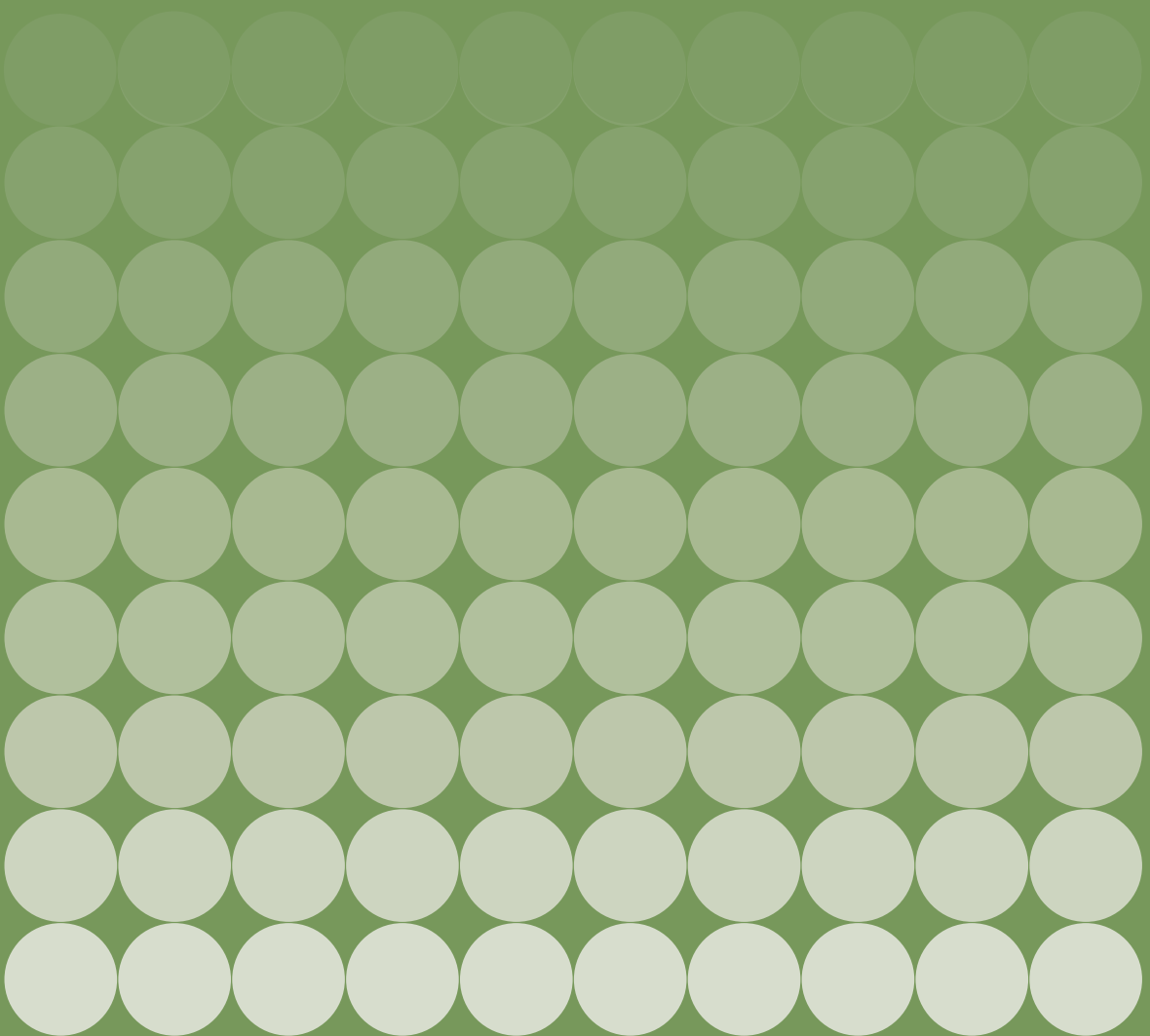


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# GOVERNING THE BOMB

Civilian Control and Democratic  
Accountability of Nuclear Weapons

EDITED BY HANS BORN, BATES GILL AND  
HEINER HÄNGGI



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**Governing the Bomb**  
**Civilian Control and Democratic**  
**Accountability of Nuclear Weapons**

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**STOCKHOLM INTERNATIONAL  
PEACE RESEARCH INSTITUTE**

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# **Governing the Bomb**

## **Civilian Control and Democratic Accountability of Nuclear Weapons**

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EDITED BY HANS BORN, BATES GILL AND  
HEINER HÄNGGI



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# Contents

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<i>Preface</i>	viii
<i>Abbreviations</i>	x
<b>1. Introduction</b>	1
HANS BORN, BATES GILL AND HEINER HÄNGGI	
I. Introduction	1
II. Studying domestic governance of nuclear weapons	2
III. The concept of security sector governance	8
IV. Security sector governance and nuclear weapons	11
V. Key actors in domestic nuclear weapon governance	17
VI. Linking governance actors and the nuclear weapon cycle	23
Table 1.1. Security-related state and non-state institutions and bodies	10
Table 1.2. A system of multilayered security sector governance	12
Table 1.3. Possible roles of key actors in domestic nuclear weapon governance	18
Table 1.4. Key governance actors and their possible roles in the nuclear weapon cycle	20
<b>2. The United States</b>	25
PETER D. FEAVER AND KRISTIN THOMPSON SHARP	
I. Introduction	25
II. Constitutional and political background	25
III. Nuclear strategy	30
IV. Nuclear force structure	37
V. Nuclear operations	42
VI. Conclusions	48
<b>3. Russia</b>	51
ALEXEI ARBATOV	
I. Introduction	51
II. Historical background of nuclear weapon control and policymaking	52
III. Nuclear governance since 1991	56
IV. Nuclear force structure and oversight	66
V. Contemporary policy and future policy alternatives	69
VI. Conclusions	74
<b>4. The United Kingdom</b>	77
JOHN SIMPSON AND JENNY NIELSEN	
I. Introduction	77
II. The United Kingdom and nuclear weapons	78

III. The structure and processes of British nuclear weapon governance	85
IV. International factors involved in the governance of British nuclear weapons	98
V. Conclusions	100
<b>5. France</b>	103
BRUNO TERTRAIS	
I. Introduction	103
II. The birth of the ‘nuclear monarchy’	104
III. The French nuclear ‘priesthood’	108
IV. The French national consensus	121
V. Conclusions	126
<b>6. China</b>	128
BATES GILL AND EVAN S. MEDEIROS	
I. Introduction	128
II. Key actors and their relations	129
III. Nuclear force structure and doctrine	134
IV. Assessing civilian control	138
V. Conclusions	150
<b>7. Israel</b>	152
AVNER COHEN	
I. Introduction	152
II. A brief history of Israeli civilian nuclear control	154
III. The political culture of nuclear opacity	158
IV. Auditing, oversight and accountability	165
V. Conclusions	168
<b>8. India</b>	171
WAHEGURU PAL SINGH SIDHU	
I. Introduction	171
II. Historical overview	172
III. Key actors	181
IV. Divided control and its limits	190
V. Conclusions	192
<b>9. Pakistan</b>	195
ZAFAR IQBAL CHEEMA	
I. Introduction	195
II. The South Asian security context	195
III. Nuclear posture, policy and doctrine	199
IV. Nuclear infrastructure	203
V. Civilian actors and nuclear decision making	211
VI. Conclusions	213

<b>10. Conclusions</b>	215
HANS BORN AND BATES GILL	
I. Introduction	215
II. Domestic nuclear weapon governance in possessor states	215
III. Comparing domestic nuclear weapon governance	224
IV. Findings and recommendations	227
<b>Appendix A. World nuclear forces, 2010</b>	234
Table A.1. World nuclear forces, January 2010	234
<i>About the authors</i>	235
<i>Index</i>	239



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## Preface

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More than 65 years after the dawn of the nuclear age, nuclear non-proliferation and disarmament remain central to the maintenance of peace and security. The common goal must continue to be working towards a world free of nuclear dangers and, ultimately, of nuclear weapons. In choosing the topic of domestic governance of nuclear weapons, the authors of this volume hope to contribute to reinvigorating the international nuclear disarmament agenda and to initiate a debate on a number of key questions related to the governance of nuclear weapons.

Many of the questions on governing the bomb relate to the applicability of general principles of democratic accountability and civilian control of the security sector to the specific area of nuclear weapons. In particular, what role can parliamentary institutions, the media and civil society organizations play in fostering free discussions on nuclear weapons, demanding increased transparency and accountability from decision makers in this field and in pushing for the reduction and eventual elimination of existing arsenals?

As long as nuclear weapons continue to exist, nuclear weapon states have the obligation to take adequate measures to prevent their accidental use or diversion. Therefore, issues raised in this volume also refer to the responsibilities of states and their leaders in ensuring proper command and control over nuclear weapons and guaranteeing the safety of the nuclear arsenal.

While this volume demonstrates that the issue of governing the bomb raises many complex questions and different viewpoints, it is clear that nuclear weapons present a unique threat and that this threat is increasing. The way in which nuclear weapons will be governed nationally and internationally in years to come will be decisive for the future of mankind.

This volume is part of an effort by the Geneva Centre for the Democratic Control of Armed Forces (DCAF) and Stockholm International Peace Research Institute (SIPRI) to bring comprehensive analysis to a wide audience and to encourage continued discussion on nuclear weapons and disarmament from a security sector governance perspective. As the directors of DCAF and SIPRI, we hope that it can raise awareness of the complexities and challenges of governing nuclear weapons among the international community in order to achieve more effective governance of such weapons. We are especially pleased that this volume continues the strong tradition of joint research and cooperation that our two institutes have enjoyed, and we look forward to further strengthening our collaboration in the years ahead.

*Governing the Bomb* is the result of an extended research and review process that included expert workshops in Montreux in 2004 and Geneva in 2009; an academic seminar at Johns Hopkins School of Advanced International Studies in Washington, DC, in 2005; and a side event for the diplomatic and non-governmental organization communities at the Non-Proliferation Treaty Review Conference in New York in 2005, hosted by DCAF and the Peace Research Institute Frankfurt. This project has also produced a series of other publications on the subject of domestic governance of nuclear weapons.<sup>1</sup> We are grateful to the authors and editors who have contributed to the development of this volume. We are also indebted to Joey Fox and Jetta Gilligan Borg for editing this text and to the SIPRI Library, other SIPRI colleagues and others for research and advisory support, including Christer Ahlström, Alyson J. K. Bailes, Ingrid Beutler, Paul Bracken, Malcom Chalmers, Shahram Chubin, Jonas Hagmann, François Heisbourg, Ian Kenyon, Gary Samore, Walter Slocombe, Klaus Naumann, Yury Nazarkin, Vincenza Scherrer, Aidan Wills and Herbert Wulf as well as the anonymous reviewers.

Dr Bates Gill  
SIPRI Director  
Stockholm, September 2010

Ambassador Theodor H. Winkler  
DCAF Director  
Geneva, September 2010

<sup>1</sup> Born, H., 'Civilian control and democratic accountability of nuclear weapons', eds H. Hänggi and T. Winkler, *Challenges of Security Sector Governance* (LIT Verlag: Berlin, 2003); Slocombe, W. B., *Democratic Civilian Control of Nuclear Weapons*, Policy Paper no. 12 (DCAF: Geneva, 2006); Born, H., *National Governance of Nuclear Weapons: Opportunities and Constraints*, Policy Paper no. 15 (DCAF: Geneva, 2007); and Born, H., 'National governance of nuclear weapons: opportunities and constraints', *SIPRI Yearbook 2006: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2006).

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# Abbreviations

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ABM	Anti-ballistic missile
ABM Treaty	Treaty on the Limitation of Anti-Ballistic Missile Systems
BMD	Ballistic missile defence
C <sup>3</sup> I	Command, control, communications and intelligence
C <sup>4</sup> I	Command, control, communications, computerization and intelligence
C <sup>4</sup> ISR	Command, control, communications, computerization, intelligence, surveillance and reconnaissance
C <sup>4</sup> I <sup>2</sup> SR	Command, control, communications, and computerization, intelligence and information, surveillance and reconnaissance
CTBT	Comprehensive Nuclear-Test-Ban Treaty
DAC	Development Assistance Committee
EU	European Union
IAEA	International Atomic Energy Agency
ICBM	Intercontinental ballistic missile
ICJ	International Court of Justice
MAD	Mutual assured destruction
MIRV	Multiple independently targetable re-entry vehicle
MOD	Ministry of Defence
NATO	North Atlantic Treaty Organization
New START	New Strategic Offensive Arms Treaty (Prague Treaty)
NGO	Non-governmental organization
NPT	Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty)
OECD	Organisation for Economic Co-operation and Development
PAL	Permissive action link
R&D	Research and development
SACEUR	Supreme Allied Commander Europe
SALT	Strategic Arms Limitation Talks
SLBM	Submarine-launched ballistic missile
SORT	Treaty on Strategic Offensive Reductions (Moscow Treaty)
SSBN	Nuclear-powered ballistic missile submarine
SSN	Nuclear-powered attack submarine
START I	Treaty on the Reduction and Limitation of Strategic Offensive Arms

START II	Treaty on Further Reduction and Limitation of Strategic Offensive Arms
TNW	Tactical nuclear weapon
UN	United Nations

### **The United States**

AEC	Atomic Energy Commission
COG	Continuity of government
DEFCON	Defense Condition
DOD	Department of Defense
DOE	Department of Energy
ENDS	Enhanced Nuclear Detonation Safety
FY	Fiscal year
MDA	Missile Defense Agency
NNSA	National Nuclear Security Administration
NSA	National security advisor
NSC	National Security Council
RRW	Reliable Replacement Warhead
SDI	Strategic Defense Initiative
SIOP	Single Integrated Operational Plan

### **Russia**

CPSU	Communist Party of the Soviet Union
Glavpur	Glavnoie Politicheskoe Upravlenie (the main political directorate of the Soviet Army and Navy)
GPV	Gosudarstvennyi Program Vooruzheniya (State Programme of Armaments)
KGB	Komitet Gosudarstvennoy Bezopasnosti (Soviet national security and intelligence agency)
Minatom	Ministry for Atomic Energy
SRF	Strategic Rocket Forces

### **The United Kingdom**

AWE	Atomic Weapons Establishment
AWEML	AWE Management Ltd
BNFL	British Nuclear Fuels Ltd
CND	Campaign for Nuclear Disarmament
FCO	Foreign and Commonwealth Office

FOIA	Freedom of Information Act
HCDC	House of Commons Defence Select Committee
MDA	Mutual defence agreement
PAC	Public Accounts Committee
RAF	Royal Air Force
SDR	Strategic Defence Review

### **France**

CEA	Commissariat à l'Énergie atomique (Atomic Energy Commission)
CEMA	Chef d'état-major des armées (Chief of the Defence Staff)
CEMP	Chef d'état-major particulier (Chief of the president's military staff)
COFN	Centre opérationnel des forces nucléaires (Joint operational centre)
DAS	Délégation aux affaires stratégiques (Policy Division)
DGA	Délégation générale pour l'armement (Procurement office)
SGDN	Secrétariat général de la défense nationale (General Secretariat for National Defence)

### **China**

CCP	Chinese Communist Party
CMC	Central Military Commission
COSTIND	Commission on Science, Technology, and Industry for National Defence
GAD	General Armaments Department
PLA	People's Liberation Army
Politburo	Political Bureau of the CCP
PRC	People's Republic of China
SASTIND	State Administration for Science, Technology and Industry for National Defence

### **Israel**

IAEC	Israel Atomic Energy Commission
IDF	Israel Defence Forces
MALMAB	Office of Security at the Ministry of Defence

**India**

AEC	Atomic Energy Commission
CNCI	India–United States Civil Nuclear Cooperation Initiative
DAE	Department of Atomic Energy
DRDO	Defence Research and Development Organisation
IGMDP	Integrated Guided Missile Development Programme
NCA	Nuclear Command Authority
NSAB	National Security Advisor Board
SFC	Strategic Forces Command
SNEP	Subterranean Nuclear Explosion Project

**Pakistan**

CJCSC	Chairman joint chiefs of staff committee
DCC	Development Control Committee
DG SPD	Director-general of the Strategic Plans Division
DNSRP	Directorate of Nuclear Safety and Radiation Protection
ECC	Employment Control Committee
KRL	Khan Research Laboratories (formerly Kahuta Research Laboratories)
NCA	National Command Authority
NESCOM	National Engineering and Scientific Commission
PAEC	Pakistan Atomic Energy Commission
PNRA	Pakistan Nuclear Regulatory Authority
SECDIV	Strategic Export Division
SFC	Strategic Forces Command
SUPARCO	Space and Upper Atmosphere Research Commission



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# 1. Introduction

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HANS BORN, BATES GILL AND HEINER HÄNGGI

## I. Introduction

Two decades after the golden age of nuclear arms control, nuclear disarmament has again returned to the top of the international community's agenda. A call in 2007 for a 'nuclear-free world' by four senior US statesmen kicked off renewed, high-profile appeals for the abolition of all nuclear arsenals.<sup>1</sup> Many world leaders have responded to these appeals, including US President Barack Obama in a speech in Prague in April 2009, and in April 2010 Russia and the United States signed a new comprehensive nuclear arms reduction agreement.<sup>2</sup> The fear of nuclear proliferation—coupled with the expectation of a significant global expansion in nuclear energy production—motivates Russia, the USA and other nuclear weapon states to more seriously contemplate 'going to zero' because they believe 'that it will be impossible to curtail nuclear-weapons proliferation without serious progress towards nuclear disarmament'.<sup>3</sup> In line with the provisions of the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT), some nuclear weapon states appear to be shifting from an almost exclusive focus on non-proliferation to a more balanced emphasis on both non-proliferation and disarmament.<sup>4</sup> Even if a world free of nuclear weapons remains a distant prospect, there is increasing momentum to move this idea from rhetoric to reality.

However, there are clearly many hurdles to be jumped before reaching that finishing line. Not least of those is the understanding of how nuclear

<sup>1</sup> The 4 are former secretaries of State George Shultz and Henry Kissinger, former Secretary of Defense William Perry and former Senator Sam Nunn. Shultz, G. P. et al., 'A world free of nuclear weapons', *Wall Street Journal*, 4 Jan. 2007. See also Shultz, G. P. et al., 'Toward a nuclear-free world', *Wall Street Journal*, 15 Jan. 2008.

<sup>2</sup> Obama, B., US President, Remarks, Hradcany Square, Prague, Czech Republic, 5 Apr. 2009, <[http://www.whitehouse.gov/the\\_press\\_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered/](http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered/)>. On this treaty, the 2010 New START Treaty, see White House, 'The New START Treaty and Protocol', White House Blog, 8 Apr. 2010, <<http://www.whitehouse.gov/blog/2010/04/08/new-start-treaty-and-protocol>>.

<sup>3</sup> Perkovic, G. and Acton, J. M., *Abolishing Nuclear Weapons*, Adelphi Paper no. 396 (International Institute for Strategic Studies: London, 2008), <<http://www.iiss.org/publications/adelphi-papers/adelphi-papers-2008/abolishing-nuclear-weapons/>>, p. 7.

<sup>4</sup> According to the NPT, only states that manufactured and exploded a nuclear device prior to 1 Jan. 1967 are recognized as nuclear weapon states. China, France, Russia, the United Kingdom and the USA are the 5 nuclear-armed states party to the NPT. Israel, India and Pakistan are nuclear-armed states that remain outside the NPT. Treaty on the Non-Proliferation of Nuclear Weapons, opened for signature on 1 July 1968, entered into force on 5 Mar. 1970, <<http://www.iaea.org/Publications/Documents/Treaties/npt.html>>.



weapons are governed. While the world waits for nuclear weapons to be eliminated, it must continue to face the prospect that they might be used. The prospect of nuclear weapon use, and indeed the prospect of how the threat of these weapons could be eliminated, immediately points to issues of who controls nuclear weapons, how and why. This critical issue—governance of ‘the bomb’ in possessor states—is the organizing theme of this volume.

Drawing on concepts of civilian control and democratic accountability, this book explores the roles played by various actors in the domestic governance of nuclear weapons in eight possessor states—the USA, Russia, the United Kingdom, France, China, Israel, India and Pakistan—and assesses how the relative influence of these actors shapes the respective national approaches to questions of nuclear weapon acquisition, doctrine, use and control. It specifically looks at the role in nuclear weapon governance of national executive, legislative and judicial institutions, including the government bureaucracy in general; the military and other core security actors; and civil society, including specialized civilian agencies and civil society organizations.

Section II of this chapter explores the reasons for studying the domestic governance of nuclear weapons. It summarizes some past approaches to such study and outlines the nature of this volume’s inquiry. Section III introduces security sector governance—the key concept used in this volume. Section IV applies this concept to the domestic governance of nuclear weapons and synthesizes the results in a heuristic framework that guides the comparative analysis of the national case studies that follow.

## II. Studying domestic governance of nuclear weapons

With nuclear disarmament actively on the agenda, it may seem backward looking to study how nuclear-armed states govern their nuclear weapons. Delving into the governance of nuclear weapons may seem to implicitly legitimize the ongoing possession of these weapons. Indeed, it might lead to the conclusion that the possession of these weapons is acceptable as long as they are subject to good governance, and thus that nuclear weapons are safe in some hands but not in others.<sup>5</sup> Some may posit that studying domestic nuclear weapon governance risks diverting attention from more pressing challenges, such as the prevention of proliferation and the promotion of nuclear disarmament. On the contrary, non-proliferation,

<sup>5</sup> Good governance as it relates to the governance of nuclear weapons means policy inputs and outputs that contribute to non-proliferation, disarmament and the diminished likelihood of nuclear weapon use. Policy outputs refer to the efficiency and effectiveness of the ‘delivery’ of these outputs, and policy inputs refer to the procedures by which this policy output is produced (e.g. participatory, transparent, accountable).

nuclear disarmament and the prevention of nuclear weapon use is not just an aspiration, but also a political and moral imperative, and to meet those obligations nuclear weapon governance among possessor states must be examined and understood.

### **Why study domestic nuclear weapon governance?**

There are a number of important reasons for opening the structures and processes of nuclear weapon governance to greater scrutiny and analysis. First, as long as nuclear weapons exist, the states that possess them have an obligation to take adequate measures to prevent their accidental or unauthorized use or diversion. Humankind's ability to hold nuclear-armed states accountable for the security of their weapons and technology is contingent on the proper knowledge of the structures and processes of domestic nuclear weapon governance in these states. Although the record of the past 65 years suggests that the risk of nuclear weapon use is relatively low, there have been too many close calls—both intentional and accidental—that would have been catastrophic. At best, there will be more near catastrophes in the future as long as such weapons exist. Perhaps more worrying is the potential for nuclear weapons or components to fall in to the hands of non-state actors who would use or threaten to use them for their political ends. The exposure of the Pakistan-based Abdul Qadeer Khan network demonstrated that these concerns are not unfounded and served to underscore the idea that the effective domestic governance of nuclear weapons is central to non-proliferation efforts as well.<sup>6</sup>

Second, the study of national systems for nuclear weapon governance across possessor states can lead to a better understanding of these systems and facilitate the learning and exchange of good governance practices. Indeed, there have been a number of instances in which incipient nuclear states have learned from the experiences of established nuclear weapon states.<sup>7</sup> Taking this further, such knowledge would be crucial if disarmament and non-proliferation efforts fail, triggering the emergence of new nuclear weapon states. According to the International Atomic Energy Agency, up to 30 countries that do not now possess nuclear weapons have the capacity to develop such weapons in a short period of time.<sup>8</sup>

<sup>6</sup> See Kile, S. N., 'Nuclear arms control and non-proliferation', *SIPRI Yearbook 2006: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2006), pp. 552–55.

<sup>7</sup> Feaver, P. D., 'Command and control in emerging nuclear nations', *International Security*, vol. 17, no. 3 (winter 1992/93), pp. 160–87. On 'nuclear learning' processes in nuclear weapon states see Nye, J. S., 'Nuclear learning and US–Soviet security regimes', *International Organization*, vol. 41, no. 3 (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).

<sup>8</sup> '30 new countries could get nuclear weapons: IAEA', Agence France-Presse, 16 Oct. 2006, <<http://www.abc.net.au/news/newsitems/200610/sl1766244.htm>>.

A third important reason for studying domestic nuclear weapon governance is to illuminate the possible linkages between regime type, weapon possession and the nature of weapon governance. In aiming for the security of nuclear weapons, as well as for their non-proliferation and disarmament, this volume addresses the current state of nuclear weapon governance in possessor states and the extent to which the weapons are subjected to democratic accountability and civilian control.

### **Current approaches to the study of the domestic governance of nuclear weapons**

Despite its importance, domestic nuclear weapon governance is sparsely researched. This is largely because research in this highly sensitive policy area is hampered by secrecy in all possessor states and the limits on freedom of speech (including censorship in some states). Most of the existing studies approach the subject from a non-proliferation perspective, highlighting the importance of domestic governance in emerging nuclear weapon states.

In a noted debate on the opportunities and threats of nuclear proliferation that was initiated in the early 1980s, Scott Sagan challenged Kenneth Waltz's thesis that the gradual spread of nuclear weapons could have a stabilizing effect on international relations. Sagan argued that deficiencies in the political systems of proliferators are likely to lead to deterrence failure and deliberate or accidental nuclear war. Based on the assumption that future nuclear-armed states are likely to have military-run or weak civilian governments, Sagan contended that these governments would lack the constraining mechanism of civilian control while military biases may serve to encourage nuclear weapon use, especially during times of crisis.<sup>9</sup>

More recent studies have focused on how emerging political powers are likely to use weapons of mass destruction, including nuclear weapons.<sup>10</sup> This literature has also addressed how specific countries that are technically capable of 'going nuclear' might approach the issue of reversing past decisions to renounce nuclear weapons.<sup>11</sup> For other analysts, the nature of a country's political system is closely linked to the issue of denuclearization in the sense that democratic governance is viewed as being conducive to nuclear non-proliferation and disarmament.

<sup>9</sup> Sagan, S. and Waltz, K., *The Spread of Nuclear Weapons: A Debate Renewed* (Norton: New York, 2003), pp. 61–62.

<sup>10</sup> Lavoy, P., Sagan, S. and Wirtz, J. (eds), *Planning the Unthinkable: How New Powers Will Use Nuclear, Biological and Chemical Weapons* (Cornell University Press: Ithaca, NY, 2000).

<sup>11</sup> Campell, K. M., Einhorn, R. and Reiss, M. (eds), *The Nuclear Tipping Point* (Brookings Institution: Washington, DC, 2004).

In this context, Harald Müller posits that

the internal structure of states is the decisive variable influencing whatever degree of certainty or uncertainty exists over their intentions and capabilities. Countries with division of power, open discursive decision processes, a distinction between economy and politics, free movement within, and accessibility of all parts of, the country, and the right of parliament, the courts, media, and citizens to investigate executive action independently and critically leave little room for governments to operate large-scale secret programmes.<sup>12</sup>

In Müller's view, democratic political systems best realize these conditions and thus provide the most effective means of nuclear non-proliferation and disarmament.<sup>13</sup>

The political system of potential proliferator states is the key variable in Anne-Marie Slaughter and Lee Feinstein's call for 'a duty to prevent' the proliferation of weapons of mass destruction. They argue that the 'threat is gravest when the state pursuing weapons of mass destruction is a closed society headed by a ruler or rulers who threaten their own citizens as much as they do their neighbours and potential adversaries'.<sup>14</sup> However, recent studies have found that the existence of a democratic regime has a modest to statistically insignificant impact on nuclear non-proliferation.<sup>15</sup> Arguably, this reflects the stronger effect of perceived external threats and technological capacity, as well as the multi-faceted character of democracy. Furthermore, it has also been argued that democracy and particularly the process of democratization can propel proliferation, as evidenced by experience from India and Pakistan, where widespread popular support for nuclear weapons encouraged leaders to acquire nuclear weapons to boost their own popularity.<sup>16</sup>

There are few cross-national studies that focus on comparing domestic nuclear weapon governance across possessor states. Most studies have focused on single cases studies, predominantly analysing the USA.<sup>17</sup> Other studies have compared the command-and-control systems in Russia and

<sup>12</sup> 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), p. 141.

<sup>13</sup> Müller (note 12), pp 125–44.

<sup>14</sup> Slaughter, A.-M. and Feinstein, L., 'A duty to prevent', *Foreign Affairs*, vol. 83, no. 1 (Jan./Feb. 2004), pp. 136–50.

<sup>15</sup> Singh, S. and Way, C., 'The correlates of nuclear proliferation', *Journal of Conflict Resolution*, vol. 48, no. 6 (Dec. 2004), pp. 859–85; and Kroenig, M., 'Importing the bomb: sensitive nuclear assistance and nuclear proliferation', *Journal of Conflict Resolution*, vol. 53, no. 2 (Apr. 2009), pp. 161–80.

<sup>16</sup> Singh and Way (note 15). See also chapters 8 and 9 in this volume.

<sup>17</sup> Avner Cohen greatly contributed to more knowledge about Israel's policy of nuclear opacity. See chapter 7 in this volume; Cohen, A., *Israel and the Bomb* (Columbia University Press: New York, 1999); Yarynich, V. E., *C3: Nuclear Command, Control, Cooperation* (Center for Defense Information: Washington, DC, 2003); and Feaver, P. D., *Guarding the Guardians: Civilian Control of Nuclear Weapons in the United States* (Cornell University Press: Ithaca, NY, 1992).

the USA.<sup>18</sup> Still other publications present historical accounts of the context, origins, development and actors in nuclear weapon policy in comparative perspective or in a given country.<sup>19</sup> Of particular note is Robert Dahl's research on the compatibility of democracy and 'nuclear guardianship', about which Dahl is rather sceptical. Acknowledging that the control of nuclear weapons is an extreme case, Dahl holds that the pattern of domestic nuclear governance represents 'alienation of authority' rather than 'delegation of authority' because the control of these weapons has been abandoned to a comparatively small group of civilian and military experts. For Dahl, nuclear weapons present a tragic paradox: 'No decisions can be more fateful for Americans, and for the world, than decisions about nuclear weapons. Yet these decisions have largely escaped the control of the democratic process.'<sup>20</sup>

Other authors are more positive than Dahl about the compatibility of democratic governance and the control of nuclear weapons. Drawing on the case of the USA from a policy perspective, Walter B. Slocombe points to the existence of complex mechanisms of nuclear weapon control in democratically run countries. In particular, he notes that democratic governance embraces not just the choice of 'whose finger is on the button' but also which institutional actors take decisions on acquisition, force posture, strategy, doctrine, planning and deployment.<sup>21</sup>

With few exceptions, however, most of the studies related to issues of domestic nuclear weapon governance focus on who commands and controls nuclear forces, and what this means for possible weapon use; many of these studies have a national focus, mostly on the USA.<sup>22</sup>

### **From command and control to security sector governance**

While research on nuclear command-and-control systems has produced important insights, it has been dominated by a narrow focus on one particular subset of the more general problem of civilian control of the military.<sup>23</sup> This volume aims to broaden the debate on nuclear weapon control

<sup>18</sup> Blair, B. G., *The Logic of Accidental Nuclear War* (Brookings Institution: Washington, DC, 1993).

<sup>19</sup> See e.g. Gerard de Groot's account of the 'life story' of the bomb in various countries in de Groot, G., *The Bomb: A Life* (Jonathan Cape: London, 2004); and Perkovich, G., *India's Nuclear Bomb: The Impact on Global Proliferation* (University of California Press: Berkeley, CA, 1999). On how new and emerging nuclear weapon states try to or managed to acquire nuclear weapons and other weapons of mass destruction see Lavoy, Sagan and Writz (note 10).

<sup>20</sup> Dahl, R., *Controlling Nuclear Weapons: Democracy versus Guardianship* (Syracuse University Press: Syracuse, NY, 1985), p. 3.

<sup>21</sup> Slocombe, W., *Democratic Civilian Control of Nuclear Weapons*, Policy Paper no. 12 (Centre for the Democratic Control of Armed Forces Geneva: Geneva, 2006), <[http://www.dcaf.ch/publications/kms/series\\_policy\\_papers.cfm?nav1=5&nav2=2](http://www.dcaf.ch/publications/kms/series_policy_papers.cfm?nav1=5&nav2=2)>.

<sup>22</sup> E.g. Blair (note 18); Feaver (note 17); Feaver (note 7); and Bracken, P., *The Command and Control of Nuclear Forces* (Yale University Press: New Haven, CT, 1983).

<sup>23</sup> Feaver (note 7).

beyond the traditional focus on command and control prevalent in the existing literature by applying a security sector governance perspective to the nuclear weapon cycle as a whole. It explores the current domestic governance structures and processes regarding nuclear weapons as a sub-system of the security sector in nuclear weapon states, examining how these structures and processes have evolved over time. In particular, this volume scrutinizes the roles and responsibilities of the institutions and actors that are involved in governing the nuclear sector. These bodies encompass executive, legislative and judicial institutions, including government bureaucracy in general; military and other core security actors; specialized civilian agencies and civil society organizations.

Although this volume adopts a primarily descriptive approach, and to some extent an empirical–analytical one, its underlying research interest is that of generating normative insights into the opportunities and constraints of civilian control and democratic accountability of nuclear weapons. The authors of chapters 2–9 address two key research questions that reflect both the descriptive and the normative aspects of this study:

1. What is the current state of nuclear weapon governance in the possessor state in question, and how did it evolve over time?
2. What is the extent of civilian control and democratic accountability regarding nuclear weapons in these states?

The conclusions review the answers to these questions on the basis of the eight country studies in order to draw broader insights on the domestic governance of nuclear weapons, and particularly the role (if any) of civilian control and democratic accountability in nuclear governance.

In addition to broadening the debate on nuclear weapon control in substantive terms, this volume also aims to look beyond the paradigmatic case of the USA. Combining a security sector governance perspective with a comparative approach, this volume sheds new light not only on the USA, but also on the other four NPT-recognized nuclear weapon states—Russia, China, France and the UK—as well as the three *de facto* nuclear possessor states with mature nuclear weapon programmes that are not members of the NPT: India, Israel and Pakistan.<sup>24</sup> The sample of cases selected for this study excludes former NPT member countries that claim to have acquired nuclear weapons (such as North Korea), those countries that allegedly are trying to acquire nuclear weapon capabilities (such as Iran), those countries that had nuclear weapon programmes but have abandoned them (such as Argentina, Iraq, Libya and South Africa) and those countries with foreign nuclear weapons stationed on their territory (such as Germany).

<sup>24</sup> NPT (note 4), Article IX(3).

The case studies in this volume consider states that have widely varying nuclear arsenals (in terms of both quantity and quality) as well as different political and historical circumstances.<sup>25</sup> Such a case-oriented rather than variable-oriented approach allows for a more in-depth analysis because it takes into account contextual specifics for each case. Under the best circumstances, it also develops contingent comparative generalizations. In sum, the method of inquiry is a qualitative one—often referred to as ‘thick description’.<sup>26</sup>

### III. The concept of security sector governance

Security sector governance as a concept is a rather recent idea that has its roots in the broadening of the understanding of security.<sup>27</sup> For much of the cold war period, ‘security’ was understood almost exclusively in military terms and as referring to the security of the state. A substantive widening and deepening of the concept of security, resulting in a shift from the traditional to the so-called new security agenda, however, has marked the post-cold war period. In this new agenda, non-military dimensions—such as political, economic, societal and environmental concerns—have become broadly accepted as national security issues. However, the primacy of national security has been challenged by the emergence of concepts such as ‘human security’ that shift the focus of security concerns from the state to the individual.<sup>28</sup> The concept of security sector governance arises from this broader concept of security, which covers both military and non-military dimensions of security and looks at both state and human security.

Governance can be used as an analytical or as a normative concept. As an analytical concept, it primarily refers to the increasing fragmentation of political authority among state and non-state actors, which requires more complex and inclusive forms of regulation, covering different levels beyond and below the national one. This concept is based on three key assumptions: (a) that ‘multi-level’ governance is the rule in the contemporary system of states, linking the local with the national, regional and global levels; (b) that governance involves a variety of public and private actors, such as states, international organizations, firms, armed non-state actors and civil society; and (c) that governance actors employ a combination of

<sup>25</sup> On the nuclear forces of the states in these case studies see appendix A in this volume.

