usually ranging from fewer than 100 warheads to 200–300 warheads.[48]

Israel's official policy of neither confirming nor denying possession of nuclear weapons is combined with strict confidentiality measures and insula-

[42] McLean, S. (ed.), *How Nuclear Weapons Decisions Are Made* (MacMillan and Oxford Research Group: Basingstoke, 1986), p. 132.

[43] E.g., Portillo, M., 'Does Britain need nuclear missiles? No, scrap them', *The Times*, 19 June 2005; and British House of Commons, 'Oral answers', *Parliamentary Debates* (*Hansard*), 6th series, vol. 436, C5 (4 July 2005).

[44] The figures are from opinion polls in 1984 and 1996. See Sinnott (note 35).

[45] Freedman, L., *The Evolution of Nuclear Strategy* (Palgrave MacMillan: London, 2003).

[46] This section draws on the contribution of Avner Cohen to the DCAF research project on governing nuclear weapons (note 1).

[47] Vanunu is an Israeli former nuclear scientist who revealed details of Israel's nuclear weapon programme to *The Sunday Times* in 1986. He was subsequently abducted by the Israeli secret services and taken back to Israel, where he was tried behind closed doors and convicted of treason.

[48] Appendix 13A in this volume contains data on the nuclear weapon arsenal of Israel.

tion of the issue from national politics.[49] In 2004 when the Director General of the International Atomic Energy Agency (IAEA), Mohamed ElBaradei, tried to persuade Israel to start a dialogue about a nuclear weapon-free zone in the Middle East, Prime Minister Ariel Sharon stated publicly that 'our policy of ambiguity on nuclear arms has proved its worth, and it will continue'.[50] In such conditions, hardly anything is known about Israel's command and control system, but it is believed to include a system of PALs to protect against unauthorized use or theft. Israel's nuclear arsenal is subject to a system of tight civilian control by a few officials in the executive and under the direct responsibility of the prime minister. Internal advisory panels of economists, chief scientists, army officers and academics with top security clearance are thought to exist, but information about such panels is not public.

In the first period of Israel's nuclear weapon programme (1955–61), neither the Knesset (parliament) nor the State Comptroller's Office played any oversight or supervisory role. Only in the early 1960s did a group of senior members of parliament take part in approving the budget for the nuclear weapon project. At the end of the 1970s the Defence and Foreign Affairs Committee of the Knesset established a sub-committee dealing with Israel's nuclear capacity. The lack of expertise and opportunities for outside consultation limit what the Knesset can make of its role, but some parliamentarians openly and critically debated Israel's nuclear deterrence policy on 2 February 2000.[51] Financial control over nuclear weapons is exercised by Israel's State Comptroller, whose reports are kept secret. The office of the military censor forbids any media reference to Israel's nuclear arsenal, which poses obvious problems for public accountability and debate.

Israel is not a party to the NPT and has not concluded any facility-specific safeguards agreement with the IAEA. Successive Israeli governments have rejected requests from the IAEA for the country to open for inspection its nuclear facility at Dimona.

India[52]

After testing a 'peaceful nuclear device' (known as the Smiling Buddha) in 1974, India conducted five underground nuclear explosions in May 1998.[53] In August 1999 the Indian National Security Advisory Board released the Draft Nuclear Doctrine (DND). Largely patterned on the doctrines and deployment postures of the nuclear weapon states, the DND stated that 'India shall pursue

[49] Cohen, A., *Israel and the Bomb* (Columbia University Press: New York, N.Y., 1998).

[50] 'Sharon sticks to nuclear policy', BBC News Online, 6 July 2004, URL <http://news.bbc.co.uk/2/3869125.stm>. Sharon added that Israel would consider giving up its 'deterrent capability' if its neighbours gave up their weapons of mass destruction and fully implemented a comprehensive regional peace agreement.

[51] Steinberg, G., 'The Knesset's nuclear farce', *Jerusalem Post*, 18 Feb. 2000.

[52] This section draws on the contribution of Waheguru Pal Singh Sidhu to the DCAF research project on governing nuclear weapons (note 1).

[53] See Ferm, R., 'Nuclear explosions, 1945–98', *SIPRI Yearbook 1999: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1999), pp. 556–64.

a doctrine of credible minimum nuclear deterrence' based on a policy of no-first-use.[54] There have been no official statements specifying the size of the nuclear stockpile required for 'credible minimum deterrence'.[55] Currently, India is estimated to have approximately 50 nuclear warheads, a number that is likely to grow over the next decade.[56] Most observers believe that India maintains a recessed nuclear posture, in accordance with its no-first-use policy: that is, nuclear warheads are not mated to their delivery vehicles, and some nuclear warheads may be stored in unassembled form.