<sup>26</sup> The term ‘thick description’ was first used by the anthropologist Clifford Geertz to describe his own ethnographic method. Since then, the term and the methodology it represents have gained currency in the social sciences and beyond. Geertz, C., *The Interpretation of Cultures* (Basic Books: New York, 1973), pp. 5–6, 9–10.

<sup>27</sup> For a discussion of the concept of security sector governance see Hänggi, H., ‘Making sense of security sector governance’, eds H. Hänggi and T. Winkler, *Challenges of Security Sector Governance* (LIT Verlag: Münster, 2003), pp. 3–22.

<sup>28</sup> For a discussion of the broad notion of security see Sheehan, M., *International Security: An Analytical Survey* (Lynne Rienner: Boulder, CO, 2005).

governance modes (e.g. the coexistence of hierarchical ('hard') modes, such as top-down command-and-control methods, and non-hierarchical ('soft') modes, such as negotiating, bargaining and arguing techniques). In other words, the concept assumes the use of hybrid modes of governance as opposed to the use of hierarchy-based governance only.<sup>29</sup>

As a normative concept, the term governance is often used to prescribe how an issue or policy area should be governed. Once a qualifier is added (e.g. good or democratic), it becomes a normative concept, which is what most people have in mind when referring to security sector governance. The difference between good governance and democratic governance is ambiguous. In general terms, one may say that good governance tends to focus on the efficient and effective delivery of policy outputs ('output legitimacy') and that democratic governance concentrates on the procedures for how such policy output is produced ('input legitimacy').

The term 'security sector', although widely used, it is often understood in different ways, particularly regarding its scope. The narrowest possible notion of the security sector reflects traditional state-centric understandings of security, focusing on those public sector institutions that are responsible for the provision of internal and external security—often called the security apparatus. This definition does not necessarily cover the military alone, but acknowledges the important, and in some countries, predominant, role of non-military security forces—either in the provision of security or, on the contrary, as a source of insecurity. Consequently, apart from the armed forces, a state's security apparatus includes, but is not limited to, the police, gendarmerie and paramilitary forces, the intelligence and secret services, border guards, and customs authorities.

A broader definition of the security sector would comprise, in addition to the security apparatus, the civilian bodies relevant to the management, oversight and control of security-related policies and action. Under this definition, the security sector could include executive and legislative officials and their advisers, relevant ministries, specialized oversight bodies and agencies, and the judiciary, as well the security apparatus itself. The role of these bodies is to ensure that the security apparatus is managed efficiently and is held accountable to civilian authorities. An even broader definition of the security sector would also encompass non-state actors (such as the media and civil society) and their role in monitoring and seeking to shape security policy outcomes.

<sup>29</sup> For a discussion of new modes of governance see Risse, T. and Lehmkuhl, U., *Governance in Areas of Limited Statehood: New Modes of Governance?*, Working Paper Series no. 2 (Research Center (SFB) 700: Berlin, 2006), <[http://www.sfb-governance.de/en/publikationen/sfbgov\\_wp/wp1\\_en/index.html](http://www.sfb-governance.de/en/publikationen/sfbgov_wp/wp1_en/index.html)>.



**Table 1.1.** Security-related state and non-state institutions and bodies

Major actors	Related institutions
Core security actors	Armed forces; police; gendarmeries; paramilitary forces; presidential guards, intelligence and security services (both military and civilian); coast guards; border guards; customs authorities; reserve or local security units (civil defence forces, national guards, militias); and other specialized civilian agencies dealing with security issues
Security management and oversight bodies	The executive; national security advisory bodies; the legislature and legislative select committees; ministries of defence, internal affairs and foreign affairs; customary and traditional authorities; financial management bodies (finance ministries, budget officers, financial audit and planning units); and civil society organizations (civilian review boards and public complaints commissions)
Justice and rule of law	Judiciary; justice ministries; prisons; criminal investigation and prosecution services; human rights commissions and ombudsmen; and customary and traditional justice systems
Non-statutory security forces	Liberation armies; guerrilla armies; private bodyguard units; private security companies; and political party militias

*Source:* Organisation for Economic Co-operation and Development (OECD), Development Assistance Committee (DAC), *Security System Reform and Governance: Policy and Good Practice, DAC Guidelines and Reference Series* (OECD: Paris, 2005), pp. 20–21.

A widely employed definition of the security sector is set out in the guidelines of the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD).<sup>30</sup> The DAC's broad interpretation of the security sector encompasses all narrower understandings of the security sector. Accordingly, the security sector—or the 'security system' as it is referred to by the DAC—is defined as including all the state institutions and other entities that play a role in ensuring the security of the state and its people (see table 1.1).

The DAC's broad conceptual definition of security includes military and non-military and state and non-state dimensions. It also reflects an essentially normative governance perspective to the extent that it includes relevant management and oversight institutions as well as non-state actors.<sup>31</sup>

Although no single model of security sector governance exists, it is understood in general terms to refer to the dynamic relationship between

<sup>30</sup> Organisation for Economic Co-operation and Development (OECD), Development Assistance Committee (DAC), *Security System Reform and Governance: Policy and Good Practice, DAC Guidelines and Reference Series* (OECD: Paris, 2005), pp. 20–21.

<sup>31</sup> A similar definition was introduced by the United Nations Secretary-General in early 2008. Accordingly, 'the term security sector is often used to describe the structures, institutions and personnel responsible for the management, provision and oversight of security in a country'. United Nations, General Assembly and Security Council, 'Securing peace and development: the role of the United Nations in supporting security sector reform', Report of the Secretary-General, 23 Jan. 2008, A/62/659-S/2008/39, para. 14.

the security sector actors discussed above and their various operational, management and oversight roles. Rooted in the study of civil–military relations, which was developed in large part by Samuel Huntington in the 1950s and 1960s, the study of security sector governance has generated new thinking about and broadened the subject of civil–military relations.<sup>32</sup> In particular, the concept has encouraged the adoption of a more comprehensive understanding of the security sector to include non-military security forces—such as the police, intelligence services and border guards—as well as their management and oversight institutions. Consequently, and consistent with a much broader security agenda in the post-cold war era, the concept of democratic control of armed forces has been expanded to include the concept of democratic control of the entire security sector. One further distinction can be made. Both civil–military relations and security sector governance tend to be analytical concepts rather than prescriptive ones, reflecting the fact that all states do have some sort of civil–military relations and security sector governance—as poor or deficient as these may be in many states. However, the concepts of democratic control of armed forces and democratic governance of the security sector are clearly normative concepts, based on the principle of constitutional democracy.

In this volume, the concept of security sector governance is applied in its normative understanding, implicitly based on the principles of good and democratic governance. Despite its normative character, this understanding of security sector governance can also be used as a heuristic framework for descriptive and analytical purposes. In so doing, security sector governance is understood as a system of a multilayered security sector governance comprising the roles of the core security actors themselves as well as those of the executive, the legislature, independent bodies and civil society (see table 1.2).<sup>33</sup> As discussed further below, table 1.2 can form the basis for framing the subject of nuclear weapon governance in nuclear-armed states.

#### IV. Security sector governance and nuclear weapons

The governance of nuclear weapons applies to every aspect of the nuclear weapon cycle—from the development to the use of nuclear weapons. In this study, this dynamic cycle is abstracted into four components: (a) the initial decision to establish a nuclear weapon programme; (b) the development and evolution of nuclear weapon strategy; (c) the acquisition and pro-

<sup>32</sup> On the concept of civil–military relations see Huntington, S. P., *The Soldier and the State: The Theory and Politics of Civil–Military Relations* (Harvard University Press: Cambridge, MA, 1957).

<sup>33</sup> This framework is drawn from the OECD DAC work on security system reform. See Organisation for Economic Co-operation and Development (OECD), Development Assistance Committee (DAC), *The OECD DAC Handbook on Security System Reform: Supporting Security and Justice* (OECD: Paris, 2007), pp. 112–13.

**Table 1.2.** A system of multilayered security sector governance

Layer	Major actors	Main governance mechanisms
Internal	Security forces; justice providers	Supervision; internal system of review; proactive monitoring; internal complaints mechanisms; code(s) of conduct; disciplinary system; review of performance and control of assignments; human resources (selection, retention and promotion system); freedom of information
Executive	Head of state; ministries; national security advisory and coordinating bodies	Ultimate command authority; setting basic security policies, priorities and procedures; selecting and retaining senior personnel; reporting mechanisms; budget management; power to investigate claims of abuses and failures
Legislative	Parliament; parliamentary oversight bodies	Hearings; budget approval; investigations; enacting laws; visiting and inspecting facilities; subpoena powers
Judiciary	Civil and criminal courts and tribunals; military courts and tribunals	Adjudicating cases brought against security services and individual employees; protecting human rights; upholding the rule of law; monitoring special powers of the security services; assessing constitutionality; providing effective remedy; reviewing policies of security and justice providers in the context of prosecutions
Independent bodies	Ombudsman; national human rights institution; audit office; inspector general; public complaints commissions	Receiving complaints from the public; raising awareness of human rights within the general public and within security and justice institutions; investigating claims of failures and abuses; ensuring proper use of public funds; ensuring compliance with policy and the rule of law
Civil society	Think tanks; non-governmental organizations; media	Providing expertise and analysing security and justice policy; lobbying; providing an alternative view to the public and its representatives; investigative reporting; monitoring

*Source:* Organisation for Economic Co-operation and Development (OECD), Development Assistance Committee (DAC), 'A system of multi-layered security system governance', *The OECD DAC Handbook on Security System Reform: Supporting Security and Justice* (OECD: Paris, 2007), pp. 112–13.

duction of nuclear weapons; and (d) the deployment and employment of nuclear weapons.<sup>34</sup> This model of the nuclear weapon life cycle is constructed for analytical purposes only. In reality, these phases are not necessarily clearly delineated or linear.<sup>35</sup>

<sup>34</sup> Compare with Slocombe (note 21), pp. 4–7.

<sup>35</sup> Based on Kincaide, W., 'The United States: nuclear decision-making 1939–89', ed. R. C. Karp, SIPRI, *Security With Nuclear Weapons? Different Perspectives on National Security* (Oxford University Press: Oxford, 1991), pp. 21–56.

## The initial decision to establish a nuclear weapon programme

Key to any nuclear weapon programme is a state's initial decision to establish one. Sagan developed three models for explaining why governments want to acquire a nuclear weapon capability: the security model, the domestic politics model and the norms model.<sup>36</sup>

In the security model, a state can decide to build nuclear weapons to balance and deter attack by other states, especially nuclear-armed states. The security model was the principal justification given for weapon acquisition by all five acknowledged nuclear weapon states. However, since the US Administration of President George W. Bush developed doctrinal thinking for the pre-emptive use of nuclear weapons to attack and destroy emergent nuclear programmes or capabilities in other states or in the hands of non-state actors, it has become increasing less likely that an emerging nuclear weapon state would have the perspective that possessing a nuclear weapon capability can help deter existing nuclear weapon states from interfering in internal or regional affairs. As an alternative to acquiring its own nuclear capabilities, a state may seek to acquire a positive security assurance from a nuclear weapon state, that is, to seek shelter under the 'nuclear umbrella' of another state. Alternatively, a state may decide that its security and that of the international system is best served by forswearing the acquisition of nuclear weapons.

In the domestic model, the decision to acquire nuclear weapons may be a political tool to advance parochial domestic and bureaucratic interests.<sup>37</sup> Moreover, it is relevant to analyse the extent to which political leaders receive neutral and balanced advice from civilian and military staff. In states where political leaders are predominantly advised by military and security officials, it is possible that threat assessments supporting the decision to acquire nuclear weapons may be shaped in order to secure a larger budget for the military or to cater to other parochial military interests.<sup>38</sup>

In a norms model, aspiring nuclear weapon states view nuclear weapons as a powerful symbol of status and modernity.<sup>39</sup> Norms and shared beliefs about a state's history and future may motivate governments to pursue a nuclear weapon capacity. Sagan calls this 'nuclear symbolism', that is the idea that having a nuclear weapon capacity symbolizes a strong, independent and modern state.<sup>40</sup>

<sup>36</sup> Sagan, S., 'Why do states build nuclear weapons: three models in search of a bomb', *International Security*, vol. 21, no. 3 (winter 1996/1997), pp. 54–86.

<sup>37</sup> Sagan (note 36), pp. 54–87.

<sup>38</sup> See e.g. chapter 3 in this volume.

<sup>39</sup> See e.g. chapters 7, 8 and 9 in this volume.

<sup>40</sup> Sagan (note 36), p. 73.

In addition to Sagan's three explanations, a fourth explanation for a state's acquisition of nuclear weapons is that it can use a nuclear weapon programme or nuclear weapon possession as a bargaining chip in negotiations with other states and international institutions ('nuclear leverage'). For example, a state may agree to halt its nuclear weapon programme or give up its warheads in exchange for economic assistance or support for a peaceful nuclear energy programme.<sup>41</sup>

### **The development and evolution of nuclear weapon strategy**

Nuclear weapon strategy is an issue of military means that is related to political ends.<sup>42</sup> Nuclear strategy is a broad expression of the state's intentions and may be moderated by the scale of its nuclear capabilities, its sense of security, its commitment to international treaties and the interplay of various domestic actors. A state's nuclear strategy is generally consistent with its threat assessments, is derived from a state's broader national security strategy and is often connected to the capacities of its conventional forces. Although it is beyond the scope of this chapter to discuss the myriad aspects of nuclear strategy, the chapters in this volume focus on four aspects of nuclear strategy and domestic nuclear weapon governance: the adoption (or rejection) of a no-first-use policy; the provision of negative (or positive) security assurances to other states; the declaration (or not) of the 'nuclear threshold'; and the commitment (or not) to international treaties. The various chapters analyse to what extent these crucial decisions are taken by high-level national security and military officials and whether civilian leaders in the executive and legislature are willing and able to weigh in on the decision-making process related to nuclear strategy.<sup>43</sup>

### **The acquisition and production of nuclear weapons**

Nuclear weapons are highly complex and difficult to acquire and produce.<sup>44</sup> Governments maintaining their nuclear weapons and those seeking nuclear

<sup>41</sup> North Korea appears to have succeeded in striking such bargains with the international community. Saunders, P., *Assessing North Korea's Nuclear Intentions* (Institute of International Studies: Monterey, CA, 2003); and British House of Commons, Foreign Affairs Committee, *Weapons of Mass Destruction: Report, Proceedings, Evidence and Appendices*, 'Minutes of evidence (4 Apr. 2000): memorandum submitted by Professor Robert O'Neill', 8th Report of Session 1999–2000 (The Stationery Office: London, 2000).

<sup>42</sup> Freedman, L., 'The first two generations of nuclear strategists', ed. P. Paret, *Makers of Modern Strategy: From Machiavelli to the Nuclear Age* (Princeton University Press: Princeton, NJ, 1986), p. 759.

<sup>43</sup> Fred Kaplan saw the nuclear strategist Herman Kahn as the 'high priest of nuclear rationality'. Kaplan, F., *The Wizards of Armageddon* (Stanford University Press: Stanford, CA, 1991), p. 223.

<sup>44</sup> Although it is not extremely difficult to build a crude nuclear explosive device, it is another matter to render it operational, reliable and safe. Additionally, sub-national groups are allegedly able to build radiological bombs or 'dirty bomb' (i.e. radioactive material detonated by a conventional

weapons must mobilize resources from across society and possibly from abroad, including financial and research capacity, production facilities, managerial and technical expertise, and political will. Thus, a number of important considerations arise for governance during the acquisition and production of nuclear weapons, both for governments with ongoing nuclear weapon programmes and those first acquiring nuclear weapons. In addition to adopting strategy documents, laws and executive orders, political leaders in the executive and legislature may use budgetary control procedures to determine which types of weapon should or should not be researched and produced as well as which types should be taken out of production, stockpiled or decommissioned.

Safety measures are another means through which political bodies can govern the acquisition and production of nuclear weapons. For example, governments can opt to store their weapons unassembled or under the custody of a civilian agency, away from the military; although non-assembled nuclear weapons mean diminished readiness, it assists in the prevention of unauthorized or accidental use of nuclear weapons and other accidents.<sup>45</sup> Another safety-related issue concerns the stockpiling of small nuclear explosives, such as tactical weapons. This category of nuclear weapons is especially problematic from a control perspective because these weapons were produced in large quantities during the cold war, and they are small as well as comparatively portable and easier to smuggle out of a facility and a country.<sup>46</sup> Another aspect of decision making with regard to acquiring and producing nuclear weapons is the protection of the environment, the health of employees involved in nuclear programmes and of civilians living in the proximity of nuclear testing and production facilities. Public concerns and complaints about ongoing radioactive contamination and illnesses as a result of nuclear testing have been widely documented and may have an effect on how governments choose to acquire and produce nuclear weapons.<sup>47</sup>

explosive). See e.g. 'First, take some uranium . . .', *The Independent*, 30 July 2003; and 'Al-Qaeda and the bomb', *Jane's Intelligence Digest*, 3 July 2003.

<sup>45</sup> The USA (until the mid-1950s) and the Soviet Union (until well into the 1960s) stored nuclear weapons in this way. Israel is presumed to store nuclear weapons in this manner. Feaver (note 7), p. 167; and British House of Commons (note 41), 'Memorandum submitted by Professor William Walker'.

<sup>46</sup> E.g. former Russian National Security Adviser Gen. Alexander Lebed claimed that 86 of 132 mini-nuclear bombs ('suitcase' bombs) in the Russian nuclear arsenal were unaccounted for, which was denied by President Vladimir Putin. See Ross, B., 'Portable terror: suitcase nukes raise concern', ABC News, 8 Nov. 2001; and Highfield, R., 'Security plea for Britain's atom sites', *Daily Telegraph*, 22 Sep. 2001.

<sup>47</sup> Problems with nuclear testing and production include the 1957 fire in the British Windscale (later renamed Sellafield) nuclear plant; the 1986 Soviet Chernobyl disaster in Ukraine; and radioactive contamination of the former Soviet nuclear test range in the Semipalatinsk region of Kazakhstan, where approximately 500 tests were conducted between 1949 and 1990.

## The deployment and employment of nuclear weapons

Governance issues regarding the deployment and employment phases of the nuclear weapon cycle include establishing personnel management and security procedures and systems, developing secure and survivable command-and-control systems, providing and maintaining security for the nuclear force, selecting and assigning targets, and ongoing modernization of the nuclear weapon arsenal and associated procedures and doctrines.<sup>48</sup> The deployment and employment of nuclear weapons is about much more than who pushes ‘the button’. Rather, as the case studies of nuclear-armed states in this volume show, by ordering the use of nuclear weapons, a decision is transmitted through the chain of command, which includes various political and military levels, and is confirmed by multiple security measures. From a governance point of view, political leaders in the executive have to decide (a) whether they will pre-delegate nuclear authorization; (b) whether they will participate in the direct control over the (pre-)targeting of weapons; and (c) who will have control over the means of terminating a nuclear conflict. With regard to each of these decisions, political leaders need to consider whether they want to exert direct control or delegate the authority to others, typically to military echelons.

Concerning deployment and employment, as elaborated in chapter 2, political leaders face the so-called ‘always/never’ dilemma as it relates to command and control and efforts to prevent unauthorized or accidental use.<sup>49</sup> They would like nuclear weapons to always work when they want them to, but never work when they are not supposed to. On the one hand, political leaders want to be certain that, if necessary, a decision to launch nuclear weapons can be done quickly and reliably. This is especially the case if there are concerns that a nuclear arsenal could be endangered by a surprise attack or a decapitation strike that would disrupt command-and-control systems, the delivery systems or the warheads. This kind of nuclear readiness can be enhanced by various so-called positive control measures, such as (a) maintaining redundant communication networks; (b) protecting command-and-control communication against electromagnetic pulses; (c) protecting launch platforms and maintaining certain launch postures (e.g. bombers in the air, submarines on patrol); and (d) most importantly, pre-delegating authority from the political level to the military level.

On the other hand, political leaders would like to avoid the accidental and unauthorized use of nuclear weapons. Unauthorized use can be mitigated by negative control measures, such as (a) instituting physical and electronic protection of stored warheads and the command-and-control

<sup>48</sup> Kincade (note 35), p. 22.

<sup>49</sup> See also Feaver (note 17), pp. 12–28; and Feaver (note 7), pp. 163–68.

system; (b) requiring a ‘two-man’ rule (meaning that the positive action, or launch of a weapon, needs at least two individuals); (c) installing launch codes and locks on nuclear weapons (so-called permissive action links, PALs); (d) practising strict code management; (e) carefully selecting and monitoring associated personnel; (f) separating the warning system organization from command system organization; (g) holding nuclear weapons in stockpile only (the non-deployment of nuclear weapons); and (h) storing nuclear warheads under the responsibility of a special agency separate from the military.<sup>50</sup>

## V. Key actors in domestic nuclear weapon governance

Five key actors dominate the domestic governance of nuclear weapons: core security actors, the executive, the legislature, the judiciary and civil society. Those actors shape choices across the various aspects of a national nuclear weapon programme (see tables 1.3 and 1.4). Independent bodies (e.g. ombudsman institutions or human rights commissioners) are not discussed in this chapter as they play a relatively marginal role in nuclear weapon governance.

### Core security actors

As mentioned above, the security sector includes a wide range of actors. In the case of nuclear weapons, the military is one of the most important actors responsible for implementing nuclear decisions, especially in the deployment and employment phases, although its influence in this and other phases varies from country to country. Various scholars have expressed concern about the possible negative effects of the complex and bureaucratic military organization as it relates to nuclear governance, in terms of common biases, inflexible routines and parochial interests.<sup>51</sup> Unwritten rules and ‘work-arounds’ in large and complex organizations such as the military could lead to less-than-desirable organizational behaviour vis-à-vis nuclear weapons.<sup>52</sup> However, commentators do not suggest that the military would wilfully disobey civilian authorities. Rather, they emphasize that large complex professional organizations may have their own dynamics because they pursue their own agenda, seek to protect their autonomy and defend their interests. This is a relevant issue for civilian control when, in the light of the post-cold war security environment,

<sup>50</sup> Feaver (note 17), p. 166; Sidhu, W. P. S. et al., *Nuclear Risk Reduction Measures in Southern Asia*, Report no. 26 (Stimson Center: Washington, DC, 1998); and Bracken (note 21), pp. 22–23.

<sup>51</sup> E.g. Sagan and Waltz (note 9), p. 47; and Feaver (note 17).

<sup>52</sup> Feaver (note 17), pp. 22–26.



**Table 1.3.** Possible roles of key actors in domestic nuclear weapon governance

Key actors	Possible governance roles
Core security actors (the military, specialized security agencies)	Implement security measures; maintain the separate storage of missiles and nuclear warheads; enforce strict recruitment rules on and selection tests of involved security personnel; and develop and control technologies and systems relevant to the safety and use of nuclear weapons
Executive	Embodies formal decision-making power at all stages of the nuclear weapon cycle; maintains the sole ability to change alert status; makes governmental decrees to institutionalize the national nuclear command authority bodies; carries a mobile command centre (e.g. 'nuclear football' or 'nuclear suitcase'); approves appointments of top commanders; has access to permissive action links and the requisite political release codes; and delegates authority to other political authority in case head of state is unable to make decisions and thus ensures the continuity of government
Legislature	Provides budgetary oversight of the nuclear weapon programme and procurement decisions; reviews and confirms the appointment of top officials; has access to classified information; debates various aspects of nuclear weapon programme; and conducts hearings and briefings in order to inform legislators
Judiciary	Rules in legal disputes between citizens and the government; rules in legal disputes between the government as employer and civil and military employees; rules in legal disputes between the executive and the legislature; interprets international treaty obligations
Civil society	Scrutinizes decisions and outcomes; provides the public with alternative information; mobilizes public opinion; and exercises pressure on executive and legislature

civilian authorities in many nuclear weapon states wish to reform and reduce their arsenals.

As mentioned above, a robust system of checks and balances includes, but is not limited to, a 'two-man rule', PALs and code management, aspects of nuclear weapons governance which are thought to be implemented by core security actors in all the current nuclear weapon states. Another element of the check and balances system is a distinction between the *de jure* control and *de facto* control of nuclear weapons.<sup>53</sup> The military has *de facto* (or physical control) if it is in charge of a specific operation (the actual use of nuclear weapons) or if the nuclear weapons are physically stored by the military itself. The military loses physical control if nuclear weapons are stockpiled by another specialized civilian security agency.

<sup>53</sup> Feaver (note 17), pp. 31, 36.

## The executive

Although it is generally the head of state or government (president or prime minister) who ultimately decides on the use of nuclear weapons, executive control also encompasses a wide range of decisions in the entire nuclear weapon cycle. Furthermore, executive leaders decide the extent to which they wish to delegate various aspects of control to other actors at each phase of the cycle.

Feaver has categorized two types of command-and-control systems in the broader framework of civil–military relations: ‘delegative’ and ‘assertive’ control.<sup>54</sup> Delegative control favours military control and emphasizes protection against threats of decapitation and pre-emptive strikes, whereas assertive control favours executive control and emphasizes protection against accidental and unauthorized use. Nuclear command-and-control systems shift back and forth between delegative and assertive postures depending on the ‘time urgency quality’ of the nuclear arsenal and, more important for the subject at hand, the state of civil–military relations and domestic politics more generally. Countries with predictably stable civil–military relations and domestic situations, such as the USA, tend to favour delegative control. In contrast, other countries which may have a more volatile domestic politics or civil–military relations, such as Pakistan, tend to favour assertive control. However, volatile civil–military relations may make the establishment of assertive control impossible so, as a consequence, delegative control prevails, with potentially destabilizing effects.<sup>55</sup> Both strategies have problematic features. Delegative control presumes a clear delineation of political and military responsibilities, which is rather difficult because the use of nuclear weapons has consequences that go far beyond the battlefield. In contrast, assertive control is problematic in the case of a surprise or decapitation attack, in which the command-and-control possibilities of the executive are destroyed.

## The legislature

The legislature can fulfil various functions in relation to security policy in general and nuclear weapons in particular. Depending on the range of powers that a legislature is accorded, it can adopt laws, exercise oversight, control budgets, represent the will of its constituents, ratify treaties and, in some systems, elect or depose governments.<sup>56</sup> A legislature’s capacity to

<sup>54</sup> Feaver (note 17), pp. 7–12, based on the US experience.

<sup>55</sup> Feaver (note 17); and Feaver (note 7).

<sup>56</sup> Born, H. (ed.), *Parliamentary Oversight of the Security Sector: Principles, Mechanisms and Practices*, Handbook for Parliamentarians no. 5 (Inter-Parliamentary Union/Centre for the Democratic Control of Armed Forces Geneva: Geneva, 2003).

**Table 1.4.** Key governance actors and their possible roles in the nuclear weapon cycle

Subjects of governance	Objects of governance			
	Decision to acquire nuclear weapons	Strategy	Acquisition	Deployment and employment
Core security actors	Gives advice to executive	Develops and co-drafts new strategies	Specifies procurement needs; possibly provides stewardship over nuclear arsenal	Operationalizes command and control; possibly provides stewardship over nuclear arsenal
Executive	Takes decisions; takes initiative	Co-drafts and approves new strategies	Determines research, acquisition, production and stockpile	Authorizes use; determines command-and-control protocol
Legislature	Influences programme establishment through budget control; holds hearings; solicits independent opinion	Approves new strategies; ratifies international treaties	Influences procurement through budget control; solicits independent advice; conducts hearings; provides a forum for public debate	Approves laws as legal framework for command and control; approves declaration of war; controls the budget
Judiciary	Rules on the legality of nuclear weapon-related matters		Rules in (health) cases between government versus citizens and military–civil personnel	Settles legal disputes between government and citizens
Civil society	Applies pressure on government and political parties	Conducts independent research on strategy	Conducts independent research on new nuclear weapons	Applies pressure and conducts independent research on nuclear-related matters

fulfil these functions varies between political systems. Very little reference is made in the nuclear weapon literature to the role of the legislature in nuclear weapon states—and typically only in reference to the US Congress.

The right of the legislature to declare war and to terminate war activities is enshrined in the constitutions of most democratic states. However, in most countries, it is implicit that the executive has the power to respond to sudden attacks and to decide which weapon is appropriate in that response, including the use of nuclear weapons. A second important legislative power can be the ability to authorize the use of public funds for the procurement and deployment of nuclear weapons. Most decisions related to nuclear weapons have major financial implications. Especially important is the power to authorize the development or procurement of a new nuclear weapon capacity.<sup>57</sup> By using this power, parliaments may be able to block or approve research, production and stockpiling of specific types of nuclear weapons. Third, legislatures have, via their law-making powers, the ability to set up the legal and institutional framework for domestic governance of nuclear weapons. For example, a legislature may delineate the responsibilities of itself, the executive (president, prime minister and other ministers), senior military leaders and other relevant institutions in the governance of nuclear weapons. Additionally, some legislatures have the ability to improve the transparency of a nuclear weapon programme via freedom of information laws. Such laws are an important tool for accountability as exercised by journalists, academics and non-governmental organizations (NGOs) concerning nuclear weapons. A fourth way that legislatures can influence nuclear weapon governance is through their role in the ratification or non-ratification of international treaties on nuclear weapons that are signed by the executive leadership.

The capacity of a legislature to wield these powers is dependent in part on its members having access to sufficient information and possessing relevant expertise on nuclear weapon issues. The fact that secrecy laws—laws approved by legislatures in the first place—shield nuclear weapon programmes presents a formidable obstacle to legislatures. A second obstacle to effective legislative oversight is that nuclear weapons constitute a complex field of security policy, comprising complicated research, technology and strategy. In order to have access to independent expert opinions, some legislatures, such as the British Parliament and the US Congress, organize hearings and invite experts to give their opinion on pending issues.<sup>58</sup>

Having powers, information and expertise are necessary but not sufficient elements for effective legislative oversight. A crucial element is the willingness and ability of the legislature to hold the executive to account.

<sup>57</sup> Chapters 2 and 3 in this volume examine this in detail.

<sup>58</sup> On the British Parliament's hearings on weapons of mass destruction see British House of Commons (note 41).

Due to party discipline, political constraints, traditional deference or general disinterest in security policy, legislatures may refrain from exercising oversight of the government's security policy.<sup>59</sup> For example, it was not until 1969, a quarter of a century after the USA had started its nuclear weapon programme, that the US Senate voted on a major aspect of nuclear weapon policy (a new anti-ballistic missile system which the executive branch sought).<sup>60</sup> In other instances, legislative bodies are extremely weak or merely symbolic bodies, and, even if populated with well-informed and expert individuals, they are unable to exercise substantive governance oversight on nuclear weapon issues.

### **The judiciary**

As with legislative bodies, the role of judicial bodies regarding the governance of nuclear weapons varies widely depending on the country in question. Also, similar to the role of the legislature, very little has been written on the role of judicial bodies in the governance of nuclear weapons. In countries with stronger, more independent judiciaries, courts could play a governance role in at least five important areas: (a) mediating legal disputes between citizens and the government concerning, for example, freedom of information laws (citizens requesting the declassification of documents) or environmental or health problems arising from nuclear production or testing facilities; (b) mediating legal disputes between the government as an employer and its military or civilian employees involved in nuclear weapon programmes who, for example, have suffered radiation effects after testing of nuclear weapons; (c) ruling in cases related to illegal acts regarding nuclear weapons (e.g. the handing over of secret documents or nuclear weapon material illegally to third parties); (d) adjudicating disputes between the legislative and executive or other governmental bodies or levels (e.g. between the local and state level or between various government ministries); and (e) interpreting the country's commitments to international treaties and agreements regarding nuclear weapons.

### **Civil society**

A strong civil society can have an important role in security sector governance. However, it is difficult for civil society—be it activist citizens, academics, NGOs or the media—to exert a strong influence on the governance of nuclear weapons. As is the case with legislators, members of civil society bodies have restricted access to information on nuclear weapons due to

<sup>59</sup> See Born (note 56).

<sup>60</sup> Freedman, L., *The Evolution of Nuclear Strategy* (Palgrave Macmillan: Houndmills, 2003), pp. 320–21.

secrecy laws, despite freedom of information laws in some countries. This is especially difficult if governments of nuclear weapon states pursue a strategy of nuclear ambiguity or opacity, that is, to deny that a nuclear weapon capability exists or to give little or no information about its intentions and capabilities.<sup>61</sup> The combination of the veil of secrecy surrounding nuclear weapon programmes and the complexity of these weapons have led to serious doubts among scholars as to whether civil society can play a meaningful role in shaping nuclear weapon governance issues at all. According to Dahl, citizens have ‘abandoned’ decision making over nuclear weapons to a few specialists, a process that he calls ‘alienation of authority’ because so little public discussion takes place about the policy and future of nuclear weapons.<sup>62</sup>

Nevertheless, the voice of civil society, especially in democratic nuclear weapon states, has been heard at important points. Anti-nuclear protest organizations raised their voices at the end of the 1970s against the deployment of the neutron bomb (an enhanced radiation weapon) and during the early 1980s against the decision by the North Atlantic Treaty Organization (NATO) to deploy nuclear cruise missiles and ballistic missiles in five European NATO states. The massive protests fostered an intellectual climate in which new think tanks and research institutes emerged, focusing on the risks and consequences of nuclear weapons. Eventually, these protests spilled over to the political mainstream since centre and left-wing political parties in particular could not ignore their appeals. While the direct influence of these protests was rather limited, the anti-nuclear movement indirectly illuminated various problems of nuclear weapons and helped to foster a political atmosphere more conducive to arms control.<sup>63</sup>

Additionally, research institutes played a role in shaping government thinking on nuclear strategy, especially in the UK and the USA, where think tanks influence the public debate on nuclear weapon policy. It has been pointed out that the role of independent research institutes is facilitated when the ‘demarcation line’ between government and academics is not strict.<sup>64</sup> Occasionally, concerned nuclear scientists have called for the inclusion of the public in debates about the future of nuclear weapons.

## VI. Linking governance actors and the nuclear weapon cycle

For a number of reasons, the role of the various domestic groups in the phases of the nuclear weapon cycle varies. First, the relative influence of

<sup>61</sup> Freedman (note 60), p. 492. E.g. the British Government is generally unwilling to release information on strategic matters, while Israel denies that it has a nuclear weapon capacity. See chapters 4 and 7 in this volume.

<sup>62</sup> Dahl (note 20), p. 3.

<sup>63</sup> Freedman (note 60), p. 381–83.

<sup>64</sup> Freedman (note 60), p. 492.

the executive, legislature and judiciary is dependent on the respective political system. Second, in times of crisis, the executive and the military would play critical roles in the deployment and possible use of nuclear weapons; immediate and effective legislative and public oversight would probably be marginal if not non-existent. Finally, and most importantly for this study, the influence of each actor may vary in each phase of the nuclear weapon cycle.

Key actors might play a range of roles across the different phases of the nuclear weapon cycle (see table 1.4 above). In most phases, the role of the executive or the core security actors is predominant, depending on the nature of civil–military relations and the related command-and-control arrangements. However, the legislature may be influential in those phases in which decisions are taken with major financial consequences, for example in the acquisition phase. Civil society may play a role in those phases in which government makes declaratory statements or is preparing to make changes in nuclear policy. The functions described in table 1.4 are merely indicative of the possible roles played by actors at each level of governance and in each phase of the nuclear weapon cycle.

The heuristic framework of analysis established in table 1.4 linking the key actors in domestic nuclear governance to the nuclear weapon cycle guides the eight country studies in this volume. Each of the chapters assesses the roles played by the various domestic actors in the governance of nuclear weapons in the country of study. In applying this framework, the chapters taken together produce a rich comparative and analytic tapestry about domestic nuclear governance and the current extent and future prospects for civilian control and democratic accountability of nuclear weapons in the eight states. In particular, the chapters provide deeper insights into who controls nuclear weapons, how and why. Furthermore, they assess the status and prospects for a meaningful role to be played by the military, specialized civilian agencies, the executive, legislature, judiciary and civil society. In this sense, the main argument of the book is that the software (i.e. governance) is as important as the hardware (the bomb) itself. The volume's concluding chapter outlines these comparative findings and analytic implications in detail. With increased knowledge of governance of the nuclear bomb, the international community can have greater expectations that nuclear weapons will never be used again and can continue to make progress towards the goal of nuclear disarmament.

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## 2. The United States

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PETER D. FEAVER AND KRISTIN THOMPSON SHARP

### I. Introduction

The United States confronts the same challenge that all nuclear democracies face: it must simultaneously ensure both national security and the principles of openness and accountability. Many sectors of the US Government contribute to this goal: the executive, which makes preliminary nuclear decisions; the military, which carries out nuclear orders; and the US Congress, which establishes the legal framework undergirding nuclear policy. In many respects, the USA has a strong and generally positive record in the arena of democratic governance of nuclear weapons. It certainly has wrestled with the issues longer and more deeply than any other country. At the same time, the record is not unblemished. Indeed, because the veil of secrecy has been lifted more in the US case than in other cases, the US experience can serve as a useful baseline for comparison.

Civilian control of the military has historically been an unquestioned tenet of the US political framework, yet in the nuclear age questions persist about the proper balance between civilian oversight and military autonomy. This chapter illustrates the myriad influences on US nuclear decision making. It surveys a range of actors and institutions in the nuclear dialogue, from the military and executive branch personnel to academic analysts and public interest groups. It examines the effect that these groups have had at different times on nuclear strategy, force structure and operations. The chapter also focuses on the interplay of decision makers in the various sectors of government related to control over the nuclear arsenal. Section II reviews the underlying constitutional and political framework that shapes defence policymaking in law and practice. Nuclear strategy, nuclear force structure and nuclear operations are addressed in sections III, IV and V, respectively. Section VI presents the conclusions.

### II. Constitutional and political background

Over the years legal precedents and customs have established a network of governance procedures for defence policy in general and nuclear policy in particular. The US Constitution sets the key parameters for US democracy, a political system of divided and shared powers that has served the country for over 200 years. The Constitution establishes three branches of federal



government with separate, yet overlapping, roles on all matters of public policy, including defence policy. Two branches, the executive and legislative, have specifically delineated defence responsibilities. Article I, Section 8, of the Constitution grants the Congress the power to declare war and raise an army.<sup>1</sup> Article II, Section 2, designates the president as the commander-in-chief of the army and navy (armed forces), giving the civilian president not only oversight responsibility, but also the top position in the military hierarchy.<sup>2</sup> Article I, Section 8, gives the Congress the power to 'provide for the common defense'. Article I, Section 9, specifies that no funds shall be drawn from the treasury without congressional approval, giving the Congress oversight duties towards military (and all other) expenditure. Finally, Article II, Section 2, gives the Senate the power of advice and consent on treaty ratification and executive branch appointees. Together, these constitutional checks and balances ensure that the power to make military decisions is spread throughout the government. Furthermore, the interplay among the executive, the legislative, governmental and non-governmental oversight institutions, and civil society in general is one of the main vehicles for democratic governance of the US nuclear arsenal.

### **Executive control**

Decision-making power is only slightly more centralized in the executive than the legislative branch. While the president relies heavily on a collection of advisers (e.g. the secretaries of defense and state) to interpret information, the president is the final authority on national security decisions. The national security advisor (NSA), who provides interdepartmental coordination, is a member of the president's personal staff. However, the influence of that post depends to a large extent on the personality of the occupant and, crucially, the NSA's personal relationship with the president. The NSA and the secretaries of defense and state along with the vice-president are the most important members of the National Security Council (NSC). Other key participants include various cabinet members as needed, as well as two statutory advisers: the director of national intelligence (formerly the director of central intelligence), responsible for the various intelligence agencies, and the chairman of the joint chiefs of

<sup>1</sup> US Senate, *US Constitution* (Government Printing Office: Washington, DC, 1997), <[http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=105\\_cong\\_documents&docid=f:sd011.105](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=105_cong_documents&docid=f:sd011.105)>.

<sup>2</sup> Although judicial branch interpretations of the constitutionality of national security-related decisions allow the Supreme Court an indirect influence on the conduct of military and security policy, specific court cases are outside the scope of this chapter. The court does have an influence on some military issues, but none of its decisions has had any substantial impact on nuclear control questions.

staff of the military services.<sup>3</sup> Within the executive, one further division is of particular importance: the tripartite distinction between political appointees, permanent civilian bureaucrats and military officers—all of whom have played important roles in shaping military and nuclear policy since World War II.

In the realm of nuclear policy one government agency has played an especially prominent role: the Atomic Energy Commission (AEC), which later developed into the Department of Energy (DOE) and its autonomous sub-agency, the National Nuclear Security Administration (NNSA). Over time, a large bureaucracy has developed in the executive agencies with responsibilities related to nuclear policy. It includes sizeable offices in the departments of State, Defense and Energy and differs from the bureaucracy of the early part of the nuclear era in that de facto day-to-day management of nuclear policies has gradually migrated from senior positions to mid-level bureaucrats working full-time on the issue.

### **Congressional oversight**

Congressional responsibilities towards military policy are both substantive and financial. On substantive policy, the Congress can prescribe procedures and establish jurisdictions that direct how power is to be distributed throughout government. For instance, through the 1946 Atomic Energy Act, the Congress authorized the AEC and mandated that nuclear weapons be kept under strict civilian control.<sup>4</sup> The Congress's financial role is reflected in the two-stage process by which federal funds are spent: authorizations and appropriations. Authorizations are pieces of legislation that 'establish, continue, or modify an agency or program, and authorize the enactment of appropriations for that purpose. They may be temporary or permanent, and their provisions may be general or specific'.<sup>5</sup> Authorizations related to military programmes, nuclear weapons and the nuclear infrastructure of the DOE are handled by the Armed Services committees of the House of Representatives and the Senate. Programmes related to non-proliferation, disarmament, implementation and radiological terrorism are handled by the House International Relations Committee and the Senate Foreign Relations Committee. Matters pertaining to treaty negotiation or ratification are referred to the Senate Foreign Relations Committee for consideration.

<sup>3</sup> Sarkesian, S. C., Williams, J. A. and Cimballa, S. J., *U.S. National Security: Policymakers, Processes, and Politics* (Lynne Rienner Publishers: Boulder, CO, 2002).

<sup>4</sup> Atomic Energy Act of 1946 (McMahon Act), US Public Law 585, signed into law on 1 Aug. 1946, <<http://www.osti.gov/atomicenergyact.pdf>>.

<sup>5</sup> Saturno, J. V., *The Congressional Budget Process: A Brief Overview*, Congressional Research Service (CRS) Report for Congress RS20095 (US Congress, CRS: Washington, DC, 28 Jan. 2004).

Thirteen regular appropriations bills allow funding to be taken from the national treasury to pay for the programmes described in authorizations. Military programmes are covered in the defence appropriations, and nuclear production and storage programmes are funded through the energy and water appropriations.<sup>6</sup> In addition, several non-proliferation programmes are funded through the foreign operations appropriation bills. Traditionally, the authorizing committees have focused on broader policy questions while the appropriating committees have handled the expense details; in practice, however, that distinction has eroded over time and today all committees tend to avoid broad policy in favour of trying to exercise control over spending.<sup>7</sup> Because committees have jurisdiction over a wide variety of issues, members of the Congress employ permanent staff members who are often accorded substantial decision-making responsibilities and can, in some cases, rival executive branch officials for influence.

Two methods of oversight are available to members of the Congress. Under 'police patrol' oversight, committees routinely examine the executive bureaucracy to make sure that programmes are being correctly and efficiently implemented.<sup>8</sup> For instance, 'authorizers' require periodic reports assessing various authorized programmes before agreeing to fund subsequent years. In October 2000 the Congress mandated a Nuclear Posture Review 'to clarify United States nuclear deterrent policy and strategy for the next five to ten years' to be 'used as the basis for establishing future United States arms control objectives and negotiating positions'.<sup>9</sup> The police patrol approach has been criticized as unwieldy, especially in the defence and security sector, because of the inherent secrecy required for effective national security.<sup>10</sup> Although House and Senate Armed Services Committee members have access to classified information, other members of the Congress can be stonewalled by the Department of Defense (DOD), and even members with security clearance experience setbacks when trying to exercise their right to information.<sup>11</sup> Nonetheless, by asking for the information, members of the Congress increase transparency in nuclear policy and remind the DOD that its programmes are not above scrutiny. In

<sup>6</sup> This is because non-deployed nuclear weapons are maintained by the NNSA, which is part of the DOE.

<sup>7</sup> Lindsay, J. M., 'Congress and the defense budget', *Washington Quarterly*, vol. 11, no. 1 (Dec. 1988), pp. 57-74.

<sup>8</sup> McCubbins, M. D. and Schwartz, T., 'Congressional oversight overlooked: police patrols versus fire alarms', *American Journal of Political Science*, vol. 28, no. 1 (Feb. 1984), pp. 165-79.

<sup>9</sup> Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001, US Public Law 106-398, Section 1041, signed into law on 30 Oct. 2000, <[http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=106\\_cong\\_public\\_laws&docid=f:publ398.106](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=106_cong_public_laws&docid=f:publ398.106)>.

<sup>10</sup> Zegart, A., *Flawed by Design: The Evolution of the CIA, JCS, and NSC* (Stanford University Press: Palo Alto, CA, 1999).

<sup>11</sup> Lindsay, J. M., *Congress and Nuclear Weapons* (Johns Hopkins University Press: Baltimore, MD, 1991), p. 155.

contrast, the ‘fire alarm’ oversight method relies on industry, interest groups, the media and other outside parties to alert members of the Congress to agency dealings that require congressional attention. While the fire alarm approach conserves time and money as it requires action only when problems arise, it also relegates the Congress to a reactive security role, responding to policy rather than setting it.<sup>12</sup>

### **Independent governmental oversight institutions**

Government decision makers are both informed and evaluated by a collection of government agencies, each with a specific role. The most prominent agency, the Congressional Research Service, was created in 1914 in order to provide ‘non-partisan, objective analysis on legislative issues’.<sup>13</sup> The agency has an annual budget of approximately \$107 million and produces extensive legislative reports on defence and nuclear policy, but its publications are not readily accessible to the public, nor are they peer-reviewed. The Government Accountability Office, with an annual budget of \$538 million, is better staffed but with a mandate that limits its audits to existing government programmes, not programmes under consideration.<sup>14</sup> Finally, the Congressional Budget Office, comparatively underfunded at \$42 million per year, provides financial assessments of the programmes it reviews, but it does not evaluate the cost benefits of those programmes.<sup>15</sup>

### **The role of civil society**

These government oversight institutions are complemented by a range of non-governmental institutions that have had a lasting influence on national security policy and play an important role in shaping the public debate, especially via the news and popular media. Arms manufacturers lobby for new weapon systems; private and semi-private consulting firms, think tanks and individual academics conduct analyses and give advice to policy-makers about which needs and goals the USA should address. US citizens themselves also have a voice in the creation and direction of military policy through grassroots movements, public protests and voting; at times this advocacy has had a profound effect on nuclear policy.

<sup>12</sup> McCubbins and Schwartz (note 8).

<sup>13</sup> Library of Congress, ‘About CRS’, [n.d.], <<http://www.loc.gov/crsinfo/whatscrs.html#hismiss>>.

<sup>14</sup> The GAO was founded in 1921 under the name General Accounting Office. The name was changed to Government Accountability Office in 2004. See GAO website, ‘Our name’, <<http://www.gao.gov/about/namechange.html>>.

<sup>15</sup> Financial figures for all 3 congressional research agencies taken from Brudnick, I., *Legislative Branch: FY2009 Appropriations*, Congressional Research Service (CRS) Report for Congress RL34490 (US Congress, CRS: Washington, DC, 31 Oct. 2008).

### III. Nuclear strategy

#### **A brief review of post-World War II nuclear strategy**

Broadly speaking, the evolution of US nuclear strategy has consisted of a shift from 'massive retaliation' to 'flexible response'. This shift was driven in part by debates within the USA but also by debates within the North Atlantic Treaty Organization (NATO) because the strategies were at once both domestic and multilateral. Throughout the debates, strategists focused on deterrence, emphasizing avoiding a war more than winning it. In so doing, strategists wrestled with intertwined concerns: how to preserve the credibility of the US threat to use nuclear weapons, and how to determine the level of damage that needed to be threatened in order to deter enemy action.

From the late 1940s until the late 1950s, the USA embraced the policy of massive retaliation, which sought to deter attacks on both vital and peripheral interests cheaply and on US terms. The policy relied on the twin propositions that (a) the USA should maintain the retaliatory initiative in times and circumstances of its own choosing, and (b) deterrence was best promoted by threatening to launch an enormous strike—one that would kill tens of millions of enemy troops and citizens in a single blow. Threats of massive retaliation, however, were less credible when the USA lost its nuclear monopoly, and the credibility eroded still further when the Soviet Union developed the capability to hit the USA with a massive strike of its own. Allies and adversaries alike wondered if the USA would risk full-scale nuclear war defending peripheral areas.

In 1961, to answer this question, the Administration of President John F. Kennedy implemented a policy of flexible response, which allowed the USA to tailor its response to a situation without it necessarily escalating to an intercontinental nuclear exchange.<sup>16</sup> By seeking to prevail at lower levels of conflict, the USA enhanced the credibility of the threat, but at a cost: the flexible response strategy required expensive, robust conventional forces and a complex escalation ladder that appeared to make war between the nuclear weapon states more palatable, and potentially more likely. The flexible response strategy asked the practical question: 'how much nuclear force is enough?' The secretary of defense, Robert McNamara, answered 'assured destruction', defined as the ability to decimate one-quarter of the Soviet population and one-half of its industry.<sup>17</sup>

<sup>16</sup> Freedman, L., *The Evolution of Nuclear Strategy* (St Martin's Press: New York, 1983), pp. 76–89, 285–87.

<sup>17</sup> Smoke, R., *National Security and the Nuclear Dilemma: An Introduction to the American Experience* (Random House: New York, 1987).

With assured destruction at the top of the escalation ladder, further refinements to flexible response emerged at lower levels of escalation. From the mid-1960s to the present, nuclear strategy has involved the development of ever more refined options for tailored nuclear strikes targeting particular industries, political-control complexes, command and control systems and, most importantly, conventional and nuclear military forces. The practice of investigating more and better war-fighting options continued during subsequent administrations, punctuated by the 1974 Schlesinger Doctrine, which underscored the US desire to avoid targeting cities altogether; President Jimmy Carter's PD-59, which proposed retaliatory decapitation strikes aimed at Soviet military and political power centres; and President Ronald Reagan's NSDD-13, which mandated that the US military target enough Soviet military installations to prevail in a protracted nuclear war extending over weeks or months.<sup>18</sup>

Throughout the cold war defence analysts pursued strategies to counter the Soviet threat, but the strategies were never able to overcome a basic truth: by the time the Soviet Union obtained a secure second-strike nuclear capability of its own, the two nuclear superpowers had achieved a condition where they threatened mutual assured destruction (MAD). While MAD never became the official goal of nuclear strategy, it did become an inescapable fact, and many strategists argued that it contributed to stability.<sup>19</sup> Moreover, MAD tacitly received some official endorsement when the Soviet Union and the USA signed the 1972 Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty), which restricted each side to limited missile defence systems, and thus ensured their mutual vulnerability to missile strikes.<sup>20</sup> US presidents negotiated additional treaties throughout the cold war that sought to stabilize the arms race further, yet the US Senate viewed nuclear limitations and restrictions suspiciously, and the price for treaty ratification was often advanced offensive weapon systems.<sup>21</sup>

During the 1970s and 1980s nuclear strategic debates were dominated by considerations of whether and how nuclear deterrence could link security efforts in Europe with the main US arsenal; one answer—a new generation

<sup>18</sup> Freedman, L., *The Evolution of Nuclear Strategy* (Palgrave Macmillan: New York, 2003); Smoke (note 17); and Powaski, R. E., *Return to Armageddon: The United States and the Nuclear Arms Race, 1981–1999* (Oxford University Press: New York, 2000). National Security Decision Memoranda 242 (NSDM 242), 17 Jan. 1974; Carter, J., Nuclear Weapons Employment Policy, Presidential Directive 59 (PD-59), 25 July 1980 and Reagan, R., Nuclear Weapons Employment Policy, National Security Decision Directive 13 (NSDD-13), 19 Oct. 1981.

<sup>19</sup> Sokolski, H. D. (ed), *Getting MAD: Nuclear Mutual Assured Destruction, Its Origins and Practice* (US Army War College: Carlisle, PA, 2004).

<sup>20</sup> Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty), signed by the Soviet Union and the USA on 26 May 1972, entered into force on 3 Oct. 1972, not in force from 13 June 2002, <<http://www.state.gov/www/global/arms/treaties/abmpage.html>>.

<sup>21</sup> Powaski (note 18).

of intermediate-range nuclear forces based in Europe—provoked as much debate within NATO as between the Soviet Union and the USA. Another major debate concerned how to preserve a survivable land-based option in the nuclear triad—the three-part system of nuclear weapon delivery options: land-based missiles, submarine-launched missiles and nuclear-armed aircraft. After the fall of the Soviet Union in 1991, scholars and experts both inside and outside of the US Government expected dramatic revisions to cold war strategies. However, aside from implementing force reductions related to the 1991 Treaty on the Reduction and Limitation of Strategic Offensive Arms (START I), the nuclear strategy of the Administration of President Bill Clinton looked remarkably similar to previous strategies.<sup>22</sup>

One way in which the Clinton Administration adapted its policies to the new environment was to extend the concept of deterrence. To combat the growing weapons of mass destruction (WMD) threat from so-called rogue states, policymakers shifted to a policy of studied nuclear ‘ambiguity’ and the DOD began to emphasize ‘counter-proliferation’ to match the traditional diplomatic efforts of ‘non-proliferation’. While the Clinton Administration reaffirmed the US commitment to the negative security assurance provisions of the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT), which prohibits the use of nuclear weapons against non-nuclear weapon states that are parties to the NPT, high-ranking administration officials hinted that the administration might consider nuclear retaliation against a state ‘not in good standing under the NPT’ or one that ‘attacked US forces with WMD’.<sup>23</sup> President George W. Bush’s Administration continued to make ambiguous statements regarding the first use of nuclear weapons.<sup>24</sup> While these statements raised eyebrows

<sup>22</sup> Treaty on the Reduction and Limitation of Strategic Offensive Arms (START I Treaty), signed by the Soviet Union and the USA on 31 July 1991, entered into force on 5 Dec. 1994, <<http://www.state.gov/www/global/arms/starhtml/start/toc.html>>.

<sup>23</sup> According to the NPT, only states that manufactured and exploded a nuclear device prior to 1 Jan. 1967 are recognized as nuclear weapon states. China, France, Russia, the United Kingdom and the USA are the 5 nuclear-armed states party to the NPT. India and Pakistan, like Israel, are nuclear-armed states that remain outside the NPT. Treaty on the Non-Proliferation of Nuclear Weapons opened for signature on 1 July 1968, entered into force on 5 Mar. 1970, <<http://www.iaea.org/Publications/Documents/Treaties/npt.html>>; United Nations Security Council Resolution 984, 11 Apr. 1995, para. 1; Woolf, A. F., *U.S. Nuclear Weapons: Changes in Policy and Force Structure*, Congressional Research Service (CRS) Report for Congress RL31623 (US Congress, CRS: Washington, DC, 23 Feb. 2004); and Cerniello, C., ‘Clinton issues new guidelines on US nuclear weapons doctrine’, *Arms Control Today*, vol. 27, no. 8 (Nov./Dec. 1997). President George H. W. Bush also made ambiguous statements regarding US retaliatory options in the 1991 Gulf War. For a brief history of statements made by the first Bush Administration (1989–93) and the Clinton Administration see Sagan, S. D., ‘The commitment trap: why the United States should not use nuclear threats to deter biological and chemical weapons attacks’, *International Security*, vol. 24, no. 4 (spring 2000), pp. 85–115.

<sup>24</sup> Boucher, R., ‘Daily press briefing’, US Department of State, 22 Feb. 2002, <<http://2001-2009.state.gov/r/pa/prs/dpb/2002/8421.htm>>.

in the nuclear watchdog community, they drew little attention from the Congress and the public.<sup>25</sup>

The Bush Administration also used the 2001 congressionally mandated Nuclear Posture Review to update the US nuclear strategy in response to the shifting post-cold war environment.<sup>26</sup> The review put ‘the Cold War practices related to planning for strategic forces behind us’ by declaring that ‘the US will no longer plan, size or sustain its forces as though Russia presented merely a smaller version of the threat posed by the former Soviet Union’.<sup>27</sup> The review reconceptualized the nuclear triad to focus on the dangers of the 21st century. It identifies the components of the new triad as offensive strike forces (nuclear and conventional), missile defences and nuclear infrastructure that would enable the USA to reconstitute its ageing nuclear technology. Critics of the Bush Administration’s new triad focused primarily on the destabilizing effects (or expense) of defensive systems, the dangers of blurring the distinction between nuclear and conventional weapons, and the possibility that modernization of the defence infrastructure would result in a self-fulfilling prophecy of future peer competitors.<sup>28</sup> The terrorist attacks of 11 September 2001 on the USA reinforced the Bush Administration’s concerns about nuclear strikes; although the terrorists used rudimentary conventional techniques, the extraordinary physical, financial and psychological damage intensified worries about the nexus between terrorists and WMD, especially nuclear weapons. However, the post-11 September National Security Strategy Report made clear that terrorists are not good targets either for traditional nuclear deterrence or pre-emptive nuclear strikes.<sup>29</sup> Thus, while 11 September 2001 produced dramatic changes in the way the USA treated terrorism, it did not produce equally dramatic changes in the US approach to nuclear weapons.

In 2009 President Barack Obama, in his first major statement on nuclear strategy, called for a global reduction in the stockpiles of nuclear weapons

<sup>25</sup> Pincus, W., ‘Pentagon revises nuclear strike plan’, *Washington Post*, 11 Sep. 2005.

<sup>26</sup> Crouch, J. D., ‘Special briefing on the Nuclear Posture Review’, 9 Jan. 2002, <[http://www.defenselink.mil/transcripts/2002/t01092002\\_t0109npr.html](http://www.defenselink.mil/transcripts/2002/t01092002_t0109npr.html)>. The Nuclear Posture Review is a classified document that sets out the president’s vision of future nuclear policy. However, in order to enact substantive change in weapon systems or infrastructure, the Congress must authorize funding. While research and testing of the US missile defence system is ongoing, the Congress rejected the Bush Administration’s initial attempts to revitalize the nuclear infrastructure. For a critical analysis of President George W. Bush’s policy on the Nuclear Posture Review see Cirincione, J., ‘A deeply flawed review’, Testimony before the Senate Foreign Relations Committee, 16 May 2002, <<http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=988>>.

<sup>27</sup> Rumsfeld, D. H., ‘The Nuclear Posture Review report: foreword’, US Department of Defense, 31 Dec. 2002, <<http://www.fas.org/sgp/news/2002/01/npr-foreword.html>>. The full report is classified.

<sup>28</sup> McDonough, D. S., ‘The “new triad” of the Bush Administration: counterproliferation and escalation dominance in US nuclear strategy’, *International Journal*, vol. 59, no. 3 (summer 2004), pp. 613–34.

<sup>29</sup> White House, *The National Security Strategy of the United States of America* (White House: Washington, DC, 17 Sep. 2002).



and pledged that the USA would continue to decrease its nuclear arsenal.<sup>30</sup> Obama recalled and affirmed Ronald Reagan's aspiration to achieve a 'nuclear-free world' in the long-term, and in the short-term pledged renewed commitments in the arms control arena. Specifically, he promised to work with Russia on a new bilateral agreement to further reduce the number of nuclear warheads, to seek Senate ratification of the 1996 Comprehensive Nuclear-Test-Ban Treaty (CTBT), and to pursue a new agreement aimed at stopping the production of fissile materials.<sup>31</sup> While Obama's active approach to arms control negotiations was warmly welcomed by two subsequent bipartisan panels of nuclear weapon experts, others who favour a more robust 'modernization' programme aimed at shoring up US nuclear deterrence capabilities have expressed scepticism.<sup>32</sup> The US Nuclear Posture Review, released in April 2010, grappled with the question of how to maintain a credible deterrent and reassure US allies while at the same time advancing Obama's non-proliferation agenda.<sup>33</sup>

### **Democracy and nuclear strategy**

Over the years, democratically elected policymakers and influential civilians outside of government have exercised a remarkable degree of influence over the formulation of nuclear strategy. This was especially true in the early years of the cold war when presidents and their advisers shaped initial nuclear doctrine. As nuclear strategy evolved, two trends that partially diminished democratic accountability emerged: expansion of the nuclear arsenal and the 'normalization' of nuclear weapons as potential war-fighting weapons. These trends, in turn, were counterbalanced by anti-nuclear public opinion trends and the rise of the nuclear-freeze movement in the 1980s. The myriad, and at times competing, aspects of democratic governance have ensured that nuclear strategy, more than other conventional strategy making, has enjoyed a relatively high degree of democratic oversight.<sup>34</sup>

Early cold war nuclear strategy was based almost entirely on presidential decisions. Nuclear weapons played a central role in national security policy and any nuclear issue merited presidential attention. Moreover, because of

<sup>30</sup> Obama, B., Remarks, Prague, 5 Apr. 2009, <[http://www.whitehouse.gov/the\\_press\\_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered](http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered)>.

<sup>31</sup> Comprehensive Nuclear-Test-Ban Treaty (CTBT), opened for signature on 24 Sep. 1996, not yet entered into force, <<http://treaties.un.org/Pages/CTCTreaties.aspx?id=26>>.

<sup>32</sup> Pincus, W., 'Expert groups largely back Obama's nuclear stance', *Washington Post*, 2 May 2009; and Lowther, A. B., 'Learning to love the bomb', *Boston Globe*, 18 Mar. 2009.

<sup>33</sup> US Department of Defense (DOD), *Nuclear Posture Review Report* (DOD: Washington, Apr. 2010), <<http://www.defense.gov/npr/>>; and Feaver, P. D., 'Obama's nuclear modesty', *New York Times*, 8 Apr. 2010.

<sup>34</sup> Feaver, P., *Guarding the Guardians: Civilian Control of Nuclear Weapons in the United States* (Cornell University Press: Ithaca, NY, 1992).

the sensitivity of the topic, only a small circle of advisers was involved in shaping nuclear policy. Nonetheless, because US presidents are elected by US citizens and cabinet members are confirmed by their representatives, the public indirectly influences nuclear strategy. For instance, in the 1952 presidential election, Dwight D. Eisenhower played on public frustration over the costs of the Korean War and campaigned on the promise to 'lower federal spending in general and defence spending in particular'.<sup>35</sup> This promise motivated President Eisenhower to cut the federal budget and propelled him towards a policy of reliance on 'cheaper' nuclear weapons in place of standing conventional forces. Similarly, the alleged 'missile gap' of the late 1950s provided Kennedy with a campaign issue in 1960. Carter's nuclear policies contributed to a perceived softness on defence, which helped Reagan win the 1980 election, and missile defence became a prominent issue in the 2000 election of George W. Bush. Of course, as the missile gap controversy demonstrated, the public debates were not always based on sound facts, but the issues were brought before the public and shaped the electoral outcome.

The novelty of nuclear weapons also contributed to a greater degree of civilian and civil society involvement in the early development of nuclear weapons: some of the most important work was done by academic and other quasi-civilian organizations that drew on scholarly expertise. Issues of atomic and then thermonuclear warfare were so unprecedented that civilian and military strategists were equally expert (or inexperienced). Indeed, in one famous encounter between a civilian analyst and an exasperated senior military officer, the civilian defended his right to assert his opinion by noting, 'Admiral, I have fought just as many nuclear wars as you have'.<sup>36</sup>

The RAND Corporation is the first and most famous of the quasi-governmental organizations that grew in response to this knowledge vacuum. RAND was quickly joined by other think tanks devoted to foreign and military policy issues. Gradually, political circles and the institutionalization of think tanks in Washington, DC, combined to form a primarily civilian advisory network for, and an independent check on, nuclear policy. As think tanks began to self-select into conservative and liberal approaches, a revolving-door system emerged: members of the political party out of power worked in think tanks while proponents of the party in power held advisory positions within government. This system enabled a professional cadre of strategists with security clearances to rotate in and out of the departments of Defense and State and the NSC. Publications by think tank scholars also enhanced democratic governance by helping to inform the public on nuclear matters.

<sup>35</sup> Wells, S. F., 'The origins of massive retaliation', *Political Science Quarterly*, vol. 96, no. 1 (spring 1981), p. 31.

<sup>36</sup> Kaplan, F., *The Wizards of Armageddon* (Simon & Schuster: New York, 1983), p. 254n.

Paradoxically, the diversity of strategies also contributed to a reduction in civilian oversight of nuclear strategy. Under political pressure to differentiate policies (and to escape the MAD conundrum), each incoming administration modified the strategy of the previous administration, with three mutually reinforcing effects. First, the diversity of strategies led to a larger arsenal and more elaborate uses envisaged for nuclear weapons. As nuclear strategy became more complicated, responsibility for its oversight migrated from the political level to specialized technical experts in the military and civilian agencies most directly concerned with nuclear weapon planning and use. Second, the often short tenure of elected policy-makers compared to military personnel ensured greater military, rather than civilian, familiarity with the technology and capabilities of nuclear weapons.<sup>37</sup> Third, as the defence community became more familiar with nuclear weapons, it became, to a certain extent, 'routinized'. As a result, evolution in nuclear strategy in the 1970s did not involve quite the top-level attention, and consequently oversight that it had in early cold war administrations. Gradually, nuclear strategy took on more of the aspect of routine military strategy, an arena viewed as the province of military experts and one in which elected and accountable political leaders played less of a role.

This shift toward less democratic accountability, however, produced a countervailing response in the form of a burgeoning citizens' movements for nuclear disarmament, which became prominent in the late 1970s and early 1980s, and a parallel rise in arms control-related think tanks devoted to alternative policies. These movements advocated, among other things, a Soviet-US freeze on nuclear weapon development and deployment. The movements were strongly supported by a variety of anti-nuclear religious groups in addition to activist student and professional groups. Arguably, they helped invigorate congressional campaigns in the 1982 midterm elections, which cost the Republican Party 26 seats in the House of Representatives.<sup>38</sup> In the end, while the advocates of nuclear disarmament achieved none of their stated objectives, the movement did win President Reagan's support in the form of reinvigorated arms control talks with the Soviet Union.<sup>39</sup> Moreover, arms control debates about verification and compliance had an intrinsic transparency effect on nuclear governance; as discussed elsewhere in this volume, arms control required the sharing and cross-checking of information that had hitherto been secret and this fostered a more open public debate over nuclear weapons.<sup>40</sup>

Assessments of democratic accountability of contemporary nuclear strategy are hindered by the inability to access classified information. Never-

<sup>37</sup> Nolan, J. E., *Guardians of the Arsenal* (Basic Books: New York, 1989).

<sup>38</sup> Powaski (note 18), p. 19.

<sup>39</sup> Powaski (note 18).

<sup>40</sup> See chapter 3 in this volume.

theless, it is reasonable to expect that nuclear strategy is less of a preoccupation for the senior-most political leaders of post-cold war administrations than of any of the nuclear era.<sup>41</sup> Moreover, there is a decline in nuclear expertise, both in terms of policy and technical matters, as the cold war generation of participants passes from the scene and younger generations of security scholars specialize in other topics such as ethnic conflict, terrorism, civil war and counterinsurgency. This generational change probably affects the government (civilian and military) as well as the ‘fire alarm’ community. Arguably, however, that community of non-governmental experts and institutions monitoring nuclear activity remains relatively robust. Moreover, the downsizing of both the Russian and US arsenals has reduced the complexity and scope of the nuclear problem, possibly making it more tractable for democratic oversight.

#### IV. Nuclear force structure<sup>42</sup>

##### **Components of the nuclear force**

Nuclear force structure refers to an arsenal’s warheads and their systems—the weapons themselves, as distinct from the doctrines governing how they should be used. Components of the US nuclear force structure include the long-range strategic triad, tactical nuclear weapons, missile defence and the nuclear manufacturing complex as overseen by the DOE.<sup>43</sup>

For the first years of the nuclear age (1945–55), the USA relied on fleets of medium- and long-range bombers to deliver nuclear bombs. However, competition among branches of the armed services for funds and prestige, in combination with mounting Soviet nuclear capabilities, soon prompted the services to design alternative nuclear delivery vehicles. By the late 1950s the air force and navy had developed, respectively, intercontinental ballistic missiles (ICBMs) and submarine-launched ballistic missiles (SLBMs), and the triad doctrine reached maturity under President Kennedy.<sup>44</sup>

<sup>41</sup> Secretary of Defense Task Force on Department of Defense Nuclear Weapons Management, ‘Phase I: the Air Force’s nuclear mission’, Report of the Secretary of Defense Task Force on DOD Nuclear Weapons Management, Sep. 2008, <[http://www.globalsecurity.org/wmd/library/report/2008/nuclear-weapons\\_phase-I\\_2008-09-10.htm](http://www.globalsecurity.org/wmd/library/report/2008/nuclear-weapons_phase-I_2008-09-10.htm)>.

<sup>42</sup> On the USA’s nuclear forces see appendix A in this volume.

<sup>43</sup> The nuclear weapon manufacturing complex is the production infrastructure generating the nuclear force structure. It grew directly out of the Manhattan Project. At the height of the cold war, it included 14 major facilities. Today it consists of 3 design laboratories, 4 production sites and the Nevada nuclear test site. The complex is collectively responsible for the designing, developing, producing, maintaining, testing and dismantling of nuclear weapons. On the nuclear weapon manufacturing complex see US under secretary of defense for acquisition, technology and logistics, <<http://www.acq.osd.mil/ncbdp/nm/usnucweaponscomplex.html>>.

<sup>44</sup> The army developed a substantial number of tactical nuclear weapons.

Independently, each leg of the triad (bombers, ICBMs and SLBMs) had strengths and weaknesses. Bombers could be dispersed or launched to ensure their survivability but took hours to reach their targets and were vulnerable to Soviet air defences. ICBMs were more rapid in response and more certain to penetrate air defences, but they could not be recalled after launch and were initially less accurate than bombers. SLBMs, although virtually indestructible at sea, were considerably less accurate than the other legs of the triad (until the D-5 Trident warhead improvements of the 1980s) and submarine communication links were uncertain in a crisis.<sup>45</sup> However, the diverse force structure allowed the strengths of each to compensate for the weaknesses of the others, thus reducing instability between the Soviet Union and the USA by guaranteeing that the USA could strike back even in the most demanding scenarios (i.e. 'secure second-strike capability'). Deployment of multiple independently targetable re-entry vehicles (MIRVs) in the early 1970s expanded the US nuclear force even further by allowing one launch vehicle to release many nuclear warheads.<sup>46</sup> Continued modernizations culminated in the MX missiles (MIRVed ICBMs) of the 1980s and the B-2 stealth bombers of the early 1990s.<sup>47</sup>

Over the years the USA has also investigated the technical possibilities of defensive systems.<sup>48</sup> Although complete anti-ballistic missile protection was deemed too expensive and perhaps even technically impossible in the early 1960s, the Administration of President Lyndon B. Johnson approved the Sentinel programme in 1968, which offered some ABM protection (in theory) to a few cities.<sup>49</sup> In response to public outcry, the Administration of Richard M. Nixon renamed the programme Safeguard and modified it to protect missile silos in sparsely populated areas. The Safeguard programme was further scaled back after US ratification of the ABM Treaty, yet research and development (R&D) continued at low levels. The Reagan Administration's Strategic Defense Initiative (SDI), called Star Wars by opponents, aimed to develop an interconnected system of defences to protect the USA from a full-scale Soviet attack. However, rising costs and an inability to guarantee complete protection stymied progress.

In the late 1980s President George H. W. Bush's Administration downgraded SDI's goal, declaring that it would protect against a limited Soviet attack. President Clinton renamed the organization responsible for missile defence the Ballistic Missile Defense Organization and redirected the ABM system in the 1990s to focus on protection from rogue state missiles or acci-

<sup>45</sup> Woolf (note 23).