India's political leaders, the scientific establishment and the military all play a part in the governance of nuclear weapons and depend on cooperation with each other. The scientific establishment holds the nuclear warheads, the military holds the delivery systems and the political authorities exercise general oversight *inter alia* of weapon use. In January 2003 the Indian Government established a two-layered structure called the Nuclear Command Authority (NCA) to manage its nuclear and missile arsenals. The NCA comprises the Executive Council, chaired by the prime minister's national security adviser, and the Political Council, chaired by the prime minister. The Political Council is the only body that can authorize the use of nuclear weapons. In addition, a tri-service Strategic Forces Command (SFC) has been created to oversee the nuclear forces.[57] In the event of a decision by the civilian leadership to use nuclear weapons, they would be released to the SFC for delivery to their targets. The complex system of control may be seen as a barrier against accidental or unauthorized use.

The parliament has debated nuclear weapons a few times since independence in 1947 but has not played a decisive role. The 1974 and 1998 tests were decided by a small circle of decision makers within the executive. The parliament's standing defence committee exercises only perfunctory oversight of India's nuclear arsenal. The costs of the nuclear arsenal are hidden: warheads and delivery systems do not figure as a separate entry in the defence budget. The policy issue of how many nuclear weapons constitute a minimum deterrent has in practice been left to the scientists and the military, who have their own interests to serve. The role played by civil society is small, if any. Public opinion polls showed that the approval ratings for the government and for the weapon tests increased significantly in the days directly after the 1974 and 1998 tests but decreased to normal or even low rates a few months later.[58]

[54] Indian Government, Ministry of External Affairs, *Draft Report of National Security Advisory Board on Indian Nuclear Doctrine*, 17 Aug. 1999, URL <http://meaindia.nic.in//disarmament/dm 17Aug99.htm>.

[55] For a critique of the notion of deterrence, especially in a South Asian context, see Bidwai, P. and Vanaik, A., *South Asia on a Short Fuse: Nuclear Politics and the Future of Global Disarmament* (Oxford University Press: New Delhi, 1999).

[56] See appendix 13A in this volume.

[57] Patney, V., 'Nuclear force structures: challenges', ed. V. Raghavan, *Nuclear Weapons and Security* (Delhi Policy Group: Delhi, 2005), pp. 53–55.

[58] Perkovich, G., *India's Nuclear Bomb: The Impact on Global Proliferation* (University of California Press: Berkeley, Calif., 2001), pp. 180, 188, 416 and 439.

Pakistan[59]

Pakistan confirmed its status as a de facto nuclear weapon state in May 1998, when it carried out a series of nuclear explosions a few days after India had done so.[60] In the 1970s President Zulfikar Ali Bhutto created a nuclear management infrastructure of civilian politicians and scientists to develop and control Pakistan's nuclear weapons. However, in February 2000 the military government created a new organization that is responsible for formulating policy and exercising control over the development and employment of Pakistan's strategic nuclear forces—the National Command Authority (NCA). The NCA is currently headed by President Pervez Musharraf. It is a mixed civilian–military body that has three components: the Employment Control Committee, the Development Control Committee and the Strategic Plans Division. The military's representatives are in a majority in all three bodies and hence play a dominant role in the overall formulation of Pakistan's nuclear strategy.

The authority to allow the use of nuclear weapons is vested in the president and the prime minister. According to a senior Pakistani military official, the control of the nuclear arsenal is governed by a 'three-men rule': any decision about the use of nuclear weapons requires the concurrent agreement of three persons, although the third person besides the president and the prime minister is not identified.[61]

With the help of the USA, allegedly Pakistan's nuclear weapons have been equipped with modern PALs and other security devices to protect against unauthorized and accidental use. The USA has shown concern about making Pakistan's nuclear arsenal safer, especially in view of the perceived risk of Islamic extremists overthrowing the present regime. *The Wall Street Journal* has reported that US Department of Defense strategists are 'planning around possible crises like the take-over of a nuclear armed ally, such as Pakistan, by Islamic extremists'.[62] In this instance, military control over the country's nuclear capacity may be seen *faute de mieux* as the norm to be preserved.

Pakistan's parliament was regularly dissolved and dismissed during periods of military rule and has become incapable of providing an effective democratic counterbalance to the military-led executive. Command and control of the nuclear arsenal are mostly based on executive decrees, thus sidelining parliament in the legislative process. The prime minister does remain accountable to parliament, but parliament has so far not debated the development, deployment and employment of the Pakistani nuclear arsenal.

Pakistan has an active civil society, but public debate hardly extends to national security and defence. According to a recent public opinion poll, the

[59] This section draws on the contribution of Zafal Iqbar Cheema to the DCAF research project on governing nuclear weapons (note 1).