<sup>46</sup> US Department of State, Annual report on implementation of the Moscow Treaty 2008, 13 May 2008, <<http://www.state.gov/t/vci/rls/rpt/104637.htm>>.

<sup>47</sup> Woolf (note 23).

<sup>48</sup> Kile, S. N., 'A survey of US ballistic missile defence programmes', *SIPRI Yearbook 2008: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2008), pp. 402–14.

<sup>49</sup> Woolf (note 23), p. 20.

dental Chinese or Russian launches, and President George W. Bush accelerated the schedule of deployment so the system could be operational, in rudimentary form, in the autumn of 2004. In late 2004 eight long-range ground-based interceptors were deployed in Alaska and California. President Bush also renamed the organization the Missile Defense Agency (MDA) in 2002. President Obama proposed serious cuts to missile defence programmes in his 2010 budget submission, and the secretary of defense, Robert Gates proposed to reduce the MDA programme by \$1.4 billion.<sup>50</sup>

The cold war arms race reached its US peak in the late 1960s with an arsenal of approximately 32 000 nuclear weapons; the number was reduced to around 25 000 in the 1980s.<sup>51</sup> Since 1990 the arsenal has shrunk steadily to roughly 2600 operationally deployed strategic nuclear warheads as of January 2010. The USA will continue to reduce its nuclear arsenal, in accordance with the stipulations of the 2002 Treaty on Strategic Offensive Reductions (SORT or Moscow Treaty), towards the planned goal of 1700 to 2200 warheads by 2012.<sup>52</sup> The strategic nuclear force posture planned by the USA for 2012 includes 14 Trident SSBNs, 450 Minuteman III ICBMs, 20 B-2 bombers and 56 B-52H bombers.<sup>53</sup> In addition, the USA retains non-strategic air-delivered nuclear weapons and the accompanying strike bombers in five non-nuclear European countries.<sup>54</sup> In April 2010 President Obama and Russian President Dmitry Medvedev signed a new arms control treaty dubbed 'New START' that negotiated still lower limits to each side's nuclear arsenal: only 1550 nuclear warheads on each side, with each heavy bomber counting as one warhead and each warhead on a deployed ICBM or SLBM also counting towards this aggregate limit.<sup>55</sup>

## Determining nuclear force structure

While the initiative for most nuclear force structure decisions has remained with the executive branch throughout the nuclear era, the Con-

<sup>50</sup> Drew, C., 'Soaring costs jeopardize missile defense systems', *New York Times*, 17 Mar. 2009.

<sup>51</sup> Cochran T. et al., *Nuclear Weapons Databook*, vol. 2, *U.S. Nuclear Warhead Production* (Ballinger Publishing Company: Cambridge, MA, 1987) as cited in Busch, N., *No End in Sight: The Continuing Menace of Nuclear Proliferation* (University of Kentucky Press: Lexington, KY, 2004); and Woolf (note 23).

<sup>52</sup> US Department of State (note 46); and Treaty on Strategic Offensive Reductions (SORT Treaty), signed on 24 May 2002, entered into force on 1 June 2003, <<http://www.gpoaccess.gov/serialset/cdocuments/107cat2.html>>.

<sup>53</sup> US Department of State (note 46). At any given time, the USA will probably have 2 of the 14 Trident SSBNs in overhaul. The SSBNs in overhaul do not contain operationally deployed strategic nuclear warheads.

<sup>54</sup> Busch (note 51). Belgium, Germany, Italy, the Netherlands and Turkey host US nuclear weapons. Kristensen, H. M., Federation of American Scientists, 'Status of U.S. nuclear weapons in Europe', Nuclear Information Project, <[http://www.fas.org/programs/ssp/nukes/\\_images/EuroNukes.pdf](http://www.fas.org/programs/ssp/nukes/_images/EuroNukes.pdf)>, 26 June 2008.

<sup>55</sup> White House, 'The New START Treaty and Protocol', White House blog, 8 Apr. 2010, <<http://www.whitehouse.gov/blog/2010/04/08/new-start-treaty-and-protocol>>.

gress has played a larger role in determining the nuclear force structure than it has played in the strategy arena. The Congress's constitutional obligation to approve military appropriations and ratify treaties gave it great influence in nuclear-related procurement decisions. The huge expenses involved in nuclear-related military goods such as the basing for the MX missile in the late 1970s and 1980s captured the public's attention, turning many such decisions into virtual public referendums on nuclear policy. However, this tilt in the direction of greater democratic accountability was counterbalanced, to a certain extent, by the emergence during the cold war of the military-industrial complex, which critics claimed propelled the arms race forward with an autonomous logic of procurement and continuous re-engineering.

Throughout the cold war, nuclear procurement decisions were characterized by inter-service rivalry, which had a double-edged effect on democratic accountability. On the one hand, the ability to play services against each other gave civilians leverage over arcane policy decisions. On the other hand, the dynamic tended to produce, in practice, logrolled decisions that tended to drive the arms race forward. This effect was exacerbated by Soviet-US interactions in which an advance on one side created pressure for a countervailing advance on the other.

As the nuclear era progressed, the military-industrial complex grew in size and, arguably, in influence. This coalition of 'scientists and engineers who developed new weapons, industrial contractors who produce[d] them, the Congressmen in whose districts production would take place, and the military who would use the final product began to exercise increasing influence over R&D and procurement decisions'.<sup>56</sup> In his 1961 farewell speech, President Eisenhower warned that 'we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist'.<sup>57</sup>

As 'gap scares' promoted by the military, defence bureaucracies and defence industries proved exaggerated, cynicism about the influence of these groups increased. In response, the Congress began to take a more active role. Energetic congressional debate began with consideration of the Sentinel programme and continued with the Safeguard programme.<sup>58</sup> Although the Senate ultimately voted in 1969 to fund the Safeguard system, the 50-50 tie (broken by the vice-president) ushered in an era of comparatively careful congressional oversight with particularly vigorous debate over nuclear-related systems such as the ABM, the B-1 bomber, MX

<sup>56</sup> Freedman (note 18), p. 322.

<sup>57</sup> Eisenhower, D. D., 'Farewell radio address', 17 Jan. 1961, <<http://www.yale.edu/lawweb/Avalon/presiden/speeches/eisenhower001.htm>>.

<sup>58</sup> Lindsay (note 11).

missile-basing and the Midgetman missile.<sup>59</sup> Several factors facilitated the congressional role in restricting these developments. First, independent think tanks, by distributing information to members of the Congress and their staffs, enabled them to counter DOD assessments of the need for certain weapons. Second, as the arms control movement grew, a growing number of scientists and policymakers with nuclear expertise rotated in and out of government and advisory positions. Finally, as public opinion increasingly turned against expensive weapon systems perceived as furthering the arms race, the Congress was emboldened to discuss limits.<sup>60</sup>

The Congress's elimination of millions of dollars from nuclear programmes since 2004—such as the Robust Nuclear Earth Penetrator ('bunker buster'), Advanced Concepts (R&D on smaller nuclear weapons) and the Modern Pit Facility (to re-institute plutonium pit production)—demonstrated that attentive members of the Congress still monitor nuclear development and infrastructure issues closely.<sup>61</sup> In another example, the Reliable Replacement Warhead (RRW) programme, which would permit the design of new warheads, encountered strong opposition in the Congress in the late 2000s. In fiscal year (FY) 2008 the Congress did not appropriate any of the \$88.8 million requested by the Bush Administration for the RRW programme for the NNSA, and only \$15 million of the funds requested by the navy for the same programme; in the FY 2009 budget, the Congress refused once more to appropriate the \$10 million NNSA request for RRW funding.<sup>62</sup> In its 2010 budget submission, the Obama Administration eliminated the RRW programme altogether.<sup>63</sup>

However, full financial transparency on the US nuclear programme is hampered by the annual 'black budgets'—those portions of the budget pertaining to classified acquisition programmes that are hidden from the public and its elected officials. It is estimated that black budgets generally ranged from 13 per cent to 19 per cent of the total defence budget between 1987 (when the defence budget was c. \$425 billion) and 2006 (when the defence budget was c. \$535 billion), with the vast majority of funding going

<sup>59</sup> Lindsay (note 11).

<sup>60</sup> Freedman (note 18). The Congress has been especially responsive to watchdog groups, particularly those driven by health and safety concerns. In 2000 the Congress established the independently functioning NNSA in order to increase the DOE's accountability and remedy lax security in nuclear facilities. Noel, J., *NNSA Needs to Better Manage Its Safeguards and Security Program*, General Accounting Office (GAO) Report GAO-03-471 (GAO: Washington, DC, May 2003).

<sup>61</sup> Wald, M. L., 'Nuclear weapons money is cut from spending bill', *New York Times*, 23 Nov. 2004; Pincus, W., 'Funds for atomic bomb research cut from spending bill', *Washington Post*, 23 Nov. 2004; and Martin, M., 'Congress stops 2005 funding for new U.S. nuclear weapons', *Washington Nuclear Update: Special Edition*, British American Security Information Council, 24 Nov. 2004, <<http://www.basicint.org/update/WNU041124.htm>>.

<sup>62</sup> Medalia, J., *The Reliable Replacement Warhead Program: Background and Current Developments*, Congressional Research Service (CRS) Report for Congress RL32929 (US Congress, CRS: Washington, DC, 12 Sep. 2008).

<sup>63</sup> Miller, S., 'Obama cuts RRW program', *Arms Control Today*, Apr. 2009.



towards conventional weapon acquisition and intelligence programmes.<sup>64</sup> Annual nuclear-related expenditure has been difficult to analyse because of the manner in which nuclear programmes are dispersed through the federal budget. One study estimates the US nuclear budget for FY 2008 to be approximately \$52.4 billion, about 11 per cent of the non-war annual defence budget.<sup>65</sup> Within the nuclear budget, the largest amount (\$29 billion, or 56 per cent) is allocated for upgrading and maintaining the nuclear arsenal; \$9.2 billion for developing ABM programmes; \$8.3 billion for environmental and health costs related to nuclear materials; and the rest is allocated to miscellaneous expenses.<sup>66</sup>

Civilian control, if not full democratic accountability, has been most extensive in the arena of the design and development of nuclear weapons. Initially, civilians and defence scientists in the AEC and its successor, the DOE, played the lead role in fashioning the weapons themselves. However, the question of civilian control over design and development does not have the same salience—and may not even have the same substantive import—that it had earlier in the nuclear age. A proposal to move the weapon laboratories from the control of the DOE to the DOD remains undecided. Such a move would culminate a long arc of US nuclear weapon military-to-civilian-to-military custody transfers, beginning with the Manhattan Project followed by the AEC and the Department of Energy.<sup>67</sup> Fifty years ago, a decision to bring the labs under the DOD would have sparked a major national debate, but in 2010 it is treated as a minor bureaucratic matter.<sup>68</sup> The absence of debate may signify that the public is satisfied with the level of democratic accountability provided by the military chain of command or, conversely, it may merely signify a diminution in public attention and thus a potential diminution in democratic accountability.

## V. Nuclear operations

Nuclear operations refer to the procedures that make up the day-to-day implementation of nuclear strategy and the day-to-day functioning of the

<sup>64</sup> Kosiak, S., *Classified Funding in the FY 2005 Defense Budget Request* (Center for Strategic and Budgetary Assessments: Washington, DC, 27 July 2004); and Kosiak, S., 'Department of Defense classified budget for acquisition programs, FY1987–FY2006', *FY2006 Black Budget Estimates Table* (Center for Strategic and Budgetary Assessments: Washington, DC, 28 Mar. 2005).

<sup>65</sup> Schwartz, S. I. and Choubey, D., *Nuclear Security Spending: Assessing Costs, Examining Priorities* (Carnegie Endowment for International Peace: Washington, DC, Jan. 2009).

<sup>66</sup> Schwartz and Choubey (note 65).

<sup>67</sup> The Manhattan Project was the code name of the US project to develop the first atomic bomb during World War II. The project was conducted in 1942–46. It was under the control of the US Army Corps of Engineers and under the administration of General Leslie R. Groves. The American physicist J. Robert Oppenheimer directed the scientific research. See Rhodes, R., *The Making of the Atomic Bomb* (Simon & Schuster: New York, 1986).

<sup>68</sup> Feaver (note 34); and Vorenberg, S., 'Feds ponder switching labs to military agency', *Santa Fe New Mexican*, 4 Feb. 2009.

nuclear force structure. Activities such as alerting, targeting, command and control, and continuity of government all count as ‘operations’ and are embodied in the command, control, communications and intelligence (C<sup>3</sup>I) system. Each level of nuclear operations poses a different challenge for democratic governance, yet collectively the challenges all reflect the underlying always/never problem.<sup>69</sup> Because of their complexity and secrecy, nuclear operations present a greater challenge to democratic governance than either nuclear strategy or force structure. Whereas decisions about nuclear strategy and force structure were openly debated throughout the cold war, operations were shrouded in secrecy; indeed, the public debate sometimes lagged behind actual operations by decades. While secrecy protects US security by concealing operational information, it also ensures that neither academics nor public interest groups have enough information to contest military expertise.

Methods of control have varied within the broad category of nuclear operations, with civilians exerting more assertive control over some aspects than over others. Overall, the myriad technical requirements of nuclear operations ensure that civilians have exerted the least influence over operational doctrine, compared with strategy and force structure. Due to the inherently time-sensitive and classified nature of nuclear-related issues, the general public has had relatively little awareness of and even less input into nuclear operations. In general, members of the military have the most direct experience and extensive expertise regarding nuclear operations. Thus, the relations between the military personnel, who manage operational control of nuclear weapons, and the elected and appointed civilians, who formulate nuclear policy, constitute some of the most enduring challenges in nuclear governance.

### **Alerting**

Three aspects of cold war operations with continuing relevance are alerting, targeting and continuity of government.<sup>70</sup> After the Soviet Union achieved a secure first-strike capability, the Soviet Union and the USA began to prepare in earnest for possible nuclear conflict. In the late 1950s the Joint Chiefs of Staff adopted a formal, staged system of alerts to warn of

<sup>69</sup> The ‘always/never dilemma’ refers to the ‘two desiderata that motivate the nuclear command-and-control structure: that nuclear weapons always explode in the prescribed fashion when authorized leaders so direct, and that nuclear weapons never explode when authorized leaders have not directed their use’. The ‘always’ side of command and control requires survivable forces, reliable weapons and strong communications links. The ‘never’ side requires the prevention of accidental and unauthorized use. Feaver (note 34), p. 12.

<sup>70</sup> Carter, A. B., Steinbruner, J. D. and Zraket, C. A. (eds), *Managing Nuclear Operations* (Brookings Institution: Washington, DC, 1987); and Feaver (note 34). On the civilian control of nuclear operations see chapter 1 in this volume.

and respond to an impending attack.<sup>71</sup> The Defense Condition (DEFCON) system comprised five alert phases ascending in severity from 5 (peace) to 1 (imminent conflict). During the cold war, the DEFCON system served two purposes: it functioned as a diplomatic signal to convey resolve to an enemy, thus contributing to deterrence; and, more importantly, it integrated competing operational procedures, enabling nuclear and conventional forces in all regions to react systematically in the event of deterrence failure.<sup>72</sup>

The post-cold war environment enabled the downgrading of DEFCON levels. In 1991 and 1992 President Bush took strategic bombers off 24-hour alert, closed the Strategic Air Command (SAC) in favour of an integrated nuclear command centre called Strategic Command (STRATCOM), and transferred many cold war tankers, reconnaissance aircraft and bombers to other assignments.<sup>73</sup> Activists and former military leaders banded together in the late 1990s to advocate the de-alerting of peacetime forces, claiming that US launch-on-warning posture pressured Russia to maintain high-alert status despite the fact that Russia's deteriorating command and control facilities increased the possibility of an accidental launch.<sup>74</sup> While the George W. Bush Administration did not de-alert all nuclear weapons nor store warheads separate from their delivery systems, it did sign SORT to reduce the total number of deployed nuclear weapons, thus reducing the number on alert.

## Targeting

A second element of cold war-era nuclear operations that remains relevant is the selection of potential nuclear targets. The target-selection process consists of two basic tasks: identifying the military installations, industrial sites or population centres to be hit by nuclear weapons and then matching the capabilities of available nuclear weapons in the arsenal to the kill requirements of that target. Although policymakers and the military services together created initial nuclear targeting plans, civilian involvement receded somewhat after 1948 when the military assumed responsibility for this task.<sup>75</sup> However, as the arsenal grew in complexity, civilians increasingly sought to re-exercise political guidance and coordinate the plans of different presidents. Accordingly, in 1960 the secretary of defense,

<sup>71</sup> Feaver (note 34); and Cotter, D., 'Peacetime operations: safety and security', eds Carter, Steinbruner and Zraket (note 70).

<sup>72</sup> For a more detailed discussion of the DEFCON systems see Blair, B. G., *Strategic Command and Control: Redefining the Nuclear Threat* (Brookings Institution: Washington, DC, 1985).

<sup>73</sup> Smith, R. J., 'The dissenter', *Washington Post*, 7 Dec. 1997, Mag, W18.

<sup>74</sup> Brooke, J., 'Sleeping below plains, missiles stay on alert', *New York Times*, 15 Dec. 1997.

<sup>75</sup> Feaver (note 34); and Sagan, S. D., 'SIOP-62: the Nuclear War Plan briefing to President Kennedy', *International Security*, vol. 12, no. 1 (summer 1987), pp. 22–51.

Thomas Gates established the Joint Strategic Target Planning Staff (JSTPS) and instructed it to produce an integrated targeting plan based on civilian political guidance.<sup>76</sup> Nonetheless, the resulting Single Integrated Operational Plan (SIOP) relied heavily on military expertise because of the technical and classified nature of assessing target properties and allocating specific weapons in the arsenal to each target.<sup>77</sup>

The first SIOP merely reflected the existing war plans of the services; later SIOPs responded to presidential requests. For instance, on taking office in 1961, President Kennedy was disturbed to learn that his only available nuclear attack option was to hit all possible targets in the entire China–Soviet block.<sup>78</sup> He immediately ordered the military to revise the SIOP to include limited-strike options in accordance with the flexible response policy. Subsequent presidents altered the SIOP by requesting options to deal with particular contingencies or regions. President Carter was especially involved in choosing targets and required frequent SIOP updates. After the cold war, military officers and civilian defence officials began to investigate smaller, tailored plans. In the mid-1990s a new approach called the ‘living SIOP’ was developed, with the intention of enhancing response to emerging threats and improving accuracy and the ability to shift targets in real time based on incoming intelligence information.<sup>79</sup> Finally, partly in response to public pressure in the 1990s, Russia and the USA agreed not to target one another, instead targeting their forces at the open ocean.<sup>80</sup>

## **Nuclear authorization**

### *Continuity of government*

Continuity of government (COG) addressed command and control directives in the event that a nuclear strike killed key elected officials. Early on in the cold war, presidents Harry S. Truman and Eisenhower built reinforced emergency command centres outside Washington, DC. However, as Soviet advances in nuclear capability made such ‘secure’ facilities more vulnerable, policymakers formulated backup plans. The Reagan Administration created a highly classified agency, the National Policy Office, to oversee war games practised by civilian officials. The goals of the National Policy Office were twofold: to train multiple ‘backup’ presidents in security matters, and to increase deterrence by assuring the Soviet Union that a decapitation

<sup>76</sup> Sagan (note 75).

<sup>77</sup> Postel, T., ‘Targeting’, eds Carter, Steinbruner and Zraket (note 70).

<sup>78</sup> Sagan (note 75).

<sup>79</sup> Arkin, W. M. and Kristensen, H., ‘Dangerous directions’, *Bulletin of the Atomic Scientists*, Mar./Apr. 1998.

<sup>80</sup> Brooke (note 74).

attack would fail. This and other COG simulation programmes were cancelled by the Clinton Administration for lack of enemy threat. However, the terrorist attacks of 11 September 2001 led the George W. Bush Administration to reinvigorate COG programmes. Congressional Working Groups and private think tanks devoted renewed attention to this question beginning in 2002.<sup>81</sup>

### *Custody and control*

Preserving civilian control over the decision to use nuclear weapons also raised questions concerning the physical control of weapons, the line of presidential succession and the devolution or pre-delegation of the decision to use nuclear weapons. While the legal authority to determine the use of nuclear weapons rested with the president, physical custody of the weapons (in the absence of other technical controls) ceded de facto use control to their possessors. Early cold war policies guarded against this problem by keeping weapons in the possession of the AEC until civilians issued the decision to use them. As the arsenal grew, this control method became both cumbersome and dangerous because it slowed response time. Consequently, physical control of nuclear weapons shifted to the military in the late 1940s and early 1950s, but civilian leaders used a variety of personnel and electronic techniques to prevent unauthorized launch. The best-known method of authorized launch control was the permissive action link (PAL), an electronic code released to military personnel only when the president decided to use nuclear weapons. The most famous and visible symbol of these use-control measures has been the secure suitcase of electronic codes and launch options, colloquially called the ‘nuclear football’, which is (in theory) never more than a few metres from the president.<sup>82</sup> It is often assumed that the holding of PAL codes by civilians constitutes a civilian control of nuclear weapon use.<sup>83</sup> However, in many respects, code management for the PALs only complicated the control problem—that is, determining who could have the unlock codes and how those codes would be released in a crisis.

In addition to protecting against unauthorized launch, electronic sensory devices were developed to guard against accidental detonation. Enhanced nuclear detonation safety (ENDS) devices were also added to ensure that specific environmental conditions were met before electronically arming

<sup>81</sup> Continuity of Government Commission, *Preserving Our Institutions: The First Report of the Continuity of Government Commission* (American Enterprise Institute and the Brookings Institution: Washington DC, May 2003).

<sup>82</sup> Accidental circumstances briefly separated presidents Carter, Ford, Reagan and Clinton from the nuclear football for short periods of time. The problem was always remedied as quickly as possible. E.g. MacIntyre, B., ‘Clinton forgets to bring nuclear “button”’, *The Times*, 26 Apr. 1999.

<sup>83</sup> Feaver (note 34).

nuclear weapons.<sup>84</sup> Other devices such as insensitive high explosives (IHEs) and fire resistant pits (FRPs) were meant to protect the conventional parts of nuclear weapons and the plutonium core, respectively. However, even after the inclusion of PALs and ENDS in the nuclear arsenal, potential control problems over accidental or unauthorized launches and detonations persisted well into the post-cold war period. The Drell and Kidder reports of the 1990s identified numerous problems with submarine-launched Trident I and II and Minutemen III ICBM missiles, particularly the W76 (SLBM), W88 (SLBM) and W62 (ICBM) warheads.<sup>85</sup>

Inquiries related to the line of presidential succession (and hence nuclear authorization) revealed similar tensions between democratic governance and nuclear response readiness. Theoretically, even in a crisis, the president derives his or her authority from the citizens as expressed in the Constitution. The Constitution authorizes the Congress to establish the line of succession beyond the vice-president. In the 1947 Presidential Succession Act, the Congress extended the succession line to include the Speaker of the House, the President Pro Tempore of the Senate and cabinet members in the order of their offices' creation, a line of succession still in place today.<sup>86</sup> However, in a nuclear exchange, this arrangement could prove unworkable for reasons of survivability, connectivity and the qualifications of persons in the line of succession.<sup>87</sup>

In response to such problems, such ideas as the devolution of command and pre-delegation of launch authority emerged as options that have been debated from the earliest years of the nuclear age. Although at first glance these two contingency plans appear to overlap, the situations in fact refer to two distinct procedures. Devolution of command would transfer authority to the most senior surviving official in the event of a decapitating attack. While the first several steps in the devolution process might involve civilians—for example, president to vice-president to secretary of defense to deputy secretary of defence—the path would quickly follow the military chain of command to solve C<sup>3</sup>I problems. In contrast, pre-delegation of launch authority indicates a set of circumstances under which the president has authorized in advance the use of nuclear weapons. Devolution

<sup>84</sup> Busch (note 51).

<sup>85</sup> The documents known as the 'Drell Report' and the 'Kidder Report' are, respectively, US Congress, *Nuclear Weapons Safety*, Report of the House Armed Services Committee Panel on Nuclear Weapons Safety, Committee print no. 15 (US Government Printing Office: Washington, DC, 1990); and Kidder, R. E., *Assessment of the Safety of U.S. Nuclear Weapons and Related Nuclear Test Requirements; A Post-Bush Initiative Update*, UCRL-LR-107454 (Lawrence Livermore National Library: Livermore, CA, 10 Dec. 1991).

<sup>86</sup> The Presidential Succession Act of 1947 along with the 20th and 25th amendments to the US Constitution—ratified in 1933 and 1967, respectively—currently govern succession to the presidency. Presidential Succession Act of 1947, US Public Law 80-110, signed into law on 18 July 1947; and US Senate (note 1).

<sup>87</sup> Feaver (note 34).

would ultimately entail a transfer of decision-making authority to the military in place of civilians; in the case of pre-delegation, civilians retain some control by restricting the authority to launch nuclear weapons to specific situations.<sup>88</sup> Plans for reconnecting the president or successor with the nuclear weapon chain-of-command after a pre-delegated nuclear retaliatory strike are not publicly available. Devolution of command in the USA presents a special problem for democratic governance in that it differs significantly from the line of succession delineated by the Constitution and the Congress. If there exists a specified and effective extra-legal line of succession, this raises questions about the ability of civilians to control the military once the system is set in motion by a crisis.

## VI. Conclusions

There are two countervailing trends in the democratic governance of nuclear weapons in the USA. On the one hand is the trend for the civilian political leaders to move away from assertive control to more delegative techniques. Early in the nuclear age, nuclear weapons were the subject of extraordinary oversight from the highest levels of government. As policy-makers became more accustomed to nuclear weapons, the weapons and their oversight became 'routinized' to a certain extent, and with that routinization there was a gradual delegation of oversight to the lower levels, including to the military. On the other hand, a large and vigorous set of research institutions, both inside and especially outside of government, developed and deepened their expertise in nuclear matters. The routinization of nuclear weapons was itself counterbalanced by the emergence of a nuclear taboo that held that a nuclear war cannot be won and must never be fought. In this way the form and scope of democratic governance widened to include a larger set of actors.

The governance of nuclear weapons in the USA bears the marks of three key developments at the very dawn of the nuclear age. The first was the decision to treat nuclear weapons differently than non-nuclear weapons, requiring their own idiosyncratic but nonetheless governmental institutions for manufacture and deployment. While the national laboratories that manufacture nuclear weapons are administered by private firms under government contract (e.g. the University of California), the weapons remain first and foremost the business of government, rather than the commercial marketplace. Second, the Congress, which played only a muted role

<sup>88</sup> Declassified reports from the 1950s confirm that President Eisenhower pre-delegated launch authority to nuclear commanders under specific circumstances. Special assistant to the secretary of state for disarmament and atomic energy, US Department of State, 'Policy on use of atomic weapons', Memorandum for the file, document S/AE-298/1A, National Archives, Record Group 59: General Records of the Department of State, 1763-2002, 2 Apr. 1956, <<http://www.gwu.edu/~nsarchiv/news/predelegation/pd01.01.htm>>.

in the Manhattan Project, reasserted its authority—consistent with the constitutional system of checks and balances—shortly after World War II in establishing the key institutions and laws that have governed nuclear weapons ever since. Third, the secrecy of the Manhattan Project and subsequent secrecy provisions enshrined in the 1946 Atomic Energy Act have left a legacy of secrecy that continues to shield nuclear policy from extensive public scrutiny.<sup>89</sup> Notably, the act also establishes that nuclear weapon developments are to be classified until researchers or institutions request their declassification. However, such requests are often denied on national security grounds.<sup>90</sup> On the continuum of public access, US nuclear policy is closer to the ‘closed’ end—near intelligence matters, war plans and the like—and further away from the relatively ‘open’ end where most conventional weapon matters lie. The lack of public access is underscored by the fact that nuclear debate has often happened in response to (as opposed to during consideration of) nuclear decisions. However, this system has been ratified regularly by political leaders who themselves have faced the accountability of the electorate; to some degree, then, the public has itself ratified this process, if only by acquiescing to it and rejecting radical alternatives.

Nuclear weapons continue to uniquely inspire concerns and command attention, and pose challenges for democratic governance. The findings in this chapter suggest that the level of democratic accountability of nuclear policy in the USA is high, especially when compared with other countries or with other technical issues of government policy. It is certainly possible to imagine far greater accountability than has existed. Nevertheless, it is noteworthy that the nuclear age did not produce the nightmare scenarios of democratic collapse that experts warned against at the start of the cold war.<sup>91</sup>

Whether this system has produced wise nuclear policies is another matter. The absence of nuclear war is surely an important entry on the positive side of the ledger. However, the numerous accidents and near accidents suggest that the world has faced greater risks than is prudent—certainly greater than was widely known or appreciated.<sup>92</sup> Those risks have gained greater salience in recent years with concerns that the custodians of the USA’s nuclear arsenal have lost their sharpness and their focus on safety and security. Several scandals have contributed to this public debate, most dramatically the flight in 2007 across the central USA of a B-52 carrying six cruise missiles armed with nuclear weapons mistakenly

<sup>89</sup> Atomic Energy Act of 1946 (note 4).

<sup>90</sup> De Volpi, A., *Born Secret: The H-Bomb, Progressive Case and National Security* (Pergamon Press: New York, 1981).

<sup>91</sup> Lasswell, H. D., *National Security and Individual Freedom* (McGraw-Hill: New York, 1950).

<sup>92</sup> Sagan, S., *Limits of Safety: Organizations, Accidents, and Nuclear Weapons* (Princeton University Press: Princeton, NJ, 1995).



attached to its wings.<sup>93</sup> Civilian leaders acted decisively, forcing the air force's top two officials to resign following an investigation that criticized the service for its stewardship of US nuclear weapons.<sup>94</sup> Some observers speculated that the apparent decline in nuclear safety and security standards was related to the decline in prestige and priority given to nuclear weapons in US military planning and debate, and therefore in the career planning of military officers.<sup>95</sup>

Moreover, while the costs of the nuclear arms race are hard to quantify, it is clear that the nuclear age has been 'cheap' only in comparison with the horrendous human and financial costs of the two 20th-century world wars—an important but hardly dispositive comparison.<sup>96</sup> These costs suggest that the US record is instructive but is not necessarily a role model that other nuclear powers should emulate. Every nuclear decision—beginning with the fateful ones in World War II that resulted in the destruction of Hiroshima and Nagasaki and extending to the most recent decisions to explore micro-nuclear weapons for specialized targeting—has been challenged and remains subject to debate even today.

In evaluating the democratic accountability of nuclear weapons in the USA, this chapter concludes by pointing to the vigour of the nuclear debates—and particularly the ability of debates outside of the government to shape or modify government policy—as the best testimony that can be given to the quantity and quality of democratic accountability in the USA. The important point is not that US citizens come to an agreement on 'sound policy' or a 'correct' solution. It is, rather, that they continue to debate the issues openly, allowing multiple individuals, agencies and organizations to influence the course of the decisions. The record is not perfect, but it nonetheless sets a standard that other nuclear states are hard pressed to match.

<sup>93</sup> White, J., 'In error, B-52 flew over US with nuclear-armed missiles', *Washington Post*, 6 Sep. 2007. In addition to this well-publicized incident, in recent years there were several other remarkable episodes of security breaches related to the handling of nuclear weapons. See e.g. 'US sent Taiwan nuclear missile components by mistake', *Agence France-Presse*, 25 Mar. 2008; Baldor, L. C. and MacPherson, J., 'Air Force missile launch crew fell asleep', *Associated Press*, 24 July 2008; 'USAF officers probed over missile documents', *Washington Post*, 29 Aug. 2008; Project on Government Oversight, 'Another security breach at Los Alamos', 6 Aug. 2007, <<http://www.pogo.org/pogo-files/alerts/nuclear-security-safety/nss-lanl-20070806.html>>; and Broad, W. J., 'US accidentally releases list of nuclear sites', *New York Times*, 2 June 2009.

<sup>94</sup> Vanden Brook, T., 'Nuclear mishap lead to Air Force resignations', *USA Today*, 5 June 2008.

<sup>95</sup> Secretary of Defense Task Force on Department of Defense Nuclear Weapons Management (note 41), pp. 21–28.

<sup>96</sup> Lebow, R. N. and Stein, J. G., *We All Lost the Cold War* (Princeton University Press: Princeton, NJ, 1994); Gaddis, J. L., *We Now Know: Rethinking Cold War History* (Oxford University Press: Oxford, 1997); and Schwartz, S. I., *Atomic Audit: The Costs and Consequences of US Nuclear Weapons Since 1940* (Brookings Institution Press: Washington, DC, 1998).

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## 3. Russia

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ALEXEI ARBATOV

### I. Introduction

In theory, Russian presidents have always had the ultimate authority to take the main decisions on the development, deployment and possible use of nuclear weapons. In practice, this process has been the product of the interplay of various groups and personalities within the huge military-industrial establishment, which has left very little, if any, leeway for a conscious policy choice by the Russian head of state. With few exceptions, the participation of the legislature (the Federal Assembly), the academic community, the mass media, non-governmental organizations (NGOs) and civil society have been weaker in nuclear-related matters than in all other facets of Russia's domestic and foreign policies over the past 20 years.<sup>1</sup> However, three decades of Russian–United States negotiations on nuclear arms control and reductions have resulted in a large amount of information being made publicly available. There is also a considerable community of competent non-governmental experts on nuclear issues: academics, retired military and retired civilians who have worked in defence-related areas such as the Ministry for Atomic Energy, the Foreign Ministry, defence industries and research institutes. This has created a paradoxical situation under which genuine policymaking on nuclear weapons is the most closed and narrow of all defence-related policymaking, while public discussion on this subject is the broadest and most substantive of Russia's various security dilemmas.

An analysis of nuclear governance in Russia hinges less on the democratic control of nuclear weapons per se, an element of which is civilian control, than on the democratic control of the whole of state policymaking and other instrumental institutions. This broader issue includes democratic control of the military and military policy—a specific part of which is control over nuclear strategy, forces and modernization programmes. Against this background of a general lack of democratic control over defence and security policy in Russia, nuclear weapons occupy a special position. Since they are such an important, sensitive and strategically and technically esoteric element of national defence and security, all the decision-making pro-

<sup>1</sup> The parliament of the Russian Federation is the Federal Assembly, as established by the 1993 Constitution. Its lower house is the State Duma (referred to in this chapter as the Duma), and its upper house is the Federation Council. Constitution of the Russian Federation, entered into force 25 Dec. 1993, English text available at <<http://www.constitution.ru/en/10003000-01.htm>>.

cesses related to nuclear weapons are limited to a select circle of civilian and military officials, with the major part of the defence and industrial establishment, as well as the Parliament, mass media and the public at large, outside this circle. However, precisely because nuclear weapons are unique, they always have been and, indeed, still are at the centre of public attention and expert deliberations as far as defence matters are concerned.

Section II of this chapter outlines the evolution of Soviet nuclear strategy and posture through the early 1990s, while section III discusses Russia's nuclear policy since 1991. Section IV presents a detailed analysis of the present participation of various state and civil institutions in the formulation of all aspects of nuclear strategy. Particular attention is given to Russian nuclear weapon policy in the form of state-to-state negotiations and agreements and to academic analysis. The conclusions in section V assess the various ways of enhancing, and in many instances creating from scratch, systems of democratic control and accountability of Russian nuclear weapon policy.

## II. Historical background of nuclear weapon control and policymaking

### **The Soviet paradigm**

From 1918 to 1991 Soviet defence policy and its instruments were stringently controlled by the upper echelon of the Communist Party of the Soviet Union (CPSU). The government grouped together the highest political, state and military chiefs in an informal balance of power (hence the official term 'military-political leadership'). The general shape of the nuclear policymaking system was formed after World War II, in preparation for the country's entry to the nuclear club, with its first atomic bomb test on 29 August 1949. With some minor modifications, this lasted until the collapse of the Soviet Union in 1991.

The pinnacle of this nuclear policymaking system was the Politburo, elected by the Central Committee of the CPSU, where all principal strategic decisions were taken. A Defence Council—which included the secretary general of the CPSU, the minister of defence and the chief of the General Staff, as well as advisers from the highest ranking military personnel and most senior managers in the defence industries—was designed to make specific decisions concerning defence and nuclear matters. The Defence Council was established to make all major decisions on nuclear doctrine and strategy, weapon programmes, defence industry development and resource allocation.<sup>2</sup> However, the role of this body was for the most

<sup>2</sup> Podvig, P. (ed.), *Russian Strategic Nuclear Forces* (MIT Press: Cambridge, MA, 2001), pp. 33–34.

part rather formal, since all the decisions were always agreed in advance by assigned bureaucratic agencies. The top party leaders were never presented with a choice of viable and clear alternative policies. Hence, the decision-making system was by its very nature 'orderly' in that it followed a prearranged party-state line and, simultaneously, highly bureaucratic. Political control over the defence establishment was confined to ensuring its political loyalty to the party leadership through the Glavpur (Glavnoie Politicheskoe Upravlenie, the main political directorate of the Soviet Army and Navy), which was reinforced by additional oversight by special KGB (Komitet Gosudarstvennoy Bezopasnosti, the national security and intelligence agency) agencies. Civilian control by the legislature, mass media or civil society-based organizations was non-existent in the single-party state.

After Russia began the Strategic Arms Limitation Talks (SALT) with the USA in 1969, another important agency was created: the Commission of the Politburo for the Supervision of the Negotiations on Strategic Arms Limitation, which also became known as 'the Five' (Piaterka).<sup>3</sup> The commission included the heads of the Ministry of Defence (MOD), the Foreign Ministry, the VPK (Voyenno-Promyshlennaya Komissiya, the Military Industrial Commission of the Council of Ministries), the KGB and the Academy of Sciences. From that point on, 'the Five' became the key body in settling the conflicts between the partisans of nuclear weapon development and build-up and the proponents of establishing agreements with the USA on mutual nuclear arms limitations and reductions. The most conspicuous feature of nuclear policy was that, in addition to the MOD and a number of defence industrial ministries, there was a mammoth empire known as Minatom—the Ministry for Atomic Energy. Minatom nuclear warhead development and manufacturing programmes were one of the main driving forces of Soviet nuclear policymaking.<sup>4</sup> By being well organized in terms of bureaucratic procedures, the system was absolutely secluded and thus closed from any unbiased external scrutiny. Hence, the interaction of parochial interests in the military establishment and scientific-industrial complex largely shaped nuclear force deployment, modernization and employment patterns.

Soviet military doctrine formally described nuclear policy but was not a reliable guide to the realities determining Soviet nuclear strategy and forces. These formal policies were elaborated mainly by military academics and the Glavpur, after which they were approved by the Defence Council and Politburo. However, these policy ideas were always overwhelmingly ideological and propagandistic, having little, if any, relation to the real nuclear strategy, operational planning and targeting policy.

<sup>3</sup> Savel'yev, A. G. and Detinov, N. N. (trans. D. Trenin, ed. G. Varhall), *The Big Five: Arms Control Decision-Making in the Soviet Union* (Praeger: Westport, CT, 1995), p. 20.

<sup>4</sup> Podvig (note 2), pp. 64–65.

The real strategy and operational plans (called ‘plans of combat employment’, *plany boevogo primeneniya*) were revised and refined once a year by the Operational Directorate of the General Staff on the basis of proposals by the operational directorates of the armed services.<sup>5</sup> MOD research institutes modelled nuclear war scenarios and elaborated proposals for more efficient employment and targeting of strategic nuclear forces for each of the armed services and the General Staff.

Without any civilian input, ‘real’ Soviet nuclear strategy was always a pragmatic operational-technical endeavour. During the 1950s tactical nuclear weapons were treated much like conventional munitions with greater firepower that enabled better results to be achieved while using fewer weapons—at the theatre level, the qualitative threshold between conventional and nuclear war-fighting was never genuinely recognized. As for strategic forces, planning their use was an exercise in ensuring the infliction of maximum damage on the nuclear forces, defence industries, command sites and urban-industrial centres of the USA and its allies.

### **The paradigm begins to shift**

In the early 1970s, after the SALT negotiations began, the monopoly of the military establishment on all nuclear-related matters started to change. Foreign Ministry officials participating in negotiations, followed by academic experts and journalists attending scientific conferences, acquired unprecedented access to a huge volume of defence information on Soviet and Western forces and weapon programmes. Close-quarter discussions during the early 1980s on the 1991 Treaty on the Reduction and Limitation of Strategic Offensive Arms (START I) marked the first time within the Soviet Union that challenges were made to the positions of the defence industry as well as to Soviet defence doctrine and policy in general.<sup>6</sup>

Mikhail Gorbachev came to power in 1985, ushering in the ‘golden age’ of civilian control and democratic accountability in their peculiar Soviet forms (e.g. political and academic debates and informal participation in the major disarmament endeavours of the time). Led by Eduard Shevardnadze, the Foreign Ministry directly involved the academic community in the

<sup>5</sup> The General Staff was subordinated to the minister of defence. It coordinated the activities of the various service branches and was one of the main sources of information for the Defence Council. The 5 principal service branches (the ground forces, the air defence forces, the air force, the navy and the strategic rocket forces) were subordinate to the General Staff. Cooper, J., ‘The Soviet Union’, ed. S. McLean, *How Nuclear Weapons Decisions Are Made* (MacMillan Press: London, 1986), pp. 21–23.

<sup>6</sup> Treaty on the Reduction and Limitation of Strategic Offensive Arms (START I Treaty), signed by the Soviet Union and the USA on 31 July 1991, entered into force on 5 Dec. 1994, expired 5 Dec. 2009, <<http://www.state.gov/www/global/arms/starthtm/start/toc.html>>.

policymaking process.<sup>7</sup> With support from Gorbachev, the military establishment was defeated on a number of key issues including the 1987 Treaty on the Elimination of Intermediate-Range and Shorter-Range Missiles (INF Treaty), the 1990 Treaty on Conventional Armed Forces in Europe (CFE Treaty) and START I.<sup>8</sup>

Through these agreements, Soviet defence policy in general became a legitimate subject for discussion, not least because the 1987 Military Doctrine was determined by Gorbachev's political considerations rather than the vested interests of the General Staff and the military-industrial leadership, and a much greater volume of defence information became available to the interested public. At the same time, the first political decisions to reduce the defence burden and start military reform were taken. This was a unique time because, on the one hand, it saw the emergence of a greater openness about defence matters as well as the involvement of broader non-governmental circles in the debates (and indirectly in decision making) and, on the other hand, state institutions were still functioning and responding to political leadership as well as to informal interventions from outside what was previously the nuclear policy and planning 'closed loop'.

Even then, as a result of a lack of genuine civilian control and democratic accountability, by the beginning of the 1990s the Soviet Union's operational strategic nuclear forces consisted of seven main types of intercontinental ballistic missile (ICBM), compared to three US types; seven types of nuclear-powered ballistic missile submarine (SSBN), compared to two US types (Ethan Allen and Ohio classes); six types of submarine-launched ballistic missile (SLBM), compared to two US types; two heavy bomber types, compared to three US types and, like the USA, two types of strategic cruise missile—essentially, a bureaucratically induced and expensive proliferation of weapon systems and types that exacerbated the cost of maintaining a nuclear deterrent.<sup>9</sup> The economy dedicated to supporting a mammoth military power of roughly 4 million personnel, 33 000 nuclear warheads, 4000 ballistic missiles, 300 submarines and 60 000 tanks—finally reached the limit of inefficiency and disintegrated.<sup>10</sup> It was not the

<sup>7</sup> This community included the Institute of USA and Canada Studies of the Soviet Academy of Sciences (ISCAN), the Institute of World Economy and International Relations (IMEMO), the Institute of Europe, the Institute of Space Research and some others.

<sup>8</sup> Treaty on the Elimination of Intermediate-Range and Shorter-Range Missiles (INF Treaty), signed by the Soviet Union and the USA on 8 Dec. 1987, entered into force on 1 June 1988, <<http://www.state.gov/www/global/arms/treaties/inf2.html>>; Treaty on the Conventional Armed Forces in Europe (CFE Treaty), signed on 19 Nov. 1990, entered into force 9 Nov. 1992, <<http://osce.org/item/13752.html?html=1>>; and START I (note 6).

<sup>9</sup> International Institute for Strategic Studies, *The Military Balance: 1990–1991* (Brassey's: London: 1990), pp. 17, 34.

<sup>10</sup> International Institute for Strategic Studies (note 9), pp. 33–35; and *Nuclear Weapons Databook* staff, 'Nuclear weapons', *SIPRI Yearbook 1990: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1990), pp. 16–19.

general policy of maintaining strategic parity with the USA (not to mention the still larger costs of theatre nuclear and conventional forces) that created a crushing burden on the Soviet economy and was one of key factors in the Soviet Union's eventual and very sudden collapse in 1991; it was the superfluous and wasteful way in which the policy was implemented, unchecked, by the Soviet military-industrial establishment.

### III. Nuclear governance since 1991

#### **Yeltsin's decade of missed opportunities**

During Boris Yeltsin's tenure as president of an independent Russia (1991–99), the interaction between civilian leadership and the military was predominantly based on personal relationships at the top of the executive that were never formalized either through the 1993 Constitution or the legislative process. With the demise of the Communist Party and the centralized Soviet state bureaucracy, the defence policymaking system became disarrayed. Throughout his presidency, Yeltsin always pursued 'divide and rule' tactics, creating more and more competing agencies and enhancing his role as an arbiter among them.<sup>11</sup> These tactics extended Yeltsin's personal power but effectively prevented the elaboration of a consistent defence and nuclear policy—even if judged by past Soviet standards.

The federal laws 'On Defence', 'On Security', 'On State of Emergency' and 'On State of War' established in the 1993 Constitution gave the president overwhelming power in matters of defence and security, but in no way defined civilian control over the military in terms of a careful system of checks and balances which would provide the president with the possibility to choose among policy alternatives.<sup>12</sup> Various high-ranking civilians in the Yeltsin Administration tried to promote methods of civilian involvement in defence policy, but they failed because of a lack of support from the president.<sup>13</sup>

Most of the items of the annual defence budget remained secret. From 1994 to 1997 only 18 to 20 items of the defence budget were publicly known. From 1998 to 2001, only three of four items were publicly known due to the 1997 law 'On State Secrets'.<sup>14</sup> During this period, several

<sup>11</sup> This included the MOD and other 'power structures'—the Security Council, the Defence Council, the Ministry of the Defence Industry, numerous state committees dealing with defence, military industry and arms exports etc.

<sup>12</sup> Constitution of the Russian Federation (note 1), articles 86–87.

<sup>13</sup> Andrey Kokoshin, then first deputy defence minister, and Yury Baturin, the presidential national security assistant were among the those who tried to promote methods of civilian involvement in defence policy.

<sup>14</sup> See Cooper, J., 'The military expenditure of the USSR and the Russian Federation, 1987–97', *SIPRI Yearbook 1998: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1998), pp. 243–59; and Cooper, J., 'Russian military expenditure and arms production',

attempts by a number of the Duma members to introduce greater openness through legislative initiatives were blocked by other Duma factions and the government.<sup>15</sup>

As for democratic accountability and oversight over defence matters, the idea never moved along far enough to become a fully fledged norm despite both the free discussion of defence issues among experts and the public at large with the circulation of a huge amount of defence-related information and the emergence of numerous independent non-governmental research centres. The ability of the Federal Assembly (and therefore, of civil society) to affect defence policy through the budget process was marginal: under the 1993 Constitution it had been deprived of direct control functions and was granted only legislative and representative ones.<sup>16</sup> Each year a special commission of Duma deputies was organized to review the defence budget behind closed doors and give its recommendations to the Federal Assembly, which made only marginal changes in the budgets and policy. From 1993 to 1999, based on the author's personal observation as a member of the Duma, no more than a dozen members of the Duma had any understanding of defence issues and the majority of them were retired military personnel. Instead, the 'process' of democratic control was manifested in regular highly politicized clashes between the legislative and executive over defence budgets, in some draft laws and in the ratification of arms control treaties, which usually ended with the victory of the executive.

It is notable that the executive, unlike the legislature, remained committed to strategic arms reduction. This was the only serious exception to the executive's usual 'victories' on defence policy issues: ratification of the 1993 START II Treaty was frozen in the Duma for seven years (1993–2000).<sup>17</sup> During Yevgeny Primakov's prime ministerial term (1998–99), the Duma was ready to ratify START II as a result of Primakov's efforts at forging political compromise. However, in December 1998, the ratification was thwarted a first time by British–US air-missile strikes against Iraq and a second time, in March 1999, by the military campaign by the North Atlantic Treaty Organization (NATO) against Yugoslavia.<sup>18</sup> Thus, Russian public opinion and the Federal Assembly performed a *prima facie* demo-

*SIPRI Yearbook 2001: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2001), pp. 313–22.

<sup>15</sup> Duma members advancing legislative initiatives related to greater openness included Alexei Arbatov (the author of this chapter), Igor Artemiev, Viktor Il'ukhin, Sergei Ivanenko and Arkady Vorobiev.

<sup>16</sup> Constitution of the Russian Federation (note 1), chapter 5.

<sup>17</sup> Treaty on Further Reduction and Limitation of Strategic Offensive Arms (START II Treaty), signed by Russia and the USA on 3 Jan. 1993, not in force, <<http://www.state.gov/www/global/arms/starthtm/start2/st2intal.html>>.

<sup>18</sup> Arbatov, A., 'Deep cuts and de-alerting: a Russian perspective', ed. H. A. Feiveson, *The Nuclear Turning Point: A Blueprint for Deep Cuts and De-Alerting of Nuclear Weapons* (Brookings Institution Press: Washington, DC, 1999), pp. 305–24.



cratic function of checks and balances on the executive branch on nuclear weapons, albeit in this case in a negative way. If the Duma had had a different composition—with the majority belonging to democratic factions—it might have been conducive to greater democratic control and accountability over nuclear policy and military policy in general. Ironically, despite the legislature's opposition to arms reductions, such reductions were being implemented *de facto*. This was the case not only owing to the historical inevitability of further reductions of nuclear arsenals in the post-cold war period, but also out of brutal domestic economic necessity and because of prioritizations determined by scarce financial resources.

Yeltsin's nuclear policy from 1991 to 1997, apart from bargaining over the withdrawal of some 'embedded' strategic weapons in former Soviet republics and formally implementing START I reductions, was largely characterized by the completion of Soviet-era strategic nuclear weapon and related delivery system programmes at a much lower level of funding and at reduced deployment rates than those originally proposed. At the same time, in the first half of the 1990s, with rampant corruption at all levels of the defence establishment and a highly incompetent, but politically loyal, MOD leadership, the armed services were virtually given a free hand in devising their war planning and technical modernization programmes within the limits of tight budgets and surrounded by secrecy.

While other strategic forces were reduced, the capabilities of the land-based Strategic Rocket Forces (SRF) were incrementally upgraded.<sup>19</sup> In 1996, 369 land-launched, ground-mobile SS-25 Topol ICBMs were deployed.<sup>20</sup> No new SSBN or SLBM systems were deployed: many submarines were being decommissioned before the end of their service life due to the lack of funding for timely overhaul, and some submarine types were left disarmed after their missiles finished their service life but were not replaced by newly produced SLBMs for lack of defence contracts. The strategic bomber force also declined, but eight Tu-160 bombers were acquired from Ukraine, where they had been based at the time of the Soviet Union's collapse. Furthermore, the command-and-control system and early-warning complex rapidly deteriorated. Of the eight primary Soviet missile early-warning radars, five were outside of Russia and the constellation of early-warning satellites degraded for lack of funding.<sup>21</sup>

In terms of nuclear strategy, the only serious innovation under Yeltsin was the 1993 adoption of the 'Main Guidelines of the Military Doctrine of

<sup>19</sup> The SRF is the arm of the Russian armed forces that controls Russia's land-based ICBMs. See Cooper (note 5).

<sup>20</sup> Norris, R. S. and Arkin, W. M., 'Tables of nuclear forces', *SIPRI Yearbook 1997: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1997), p. 396.

<sup>21</sup> Murphy, J., 'Russia upgrades early-warning radars', *Jane's Defence Industry*, Feb. 2006, pp. 233–34; and 'Strategic command and control', Federation of American Scientists, 5 Oct. 2000, <<http://www.fas.org/nuke/guide/russia/c3i/index.html>>.

the Russian Federation', which revoked the Soviet's 1982 'no-first-use' of nuclear weapons declaration.<sup>22</sup> While the no-first-use declaration provided a propaganda lever to Soviet-era general secretaries when enunciating foreign policy objectives, it had always been seen as a major doctrinal heresy to the upper echelon of Russian leadership. The military command never took the pledge seriously, and it was never translated into practical policies. Nonetheless, despite the fact that none of the other nuclear states, except China, had a no-first-use pledge in their doctrines—such a demonstrative gesture by the Russian Government during the peak of its rapprochement with the West was odd.<sup>23</sup>

During Yeltsin's era, the presidential variety of civilian control over nuclear weapons sometimes took on grotesque forms. For example, in January 1995 the 'Kazbeck' emergency communication system (including the presidential 'nuclear briefcase') was activated when the launch of a Norwegian research rocket was detected. Although Russia's strategic forces were not put on higher alert, the command, control, communication and intelligence system (C<sup>3</sup>I) was brought to combat status and the Norwegian missile was tracked until its re-entry.<sup>24</sup> Afterwards, Yeltsin described this episode as proof Russia's high level of defence preparedness. Yet it was in fact a demonstration of the complete disorganization of the state security apparatus: the Norwegian Government had notified the Russian Foreign Ministry about the launch a month in advance, but the information reached neither the president nor the military command.<sup>25</sup>

Another example was Yeltsin's declaration during one his foreign trips in 1992 that Russian nuclear missiles were no longer aimed at US cities—taking the Russian military command by surprise and producing confusion.<sup>26</sup> To smooth the scandal, within two year of his statement, Russia signed separate, bilateral agreements with China, the United Kingdom and the USA on the de-targeting of their strategic missiles from each other's

<sup>22</sup> 'Osnovnyye polozheniya voyennoy doktriny Rossiyskoy Federatsii' [Main guidelines of the military doctrine of the Russian Federation], *Rossiyskaya Gazeta*, 18 Nov. 1993.

<sup>23</sup> According to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT), only states that manufactured and exploded a nuclear device prior to 1 Jan. 1967 are recognized as nuclear weapon states. China, France, Russia, the United Kingdom and the USA are the 5 nuclear-armed states party to the NPT. Israel, India and Pakistan are nuclear-armed states that remain outside the NPT. All 5 nuclear weapon states were committed with many reservations to not using nuclear weapons against non-nuclear weapon states party to the NPT. Treaty on the Non-Proliferation of Nuclear Weapons, opened for signature on 1 July 1968, entered into force on 5 Mar. 1970, <<http://www.iaea.org/Publications/Documents/Treaties/npt.html>>.

<sup>24</sup> Sokov, N., *Could Norway Trigger a Nuclear War? Notes on the Russian Command and Control System*, PONARS Policy Memo no. 24 (Monterey Institute, Center for Nonproliferation Studies: Monterey, CA, Oct. 1997).

<sup>25</sup> [The nuclear briefcase is always ready], *Novye Izvestiya*, 2 July 1999.

<sup>26</sup> 'Chronology', *Arms Control Reporter* 1992, 25 Jan. 1992, p. 611.B.753; and McManus, D., 'New plans expected for A-weapons cuts', *Los Angeles Times*, 28 Jan 1992.

territories.<sup>27</sup> Although these agreements are unverifiable and quickly reversible, they were considered useful symbolic gestures that in part made up for the lack of progress on the real arms control efforts (i.e. the Duma's stalled ratification of START II).

The shape of nuclear strategy and management began to change with the appointment of Igor Sergeev, commander-in-chief of the SRF, as minister of defence in 1997. Of particular importance was the SRF's interest and stake in implementing START II, a proposed START III and the 1972 Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty) protocol, contributing to a more cost-efficient Russian nuclear deterrence at lower levels of forces and expenditure.<sup>28</sup> In this way, there is no doubt that the momentum of the politically led 1987–91 period of arms control talks had a significant impact on the Russian Government's strategic nuclear policymaking, which was fully manifested in the composition of Russian strategic forces by the mid-to-late 1990s.

Sergeev's tenure represented the second—and, to date, last—opening of nuclear policymaking to civilians outside the circle of power. Sergeev's informal ties with some academics and Duma deputies allowed for their involvement in strategic matters. The hearings, resolutions and budget process related to preparations for START II ratification were also a time of deeper involvement of the Duma deputies in nuclear force planning. In 1998 a special ad hoc commission was created to devise a long-term strategic programme and, by implication, a strategic concept and operational plan for Russian strategic nuclear forces.<sup>29</sup> In cooperation with the Duma Defence Committee, this programme was funded through amendments to the 1997 and 1998 budgets and incorporated into the 1999 budget. In 1999 a special law, 'On the Funding of the Defence Contract for the Strategic

<sup>27</sup> Sino-Russian Detargeting and No-First-Use Agreement, <<http://www.nti.org/db/china/chrusdet.htm>>; Joint Declaration by the President of the Russian Federation and the Prime Minister of the United Kingdom of Great Britain and Northern Ireland on the De-targeting of Nuclear Missiles, Moscow, 15 Feb. 1994, <[http://www.unog.ch/80256EE600585943/\(httpPages\)/49A8DA6534871819C12575E000512283](http://www.unog.ch/80256EE600585943/(httpPages)/49A8DA6534871819C12575E000512283)>; and Moscow Declaration by US President Clinton and Russian President Yeltsin, Moscow, 14 Jan. 1994, <<http://www.fas.org/nuke/control/detarget/docs/940114-321186.htm>>.

<sup>28</sup> Arbatov (note 18), pp. 458–62. In Mar. 1997 Russia and the USA agreed a framework for a START III treaty, a follow-on to the START II Treaty. The negotiation of START III was never completed, and the treaty has since been superseded by the 2002 Treaty on Strategic Offensive Reductions (SORT). Russian and US governments, Joint statement on parameters of future reductions in nuclear forces', Helsinki, 21 Mar. 1997, <[http://www.nti.org/db/nisprofs/fulltext/treaties/abm/abm\\_heje.htm](http://www.nti.org/db/nisprofs/fulltext/treaties/abm/abm_heje.htm)>; and Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty), signed by the Soviet Union and the USA on 26 May 1972, entered into force on 3 Oct. 1972, not in force from 13 June 2002, <<http://www.state.gov/www/global/arms/treaties/abmpage.html>>.

<sup>29</sup> The programme was headed by Nikolai Laverov, a respected academic, and included all general constructors of the main design bureaus, representatives of MOD institutes and the Department for Armaments of the MOD. Its recommendations were approved at the Collegiums of the Ministry of Defence and by the Security Council and ultimately signed by the president.

Nuclear Force', was adopted which allocated budgetary support to promote consistent and rational nuclear policymaking.<sup>30</sup>

The long-term strategic programme listed the SS-27 Topol-M ICBM system as its absolute priority and envisioned the deployment of up to 500 single-warhead missiles of this type over the next 10 years, partly in silos and partly on ground-mobile launchers. All other ICBMs were to be dismantled except for 100 SS-19 missiles, each reduced from six warheads to one. In 1997 the first two Topol-M ICBMs were put on combat duty in launch silos at the Tatischevo missile base. Flight tests of a mobile Topol-M were to start in 1999 and it was to be deployed soon after. The modernization of sea-based strategic nuclear forces was a much lower priority. However, due to an ambitious project involving the development of a new SLBM as a common missile, which was later to succeed the SS-27 as the SRF's silo- and ground-mobile based ICBM, this programme was to proceed at a relatively slow rate.

Following the general guidance of the political leadership, Sergeyev began a profound transformation of the Russian military doctrine and defence posture. In view of severe resource limitations, the proposed transformation of the strategic programme was channelled in the only rational and cost-effective direction: to gradually transform the strategic triad of land-, sea- and air-based nuclear forces into a dyad of land- and sea-based missile forces and, eventually, into a monad, in which silo-based and mobile ICBMs would provide for some redundancy and a rapid build-up capability. Curtailment of the force levels and structure was to be counteracted by greatly improving the C<sup>3</sup>I system and enhancing the capabilities of each leg of the triad and then, possibly, the monad.

Eventually, Russia adopted the concept of strategic stability: counterforce (first-strike) capability was downgraded and a reliable delayed second-strike posture was emphasized. The target lists were shortened and the expected damage levels were reduced (implying the targeting of mostly industrial sites). Until the deployment of a new sufficient ground-mobile ICBM force (based on the SS-27 Topol-M system) and the realization of a new integrated and more survivable C<sup>3</sup>I system for the proposed unified Strategic Deterrence Force command, launch-on-warning remained an undesirable but necessary operational option.

While civilian experts had been indirectly involved in nuclear-related matters vis-à-vis arms control under Gorbachev, the 1997–98 period represented the time of the greatest direct, albeit informal, involvement of civilian experts in nuclear policymaking. It was also a period of relatively broad participation of the Duma and the beginning of democratic account-

<sup>30</sup> Arbatov, A., *'Yabloko' and the Army* (EPI Center: Moscow, 2003), pp. 32–33.

ability. Also during those years arms control had the greatest impact on Russian nuclear strategy and programmes.<sup>31</sup>

However, despite a promising beginning, those plans and programmes were only partially fulfilled: the 1998 Russian financial crisis cut the defence budget by 55 per cent in one year; the second war in Chechnya, which began in 1999, put an additional burden on the defence budget; and the conflict between the minister of defence (Sergeyev) and the chief of the General Staff (General Anatoly Kvashnin) grew.<sup>32</sup> While Yeltsin still formally held all supreme authority in 1998, he was almost totally disabled by poor health. Due to the absence of formalized civilian control and immature standards of democratic accountability, the intrigues among competing groups of the military were the principal determining factor of the state's defence policy.

Yeltsin's era ended with his resignation in December 1999. The military reforms and the new beginnings of civilian control and democratic accountability were halted.

### **Putin's nuclear posture and programme**

Following Yeltsin's resignation, behind a new facade of formal democratic procedures and institutions and under new names and titles, a political system similar in some respects to the familiar Soviet mode returned.<sup>33</sup> This partial restoration was induced by the oligarchic nature of Russian state capitalism (highly monopolized, corrupted and criminalized), as well as by the disenchantment and disappointment of the majority of the population with the results of the economic and political reforms of the 1990s.

One outstanding feature of Vladimir Putin's presidency (2000–2008) was the considerable increase in the appointment of former officers from the armed forces, other troops and, most of all, former KGB branches to top posts of the presidential administration as well as executive and legislative institutions at both the federal and regional levels. By 2002 former defence- and security-related officials held as much as 25 per cent of such posts and probably as much as 30 to 35 per cent after the parliamentary and presidential elections of 2003–2004.<sup>34</sup> This provides the notion of 'civilian control and democratic accountability' with peculiar characteristics: even if the executive and legislative branches of government both attempted more aggressive involvement in military and security policymaking, the defence

<sup>31</sup> These agreements included START, START II, START III and the ABM Treaty, despite the fact that START II never came into force and the negotiations on START III were never completed.

<sup>32</sup> The war in Chechnya was run mostly by Kvashnin, which further diminished the role of Sergeyev, who was not enthusiastic about the massive new campaign.

<sup>33</sup> The United Russia Party gradually took the place of the Communist Party and the role of the Central Committee was taken on by the Presidential Administration.

<sup>34</sup> [The elite in shoulder loops], *Vremya MN*, 19 Sep. 2002.

and security agencies could still control and determine their own interests through their envoys in top federal and regional institutions. At the highest levels of the military, moves to remove and replace policymakers ultimately consolidated the power of the General Staff.

In 2001 Sergeyev resigned as minister of defence, and Sergei Ivanov was appointed to the position.<sup>35</sup> Ivanov and some new civilian appointees (e.g. Liubov Kudelina, the first deputy for budget policy) tried to establish controls over defence policy through budget management and bureaucratic decision making.<sup>36</sup> Their efforts were countered by the General Staff which attained decisive power over the principal decisions on strategy, operational planning, force levels and deployment, weapon programmes, and recruitment and mobilization policies. These manoeuvres were the backdrop for the formation of important policy- and decision-making bases in the Putin era.

In late 2000 to early 2001 the General Staff, led by Kvashnin, suggested that the strategic nuclear forces should be downgraded, since nuclear war was improbable, and the concept of strategic parity with the USA should be replaced with the concept of ‘minimal sufficiency’ (*garantirovanno dostatochnyi*). Instead the resources should be reallocated to conventional forces, which could be readily called to fight in regional and local wars. The lack of civilian control or democratic accountability and the interests of the General Staff and the armed services (except the SRF) made this idea viable: it was approved by President Putin. Such a decision could have been avoided if Putin had been provided with alternative options and their economic and strategic implications, and if comprehensive parliamentary hearings had been held that took the assessments of independent experts into account.

The decision to downgrade the strategic nuclear forces had significant repercussions. As a result, the funding for these forces was cut by about 50 per cent and the remaining funds were redistributed from the SRF to the strategic programmes of the navy and air force. With limited resources it was not possible to maintain effective sea- and air-based legs of the strategic nuclear forces—even in times of financial abundance the Soviet Union could never fully field sea-based and air-based strategic forces. The decision was also taken to cut the SRF’s ICBM force levels by 80 per cent (down to two divisions, comprising about 150 ICBMs) and to slow down its only successful modernization programme (Topol-M). These decisions would have left Russia with less than 100 silo-based ICBMs within the space of a decade.

<sup>35</sup> Ivanov, a former KGB general and the secretary of the Security Council from 2000 to 2001, was Putin’s close associate.

<sup>36</sup> Solovyov, V. and Hodarenok, M., ‘Prezident rokiruet cilovikov’ [President changes security officials], *Nezavisimoye Voennoye Obozrenie*, 30 Mar. 2001.

In the international arena the immediate probable result of the General Staff's decision was the USA's loss of interest in strategic arms control. The US Government's December 2001 declaration of withdrawal from the ABM Treaty came into effect in June 2002. Consequently, START II (ratified by Russia in spring 2000) and the START III framework agreement collapsed. It was only due to a new spirit of cooperation following the 11 September 2001 terrorist attacks on the USA that the USA agreed to sign the 2002 Treaty on Strategic Offensive Reductions (SORT), envisioning a reduction of strategic nuclear forces from 2200 to 1700 warheads by 2012.<sup>37</sup> However, due to the reluctance of the US Government, SORT was never provided with counting rules, a dismantling schedule and procedures, or a verification system. Although ratified by both sides, SORT failed to become a practical framework for strategic balance.

The possible consequences for strategic stability of Russia's decisions were worse. In 10–15 years Russia would have been left with a small and highly vulnerable ICBM force that was handicapped in the numbers, survivability and effectiveness of the sea- and air-based forces.<sup>38</sup> This would have required Russia to rely entirely on a highly undesirable launch-on-warning strategy. However, such an unstable posture would become even more dangerous as the Russian C<sup>3</sup>I system degraded further while nuclear weapon and ballistic missile proliferation continued in the wider world.<sup>39</sup> Such decisions taken in the absence of civilian control and democratic accountability might not only have cost Russia dearly, but could also have been detrimental to international security as a whole.

The repercussions of this demonstrable deficiency in civilian control, transparency and accountability continued beyond 2001. In 2002, realizing the dire consequences for strategic relations with the USA and for Russia's security, the president and minister of defence began to take steps to correct the mistakes. The General Staff's plans for drastic (80 per cent) cuts in the ICBM force were revised; the reductions were set closer to the missiles' natural service life dates of withdrawal; and the ICBM divisions were reduced to 10 instead of 2.<sup>40</sup>

The strategic salience of Russia's ICBM force was a core issue in the wider context, simultaneously affecting civilian control and Russian mili-

<sup>37</sup> Anthony, I., 'Arms control in the new security environment', *SIPRI Yearbook 2003: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2003), pp. 849–57; and Treaty on Strategic Offensive Reductions (SORT Treaty), signed on 24 May 2002 and entered into force on 1 June 2003, <<http://www.gpoaccess.gov/serialset/cdocuments/107cat2.html>>.

<sup>38</sup> Roughly, these numbers would have been 100–150 ICBMs, 5–7 SSBNs of which only 1–2 were on sea patrol and 40–50 obsolete bombers which were non-survivable at their few airfields.

<sup>39</sup> Safranchuk, I., *Budushchee yadernykh sil Rossii* [The future of Russian nuclear forces], PIR Study Papers no. 10 (Russian Centre for Policy Studies: Moscow, 1999), pp. 60–67.

<sup>40</sup> Russian Ministry of Defence, 'Aktualnye zadachi razvitiya voozrzhennykh sil Rossiiskoi Federatsii' [Immediate tasks for the development of the armed forces of the Russian Federation], 2 Oct. 2003, <[http://www.redstar.ru/2003/10/11\\_10/3\\_01.html](http://www.redstar.ru/2003/10/11_10/3_01.html)>, p. 42.

tary reform. In his May 2004 address to the Parliament, President Putin emphasized that the strategic deterrence force was the top priority, thus revoking the General Staff's strategy and indirectly recognizing the mistakes made in 2000 and 2001. Putin stated that: 'We should secure our country from any forms of military and political pressure and potential foreign aggression. And thus modernizing the Russian Armed Forces remains a very important task, including equipping strategic nuclear forces with the most modern systems of strategic armaments.'<sup>41</sup> In June 2004 the Duma amended the law 'On Defence', providing the Ministry of Defence with direct and unequivocal command over the General Staff. This streamlining of the chain of command has the potential to establish or increase civilian control over defence policymaking and independent scrutiny of proposals made by the armed services, the General Staff and defence industrial corporations.

Following the July 2004 resignation of Kvashnin, who was replaced by General Yuri Baluyevsky, and through the amendments to the law 'On Defence', Ivanov, the civilian minister of defence, acquired a greater say on defence issues, giving assessments and advice to the president. However, the defence minister position lacked two principal elements of civilian control over the military. First, it lacked a sufficient staff of civilian and military experts who could provide either analysis of the proposals made by the armed forces and the General Staff or functional programming for more efficient systems and forces. An August 2004 presidential decree authorized the reform of the MOD and included the creation of such a staff.<sup>42</sup> However, with only military personnel on a rotation basis with the General Staff and armed services, the reform created nothing more than yet another structure for the military to lobby for vested interests at the upper echelons of the MOD.

Second, the Duma and the Federation Council were not functioning as a well-informed, active and independent parliament. Thus, they could not challenge the positions of the MOD, which would have enabled the minister of defence to better elaborate and advocate the defence policy and, by extension, allowed a more effective rule over the military. After the 2003 and 2007 parliamentary elections, which were heavily manipulated by the executive, no liberal democratic factions were left in the Duma to present such a challenge on defence issues.<sup>43</sup> The only opposition activity in the

<sup>41</sup> Putin, V., President of Russia, Address to the Federal Assembly of the Russian Federation, Moscow, 26 May 2004, <<http://www.in.mid.ru/bl.nsf/6f92c64e92f7ee83c3256def0051fa16/be5e3c8b63536542c3256ea10029cda0?OpenDocument>>.

<sup>42</sup> Larchenkova, I., 'Novyi apparat Minovorony' [The new Defence Ministry apparatus], *Nezavisimoye Voennoye Obozrenie*, <[http://nvo.ng.ru/notes/2004-08-13/8\\_apparat.html](http://nvo.ng.ru/notes/2004-08-13/8_apparat.html)>, 13 Aug. 2004.

<sup>43</sup> See e.g. Organization for Security and Co-operation in Europe, Election documents: Russian Federation, <<http://www.osce.org/odihr-elections/documents.html?lsi=true&limit=10&grp=231>>;



Duma was the pressure for more military spending including on more weapons. Expanding secrecy over the official defence information weakened the capabilities of independent experts and research centres to draw the attention of the Parliament to deficiencies and inconsistencies in the defence policy. Overall, much of this discussion demonstrates that—while, formally, all major decisions on all aspects of the nuclear weapon cycle are taken by the president or with his direct approval—even if Russian presidents are considered ‘civilians’, this in and of itself does not automatically translate into effective civilian control of nuclear policymaking.