[60] Ramana, M. V. and Mian, Z., 'The nuclear confrontation in South Asia', *SIPRI Yearbook 2003* (note 3), pp. 195–212. See also Ferm (note 53),

[61] Cotta-Ramusino, P. and Martellini, M., 'Nuclear safety, nuclear stability and nuclear strategy in Pakistan', 2001, URL <http://www.mi.infn.it/~landnet/Doc/pakistan.pdf>, pp. 4–5.

[62] Jaffe, G., 'Rumsfeld's gaze is trained beyond Iraq', *Wall Street Journal*, 9 Dec. 2004, p. 4; and NBC Nightly News, 6 Feb. 2004, URL <http://www.msnbc.msn.com/id/4201930>.

army is considered the most reliable institution in Pakistan to control the nuclear arsenal.[63] The free press is limited, although it is active by the region's standards. Journalists may be intimidated by the intelligence and security forces if they criticize the regime.[64]

III. Layers of accountability for controlling nuclear weapons

Command and control

Command and control systems are the medium by which the use of nuclear weapons can enter into military operations. Of necessity command and control systems involve military knowledge and action, but—despite the prevailing secrecy in this area—it may be stated with some confidence that no country at present places the power of decision on nuclear use completely in military hands. Concern has focused rather on the risk that military 'cultures' and interests may lead to the accidental or deliberate flouting of restraints on nuclear use and that civilian control may be weakened, as it were, from the bottom–up.[65] Political leaders in different states have used a variety of measures to reduce this risk, including separate storage of nuclear warheads from delivery systems (still practised in China and India) or the use of PALs that may only be triggered by civilian leaders. In some cases (e.g., India), elements of control by the scientific–industrial complex form an additional check on military autonomy. Conversely, however, it should be noted that the invariable need for military action to execute both general nuclear policies and ad hoc use can in some cases be a useful safety net against irresponsible political decisions.

Executive control over nuclear weapons

Executive control is a wider concept than 'command and control' since it covers decisions on nuclear policy and strategy, procurement, deployment and resource use as well as determining the country's position on relevant international issues and instruments. In the eight countries studied in this chapter, this function is formally invested in the head of state or government, who in practice leads the executive of the country concerned. The importance of this individual (president or prime minister) is sometimes physically represented by his or her possession of the suitcase containing the nuclear release codes—as in Russia and the USA—and also by the lines of succession established to permit nuclear decision taking should the first individual be unable to act. It is worth noting that the line of devolution of this nuclear authority may be different from the normal constitutional line of succession (as, e.g., in France,

[63] Nizamani, H. K., 'Whose bomb is it anyway? Public opinion and perceptions about nuclear weapons and policy in the post-explosions phase in Pakistan', South Asia Research Network for the Social Sciences and Humanities, 14 June 2003, URL <http://sarn.ssrc.org/publications/>.

[64] Freedom House, 'Freedom in the world—2005', URL <http://www.freedomhouse.org/research/freeworld/2005/Kuwait-PNG.pdf>.

[65] See, e.g., Sagan and Waltz (note 7), p. 47; and Feaver (note 5).

Russia and the USA), where the latter involves persons like the speaker of parliament, who may be ill-placed to play a role in nuclear decision making.

In most cases, the top individual's freedom of action is limited by the existence of multi-person release procedures (normally including one or more military officers) and of formal bodies with advisory and policy-making powers over nuclear matters alone or defence in general. Examples of the latter are the Indian Nuclear Command Authority, the Chinese Central Military Committee and the French Defence Council. What is much harder to determine, especially in the more secretive countries, is how far such constitutional arrangements can guarantee 'civilian' control.

Parliamentary control

The theoretical powers of parliament can range from debate via legislative and budgetary powers to some degree of co-decision. In some cases parliament's role is formally reduced by the existence of presidential or executive decrees determining aspects of nuclear policy and management (e.g., in France, Pakistan and the UK). The strongest combination of legislative, budgetary and debating powers is possessed by the US Congress. The British and French parliaments can hold debates (as is the case in India) and exercise a more generalized budgetary control, while other parliaments (those of China, Israel and probably Pakistan) are not allowed to address nuclear issues at all. However, the place of parliament in policy-forming structures is not defined only by such formal considerations but also by parliamentarians' expertise and attitudes and by the degree to which they act as mouthpieces and stimulants for a broader national debate. To a greater extent even than in the field of defence generally, most parliaments lack access to independent expertise on nuclear matters and in many cases their ability to remedy this is stymied by secrecy laws. Parliaments (e.g., in Russia) may in any case perceive no motive to challenge nuclear weapon policy, depending on their own backgrounds and their assessment of public opinion (see below).