In February 2008 Anatoly Serdyukov replaced Sergei Ivanov as minister of defence. Serdyukov was recruited from the financial sector and had little defence experience. While he has kept a low public profile, some serious defence reforms have been initiated. However, the decision making has been as secretive and opaque as it ever was since 1991, and no comprehensive reform plan has been openly presented. The 2008 economic crisis and ensuing defence budget cuts again stopped many the military reforms that had allegedly been planned. Except for his criticism of START I, which was leaked to the media, the arrival of Serdyukov does not appear to have affected Russia’s nuclear posture and programmes.<sup>44</sup>

#### IV. Nuclear force structure and oversight

Civilian input on the policymaking decisions related to the research and development (R&D) of nuclear weapons and their delivery systems remains limited, with the interplay of vested bureaucratic interests being the main feature of the debate. One of the driving forces for strategic nuclear weapon development has been the urgent need for the timely introduction of new systems to replace the obsolete missiles, submarines and bombers that were scheduled for withdrawal from service. In addition to a sharp reduction of overall funding on strategic nuclear forces, the task of maintaining a robust deterrent force has been greatly aggravated by two factors: the insistence of Russian policymakers on maintaining the strategic triad, and the US Government’s reluctance to agree to much lower ceilings on strategic nuclear forces warheads (i.e. 1000 to 1500 units) and to conclude a new full-scale SORT treaty.

Furthermore, Russian nuclear strategy and programmes were strongly affected by the plan of the US Administration of President George W. Bush to base ballistic missile defence (BMD) sites in Poland and the Czech

and Weir, F., ‘Putin’s party: Russian election marred by allegations of fraud, coercion’, *Christian Science Monitor*, 30 Nov. 2007.

<sup>44</sup> Butrin, D., Visloguzov, V. and Shishkin, M., ‘Civilian economist heads Defense Ministry’, *Kommersant*, 16 Feb. 2007; and Clover, C., ‘Moscow marches on with military reform’, *Financial Times*, 26 June 2009.

Republic. The Bush Administration argued that the BMDs were for use against Iran's missiles; the Russian Government saw the plan as a threat to Russia's strategic deterrence. As a countermeasure, the service lifetime of Russian ICBMs (including heavy SS-18 type) was extended and about 30 SS-19 missiles were procured from a Ukrainian arsenal.<sup>45</sup>

In 2009 the new US Administration of President Barack Obama announced that it had shelved US plans to base BMD sites in Central Europe. Later in the year, Russia and the USA began intensive negotiations on a new strategic arms reduction treaty to replace START I, which was set to expire in December 2009.<sup>46</sup> In April 2010 Obama and Russian President Dmitry Medvedev signed the 2010 START Treaty, dubbed 'New START', which 'sets a force level of 700 deployed strategic delivery vehicles and 1550 for their associated warheads to be reached seven years after ratification'.<sup>47</sup>

Still, Russia's nuclear posture and its prospects continue to be plagued by serious problems.<sup>48</sup> In 2010 the Russian ICBM force had 331 launchers and missiles carrying 1090 nuclear warheads; the sea-based force comprised 12 SSBNs, 160 SLBMs and 576 nuclear warheads; and the air leg consisted of 76 heavy bombers and 844 AS-15 cruise missiles.<sup>49</sup> These numbers will decline due to the withdrawal of old systems of the 1970s and 1980s and the slow rate of new deployments.<sup>50</sup> By 2020, based on the current deployment rate, Russia will have no more than 170 ICBMs, 3–4 new submarines with 44–60 SLBMs and 16–17 modern bombers—which amounts to around 250 delivery vehicles and 1200 warheads.<sup>51</sup> Technically, this opens the door to radical strategic nuclear disarmament, provided that the USA also agrees to decrease its forces and that other military and political problems are resolved.<sup>52</sup>

<sup>45</sup> Kile, S. N., Fedchenko, V. and Kristensen H. M., 'World nuclear forces', *SIPRI Yearbook 2009: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2009), pp. 353–56; and Feickert, A., *Missile Survey: Ballistic and Cruise Missiles of Foreign Countries*, Congressional Research Service (CRS) Report for Congress RL30427 (US Congress, CRS: Washington, DC, 5 Mar. 2004), p. 7.

<sup>46</sup> Baker, P., 'White House scraps Bush's approach to missile shield', *New York Times*, 17 Sep. 2009.

<sup>47</sup> Kile, S. N. et al., 'World nuclear forces', *SIPRI Yearbook 2010: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2010), p. 335; and White House, 'The New START Treaty and Protocol', White House blog, 8 Apr. 2010, <<http://www.whitehouse.gov/blog/2010/04/08/new-start-treaty-and-protocol>>.

<sup>48</sup> Kile, Fedchenko and Kristensen (note 45), pp. 346–53.

<sup>49</sup> Kile et al. (note 47), pp. 342–48. On Russia's nuclear forces see appendix A in this volume.

<sup>50</sup> The 'New START' treaty limits will primarily affect the service life extension programmes of old systems, since the new systems would easily fit under much lower ceilings.

<sup>51</sup> The warhead number is quite flexible and may be as low as 600–700 depending on the MIRV packages on missiles and loading of bombers.

<sup>52</sup> Additional issues to be addressed include e.g. BMD, precision guided strategic conventional weapons, theatre conventional forces imbalances, third nuclear states' arms control engagement, substrategic nuclear forces, potential space arms and other related issues.

Plans begun under Putin in the 2000s were intended to renovate nearly all of the strategic force. The ICBM force is being modernized by the deployment of ground-mobile SS-27 Topol-M missiles which, after 2009, are to be equipped with MIRV (multiple independently targetable re-entry vehicle) warheads. The navy is planning to build a new Delta-V SSBN and is testing a new Bulava-30 MIRVed SLBM for these submarines.<sup>53</sup> However the development of both has encountered serious technical problems, construction delays and huge cost overruns. Six of the 12 tests carried out on the new SLBM were failures.<sup>54</sup> The air force is continuing the production of the 1980s-design Tu-160 bomber at a very slow rate—roughly one every few years—and developing new air-launched cruise missiles (H-101) for use with a nuclear or conventional warhead.<sup>55</sup> The continuing economic crisis and the obligatory cuts in the defence budget may slow down the strategic forces modernization programme unless priorities are shifted from conventional to nuclear weapons.

Russia's sub-strategic nuclear force is much less transparent. Most estimates suggest about 600 sub-strategic warheads are air-to-surface missiles and gravity bombs carried on medium bombers and strike aircraft; approximately 200 are missiles, bombs and depth charges carried on land-based naval aircraft; and approximately 400 are anti-ship, anti-submarine, air-defence missiles and torpedoes carried on submarines and surface ships.<sup>56</sup> These forces are being modernized with a new tactical land-based missile called 'Iskander', which may be equipped with nuclear or precision-guided conventional warheads and have a variable short or medium range. Iskander was considered for deployment to the Kaliningrad region as a countermeasure to the possible construction of the US BMD site in Poland before that plan was shelved.

A number of parallel, unilateral presidential nuclear initiatives were undertaken in 1991 and 1992 by presidents George H. W. Bush, Gorbachev and Yeltsin that resulted in the reduction of many tactical nuclear weapons (TNWs). Soviet and Russian TNWs have been reduced by roughly 90 per cent since these initiatives were begun. As of 2009 Russia maintains a relatively large TNW force to offset NATO's growing conventional superiority, which has been enhanced by the latter's expansion to the east. The Russian Government is reluctant to discuss limitations or reductions of TNWs unless NATO's expansion ceases and its conventional forces are strictly limited and significantly reduced. TNWs may also be seen as a

<sup>53</sup> 'Chem zakanchivalis' ispytaniya "Bulavy" [How Bulava trials ended], *Kommersant*, 24 Dec. 2008; and "Yurii Dolgorukii" bez raket kak bez ruk' [Yurii Dolgorukii' is incapacitated by the absence of missiles], *Kommersant*, 24 Dec. 2008.

<sup>54</sup> Russian Strategic Nuclear Forces blog, 'Bulava missile test history', 9 Dec. 2009, <<http://russianforces.org/navy/slbms/bulava.shtml>>.

<sup>55</sup> Kile, Fedchenko and Kristensen (note 45), pp. 358.

<sup>56</sup> Kile, Fedchenko and Kristensen (note 45), pp. 354, 358–59.

counterbalance to China's potential conventional superiority in the east. There is virtually no official information available on Russia's system of control over its TNW force.<sup>57</sup> However, the worry is that this entire class of nuclear weapons remains largely unmonitored and uncontrolled.<sup>58</sup> Concerns have been expressed over the issue of 'loose nukes' and the fear in the West that some TNWs might fall into the wrong hands.

In peacetime, negative control is ensured by keeping all ground forces and air defence tactical nuclear warheads in centralized storages ('S-sites') under the protection and service of the nuclear-technical troops. Air force and navy warheads are stored in depots at naval and air bases, as well as at S-sites in the custody of the same troops. According to some estimates, when attack submarines and surface ships are at sea during peacetime, their nuclear warheads are sealed by electronic locks that can only be opened using codes received from the top command ashore—much like SLBMs.<sup>59</sup> According to official information, not a single tactical nuclear warhead has gone missing in the post-Soviet period.<sup>60</sup>

## V. Contemporary policy and future policy alternatives

### **Nuclear weapon development**

Currently, the development of policy related to Russian nuclear programmes reflects the interplay of various military and bureaucratic interests without democratic oversight. The MOD and the military, led by the General Staff, play a principal role during the early stages of development by allocating funding to research projects, unless the defence industrial firms provide funding from their own income (e.g. by selling arms abroad). During the R&D phase, the military sets the technical requirements of

<sup>57</sup> TNWs (also referred to as 'mini-nukes', 'sub-strategic', 'battlefield' or 'non-strategic' nuclear weapons) are generally small and portable, and hence more vulnerable to theft than other nuclear weapons. Furthermore, TNWs are not monitored or controlled by any treaties or formal agreements, although these weapons pose dangers that can be equal to or greater than those of strategic nuclear weapons. On the risks of illicit or accidental use see Müller, H. and Schaper, A., 'Definitions, types, missions, risks and options for control: a European perspective', eds W. Potter et al., *Tactical Nuclear Weapons: Options for Control* (United Nations Institute for Disarmament Research: Geneva, Apr. 2000), pp. 38–39.

<sup>58</sup> TNWs do receive periodic mention in international non-proliferation discourse. E.g. the 2000 NPT Review Conference called for 'the further reduction of non-strategic nuclear weapons, based on unilateral initiatives and as an integral part of the arms-control process'. Rauf, T., *Towards NPT 2005: An Action Plan for the '13-Steps' towards Nuclear Disarmament Agreed at NPT 2000* (Monterey Institute, Center for Nonproliferation Studies: Monterey, CA, 2001). However, other than the 1991–92 presidential initiatives, concrete steps or actual implementation of measures to reduce or control TNWs have not occurred.

<sup>59</sup> Diakov, A., Miasnikov, E. and Kadyshev, T., *Non-Strategic Nuclear Weapons: Problems of Control and Reduction* (Center for Arms Control, Energy and Environmental Studies at Moscow Institute of Physics and Technology: Dolgoprudny, 2004), p. 72.

<sup>60</sup> Soloviev, V., 'Terroristy sposobny obladat' padioaktivnymi zaryadami' [Terrorists are able to possess radiological charges], *Nezavisimoye Voennoye Obozrenie*, 30 July 2004.

weapon systems, while the defence scientific-industrial corporations determine what is technologically possible within the given financial and time framework. At these initial stages, civilian involvement is minimal.

Various projects are incorporated into the 15-year 'Complex scientific research works' (Kompleksnye nauchno-issledovatel'skie raboty) plan.<sup>61</sup> On the basis of this plan, the 10-year State Programme of Armaments (Gosudarstvennyi Program Vooruzheniya, GPV) is elaborated with detailed technical tasks and financial provisions for a 5-year period.<sup>62</sup> Each year these documents are refined and corrected and then signed by the president. All of the documents are top secret: neither the interested public nor independent experts have access. Members of Parliament may read them, but if they are not experts themselves they cannot get any detailed information from independent specialists, since the parliamentarians have no right to reveal this information publicly even at the budget sessions of the Duma.

When testing and procurement decisions are to be taken, which imply much greater expenditure and commitments, the role of the presidential administration and the cabinet becomes bigger relative to that of the military, defence industries and other organizations such as the State Atomic Energy Corporation (Rosatom). On the basis of the GPV, cabinet resolutions allocate financial resources through the MOD to particular industrial corporations and armed services and their branches that are responsible for any given weapon system development. This serves as a basis for the State Defence Order (Gosudarstvennyi Oboronnyi Zakaz, abbreviated as Gosoboronzakaz or GOZ), which is a secret appendix to the annual federal budget.<sup>63</sup> At this point the Defence Department of the Ministry of Finance, through its funding allocation and quotas, acquires an important role in setting the pace of a given weapon system's further evolution. However, it has the role of financial management, rather than that of analysing arms programmes and making recommendations on their merits. Most experts in this department are former members of the military, who retain close ties with their respective service branches and in many cases lobby for that branch's interests within the set budgetary limitations.

In terms of parliamentary oversight of this process, the Duma that was elected in 2007 is even less capable or willing to either seriously supervise or challenge nuclear policy than the previous Dumas of 1993 to 2003. The mass media, independent experts and research centres may discuss what-

<sup>61</sup> Larchenkova (note 42); and Solovyov, V., Ivanov, V. and Myasnikov, V., 'Ne v raketakh cila, a v "umnoi nachinke"' ['The power not in missiles, but in their "smart content"'], *Nezavisimoye Voennoye Obozrenie*, 20 Feb. 2004.

<sup>62</sup> Cooper, J., 'Developments in the Russian arms industry', *SIPRI Yearbook 2005: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2005), pp. 441–44.

<sup>63</sup> Cooper (note 62).

ever information is leaked from the executive or legislative branches, but this discussion does not appear to affect nuclear policy and programmes in any serious way.<sup>64</sup> Public discussion of defence problems on television is largely curtailed—primarily because a number of experts and journalists were prosecuted and sentenced for ‘disclosure of state secrets’. In newspapers and specialized journals there is no formal limitation on discussing nuclear weapon programmes, but both editors and authors have become much more cautious about publishing studies which probe beneath the surface of Russian nuclear systems for fear of having problems with security agencies. NGOs and the academic community, apart from becoming more reluctant to deal with nuclear weapon-related issues, try to play it safe by hiring secret service or military cadres as consultants or full-time employees and involving them and their professional contacts for additional protection. The courts usually issue arrest orders and prolong terms of imprisonment for as long as it takes to complete investigations. After that, the courts, including in the case of jury trials, may issue sentences for many years in jail. This is probably the only role that the judiciary branch plays in nuclear policymaking.

### **Doctrine and strategy**

Similar to nuclear weapon development, nuclear doctrine and strategy are the domain of the military with only marginal input from political leaders and the expert community. As of 2010, the 2003 document ‘Immediate tasks for the development of the armed forces of the Russian Federation’ represents Russia’s official doctrine and strategy.<sup>65</sup> Informally referred to as ‘the white book of the MOD’, the document formulates the central aim of strategic deterrence: ‘Prevention of any pressure by force or aggression against Russia or its allies, and in case of aggression—assured defence of its sovereignty, territorial integrity and other vital national interests of Russia or its allies’. In peacetime, the goals of strategic deterrence are defined as ‘preventing pressure by force or aggression against Russia or its allies’; in wartime ‘a de-escalation of aggression: stopping military actions on conditions acceptable to Russia; inflicting the designed level of damage on the opponent’.<sup>66</sup>

<sup>64</sup> As for the defence policy in general, NGOs and public opinion may have greater impact on some issues and affect the Duma (e.g. the issues of draft, military pensions, military benefits, housing certificates etc.).

<sup>65</sup> This document develops and details the military doctrine approved by Putin in 2000, which had replaced the doctrine approved by Yeltsin in 1993. Russian Ministry of Defence (note 40); ‘Voyennaya Doktrina Rossiyskoy Federatsii’ [Military doctrine of the Russian Federation], *Nezavisimaya Gazeta*, 21 Apr. 2000; and ‘Osnovnyye polozheniya voyennoy doktriny Rossiyskoy Federatsii’ (note 22).

<sup>66</sup> Russian Ministry of Defence (note 40), section VI (author’s translation).

The 'designed level of damage' means 'subjectively unacceptable damage for the enemy, which is higher than the gains expected from the use of force by the enemy'.<sup>67</sup> Despite this vague criterion, the noteworthy point here is the shift from cold war concepts of unacceptable damage and crushing retaliation. For the first time limited nuclear-strike options are mentioned in the white book.

In 2009 the president officially approved the National Security Strategy of the Russian Federation.<sup>68</sup> Although quite controversial and eclectic, it reconfirms the key role of nuclear weapons in ensuring Russia's national security and revives the notion of strategic parity with the USA as a criterion of sufficiency. At the same time, reflecting some civilian input, it endorses the negotiations and agreements on nuclear arms reduction and disarmament as consistent with Russia's national interests.<sup>69</sup> In early 2010 a new military doctrine was approved, but its section on nuclear weapons did not introduce anything new compared to the 2000 document.<sup>70</sup>

With respect to declaratory doctrine and strategy, no contribution has been made from either the Parliament or the independent expert community, although some deputies and specialists may have been consulted on an individual basis. In mass media (except television) and professional publications, the issues of nuclear strategy can be discussed in broad terms and often at a relatively high level of competence. However, Russia still lags far behind the West, in particular the UK and the USA, regarding the availability of open official information on nuclear strategy and forces.

As in the past, the 'Plan of Combat Employment of the [Strategic Nuclear Forces]' and target lists are elaborated by the Operational Directorate of the General Staff in cooperation with operational departments of the armed forces. There is neither outside input nor democratic accountability on these matters. As for civilian control, the president and the minister of defence are always informed about these plans (although in just how much detail is unknown). However, neither the president nor the minister has his own staff to assess these issues and, in view of their technical complexity, both have only a formal, but not direct working-level control over policy-

<sup>67</sup> Russian Ministry of Defence (note 40), section VI (author's translation).

<sup>68</sup> Russian Security Council, 'Natsional'noy byezopasnosti Rossiyskoi Federatsii do 2020 goda' [National Security Strategy of the Russian Federation until 2020], Presidential Decree no. 537, 12 May 2009, <<http://www.scrf.gov.ru/documents/99.html>>.

<sup>69</sup> Russian Security Council (note 68).

<sup>70</sup> At the same time Medvedev signed the doctrine, he 'also signed "The foundations of state policy in the area of nuclear deterrence until 2020", which has not yet been made public'. Sokov, N., 'The new, 2010 Russian Military Doctrine: the nuclear angle', James Martin Center for Non-proliferation Studies, Monterey, CA, 5 Feb. 2010, <[http://cns.miis.edu/stories/100205\\_russian\\_nuclear\\_doctrine.htm](http://cns.miis.edu/stories/100205_russian_nuclear_doctrine.htm)>; and note 65. For the official Russian text of the 2010 Russian Military Doctrine see <[http://news.kremlin.ru/ref\\_notes/461](http://news.kremlin.ru/ref_notes/461)> and for an unofficial English translation see <<http://worldpoliticsreview.com/documents/show/133>>.

making regarding nuclear doctrine and strategy. This lack of direct involvement has a bearing on the question of civilian control and democratic accountability of nuclear weapon employment strategy.

### **Nuclear forces employment**

An analysis of the 'nuclear briefcase' sheds light on the process of nuclear weapon employment in Russia. The nuclear briefcase is the portable terminal of the supreme national authority command-and-control system for use of the strategic nuclear forces. Both in the USA in the early 1960s and in the Soviet Union in the early 1980s, these mobile devices were created to preserve the authorization of nuclear strike in the hands of the top leader. The devices were designed to receive information about nuclear attack from early-warning systems and, after the decision to launch nuclear weapons was made by the leader, to transmit the coded message through relay links to central command posts, where it would be transmitted to strategic missiles in launch bunkers, submarines at sea and bombers at the airfields or on air patrol. The idea was to combine assured presidential control with the cold war hair-trigger alert nuclear postures of the superpowers.

The Russian system, named Kazbeck, which was commissioned in 1981 and fully operational in 1984, consists of three subsystems: Krokus (for the reception of early-warning signals), Kavkaz (for the processing and verification of the attack information) and Cheget (the 'nuclear briefcase').<sup>71</sup> The principal difference from the US system is that Russia has three permanently operational 'briefcases', one each in the possession of the president, the minister of defence and the chief of the general staff.<sup>72</sup>

However, the operational procedures surrounding these three nuclear briefcases are not known. Some experts believe that if nuclear attack information is received, all three individuals are to hold a conference through their 'briefcases'. However, the likelihood that all three would cooperatively send a coded message to give nuclear strike authorization is highly improbable. Some experts believe that this means the three devices are redundant and each of them can give the 'go' signal to the main and backup command centres of the General Staff, the SRF, the navy and the air force. Some experts suggest that the briefcase system routinely works in a passive mode, meaning that the entire system must be first put on alert before the president is able to command the use of nuclear weapons. The participation of the General Staff and the Ministry of Defence are imperative as

<sup>71</sup> Ishchenko, S., 'Chemodanchik nomer odin' [Briefcase number one], *Trud*, 11 Jan. 2000.

<sup>72</sup> Safranchuk (note 39). In the USA there is only 1 operational 'briefcase' at all times near the president. See chapter 2 and 'The football', [globalsecurity.org](http://www.globalsecurity.org/wmd/systems/nuclear-football.htm), [n.d.], <<http://www.globalsecurity.org/wmd/systems/nuclear-football.htm>>.



they provide a critical built-in check in the command and control system and as a precaution against a possible reckless president.<sup>73</sup> However, it is not clear whether the system is fail-safe from the action of reckless military commanders.

Some past incidents highlight the role of the military in commanding nuclear forces. For example, during the putsch of August 1991, Gorbachev was deprived of his 'briefcase' by force in his Crimea residence in Faros, while the minister of defence, Dmitry Yazov (one of the putsch leaders), lost his briefcase in the turmoil. However, there was little concern expressed in Russia about this situation since the General Staff remained firmly in command of the strategic nuclear forces. An attempt by some Duma deputies in 2002 and 2003 to introduce a draft law 'On the Succession of Supreme Command' with a list of presidential successors received neither support nor understanding within the legislature or executive.<sup>74</sup>

The Kazbeck system is designed to guarantee the authorization to launch strategic nuclear forces under the worst circumstances—even if two of the three briefcase holders are incapacitated. This is called assured positive control. Civilian supremacy—that of the president, if he is a civilian—in taking this decision is considered desirable, but not absolutely necessary. The emphasis is on the decision-making centralization, which is adequate, but not on civilian control of nuclear weapons, which is inadequate—at least as long as Russia aspires to be considered a democratic state.

## VI. Conclusions

Of all areas of policy of the Russian state, except the activities of the secret services, the sphere of defence—specifically nuclear weapons—is the least influenced by civilian control and democratic accountability.

The ambiguous nature of civilian control of nuclear weapons and the weakness of their democratic accountability in contemporary Russia is extremely detrimental to Russia's own defence and security and may also be detrimental to international security. This fact is seemingly understood by neither the political leaders nor the public at large. The democratic control of nuclear weapons, to the extent that it is achievable in view of the unique nature of this class of weapon, is only possible as a last step in the broader democratization of the Russian state system and everyday political practices in general and, in particular, of Russian defence and security policies. Taking into account Russia's historical traditions, the disappointing legacies of the 1990s and current trends, such an objective could take

<sup>73</sup> Sokov (note 24).

<sup>74</sup> Alexei Arbatov (the author of this chapter) and Sergei Ivanenko were the deputies attempting to introduce this draft law.

decades to accomplish. Nonetheless, the genuine improvement of relations between Russia and the West, broad cooperation on major issues of international security and successful disarmament negotiations, in addition to enhancing common security, would greatly accelerate the process of achieving greater democratic control of nuclear weapons.

Soviet nuclear policymaking was based on a strong and orderly state system, lavished with abundant resources and lacking civilian control and democratic accountability. Post-Soviet Russian nuclear policymaking has far fewer resources and is very little, if at all, affected by real civilian control and democratic accountability. This is producing an unstable and inefficient nuclear posture which within a decade may be much less able to provide for robust deterrence, strategic stability and international security.

President Dmitry Medvedev, elected in March 2008, has not, to date, changed Russia's nuclear posture and programmes in any way. All the *siloviki*—officials from the military and security services—previously appointed by Putin have kept their positions under Medvedev, which reflects the powers retained by Putin as prime minister. Nuclear governance remains largely exempt from genuine civilian control and democratic accountability, and the decision-making process has shifted to favour the greater actual authority of the prime minister.

At the same time, the Obama Administration may make a great difference regarding the direction of Russia's nuclear policy. The revival of US enthusiasm for eventual nuclear disarmament and Russian-US negotiations on a follow-up agreement to START I, as well as the USA's revision of its nuclear posture and BMD programme may seriously affect Russia's future strategic force levels, modernization programmes and nuclear doctrine. It has already had an impact by inducing the Russian Government to publicly reconfirm its allegiance to the idea of an eventual nuclear weapon-free world.

In a more general sense, Russian security would be better served by a profound reformation of its policymaking process. Such reforms would include providing more official information on nuclear forces, armament programmes, financial appropriations, strategic concepts and operational planning to the Parliament, the academic community, NGOs and independent experts. The Ministry of Defence must be strengthened and staffed with civilian and military experts subordinated only to the minister of defence. Those experts would provide critical cost-effectiveness analysis and functional-programming assessment of the proposals of the General Staff, armed services and defence industries. The whole Kazbek system should be revised, leaving only one briefcase device with the president and putting an emphasis on negative controls to reduce the risks of inadvertent or unauthorized use of nuclear weapons.

In the absence of independent unbiased scrutiny of the system and pre-planned procedures, there can be no certainty that all nuclear endgame scenarios have been realistically taken into account, that all possible mishaps have been covered by the bureaucracy, or that the priorities of negative and positive control have been set properly. The growing vulnerability of Russia's strategic force to US nuclear and conventional forces, the possible expansion of US BMD systems and global nuclear arms proliferation could threaten the eruption of inadvertent nuclear war as a consequence of a hair-trigger alert nuclear posture.

However, it is clear that the introduction of risk-reduction mechanisms including a greater degree of democratic accountability over nuclear weapon decisions does not fit with the current mainstream of Russian politics and the apparent direction of the state decision-making system. Such reforms depend in large part on the more general democratization of the Russian political system. This is advocated by President Medvedev, but it may take many years to happen.

Nonetheless, there is a possibility of effecting a 'short circuit' and achieving tangible results in this area much earlier, even before creating a comprehensive democratic system of checks, balances and controls over state defence and security policy. By radically expanding negotiations and agreements on nuclear arms control, disarmament and non-proliferation with the USA and other relevant countries, democratic control over nuclear weapons could be 'kick-started'.

Profound positive revision of NATO and US foreign, military and disarmament policies may deeply, but gently, affect Russian defence policy-making, nuclear posture and weapon programmes. It was not a coincidence that meaningful civilian involvement in nuclear weapon-related matters occurred in 1986–91 and 1997–99—periods of intense Russian–Western arms control engagements.

In the past, civilian involvement was not institutionalized but was rather informal and based on ad hoc practice. However, if the international system is able to move to a more stable and peaceful situation, one in which arms control is a central feature, then civilian control and democratic accountability over nuclear weapon matters in Russia may acquire a more regular and structured shape. Broadly speaking, further arms limitation and reduction processes and the improvement of economic, political and security relations between Russia and the West are essential for strengthening democratic political norms and institutions in Russia.

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## 4. The United Kingdom

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JOHN SIMPSON AND JENNY NIELSEN\*

### I. Introduction

The degree of democratic accountability and civilian control over nuclear weapons in the United Kingdom has steadily increased in recent years. This has been the product of the interaction of two sets of independent variables: the attitude of the party in power towards nuclear weapons and disarmament, and the international context within which British defence and foreign policies operate. Domestic drivers of British nuclear weapon governance have included the lack of a written constitution, the formally unconstrained powers of the British prime minister, the changes in threat perceptions, the perceived technical vulnerabilities of British nuclear delivery systems and the existence of US nuclear weapon systems in the UK. External drivers have included the UK's participation in a range of bilateral and regional alliance structures—in particular the mutual defence and extended deterrence relationship with the United States—and the evolution of nuclear governance and arms control arrangements.

The core of British nuclear weapon policies, however, has been their perceived political value in sustaining the UK's wide-ranging security relationship with the USA. The political assignment of British strategic nuclear missiles and their warheads (but not their delivery platforms) to the North Atlantic Treaty Organization (NATO) Supreme Allied Commander Europe (SACEUR) in the event of hostilities in Europe has played a significant role in this. Yet at the same time, the UK has sought to sustain an independent ability to use nuclear weapons, to generate both deterrent effects and political leverage in nuclear-related negotiations. The result in terms of hardware and procurement policies has been a unique mixture of technological independence in the design, manufacture and support infrastructure for nuclear warheads, coupled with dependence on the USA for the procurement of delivery systems and some weapon materials. Section II of this chapter outlines the UK's current nuclear weapon position by describing its nuclear history, force structure and posture, and command-and-control arrangements. Section III examines the various domestic structures and processes of British nuclear weapon governance (e.g. executive, legislative,

\* The authors are indebted to the inputs of the late Ian Kenyon into the writing of this chapter and for participating in the original meeting that launched the concept of this book.

civil society etc.), while section IV provides an overview of the various international factors involved in that governance. Section V offers some brief conclusions.

## II. The United Kingdom and nuclear weapons<sup>1</sup>

### A brief nuclear history of the United Kingdom

On 3 October 1952 the UK tested its first nuclear device, and thus became an independent nuclear weapon state.<sup>2</sup> It has possessed operational nuclear weapon systems since 1956, and through its airborne nuclear forces it posed a credible national countervalue threat to a number of Soviet cities by 1957.<sup>3</sup> The USA started to stockpile non-nuclear components for its weapon systems in the UK in 1949 and complete operational nuclear weapons in 1952. In addition, in 1957 the USA agreed through bilateral and multilateral arrangements to provide the UK with wartime access to some of its UK-based nuclear weapons.<sup>4</sup> In August 1958 the UK and the USA began nuclear weapon design and material interchanges through successive multi-year mutual defence agreements (MDAs).<sup>5</sup> This led to the

<sup>1</sup> For a detailed assessment of defence and nuclear decision-making processes see Cox, A. and Kirby, S., *Congress, Parliament and Defence: The Impact of Legislative Reform on Defence Accountability in Britain and America* (Macmillan: Basingstoke, 1986). On accountability and transparency of British Government processes see Hansard Society for Parliamentary Government, Commission on Parliamentary Scrutiny, *The Challenge for Parliament: Making Government Accountable* (Vacher Dod: London, 2001). On British nuclear weapons and defence policy analysis see Quinlan, M., 'Democratic control of nuclear forces: a United Kingdom perspective', Paper given at the conference on Governing Nuclear Weapons: Addressing Political Control, Military Prerogatives and Scientific Lobbies, Johns Hopkins University-SAIS, Washington, DC, 11 Apr. 2005, <[http://www.dcaf.ch/news/civnuc\\_wash0405/papers/Quinlan.pdf](http://www.dcaf.ch/news/civnuc_wash0405/papers/Quinlan.pdf)>; Moore, R., *Nuclear Illusion, Nuclear Reality: Britain, the United States and Nuclear Weapons, 1958–64* (Palgrave Macmillan: Basingstoke, 2010); and Mackby, J. and Cornish, P. (eds), *US–UK Nuclear Cooperation After 50 Years* (CSIS Press: Washington, DC, 2008). On command-and-control arrangements see Hennessy, P., *The Secret State: Whitehall and the Cold War* (Penguin: London, 2003); and Twigge, S. and Scott, L., *Planning Armageddon: Britain, the United States and the Command of Western Nuclear Forces, 1945–1964* (Harwood Academic Press: Amsterdam, 2000).

<sup>2</sup> According to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT), only states that manufactured and exploded a nuclear device prior to 1 Jan. 1967 are recognized as nuclear weapon states. China, France, Russia, the UK and the USA are the 5 nuclear-armed states party to the NPT. Israel, India and Pakistan are nuclear-armed states that remain outside the NPT. Treaty on the Non-Proliferation of Nuclear Weapons, opened for signature on 1 July 1968, entered into force on 5 Mar. 1970, <<http://www.iaea.org/Publications/Documents/Treaties/npt.html>>.

<sup>3</sup> Twigge and Scott (note 1).

<sup>4</sup> E.g. prior to the UK's own nuclear weapons becoming available, the USA provided nuclear weapons to the Royal Air Force and Royal Navy under Project E and Project N, respectively. See Ball, S. J., 'Military nuclear relations between the United States and Great Britain under the terms of the McMahon Act, 1946–1958', *Historical Journal*, vol. 38, no. 2 (June 1995), pp. 439–54; and Young, K., 'A most special relationship: the origins of Anglo-American nuclear strike planning', *Journal of Cold War Studies*, vol. 9, no. 2 (spring 2007), pp. 3–18.

<sup>5</sup> The MDAs do not allow the UK to buy complete nuclear weapons from the USA. Simpson, J., *The Independent Nuclear State: The United States, Britain and the Military Atom* (Macmillan: London, 1983),

British manufacturing of a version of the US B28-warhead and the purchase of a Westinghouse submarine reactor for the HMS *Dreadnought*, the UK's first nuclear-powered attack submarine (SSN).<sup>6</sup>

In 1962, through the Nassau Agreement, the USA agreed to sell the UK its Polaris submarine-launched ballistic missiles (SLBMs) for service on British nuclear-powered ballistic missile submarines (SSBNs) of the same name. from 1968 onwards with the proviso that the USA should be consulted (if possible) before its use, just as the USA was required to consult the UK before the use of US weapons stockpiled in the UK.<sup>7</sup> Although Polaris was assigned to SACEUR in peacetime, it was also available for independent national use (or non-use) 'where [the British] government may decide that supreme national interests are at stake'.<sup>8</sup>

By 1965, however, the vulnerability of the UK's prospective Polaris warheads to the Soviet Union's developing anti-ballistic missile capabilities had become a major concern for the British intelligence and nuclear communities. Over the next 15 years, development work on a new Polaris re-entry system, involving a hardened warhead and its associated penetration aids and decoys, designed to overcome Soviet missile defences, took place in secret. The decision to develop and deploy this system, codenamed Chevaline, was not revealed to the Parliament until January 1980.<sup>9</sup> In contrast, the decision later that year to procure the Trident system for service from the mid-1990s onwards and the later decision to change from the C4 to the larger and longer-ranged D5 Trident missile were published and documented in detail by the British Ministry of Defence (MOD). Subsequently, Trident's progress was closely monitored by the House of Commons Defence Select Committee (HCDC).<sup>10</sup>

pp. 111–52; British–US Agreement for Co-operation on the Uses of Atomic Energy for Mutual Defence Purposes, signed 3 July 1958, entered into force 4 Aug. 1958, *Treaty Series no. 41*, Cmnd 537 (Her Majesty's Stationery Office: London, 1958); Mackby and Cornish (note 1); and Moore (note 1).

<sup>6</sup> Moore, R., 'British nuclear warheads design 1958–66: how much American help?', *Defence Studies*, vol. 4, no. 2 (summer 2004), pp. 207–28; and Moore (note 1).

<sup>7</sup> The Nassau Agreement was signed on 18 Dec. 1962 by US President John F. Kennedy and British Prime Minister Harold Macmillan. The terms of the agreement were finalized in the Polaris Sales Agreement that was signed on 6 Apr. 1963.

<sup>8</sup> *Polaris Sales Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the United States of America*, Cmnd 1995 (Her Majesty's Stationery Office: Washington, DC, 6 Apr 1963).

<sup>9</sup> Panton, F. 'The unveiling of Chevaline: House of Commons Public Accounts Committee 1981–2' and Panton, F. 'Polaris improvements and the Chevaline System 1967–1975/6', *Prospero*, no. 1 (spring 2004), Proceedings from the British Rocket Oral History Conferences at Charterhouse.

<sup>10</sup> The UK's legislative body is a bicameral parliament. Its upper house is the House of Lords, and its lower house is the House of Commons. The HCDC is comprised of 14 members of the House of Commons, drawn from the 3 largest political parties. It is responsible for monitoring and holding to account the MOD and its associated public bodies, including the armed forces, on behalf of the House of Commons and the people who elect its members. See section III of this chapter for details on the structures and processes of the British Government.

With the collapse of the Soviet Union in 1991, the UK started to dismantle its remaining stockpile of air-delivered nuclear gravity bombs, which at its height had comprised over 200 operational weapons, with some stockpiled in Cyprus and Singapore. The USA also drew down its nuclear weapon stocks in Europe, including eliminating all those earmarked for use by British delivery systems.<sup>11</sup> The Polaris SSBNs and their missiles and warheads were decommissioned in 1995, once the first two of four replacement Trident submarines were at sea. The remaining British-owned gravity bombs were decommissioned in 1998, being nominally replaced in their NATO roles by warheads carried on Trident submarines.<sup>12</sup>

### **Current nuclear capabilities**

The July 1998 Strategic Defence Review (SDR), the July 2002 ‘new chapter’ to the 1998 SDR and subsequent Defence white papers set out the UK’s evolving post-cold war security policy.<sup>13</sup> The maintenance of a ‘minimum nuclear deterrent’ has been at its core. In 1999 Geoffrey Hoon, the secretary of state for defence, described the policy as a ‘coherent, moral and military sound contribution to British security’.<sup>14</sup> The 1998 SDR indicated that ‘the relaxation of tension and vast improvement in current strategic conditions since the end of the Cold War’ allowed the UK to adopt ‘a reduced day-to-day alert state’.<sup>15</sup> This involved having ‘only one submarine on patrol at a time, carrying a reduced load of 48 warheads’, while ‘the submarine’s missiles will not be targeted and it will normally be at several days “notice to fire”’.<sup>16</sup> The 2003 white paper confirmed the continued relevance of the

<sup>11</sup> Kristensen, H. M., *U.S. Nuclear Weapons in Europe: A Review of Post-Cold War Policy, Force Levels, and War Planning* (Natural Resources Defense Council: Washington, DC, Feb. 2005).

<sup>12</sup> Jones, P., ‘Overview of the history of UK strategic weapons’, Symposium on The History of the UK Strategic Deterrent, Royal Aeronautical Society, London, Mar. 1999; and Butler, N. and Bromley, M., ‘Secrecy and dependence: the UK Trident system in the 21st century’, British American Security Information Council, Research Report no. 2001.3, Nov. 2001, <<http://www.basicint.org/pubs/Research/UKtrident.pdf>>, p. 16.

<sup>13</sup> British Ministry of Defence, *The Strategic Defence Review*, Cm 3999 (The Stationery Office: Norwich, July 1998); and British Ministry of Defence, *The Strategic Defence Review: A New Chapter*, Cm 5566, vol. I (The Stationery Office: Norwich, July 2002).

<sup>14</sup> British Ministry of Defence, Cm 3999 (note 13), para. 60; and Hoon to Lord Murray, 3 Nov. 1999, quoted in *Tri-Denting It Handbook: An Open Guide to Trident Ploughshares*, 3rd edn (Angie Zelter and Trident Ploughshares: Norwich, 2001).

<sup>15</sup> British Ministry of Defence, Cm 3999 (note 13), para. 66.

<sup>16</sup> On the UK’s nuclear forces see appendix A in this volume. Although the number of warheads deployed on each Trident missile has continued to be withheld, the ceiling figure of 48 warheads per submarine was reaffirmed on 1 Feb. 2002 when Hoon stated that ‘when on deterrence patrol, Trident submarines carry 48 nuclear warheads’. British House of Commons, Written answers, ‘Nuclear weapons’, *Hansard*, 31705, column 598W, 1 Feb 2002; and British Ministry of Defence, Cm 3999 (note 13), paras 67–68.

UK's Trident force by emphasizing 'the continuing role of nuclear weapons as the ultimate guarantor of the UK's national security'.<sup>17</sup>

On 4 December 2006, following his victory in the 2005 general elections, Prime Minister Tony Blair announced to the House of Commons his government's policy decisions regarding the future of the British nuclear deterrent force and the anticipated retirement dates of the existing submarine platforms.<sup>18</sup> The Foreign and Commonwealth Office (FCO) and the MOD jointly published a white paper that explained why it had been decided to extend the life of the existing nuclear deterrent system by building a fleet of replacement missile submarines for service in the 2020s.<sup>19</sup> The paper also outlined the relevant operational, industrial and financial aspects of the decision, and indicated that in the future the UK would deploy fewer than 160 operational warheads on its existing submarines.

The 2006 white paper was explicit in its justification of the submarine replacement decision. The threats that necessitated the maintenance of the UK's independent nuclear weapon programme were: (a) the possible re-emergence of a 'major direct nuclear threat to the UK's vital interests'; (b) the emergence of new states 'that possess a more limited nuclear capability, but one that could pose a grave threat to our vital interests'; (c) the potential sponsorship by some states of nuclear terrorism; (d) the continued proliferation risks posed by states having the capability to rapidly develop and manufacture ballistic missile technology, large scale chemical and biological weapons and 'the technical ability and means to initiate a viable nuclear weapons programme'; and (e) the threat posed by 'the certainty that a number of other countries will retain substantial nuclear arsenals' some of which 'are being modernised'.<sup>20</sup> Blair admitted that the decision to sustain the UK's nuclear weapon capability was based on the British Government's 'judgement' about potential future threats to the UK and he argued that 'anyone can say that the prospect of Britain facing a threat in which our nuclear deterrent is relevant, is highly improbable. No-one can say it is impossible'.<sup>21</sup>

In contrast to previous nuclear procurement decisions, there were parliamentary debates in early 2007 and a House of Commons vote on 14 March 2007 on the Trident replacement decision.<sup>22</sup> Despite internal dis-

<sup>17</sup> British Ministry of Defence, *Delivering Security in a Changing World*, Cm 6041-I (The Stationery Office: Norwich, Dec. 2003), p. 9, para. 3.11.

<sup>18</sup> For the full text of Blair's statement see 'Parliamentary statement on Trident', 4 Dec. 2006, <<http://www.pm.gov.uk/output/Page10532.asp>>.

<sup>19</sup> British Ministry of Defence and British Foreign and Commonwealth Office, *The Future of the United Kingdom's Nuclear Deterrent*, Cm 6994 (The Stationery Office: Norwich, Dec. 2006).

<sup>20</sup> British Ministry of Defence and the British Foreign and Commonwealth Office (note 19), pp. 6, 12, 14.

<sup>21</sup> Parliamentary statement on Trident (note 18).

<sup>22</sup> 'Trident plan wins Commons support', BBC News, 15 Mar. 2007, <<http://news.bbc.co.uk/2/hi/6448173.stm>>.



agreement within the Labour Party, the Labour government won the vote thanks to support from opposition Conservative members of Parliament. However, the victory required commitments to hold further debates on the policy as procurement milestones, especially on missiles and warheads, were reached.

The Trident decision was followed by a systematic attempt by Blair and his successor, Gordon Brown, to engage in well-publicized actions intended to promote global disarmament, and thus to pursue a dual strategy of arming and disarming in parallel.<sup>23</sup> In September 2009, in addition to supporting the unanimous United Nations Security Council Resolution 1887 in support of strengthened non-proliferation and disarmament efforts, Brown gave a speech to the UN General Assembly on global security challenges, in which he reiterated the British Government's willingness to consider 'the potential future reduction' of the British nuclear submarine fleet from four to three submarines.<sup>24</sup>

In June 2004 NATO stated that the readiness level of 110 US gravity bombs stored at the Royal Air Force (RAF) base in Lakenheath for use by US aircraft had been reduced to 'months', and it was reported that the nuclear-capable F-15s stationed at Lakenheath might be withdrawn.<sup>25</sup> In 2005 it was reported that these bombs were probably still stored at the Lakenheath base.<sup>26</sup> In June 2008 no attempt was made to deny a report that all the US nuclear gravity bombs stored in the UK had been repatriated.<sup>27</sup> Thus, the 60-year history of the storage of US nuclear weapons in the UK had come to an end.

<sup>23</sup> See e.g. Becket, M., 'A world free of nuclear weapons?', Keynote address at the Carnegie International Nonproliferation Conference, Washington, DC, 25 June 2007, <<http://www.carnegieendowment.org/events/?fa=eventDetail&id=1004>>; Browne, D., 'Laying the foundations for multilateral disarmament', Speech at the Conference on Disarmament, Geneva, 5 Feb. 2008, <<http://www.mod.uk/defenceinternet/aboutdefence/people/speeches/sofs/20080205layingthefoundationsformultilateraldisarmament.htm>>; British Foreign and Commonwealth Office, 'Lifting the nuclear shadow: creating the conditions for abolishing nuclear weapons', Policy Information Paper, Feb. 2009, <<http://www.fco.gov.uk/en/global-issues/weapons/nuclear-weapons/disarmament/lifting-the-nuclear-shadow>>; Brown, G., Speech on nuclear energy and proliferation at the International Nuclear Fuel Cycle Conference, London, 17 Mar. 2009, <<http://www.number10.gov.uk/Page18631>>; and British Cabinet Office, *The Road to 2010: Addressing the Nuclear Question in the Twenty First Century*, Cm 7675 (The Stationery Office: Norwich, July 2009).

<sup>24</sup> UN Security Council Resolution 1887, 24 Sep. 2009; and Brown, G., Speech at the United Nations General Assembly, General Debate of the 64th Session, New York, 23 Sep. 2009, <<http://www.un.org/ga/64/generaldebate/GB.shtml>>.

<sup>25</sup> Kristensen (note 11), pp. 67–68.

<sup>26</sup> Kristensen (note 11).

<sup>27</sup> Kristensen, H. M., 'US nuclear weapons withdrawn from the United Kingdom', Federation of American Scientists Strategic Security Blog, 26 June 2008, <<http://www.fas.org/blog/ssp/2008/06/us-nuclear-weapons-withdrawn-from-the-united-kingdom.php>>.

## The United Kingdom's current nuclear posture

British nuclear weapons assigned to the NATO SACEUR fall under NATO's nuclear first-use policy despite the UK's conditional commitment through UN Security Council Resolution 984 not to launch nuclear attacks on non-nuclear weapon states party to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT).<sup>28</sup> The Labour Party was committed to a no-first-use policy before the 1997 election, but abandoned this pledge when in office. In 1998 Tony Lloyd, an FCO minister, stated that the British Government did not 'consider at the moment that there is a direct threat to Britain's national security on that basis where a nuclear response would be either commensurate or logical, so the Negative Security Assurances are perfectly consistent with our present levels of national security'.<sup>29</sup> However, he also remarked that a state in breach of the NPT would lose its assurances.<sup>30</sup>

By 2002 this policy of proportionality no longer appeared to be part of the government's nuclear posture. In that year the secretary of state for defence, Geoffrey Hoon, asserted that British nuclear weapons were 'a deterrent of last resort' only usable 'ultimately and in conditions of extreme self-defence'.<sup>31</sup> However, this did not appear to exclude using nuclear weapons in response to a chemical and biological attack on British troops deployed abroad.<sup>32</sup> Moreover, in 2002 as the issue of Iraqi weapons of mass destruction became more salient, Hoon informed the HCDC that an enemy 'can be absolutely confident that in the right conditions [the British Government] would be willing to use our nuclear weapons'.<sup>33</sup> In 2004, responding to a parliamentary question on circumstances for use, Hoon argued that 'to answer such questions would be to give away an important aspect of deterrence', and 'no defence minister ever answers questions such as that'.<sup>34</sup>

<sup>28</sup> UN Security Council Resolution 984, 11 Apr. 1985; British House of Commons, 'Defence (nuclear deterrent and Nassau Agreement)', Orders of the day, *Hansard*, vol. 702, cc919–1041, 23 Nov. 1964; '1962: America to sell Polaris to Britain', BBC News, On this day, <[http://news.bbc.co.uk/onthisday/hi/dates/stories/december/21/newsid\\_3815000/3815251.stm](http://news.bbc.co.uk/onthisday/hi/dates/stories/december/21/newsid_3815000/3815251.stm)>; and 1968 Treaty on the Non-Proliferation of Nuclear Weapons (note 2).

<sup>29</sup> British House of Commons, Defence Committee, *The Strategic Defence Review*, vol. 3, 'Minutes of evidence and memoranda', 8th report of session 1997–98 (The Stationery Office: London, 10 Sep. 1998), question 2848.

<sup>30</sup> British House of Commons (note 29), question no. 2851.

<sup>31</sup> British House of Commons, 'Oral answers to questions: Iraq', *Hansard*, 29 Apr. 2002, column 665.

<sup>32</sup> Hoon made several statements in Mar. and Apr. 2002 confirming the plausibility of such a response. See British House of Commons (note 31).

<sup>33</sup> British House of Commons, Defence Committee, *Missile Defence*, vol. 2, 'Minutes of evidence and appendices', 1st report of session 2002–2003 (The Stationery Office: London, 3 Feb. 2003), question no. 237.

<sup>34</sup> British House of Commons, 'Oral answers to questions: defence', *Hansard*, 21 Oct. 2004, column 1060.

The 2006 white paper adopted a similar posture of public ambiguity over the conditions and circumstances that would warrant the use of British nuclear weapons by arguing that ‘we deliberately maintain ambiguity about precisely when, how and at what scale we would contemplate use of our nuclear deterrent’ in order to ‘not simplify the calculations of a potential aggressor by defining more precisely the circumstances in which we might consider the use of our nuclear capabilities’.<sup>35</sup> Other statements asserted that ‘we would only consider using nuclear weapons in self-defence (including the defence of our NATO allies), and even then only in extreme circumstances’ and that the UK ‘will not rule in or out the first use of nuclear weapons’.<sup>36</sup> These statements were based on the 1996 International Court of Justice (ICJ) advisory opinion that ‘rejected the argument that such use would necessarily be unlawful’.<sup>37</sup>

### **Command-and-control issues**

Information on command-and-control of Trident remains limited: non-disclosure on grounds of national security has been the norm. These issues along with targeting have presumably been discussed to some extent with NATO allies in NATO’s Nuclear Planning Group and in bilateral contexts. The degree to which British governments have committed the country to pre-planned actions through these channels also remains unclear, and little information exists on the process through which decisions would be taken to authorize the SACEUR to request use of British weapons in a NATO role.

When the issue of physical control of the UK’s own nuclear weapons started to be seriously addressed from 1957 onwards, detailed mechanisms were created to ensure that it would be the civilian leadership who would make decisions on use if retaliation had to be ordered under attack. Plans existed to remove the prime minister and senior colleagues to dispersed and protected locations.<sup>38</sup> Decisions would then be made by those who could communicate with both each other and the military chain-of-command. By the early 1960s, the warning time for an attack by the Soviet Union’s missile force was reduced to four minutes, and it was accepted that

<sup>35</sup> British Ministry of Defence and British Foreign and Commonwealth Office (note 19), p. 18, paras 3–4.

<sup>36</sup> British Ministry of Defence and British Foreign and Commonwealth Office (note 19), p. 14, paras 2–11.

<sup>37</sup> International Court of Justice, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, International Court of Justice Reports, 1996, p. 226.

<sup>38</sup> Hennessy (note 1); and Miall, H., *Nuclear Weapons: Who’s In Charge?* (Macmillan/Oxford Research Group: London, 1987), pp. 186–204.

decisions on retaliation under attack might have to be taken in practice by the senior surviving RAF officer in the military chain-of-command.<sup>39</sup>

Once the Polaris force became operational in 1969, the need for under-attack decision making became less pressing. Security within the submarine was sustained by ensuring that missiles could only be fired by turning multiple keys held by different officers on receipt of a command message.<sup>40</sup> In addition, a procedure existed for the prime minister to give pre-planned instructions to the captain of the submarine if all communications from the UK ceased.<sup>41</sup> These command-and-control arrangements were carried forward into the Trident fleet, but were reportedly reviewed after the 11 September 2001 terrorist attacks on the USA, when a deputy to the prime minister was nominated to be responsible for nuclear-use decisions if the prime minister was unable to act as a consequence of any attack on the UK.<sup>42</sup>

### III. The structure and processes of British nuclear weapon governance

Until the mid-1980s detailed information on the internal workings of, and debate within, the British Government in relation to its nuclear weapon policies was limited. The 30-year-rule governing the opening of official documents at the National Archives meant that detailed research material was only available up to the mid-1950s, the point at which British nuclear weapons first became operational.<sup>43</sup> However, the 1 January 2005 entry into force of the 2000 Freedom of Information Act (FOIA) has expanded the volume of material that is available on past British nuclear weapon procurement and policies.<sup>44</sup> The releases now include detailed documentation

<sup>39</sup> Hennessy (note 1), pp. 147–85.

<sup>40</sup> Hennessy (note 1).

<sup>41</sup> Hennessy claims that prime ministers John Major and Tony Blair covered the need to maintain civilian control from ‘beyond the grave’ by each writing 4 letters on entering office, 1 for each submarine captain. The letters were to be opened if British domestic radio stations had ceased transmission. The contents of Major’s envelopes allegedly gave the captain the discretion to place the submarine under the command of the USA; set sail for Australia; attack the state that had destroyed the UK; or make his own decision on what to do. As the letters are destroyed when the prime minister leaves office, this cannot be confirmed from material in the national archives. Hennessy (note 1), pp. 208–10.

<sup>42</sup> Hennessy (note 1), pp. 206–8.

<sup>43</sup> The ‘30-year-rule’ is in fact 2 rules that work together: (a) ‘The Public Records Act, which requires government departments to transfer records to The National Archives by the time they are 30 years old’, and (b) ‘The Freedom of Information Act, which requires most records to be released to the public by the time they are 30 years old.’ The National Archives of the UK is the government department under the Ministry of Justice that serves as the British Government’s archive. It joins 4 previously separate offices: the Public Record Office, the Royal Commission on Historical Manuscripts, Her Majesty’s Stationery Office and the Office of Public Sector Information. 30 Year Rule Review Organization, ‘Background’, <<http://www.30yearrulereview.org.uk/background.htm>>.

<sup>44</sup> Freedom of Information Act 2000 (c. 36), assented to on 30 Nov. 2000, entered into force from 30 Nov. 2005, <<http://www.opsi.gov.uk/acts/acts2000/ukpga.20000036.en.1>>.

up to 1980 and some specific post-1980 material. Some information on nuclear weapon policy is still withheld on grounds of national interest and for other reasons, as are materials requiring the agreement of other states for their release.

### **Democratic governance and future nuclear decision making**

The initial British decision to have a nuclear force was taken by a small group of key cabinet members in private, and British governments have continued to favour taking decisions through this process. Four major nuclear weapon procurement decisions have been taken since 1962: the acquisition of the Polaris force; the Chevaline upgrade of the Polaris re-entry vehicle; the acquisition of the Trident system; and the start of design work on new submarine platforms for the Trident missile. The first and third decisions were the subject of secret negotiations with the USA followed by a near immediate public announcement. The Chevaline decision, however, was taken in secret and its existence remained so for a decade and a half.

As explained above, the decision to replace Trident was taken in December 2006 in a manner that had no precedent in the UK for its transparency and the involvement of the Parliament. It was intended to be preceded by a series of hearings before the HCDC on future options for the nuclear deterrent force. However, these were pre-empted by the publication of the Blair Government's 2006 white paper.<sup>45</sup> The debates and vote in early 2007 that followed this publication marked a major shift towards enhancing official disclosure and public transparency over nuclear weapon issues. Moreover, the commitment to further parliamentary scrutiny of the subsequent stages of decision making in the renewal of the British nuclear deterrent force was equally unprecedented. However, if, as foreshadowed in the British-US exchange of letters related to the decision, future procurement activities are to be conducted jointly with the USA, it remains unclear just what ability the British Parliament will have in practice to influence these decisions.<sup>46</sup> It also depends on whether governments that gain power after the 2010 general election choose to follow the example set by their predecessors.

### **The British system of parliamentary governance**

The UK is rare among its democratic allies in having no written constitution. It is a constitutional monarchy governed by what is known as the

<sup>45</sup> British Ministry of Defence and British Foreign and Commonwealth Office (note 19).

<sup>46</sup> Hennessy, P. (ed.), *Cabinets and the Bomb*, British Academy Occasional Papers no. 11 (Oxford University Press: Oxford, 2007).

Westminster System, where the hereditary sovereign (the ‘Crown’) is the head of state and the armed forces owe their allegiance to him or her. Formally, the sovereign appoints the prime minister. In practice, however, political power resides in members of the popularly elected House of Commons, with its ‘first past the post’, or single-winner, voting system which usually gives an overall majority to a single political party. This party forms the government, with the leader of that party as prime minister. The Westminster System is a centralized system of governance covering the entire UK, although Northern Ireland, Scotland and Wales have some devolved domestic powers. In Scotland, where the Trident force is based, the Scottish National Party seeks formal independence from the UK and would extend the devolution of powers to defence policy issues.<sup>47</sup>

### **The executive branch**

The executive branch consists of the prime minister, the cabinet of senior ministers who are responsible for the departments of state, and other more junior ministers. Most ministers are members of the House of Commons, although some sit in the non-elected House of Lords. The executive is supported by a permanent civil service, mostly based within the departments of state. Through departmental and interdepartmental committees, civil servants provide detailed information, analysis and policy recommendations to ministers and military leaders.

In theory, the prime minister has unbounded freedom of action as the government acts on the basis of prerogative powers delegated to it by the Crown. These powers include the right to make public appointments, sign treaties, declare war and deploy military resources. There is thus no mechanism to prevent a prime minister alone from making a decision on British nuclear weapons and their use. A prime minister can only be removed through a vote of no confidence in the House of Commons. By convention, such a vote should immediately lead to the tendering of the prime minister’s resignation and that of the cabinet to the Crown. This possibility normally leads the prime minister to seek parliamentary approval for important security decisions, in order for the government to retain public and external legitimacy.

The changing nature of the relationship between the executive and the permanent civil service has received increasing public attention since 1997. This is largely due to Blair and his Labour governments’ appointment of numerous external political advisers to civil service positions within the departments of state, which has effectively eroded the clear dividing line

<sup>47</sup> Chalmers, M. and Walker, W., *Uncharted Waters: The UK, Nuclear Weapons and the Scottish Question* (Tuckwell Press: East Linton, 2001).

that previously existed between the non-partisan civil service and the governing party. At least two former senior civil servants have publicly expressed their concerns over these trends and their implications for democratic governance.<sup>48</sup> A picture emerged of the prime minister receiving advice from, and delegating executive authority to, a small circle of non-elected associates, thus bypassing the formal decision-making structures.

Decisions on British defence policy, including all aspects of its nuclear weapon programme, are in principle taken by the prime minister and the cabinet. Past practice is that such decisions are first taken by a committee comprising the prime minister and a few senior ministers, and then confirmed by the full cabinet. Since nuclear-weapon procurement decisions involve technical issues, they usually start their life within the MOD. The secretary of state for defence may initiate this process or react to suggestions for action from his civil servants.<sup>49</sup> In 2006, however, both the Cabinet Office and the FCO played an equally significant role in producing the 2006 white paper.

The judicial branch has little direct role in nuclear decision making other than advising the FCO on issues, such as the 1996 ICJ advisory opinion on the use of nuclear weapons, and providing advice on the international legal constraints that exist to limit government action in the nuclear area, such as its arms control treaty obligations.<sup>50</sup>

### **The legislative branch**

The Parliament is the ‘means by which British governments are held to account between general elections, ensuring that departments are run efficiently and effectively by providing oversight and calling ministers to account’.<sup>51</sup> The legislature authorizes the spending of public funds by the MOD for all defence programmes and oversees government defence policy. Although the House of Commons ‘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 as the Parliament ‘does not

<sup>48</sup> Butler, R., *Review of Intelligence on Weapons of Mass Destruction* (The Butler Review), HCP 898 (The Stationery Office: Norwich, 14 July 2004); Hutton, B., *Report of the Inquiry into the Circumstances Surrounding the Death of Dr David Kelly C.M.G.* (The Hutton Report), HC 247 (The Stationery Office: London, 28 Jan. 2004); and Quinlan, M., ‘Lessons for governmental process’, ed. W. G. Runciman, *Hutton and Butler: Lifting the Lid on the Workings of Power* (Oxford University Press/British Academy: Oxford, 2004), p. 129.

<sup>49</sup> British Ministry of Defence, ‘How the MOD is organised’, 26 Aug. 2004, <<http://www.mod.uk/aboutus/omd/organise.htm>>.

<sup>50</sup> International Court of Justice (note 37).

<sup>51</sup> Devolution has involved delegation of some of these powers to regional bodies, but the Parliament maintains legislative responsibility over defence and national security. For a detailed analysis of this issue in the Scottish case see Chalmers and Walker (note 47); and Hansard Society Commission (note 1), p. 1.

analyse specific programmes in detail and cannot exercise advance control'.<sup>52</sup> Rather, the legislature's role remains limited to performing an audit after decisions have been made by the executive, as well as questioning both government policy and specific decisions. In 1979 a 'system of departmental select committees, responsible for the scrutiny of policy, administration and expenditure of government ministries' was established in both houses of the Parliament as 'the main parliamentary vehicle for monitoring' the executive's policy implementation.<sup>53</sup> In the areas of defence and nuclear policy, this power is now exercised through inquiries by the HCDC and the Public Accounts Committee (PAC) as well as through parliamentary debates and oral and written questions to ministers.

The HCDC examines 'the administration, policy and expenditure' of the MOD and 'represents the furthest limit to which inquiry can be made on defence issues by representatives of the people of Britain'.<sup>54</sup> Although the HCDC has the power of subpoena in respect of 'persons, papers and records' and its reports 'may recommend changes in policy and expenditure', the committee 'does not have the power of appropriation to give effect to these recommendations'. The PAC is tasked with auditing departmental accounts to ensure government expenditure is compliant with both legal and parliamentary requirements.<sup>55</sup> Yet neither it nor the HCDC have any enforcement mechanisms, other than their reports, and their findings do not bind the executive.<sup>56</sup> As stated above, the HCDC did attempt to hold hearings in anticipation of the Trident decision, but these were eclipsed by the publication of the 2006 white paper.

The rather reactive role of the Parliament in the past is confirmed by examples such as when, on 8 January 1947, a secret cabinet committee decided to proceed with the development of the atomic bomb but kept the decision secret from the Parliament until 12 May 1948.<sup>57</sup> For over a decade, all details of the Chevaline project were kept secret from both the Parliament and the public by successive Labour and Conservative governments. After the £1000 million (\$2.3 billion) project was disclosed to the Parliament by Conservative defence secretary Francis Pym in January 1980 during a parliamentary debate, the PAC published a highly critical report about the excessive costs.<sup>58</sup> As mentioned before, the approval of the House

<sup>52</sup> McLean, S. (ed.), *How Nuclear Weapons Decisions Are Made* (Macmillan/Oxford Research Group: Basingstoke, 1986), p. 132.

<sup>53</sup> Hansard Society Commission (note 1), p. 29.

<sup>54</sup> McLean (note 52), p. 89.

<sup>55</sup> McLean (note 52), p. 91.

<sup>56</sup> Miall (note 38), p. 100.

<sup>57</sup> De Groot, G. J., *The Bomb: A Life* (Jonathan Cape: London, 2004), pp. 218–19.

<sup>58</sup> A report by the PAC on the Chevaline Project following its disclosure in 1980 'prompted reform to the way the Ministry of Defence reports its spending to Parliament'. British House of Commons, Committee of Public Accounts, *Holding Government to Account: 150 Years of the Committee of Public Accounts, 1857–2007* (Committee of Public Accounts: London, 2007), p. 21; British House of Com-



of Commons on 14 March 2007 on the Trident replacement, required commitments to hold future debates on nuclear weapon policy as procurement milestones, especially on missiles and warheads, were reached. In a 2009 report, the PAC aired concerns—in relation to the new submarine building programme—over the financial cost and British dependence on the USA.<sup>59</sup> What impact this will have remains to be seen.

### **Executive accountability and secrecy**

It has been argued that accountability has become ‘confused with the ill-defined and often muddled doctrine of ministerial responsibility’, which, in the past, has meant that a minister is personally responsible for the actions of his department to the Parliament, and ultimately should be prepared to resign if they are found to be illegal or illegitimate.<sup>60</sup> Following the 1996 Scott Report on British defence exports to Iraq, ministerial responsibility standards were redefined by the Parliament.<sup>61</sup> This inquiry found a lack of ‘provision of information to parliament, the lack of proper accountability, and the absence of any clear definition of what may and may not legitimately be kept secret by the Government of the day’.<sup>62</sup> It has been noted that in the context of that ‘weaker, diluted form of accountability, mere answerability or “explanatory accountability” currently operative in parliament can be circumscribed by the demands of official secrecy and Realpolitik’, and that there exists ‘a recurring theme’ of ministerial ‘willingness [to] mislead individual members of Parliament, select committees, and the House of Commons’.<sup>63</sup> How to change this situation by redrafting the Parliament’s ‘accountability’ requirements remains unclear.<sup>64</sup>

mons, Committee of Public Accounts, *Ministry of Defence: Chevaline Improvement to the Polaris Missile System*, 9th report of session 1981–82 (Her Majesty’s Stationery Office: London, 17 Mar. 1982); and ‘Operational Selection Policy OSP11: Nuclear Weapons Policy 1967–1998’, British National Archives, rev. Nov. 2005, <[http://www.nationalarchives.gov.uk/recordsmanagement/selection/osp\\_intro.htm](http://www.nationalarchives.gov.uk/recordsmanagement/selection/osp_intro.htm)>.

<sup>59</sup> British House of Commons, Committee of Public Accounts, *The United Kingdom’s Future Nuclear Deterrent Capability*, 11th report of session 2008–2009 (The Stationery Office: London, 19 Mar. 2009).

<sup>60</sup> Hansard Society Commission (note 1), p. 1.

<sup>61</sup> The 1996 Scott Report is the product of an inquiry led by Lord Justice Scott. It ‘was set up on a non-statutory basis and was tasked with examining defence and dual-use exports to Iraq, whether Ministers stuck to Government policy, and the use of the Public Interest Immunity Certificates’. ‘Q&A: the Scott Report’, BBC News, 27 Apr. 2004, <<http://news.bbc.co.uk/1/hi/3631539.stm>>. See also Scott, R., *The Report of the Inquiry into the Export of Defence Equipment and Dual-Use Goods to Iraq and Related Prosecutions*, HC 115, vols 1–6 (The Stationery Office: London, 1996); and British House of Commons, Trade and Industry Committee, *Strategic Export Controls*, 2nd report of session 1998–99 (The Stationery Office: London, 1998).

<sup>62</sup> Elworthy, S., ‘Introduction’, ed. S. Elworthy, *Weapons Decisions: Proposals for an Informed Parliament*, Current Decisions Report no. 17 (Oxford Research Group: Oxford, Oct. 1996), p. 1.

<sup>63</sup> Pyper, R., ‘The limits of accountability’, ed. R. Pyper, *Aspects of Accountability in the British System of Government* (Tudor: Eastham, 1996), pp. 222–31, p. 228.

<sup>64</sup> Hansard Society Commission (note 1), p. 1.

The withholding of information on national security grounds means that the Parliament lacks the material to debate nuclear issues in detail or to engage in probing inquiries. It also means that it lacks the tools to effectively scrutinize the executive's actions and the use of public funds in this area. More specifically, it lacks the means to exercise effective influence over nuclear weapon expenditure decisions.<sup>65</sup> The HCDC has expressed particular concern over its inability to link resource allocation and policy in this and other areas.<sup>66</sup> As a consequence, it suggested that MOD expenditure reports and annual defence white papers should be integrated to bring 'policy and resources applied more into focus' and to 'increase both the usefulness and the readability of the Expenditure Plans Report, which in its present form makes only a modest contribution to accountability and transparency'.<sup>67</sup>

It has been argued that the creation of the HCDC and the work of the PAC 'have not radically improved the accountability of defence to the public' and that 'it is not the quantity of information which is crucial to legislative oversight but its quality and the use that the legislature makes of such information that is available'.<sup>68</sup> Although the HCDC provides a forum for interrogating officials and ministers and attempting to clarify policy issues, disclosure of sensitive information can be avoided by citing the exemptions in the FOIA. A study of the role of the Parliament suggests that the 'blanket of national security can and is used to hide incompetence, protect vested interests and to overturn the search for a sensible and reasonably open debate about defence priorities'.<sup>69</sup> Indeed, the study concludes that the limitations inherent in this area make effective democratic accountability very difficult, if not impossible.<sup>70</sup>

As the House of Commons Select Committee on Public Administration stated in 2004, 'the presumption has changed significantly in favour of greater openness . . . enshrined in a whole range of legislation, codes and official guidance'. However, as the same report also finds, 'policy-making and agenda setting is still the preserve of the executive'.<sup>71</sup> Although the 2006 white paper can be argued to have made a significant contribution to greater transparency in strategic decision making, it remains to be seen how well such transparency measures will be able to monitor the more

<sup>65</sup> McLean (note 52), p. 85.

<sup>66</sup> British House of Commons, Defence Committee, *The MOD's Annual Reporting Cycle 2000–01*, 8th report of session 2000–2001 (The Stationery Office: London, 9 May 2001), 'The strategic context'.

<sup>67</sup> British House of Commons (note 66).

<sup>68</sup> Cox and Kirby (note 1), p. 303.

<sup>69</sup> Cox and Kirby (note 1), p. 303.

<sup>70</sup> Cox and Kirby (note 1), p. 309.

<sup>71</sup> See British House of Commons, Public Administration Select Committee, *Ministerial Accountability and Parliamentary Questions*, 3rd report of session 2003–2004 (The Stationery Office: London, 2004), para. 3; and Cox and Kirby (note 1), p. 301.

detailed spending and technical issues, and the collaborative activities with the USA that are involved in the Trident replacement project.

### **The judiciary and secrecy**

The 1989 Official Secrets Act criminalizes the transfer and receipt of unauthorized official information and is the legislation under which nuclear spying and similar offences are handled.<sup>72</sup> Prior to the full entry into force of the FOIA in 2005, the detailed rules for handling classified information were contained in the 1994 Code of Practice on Access to Government Information (the code) and included areas where non-disclosure of data is permitted on national security grounds.<sup>73</sup> Exemption 1 of the code specifically covered issues of defence, security and international relations. This exemption was often quoted in response to parliamentary questions on nuclear weapons.<sup>74</sup> Although the FOIA supersedes the code, it similarly exempts 23 categories of information from disclosure, including national security and defence issues.<sup>75</sup>

With the implementation of the FOIA, citizens can request access to information prior to the 30-year-rule period, excluding information covered under the exemptions.<sup>76</sup> Prime Minister Brown announced the commissioning of an independent review of the 30-year-rule in October 2007.<sup>77</sup> The review was tasked with assessing whether changes are required to the period of time during which official documents remain classified in light of the FOIA, in order to 'strike the balance between more openness and how long, in the interests of good governance and national security, state papers need to be closed'.<sup>78</sup> The review published a report in January 2009 urging reform and recommending that the time period for the declassification of documents be halved.<sup>79</sup> It remains unclear in these circumstances whether a 1987 judgement that state information on nuclear weapons is limited to 'a narrow elite within the government' is still accurate.<sup>80</sup>

<sup>72</sup> Official Secrets Act 1989 (c. 6), assented to on 11 May 1989, entered into force on 1 Feb. 1991, <[http://www.hmso.gov.uk/acts/acts1989/Ukpga\\_19890006\\_en\\_1.htm](http://www.hmso.gov.uk/acts/acts1989/Ukpga_19890006_en_1.htm)>.

<sup>73</sup> Freedom of Information Act 2000 (note 44); and Department for Constitutional Affairs, 'Code of practice on access to government information: reasons for confidentiality', 1998, <<http://www.dca.gov.uk/foi/ogcode983.htm>>.