'Public' control

Civil society, including NGOs, independent experts, the media and individuals exercising their political rights, may in principle both pass judgement on official policies and generate new alternatives. In practice, the importance of public control depends on the way in which the given system distributes political power, the degree of civic freedom and the public availability of information on the policy matters in hand. Even well-established democratic systems have a tendency to restrict information on nuclear matters while other systems use secrecy laws to restrain or make a deterrent example of individuals who question the system.[66] Dahl has argued that, as a result, citizens have generally

[66] On Russia see 'Russian gets 15 years for spying' (note 25); on Israel see note 47.

abandoned any attempt to affect nuclear matters and are themselves abstaining from, not only being debarred from, any challenging debate.[67]

Nevertheless, civil protest, especially in democratic nuclear weapons states, has occurred on numerous occasions since 1945. For example, there were internationally coordinated civil protests at the end of the 1970s against the deployment of the neutron bomb (an enhanced radiation weapon) and during the early 1980s against NATO's decision to deploy cruise missiles and ballistic missiles in five European NATO states. Not only were political parties (especially centre and left-wing parties) obliged to take these protests seriously, but a new field was created in which independent experts and think tanks covering nuclear matters could find a base and an audience. These influences undoubtedly propelled the effort to find arms control or other cooperative solutions to the issues concerned between East and West.

Research institutes have continued to play a role in shaping thinking on nuclear strategy, especially in the USA where the RAND Corporation, the Brookings Institution and the Carnegie Endowment for International Peace are among the organizations that publish influential reports. Lawrence Freedman points out that the role of independent research institutes is strongest where the 'demarcation line' between government and academics is least strict, notably in the USA.[68]

IV. Conclusions

This analysis shows both that the governance of nuclear weapons entails a combination of many factors and players and that there is a prima facie and widespread democratic deficit in this field. It is often argued that nuclear weapon decision making cannot be subject to democratic due process because of the need for secrecy and the supreme urgency and difficulty of the judgements involved. Not all relevant decisions, however, are taken under acute time pressure or require highly specialized—including military—nuclear weapon knowledge. Especially after the end of the cold war, the contention remains untested and unproven that disclosing the premises of nuclear decision making or strategic thinking would endanger national security. Because nuclear choices have major financial, moral and environmental—and even life-and-death—consequences, decision making in a democratic state should involve and balance all the interests concerned and should guarantee the necessary minimum of democratic accountability.

The analysis also shows that focusing on who is pushing the launch 'button' is an insufficient and oversimplified approach for evaluating nuclear control. Decisions at each phase of the nuclear weapon life cycle, from the decision to acquire nuclear weapons to decisions on use, provide opportunities for substantive and effective civilian oversight and for democratic control as parts of good security sector governance. Parliament can and should play a meaningful

[67] Dahl (note 7), p. 3
[68] Freedman (note 45), p. 492.

role in decisions that require public funding, notably in the procurement phase of nuclear weapon programmes. Civil society, supported by research institutes and NGOs, can play a role in offering their opinions to decision makers in parliament and government, although this seems to happen less frequently than it did during the cold war.

The key findings of the analysis can be summarized in three main points.

1. The governance of nuclear weapons is stronger if all layers of accountability play a substantial role. This is not the case in all the states with nuclear weapons because of both formal and informal features of the political process. National legislatures play a marginal role in most countries either because they do not have the power to control nuclear weapons effectively (China, India, Pakistan and Russia) or because they do not choose to seriously challenge the position of the government (France, Israel and the UK). Only in the USA does legislative debate sometimes take on such an edge as to materially alter government policy. The role of civil society also seems strongest in the USA. These examples illustrate that the willingness of legislators to hold the government accountable is as important as the democratic nature of the country.

2. Transparency is an essential condition for both the internal and external components of good governance of nuclear weapons. Civilians in the executive cannot perform their oversight function in the absence of correct and complete information from military command and control structures. Parliamentary control cannot function if the executive withholds information. Without government information, the public and the media can neither judge the consistency of the government's own actions nor evaluate information gleaned from informal or confidential sources (e.g., whistle-blowers).

3. The USA is a genuine, if imperfect, model for civilian control and democratic accountability of nuclear weapons because of its open society, vigorous press and expert resources as well as a highly elaborate system of checks and balances. Nevertheless, nuclear weapon decision making remains a jealously guarded executive privilege. The US Congress does play a substantial role in budget control and legislation but not in the fields of doctrine, deployment and use of nuclear weapons. This example underlines that, while the general degree of democracy in a national system is vital for good nuclear governance, it is not enough in itself to guarantee the quality and transparency of official process.

In summary, the provision of information about nuclear weapons by states and its widespread dissemination remain crucial elements of democratic governance. The issue is one that extends much further than traditional command and control. Only with better information and better chances to act on it can individual societies decide on their true security needs, rather than leaving such momentous decisions to a small circle of national 'guardians' and other vested interests. The future choice lies between improved democratic civilian control of nuclear weapons or ever-greater opacity, unaccountability and unpredictability.