<sup>74</sup> Department for Constitutional Affairs (note 73) .

<sup>75</sup> See Freedom of Information Act 2000 (note 44), Part II.

<sup>76</sup> On the '30-year-rule' see note 43.

<sup>77</sup> Brown, C., 'Brown's talk of civil rights marks move to regain voters' trust', *The Independent*, 26 Oct. 2007.

<sup>78</sup> 30 Year Rule Review Organization, 'Terms of reference', <<http://www.30yearrulereview.org.uk/>>, para. 3.

<sup>79</sup> Dacre, P., Cannadine, D., Pilling, J. et al., *Review of the 30 Year Rule* (The Stationery Office: Norwich, Jan. 2009).

<sup>80</sup> Miall (note 38), p. 91.

Without a written constitution, it is difficult in the UK to take legal action against any government decision. Judicial reviews can be requested to challenge specific government actions, but this has usually only succeeded when the authority for such action derives from legislation. However, in the past, the courts have considered challenges on the basis of treaties, international legal opinions, European Union (EU) legislation and court decisions. In addition, there have been a number of criminal damage cases involving security issues where the illegality of government actions has been a major element in the defence case. Two notable nuclear-related cases have been tried under Scottish law: *John v. Donnelly* and the 'Greenock case'.<sup>81</sup> The cases came as a result of damage to Trident installations in Scotland by nuclear disarmament activists. The activists' defence was based on international customary law arguments or interpretations of the 1996 ICJ advisory opinion on the legality of nuclear weapon use.<sup>82</sup> The defendants claimed that their actions were intended to prevent the illegal use or threat of use of nuclear weapons, rather than being a political protest against British nuclear weapon policy.<sup>83</sup> The defendants in *John v. Donnelly* argued that international law justified their actions, while the defendants in the Greenock case used international law 'as a source of positive entitlement' (i.e. it laid on them a duty to act) to prevent the government performing an illegal action.<sup>84</sup>

*John v. Donnelly* resulted in a conviction, but the judge in the Greenock case acquitted the defendants on the grounds of their subjective belief that their 'positive' actions were necessitated by international law, without adjudicating on whether they were correct.<sup>85</sup> In both cases, a higher court ruled against the defence on appeal. Two core issues were raised by the judgements. One was whether national security and sovereignty outweighed 'lesser' principles of international common and treaty law. The second was whether the government's argument that the UK's minimum deterrent was compliant with international law and the ICJ ruling was correct.

## Civil society

Non-governmental organizations (NGOs) form an important component of British civil society. Those NGOs that address the British nuclear weapon

<sup>81</sup> England and Wales, Scotland, and Northern Ireland have separate legal systems. *John v. Donnelly*, 1999, Session Case 336; and *HM Advocate v. Angela Christina Zelter, Bodil Ulla Roder and Ellen Moxley*, Greenock Sheriff Court, 1999.

<sup>82</sup> International Court of Justice (note 37).

<sup>83</sup> Neff, S. C., 'International law and nuclear weapons in Scottish courts', *International and Comparative Law Quarterly*, vol. 51, no. 1 (Jan. 2002), p. 171.

<sup>84</sup> Neff (note 83), p. 172.

<sup>85</sup> Neff (note 83). pp. 172–73.

programme differ widely in their approaches: some are advocacy based, others analytical; some seek to expose areas of non-transparency and weak accountability in government policies, others use more active methods.

Organized political opposition to the UK's nuclear weapon activities emerged in the later 1950s and was largely channelled through the single-issue Campaign for Nuclear Disarmament (CND). Many members of the opposition Labour Party supported the CND, and in 1958 a vote was passed at the party's annual conference to make the removal of all nuclear weapons from the UK part of official policy (including those weapons belonging to the USA). This stance was reversed the following year, although a minority of the Labour members of Parliament continued to support the objective. In 1965 the new Labour prime minister, Harold Wilson, stopped the testing of all nuclear devices and halted the nuclear weapon development programme, but did not abandon the UK's existing nuclear weapon production activities.<sup>86</sup> With a change of government in 1970, testing and development resumed. However, NATO policies to deploy neutron bombs and base US cruise missiles in the UK led to the re-emergence of nuclear disarmament as a major political issue in the 1980s, accompanied by a re-energizing of CND and other associated action-orientated (e.g. organized civil disobedience, coordinated public awareness campaigns and targeted lobbying) anti-nuclear groups.

After the 1996 ICJ advisory opinion, activists from disarmament and environmental NGOs conducted 'citizen weapons inspections' to ascertain whether disarmament was being implemented by governments.<sup>87</sup> One particular citizen inspection campaign, carried out by the NGO For Mother Earth, focused on US nuclear weapons based in Europe.<sup>88</sup> These groups raised the profile of criticisms of government policy on nuclear weapons in the UK, particularly in respect of public approval and consent for existing policies. Other NGOs addressed British nuclear weapon issues as part of their wider security focus.<sup>89</sup> These NGOs engaged in public advocacy but also worked privately to influence nuclear issues by producing studies and holding meetings with politicians and civil servants. For example, the think tank British American Security Information Council (BASIC) conducted an analysis of the legal and policy implications of British-US nuclear weapon

<sup>86</sup> On activities up to 1965 see Simpson (note 5), pp. 165–71.

<sup>87</sup> See Lawyers' Committee on Nuclear Policy Inc., 'World court project', <<http://www.lcnp.org/wcourt/index.htm>>; and Ware, A., 'Rule of force or rule of law? Legal responses to nuclear threats from terrorism, proliferation, and war', *Seattle Journal for Social Justice*, vol. 2, no. 1 (2003), pp. 269–70.

<sup>88</sup> See Heller, D. (ed.), *Citizens' Weapons Inspections Report: Secret US Nuclear Weapons in Europe* (For Mother Earth: Ghent, 2004).

<sup>89</sup> These include Acronym Institute, <<http://www.acronym.org.uk/>>; British American Security Information Council, <<http://www.basicint.org/>>; Friends of the Earth, <<http://www.foei.org/>>; Greenpeace, <<http://www.greenpeace.org.uk/>>; Oxford Research Group, <<http://www.oxfordresearchgroup.org.uk/>>, and Pugwash UK, <<http://www.pugwash.org.uk/>>.

collaboration at the time of the 2004 renewal of the 1958 MDA.<sup>90</sup> Policy think tanks such as this have raised awareness of the British nuclear programme intermittently through the publication of studies on nuclear subjects, as have some academics working on these issues.<sup>91</sup>

Starting with the SDR in 1998, successive Labour governments have instituted a more active policy of seeking to consult members of civil society over defence decisions. For this, a small MOD advisory group with external members was established, and seminars were organized in the MOD to which advocacy NGOs, journalists and academics were invited and, in one case, a cross section of the public participated. Some of the policy changes contained in the SDR, including reducing the readiness of the nuclear force and initiating work at the Atomic Weapons Establishment (AWE) at Aldermaston on the practicalities of nuclear disarmament, paralleled ideas circulating in civil society. The work on practical aspects of disarmament, for example, was proposed in a paper by British Pugwash, and in the period since 2000 its results have been communicated to all NPT parties on a regular basis.<sup>92</sup> In 2009 these activities were expanded to include experimental work on verification of nuclear disarmament conducted jointly by the AWE on behalf of the MOD, the Norwegian Radiological Protection Authority (NRPA) and VERTIC, a London-based NGO. AWE activities thus now formally include ‘developing the techniques and technologies needed to underpin any future arms limitation treaty, in support of the Government’s “eventual objective” of globally eliminating

<sup>90</sup> Chamberlain, N., Butler, N. and Andrews, D., ‘US–UK nuclear weapons collaboration under the Mutual Defence Agreement: shining a torch on the darker recesses of the “special relationship”’, British American Security Information Council, Special Report no. 2004.3, 17 June 2004, <<http://www.basicint.org/nuclear/MDA.htm>>.

<sup>91</sup> These include International Institute for Strategic Studies (IISS), <<http://www.iiss.org/>>; Royal United Services Institute (RUSI), <<http://www.rusi.org/>>; Royal Institute for International Affairs (RIIA) (Chatham House), <<http://www.chathamhouse.org.uk/>>; Defence Academy of the United Kingdom, <<http://defac.ac.uk/>>; as well as Aberystwyth, Bradford, King’s College London, Southampton and Warwick universities.

<sup>92</sup> Milne, T. et al., *An End to UK Nuclear Weapons* (British Pugwash Group: London, 2002). See Preparatory Committee for the 2005 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, ‘Verification of nuclear disarmament: first interim report on studies into the verification of nuclear warheads and their components’, Working paper submitted by the United Kingdom, NPT/CONF.2005/PC.II/WP.1, 23 Apr. 2003, <[http://www.un.org/disarmament/WMD/Nuclear/2nd\\_review\\_official\\_docs.shtml](http://www.un.org/disarmament/WMD/Nuclear/2nd_review_official_docs.shtml)>; Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, ‘Verification of nuclear disarmament: final report on studies into the verification of nuclear warheads and their components’, Working paper submitted by the United Kingdom, NPT/CONF.2005/WP.1, 18 Apr. 2005, <[http://www.un.org/en/conf/npt/2005/working\\_papers.html](http://www.un.org/en/conf/npt/2005/working_papers.html)>; Kelly, G., British Ministry of Defence, ‘Verification of multilateral nuclear disarmament: UK Approach’, Workshop presentation Technical Approaches to Support Nuclear Arms Control and Nonproliferation, Carnegie Endowment for International Peace, Washington, DC, 9 Apr. 2009, <<http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=22804>>; Presentation on the UK–Norway Initiative on Nuclear Warhead Dismantlement Verification, UK/NOR/VERTIC Report, NPT PrepCom, May 2009, <[http://www.vertic.org/assets/Events/090509 UK-Norway Initiative Presentation.pdf](http://www.vertic.org/assets/Events/090509%20UK-Norway%20Initiative%20Presentation.pdf)>; and British Cabinet Office (note 23).

nuclear weapons'.<sup>93</sup> Since Brown became prime minister, the FCO has taken a much more proactive stance on British disarmament and non-proliferation policies, with leading experts in academia and British NGOs being invited for consultations with ministers on government policies.

Evaluating the role of civil society in influencing core issues relating to the British Government's nuclear weapon policy is difficult, as much of it is channelled through personal contacts and discussions with civil servants and politicians. Civil society has clearly contributed to raising the public's awareness of nuclear issues and engaging politicians and government departments in public dialogue on aspects of the British nuclear weapon programme, especially since the start of the Trident replacement debate in 2005. NGOs may have indirectly influenced policy thinking on nuclear issues through written and oral evidence provided to parliamentary committees, through NGO publications and through media appearances. Yet, ultimately, NGOs, think tanks, the media and academia (as well as parliamentarians) have had little obvious direct impact on procurement decisions on British nuclear weapons, other than in their presentation. Nevertheless, vocal public opposition to the UK's possession of nuclear weapons continues. A new parliamentary development has been the creation of a 'top level group' of former senior ministers and defence officials focusing on minimizing the deterrent force as part of a multi-lateral, rather than unilateral, disarmament strategy.<sup>94</sup>

### **The defence industry**

The British defence industry has changed radically in recent years, and with it those elements relevant to the British nuclear weapon programme. There has been consolidation around BAE Systems of national aviation- and submarine-based research and development (R&D). Production activities and all areas of the British defence industry have become international in their scope, with joint projects, activities and mergers with companies in Europe and the USA. The ownership or management of former government research establishments has been privatized, including that of the Royal Aircraft Establishment (RAE). However, its impact on the British nuclear weapon programme has been limited since there are no longer any British air-launched nuclear weapons and also because the Chevaline programme led to work on both warheads and their delivery systems being concentrated at the AWE.

<sup>93</sup> Atomic Weapons Establishment (AWE), *Annual Report 2000: A New Beginning* (AWE Media and Publishing: Berkshire, June 2001), p. 8.

<sup>94</sup> See Top Level Group of UK Parliamentarians for Multilateral Nuclear Disarmament and Non-Proliferation, <<http://www.toplevelgroup.org>>.

The AWE is responsible for the entire life cycle of Britain's nuclear warheads and, jointly with the Royal Navy, related aspects of their delivery system.<sup>95</sup> Until 1993 the AWE was managed directly by the MOD through the procurement executive and the assistant chief scientific advisor (nuclear) (ACSA(N)). It had Crown immunity from civil regulatory controls, as did the naval facilities and airfields on which weapons might be based. This arrangement was changed following the AWE's transformation into a government-owned contractor-operated entity. Its facilities became subject to the same regulatory controls as the civil nuclear Industry, thus enhancing accountability in the health and safety areas, although these changes created issues related to the commercial confidentiality of data. On the other hand, the changes also removed the previous direct management links with the MOD, which had facilitated parliamentary scrutiny of all AWE activities.

In April 2000 the AWE's initial management consortium was replaced by AWE Management Ltd (AWEML). This was owned in equal shares by three companies: British Nuclear Fuels Ltd (BNFL), SERCO and the US-owned company Lockheed Martin UK.<sup>96</sup> Lockheed Martin Space Systems, part of Lockheed Martin UK's parent company, manufactures the UK's Trident missiles. In 2003 the MOD announced the extension of AWEML's contract to manage and operate Aldermaston site, from a 10-year to a 25-year term covering the whole of the existing Trident system's anticipated life cycle.<sup>97</sup> The justification was to facilitate the private financing of 'major capital works for AWE and advance some important projects'.<sup>98</sup> In 2009 BNFL's share in AWEML was acquired by Jacobs Engineering Group, a US-based company, following the dismantlement of the government-owned BNFL.

The privatization of the AWE's management has changed the relationship between Aldermaston and the MOD, and thus, the Parliament, in ways that are difficult to evaluate. One of its more obvious consequences is that US companies now own two-thirds of the enterprise managing Aldermaston. Another change has been the discontinuation of ACSA(N) as the senior MOD civil servant responsible for Aldermaston; that work is now undertaken by one of the directors in the MOD's Directorate of Strategic Technologies.

<sup>95</sup> Atomic Weapons Establishment, *Annual Report 2000* (note 93), pp. 2–8.

<sup>96</sup> The British MOD maintains ownership of the AWE sites and facilities and monitors operations. See AWE (note 93), pp. 2–3.

<sup>97</sup> This extension of the contract, originally awarded to AWEML in 2000, was awarded to AWE plc. See AWE, *Annual Report 2003/4: Enduring Excellence* (AWE Media and Publishing: Berkshire, 2003), pp. 2–3; and Atomic Weapons Establishment (AWE), *Annual Report 2002: The Way Ahead* (AWE Media and Publishing: Berkshire, Apr. 2003), p. 2.

<sup>98</sup> Atomic Weapons Establishment, *Annual Report 2002* (note 97).



A noteworthy aspect of the AWE's work is the collaboration between its scientists and engineers and their counterparts in US laboratories. The 2003 'stocktake' meeting for the 1958 MDA 'endorsed AWE's contributions' and 'agreed to strengthen collaboration in key strategic areas for a stronger continued relationship for the future'.<sup>99</sup> The main source of any industrial pressure on British nuclear weapon policy is thus likely to be found in the AWE and its links to the USA. It may also reside in the submarine arm of BAE Systems and Rolls-Royce, the developer and manufacturer of the British submarine reactors, because lack of future attack submarine orders, which threatened the retention of submarine production capabilities, was seen to be one of the drivers for the 2006 Trident decision.<sup>100</sup> Within the government, however, the main counterbalance to the AWE has traditionally been the Royal Navy, which has its own distinct nuclear policy position of never moving out of line technically with the US Navy.

## IV. International factors involved in the governance of British nuclear weapons

### **British–US bilateral relationships**

The UK's relationship with the USA on nuclear weapons matters falls into two areas: weapon procurement (involving both warheads and delivery systems) and coordination of plans for possible British and US nuclear weapon use. The 1958 Mutual Defence Agreement and its successors allow for information exchanges and joint work in a range of specified areas of nuclear warhead and submarine reactor design, as well as the UK's acquisition of nuclear and nuclear-related materials. However, Trident warheads are designed and manufactured in the UK and the British Government maintains them. The missiles and their multiple independently targeted re-entry vehicle (MIRV) warhead carrier are purchased from the US Government; spare missiles are held in a common stock with those of the US Navy at Kings Bay, Georgia; and the test firings at the end of the work-up trials of each submarine are held on the test range off Cape Canaveral, Florida. The submarines are built in the UK, with reactors designed and manufactured by Rolls-Royce. Despite all the US links, the UK could use its nuclear force without US agreement and operate it for a

<sup>99</sup> The MDA is assessed at formal 'stocktake' meetings which are scheduled at approximately 18-month intervals. Atomic Weapons Establishment *AWE Annual Report 2003/04*, p. 6, <[http://www.awe.co.uk/Images/UNC%20Arep03\\_lores\\_tcm6-2608.pdf](http://www.awe.co.uk/Images/UNC%20Arep03_lores_tcm6-2608.pdf)>, p. 6. See also Mackby and Cornish (note 1).

<sup>100</sup> Ritchie, N., 'Relinquishing nuclear weapons: identities, networks and the British bomb', *International Affairs*, vol. 86, no. 2 (Mar. 2010), pp. 465–87.

period of time without US assistance. However, acquisition of any replacement US SLBM and its MIRV warhead carrier would require US agreement, as the UK has no indigenous testing or production capacities in these areas.

Details of current joint targeting and other operational data exchange arrangements are not publicly available. Indeed, politically, all missiles on British submarines are deemed to be de-targeted, among other things to fulfil multilateral commitments made at the 2000 NPT Review Conference.<sup>101</sup>

### **International arms control treaties and agreements**

International arms control treaties have exerted a range of constraints on the UK's nuclear weapon capabilities. After 1972 the UK was indirectly affected by several bilateral Soviet–US nuclear arms agreements, especially those that placed constraints on British–US nuclear cooperation and on Soviet missile defence capabilities, such as the Strategic Arms Limitation Talks (SALT I) and the 1972 Treaty on the Limitation of Anti-Ballistic Missile Treaty (ABM Treaty).<sup>102</sup> Since 2002 some of these bilateral agreements have ceased to operate (e.g. the ABM Treaty), and the main arms control constraints on the UK are the 1996 Comprehensive Nuclear-Test-Ban Treaty (CTBT) and the NPT.<sup>103</sup>

Although it has not yet entered into force, the CTBT inhibits the UK's ability to deploy new designs of advanced nuclear warheads. The USA, which has not ratified the CTBT, also has maintained a moratorium on testing. In these circumstances, both states gain from their continued nuclear technology relationship and information exchanges. Whether this situation would persist if the USA were to resume testing is less certain.

The NPT impinges mainly on the British nuclear weapon programme through its non-proliferation provisions, disarmament obligations and associated negative security assurances. The first inhibits the technical information on British nuclear weapons that can be released to the public from its national archives and other sources. The NPT's disarmament provisions have led the government to emphasize the minimal nature of its warhead numbers and their yield as well as the disarmament verifi-

<sup>101</sup> 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, 'Final document', NPT/CONF.2000/28 (Parts I and II), <<http://www.un.org/disarmament/WMD/Nuclear/2000-NPT/OfficialDocs2.shtml>>.

<sup>102</sup> On SALT I see US Department of State archive, <<http://www.state.gov/www/global/arms/treaties/salt1.html>>. Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty), signed by the Soviet Union and the USA on 26 May 1972, entered into force on 3 Oct. 1972, not in force from 13 June 2002, <<http://www.state.gov/www/global/arms/treaties/abmpage.html>>.

<sup>103</sup> Comprehensive Nuclear-Test-Ban Treaty (CTBT), opened for signature on 24 Sep. 1996, not yet entered into force, <<http://treaties.un.org/Pages/CTCTreaties.aspx?id=26>>.

cation research programme.<sup>104</sup> Its negative security assurances may in the future generate difficulties if threats of use of chemical and biological weapons are made against the UK's territory, its allies or its deployed forces.

## V. Conclusions

The governance of British nuclear weapons paints a mixed picture. One clear conclusion is that over time there has been an enhancement of both civilian control over use decisions and democratic accountability of procurement decisions. This is particularly true in the case of democratic accountability regarding procurement decisions since 2005. For example, the Brown Government made a commitment that decisions on purchasing new generations of missiles and warheads would all be brought before the House of Commons for approval before being implemented.<sup>105</sup> Future procurement decisions are unlikely to repeat the Chevaline model and will probably take the form of initial decision making by the executive followed by a public announcement at a time of its choice. The FOIA is unlikely to change this situation, nor is pressure from civil society likely to have much effect, although it could influence the parliamentary debates that may now precede implementation of decisions. At the same time, recent British governments have displayed sensitivity to the domestic and international politics surrounding these issues by justifying the nuclear force through the twin moral arguments that nuclear weapons are a minimal deterrent and will be used as a last resort. The 2006 white paper also clearly indicates that any decision by the prime minister on use would be influenced by the 1996 ICJ decision.

Looking ahead, a number of complex questions can be posed about the future of nuclear weapon governance in the UK. Terrorism is now seen as the main threat to prime ministerial command-and-control; British submarines no longer frequently move towards the surface so as to receive messages from the UK command-and-control system, as the possibility of a surprise inter-state attack on the UK has been assessed as a low risk; and any use of nuclear weapons would probably arise from a crisis which escalated over months.<sup>106</sup> Indeed one element of the ongoing Trident

<sup>104</sup> Preparatory Committee for the 2005 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons and Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (note 92). See also Burjan, A., Atomic Weapons Establishment, 'Verification technology research', Workshop presentation Technical Approaches to Support Nuclear Arms Control and Nonproliferation, Carnegie Endowment for International Peace, Washington, DC, 9 Apr. 2009, <<http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=22804>>; and British Cabinet Office (note 23).

<sup>105</sup> British Cabinet Office (note 23)

<sup>106</sup> British Cabinet Office (note 23); and British Ministry of Defence and British Foreign and Commonwealth Office (note 19).

debate is whether the UK should continue to sustain its ‘continuous at sea deterrence’ posture of always having at least one submarine fully operational and at sea.<sup>107</sup> Details of pre-planning for nuclear weapon use remain unclear. In short, many of the civilian command-and-control dilemmas are now largely in the past: the present security context allows for a much higher level of civilian control than during the East–West nuclear stand-off of the cold war.

A more complex question, however, is the extent to which British bilateral arrangements and relationships with the USA and the formal assignment of the military use of the British force to the NATO SACEUR have affected the ability of the British political leadership to exercise democratic control over the UK’s nuclear force. Little public data exists to answer this question. However, the physical control over national weapons has always been in British hands (as the NPT mandates), and thus orders for their use would have to come through a British communications system and be approved by the prime minister or his nominated deputies.

Nuclear weapon policy will continue to be subject to political accountability through existing parliamentary governance processes. Challenges by anti-nuclear groups on the legality of possession may continue to be brought before the courts as well as through direct action. Parliamentary governance processes over nuclear weapons have significantly changed since the Chevaline experience. Yet neither the HCDC nor the PAC has the power to change government policy, and members of Parliament are unable or unwilling to address nuclear and other issues except through budgetary voting. Thus, the degree to which parliamentary accountability has actually been enhanced since the 1950s remains problematic. However, the process of replacing the existing Trident system may offer opportunities to take accountability forward in this area.

Government departments will usually make some response to criticisms by select committees, and greater accountability may emerge through further reform of this committee system. Until then, nuclear weapon procurement will be subject to retrospective accountability alone, rather than democratic participation. However, debates may occur both in and outside the Parliament before decisions are taken. The focusing of industrial interest in the nuclear force around two commercial organizations, AWEML and BAE Systems, adds the elements of commercial confidentiality and indirect MOD management involvement to the equation, further complicating the Parliament’s ability to monitor what is occurring. In addition, nuclear weapons are likely to remain in a category of their own, with far less parliamentary and public oversight than other defence issues, while

<sup>107</sup> Simpson, J., Presentation on British continuous-at-sea deterrence, Workshop ‘Stepping down the nuclear ladder’, University of Bradford, 17–18 Sep. 2009.

NPT commitments as well as national secrecy laws inhibit open discussion on many technical and operational aspects of the British nuclear force, both past and present. Thus, while democratic accountability and civilian control of British nuclear weaponry has been enhanced since the 1950s and particularly since 2005, constraints over its further development remain. The main ones now appear to lie in the unique nature of the British system of governance, the current lack of salience of the British nuclear force as a political issue and the inherent nature of nuclear weaponry itself.

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## 5. France

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BRUNO TERTRAIS

### I. Introduction

In 1958 General Charles de Gaulle returned to power following the collapse of France's Fourth Republic. The Constitution of the Fifth Republic was subsequently introduced on 5 October 1958. In order to put an end to the political instability that had characterized the two previous republics, the Constitution bolstered, to some degree, the role of the president and limited the powers of the Parliament.<sup>1</sup> However, de Gaulle thought that a popular mandate would give his ambitious domestic and foreign policy plans more legitimacy. In 1962 the Constitution was amended by a referendum which established that the French president would be elected directly by the people rather than indirectly by an electoral college, and in 1965 de Gaulle was popularly elected. Most importantly for the purpose of understanding French governance of nuclear weapons, de Gaulle thought that he and his successors should have a particularly important and individual responsibility regarding nuclear weapon use. This contract between the people and the president that results from popular suffrage has left a deep mark on civilian and democratic control of nuclear weapons in France.

Section II of this chapter outlines the birth of France's 'nuclear monarchy' and looks at the role of bureaucrats and politicians in French nuclear affairs.<sup>2</sup> Section III provides an overview of the French nuclear 'priesthood'; it establishes the general pre-eminence of the president in nuclear matters and describes French command and control, policymaking, the limited role of other actors, and domestic and international legal challenges to the French military nuclear establishment. Section IV illustrates the nature of the French national consensus on nuclear weapons and summarizes the post-cold war nuclear reviews; section V offers conclusions.

<sup>1</sup> Chantebout, B., 'La dissuasion nucléaire et le pouvoir présidentiel' [Nuclear deterrence and executive power], *Pouvoirs*, no. 38 (1986), pp. 21–32. Article 16 of the French Constitution, which gives full executive and legislative power to the president in case of a national emergency, was written to take into account France's emerging nuclear status. The full text of the French Constitution, 4 Oct. 1958, in English is available at <<http://www.assemblee-nationale.fr/english/8ab.asp>>.

<sup>2</sup> The tongue-in-cheek expression 'nuclear monarchy' was coined by trade union leader Edmond Maire. Scholar Samy Cohen used it as the title of his seminal book on French foreign policy making. Cohen, S., *La monarchie nucléaire: Les coulisses de la politique étrangère sous la Ve République* [The nuclear monarchy: what goes on behind foreign policy under the 5th Republic] (Hachette: Paris, 1986).

## II. The birth of the ‘nuclear monarchy’

Generally referred to as a ‘semi-presidential’ system, France’s political institutions are a mix of both presidential and parliamentary regimes. Popularly elected, the president of the French Republic serves as the head of state, appoints the prime minister, chairs the Council of Ministers (the prime minister’s cabinet) and has the power to dissolve the National Assembly.<sup>3</sup> The prime minister serves as the head of government and is responsible to the Parliament. The president and prime minister share executive power, but the president is predominant.

### **The bureaucrats’ bomb**

While the rudiments of a French military nuclear programme were gradually put into place during the 1950s, French scientists had begun working on possible military applications of nuclear power in 1939. Despite their exclusion from the Manhattan Project, French scientists were able to provide an extensive brief on their progress to de Gaulle in 1944, and in October 1945 de Gaulle created the Atomic Energy Commission (Commissariat à l’Énergie atomique, CEA).<sup>4</sup> The CEA’s goal was primarily civilian. In France, as in many other Western countries, atomic power was seen as embodying modernity. It was not before the 1950s that any serious attention was paid to the idea of a French bomb.<sup>5</sup>

In 1952 the United Kingdom conducted its first independent nuclear test, which did not go unnoticed in France. In July of that same year, a five-year plan for the development of a nuclear complex was approved by the French Parliament, and an amendment proposed by left-wing parties to exclude any military use for the plutonium that would be created was rejected: nuclear weapons were an option to be retained.<sup>6</sup> In 1953 CEA administrator Pierre Guillaumat approached General Charles Ailleret, an officer who had created a nuclear weapon study group in the Ministry of Defence (MOD). Guillaumat suggested setting up a connection between the CEA and the military to prepare for the day that the political authorities would decide to

<sup>3</sup> The National Assembly is the lower house of the French Parliament; the upper house is the Senate. Under the Fourth Republic (1945–58), the president had only a symbolic role and the prime minister—a position then known as chairman of the council [of ministers] was the head of the executive branch and the head of the government.

<sup>4</sup> Peyrefitte, A., *C’était De Gaulle* [It was De Gaulle] (Gallimard: Paris, 2002), p. 1313.

<sup>5</sup> Mongin, D., *La bombe atomique française 1945–1958* [French atomic bomb: 1945–1958] (Bruylant: Brussels: 1997).

<sup>6</sup> Some argued against what amounted for them to unilateral disarmament, while others did not want France to give up nuclear weapons at the time when other countries were building them. The amendment was defeated 518 to 100 by the National Assembly. *Journal officiel de la République française* [Official Journal of the French Republic], Assemblée nationale, débats, 3 July 1952.

build nuclear weapons.<sup>7</sup> At the same time, Guillaumat was keen that the CEA should remain in civilian hands.

In March 1954 the minister of defence, René Pleven, told the Parliament that France should consider having nuclear weapons and that there was a need to train officers and engineers for such an endeavour. In October a joint CEA–MOD committee was created to be in charge of military applications of the atom. In December the prime minister, Pierre Mendès-France, held a special meeting on the topic. A decision was taken to create a military applications division in the CEA and to fund it from the defence budget. In May 1955 an interdepartmental protocol authorizing the transfer of funds from the military to the CEA was signed. Still, no nuclear programme had officially been launched. The military option remained no more than an option.<sup>8</sup>

At that time there were two rationales for building nuclear weapons. First, the military was anxious to have the best weapons, not least owing to its sense of falling outside of the inner nuclear-weapon decision-making circle of the North Atlantic Treaty Organization (NATO). Second, there was a growing understanding within government circles that true power, particularly within NATO, would only belong to those countries that possessed nuclear weapons.<sup>9</sup> Nonetheless, there was little support within French political circles and the public for an independent, fully national deterrent: nuclear weapons were expected to be integrated into a European or transatlantic system.

In October 1956 the prime minister, Guy Mollet, signed a directive on the long-term development of a nuclear infrastructure. Three months later, a committee in charge of nuclear programmes was created in the MOD. Political support within the government for a national deterrent gained ground in the aftermath of the 1956 Suez crisis.<sup>10</sup> In 1957 early warnings about the United States' vulnerability to attack, such as the first Soviet intercontinental ballistic missile (ICBM) test and the Sputnik launch,

<sup>7</sup> Ailleret, C., *L'aventure atomique française: Comment naquit la force de frappe* [The French atomic experience: the birth of strike force] (Grasset: Paris, 1968), pp. 124–41.

<sup>8</sup> Tertrais, B., “‘Destruction assurée’: the origins and development of French nuclear strategy, 1945–1981”, ed. H. Sokolski, *Getting MAD: Nuclear Mutual Assured Destruction, Its Origins and Practice* (Strategic Studies Institute: Carlisle, PA, 2004).

<sup>9</sup> Tertrais (note 8), p. 326. A 1954 note drafted by the Ministry of Foreign Affairs stated that ‘The direction of strategy will from now on, increasingly, belong to the powers possessing the atomic weapon. . . . It is essential that France undertakes an atomic military programme. Otherwise, its security will be entirely assured by the Anglo-Saxons.’ Another note from 1954 stated that ‘no country will . . . be able, in the near future, to claim true political independence if it does not possess atomic weapons’. Quoted in Soutou, G.-H., ‘La politique nucléaire de Mendès-France’ [The nuclear policy of Mendès-France], *Relations Internationales*, no. 59 (fall 1989), pp. 317–30 (author’s translation).

<sup>10</sup> On 29 Oct. 1956 France, Israel and the UK launched military attacks on Egypt. The attacks followed Egypt’s decision of 26 July 1956 to nationalize the Suez Canal. The Soviet Union and the USA became diplomatically involved. Finally, a United Nations Emergency Force was deployed to keep the peace until a political settlement could be achieved.



reinforced this trend. In April 1958 France stepped closer to the nuclear threshold when the prime minister, Félix Gaillard, issued an order for technical preparations to be made to carry out a series of nuclear tests. Although a military nuclear programme had never been launched, France was on the verge of becoming a nuclear power. One scholar notes that on the eve of the Fifth Republic, 'France under the Fourth Republic would appear to represent the most striking example of minimal political leadership and maximum technocratic direction in the orientation of atomic policy.'<sup>11</sup>

### The politicians' bomb

From the mid-1950s onward, the willingness to 'go nuclear' ceased to be the desire of the few—de Gaulle and his supporters—and became that of the many—the state. While de Gaulle was relatively indifferent to the technicalities of the nuclear programme, he micromanaged some elements of it: for instance, he insisted on being constantly informed of progress towards the hydrogen bomb.<sup>12</sup> De Gaulle did not think that the US nuclear guarantee to Europe via NATO (or, for that matter, any kind of extended deterrence protection) could ever be credible.<sup>13</sup> He also thought that French foreign policy would only be credible if France was perceived as being fully independent, which for him implied nuclear status. Finally, like his predecessors, he longed for equality of status with the UK and the USA and within NATO.

De Gaulle's return to power in 1958 was initially welcomed by the armed forces. However, after he made it clear that they were to be entirely subordinated to the political authorities, his relationship with the military took a turn for the worse.<sup>14</sup> Establishing nuclear weapons at the centre of French defence strategy, but with those weapons under tight civilian control, helped ensure control of the military.<sup>15</sup> In 1968 the status of the chief of the

<sup>11</sup> Scheinman, L., *Atomic Energy Policy in France under the Fourth Republic* (Princeton University Press: Princeton, NJ, 1965), p. 213.

<sup>12</sup> Tertrais (note 8).

<sup>13</sup> The MC 48 document, committing NATO to the defence of Europe through early and massive use of nuclear weapons, had been endorsed by the North Atlantic Council on 17 Dec. 1954. North Atlantic Treaty Organization (NATO), A report by the Military Committee on the most effective pattern of NATO military strength for the next few years, MC 48/1(final), 9 Dec. 1955; and North Atlantic Treaty Organization (NATO), A report by the Military Committee on measures to implement the strategic concept, MC 48/2 (Final Decision), 23 May 1957.

<sup>14</sup> Cohen, S., *La défaite des généraux: Le pouvoir politique et l'armée sous la Vème République* [The Generals' defeat: political power and the army under the Fifth Republic] (Fayard: Paris, 1994).

<sup>15</sup> Cohen, S., 'France, civil-military relations, and nuclear weapons', *Security Studies*, vol. 4, no. 1 (Mar. 1994), pp. 153–79. Cohen also argues that the nuclear test conducted in Algeria during the failed 1961 coup was a way for de Gaulle to demonstrate who was in charge. See Cohen (note 14), p. 178. It has been widely reported that this decision was made to avoid the rebels capturing the device that was going to be tested. However, a leading nuclear expert has recently testified that interviews with French officials led him to believe that this thesis had no serious basis. See Jenkins,

defence staff (Chef d'état-major des armées, CEMA) was downgraded: it was placed below the defence minister. This reaffirmation of *arma cedant togae* (i.e. let military power give way to civilian authority) was symbolized when French nuclear bombers first went on alert in 1964: the president would have issued the engagement order by speaking to the pilots directly and was reportedly, at that time, the only person holding the authorization codes.

Nevertheless, there remained at this stage a lack of consensus across the key players in the French Government about the role and governance of nuclear weapons. The rather conservative armed forces wanted nuclear weapons but had little interest in a French deterrent that was independent from NATO. Many members of the military were interested in nuclear weapons because they were the most modern weapons available, but they could just as well be US nuclear weapons. Indeed, for the French command in the late 1940s, one of the rationales for creating NATO had been the prospect of US nuclear weapon availability.<sup>16</sup> The French military argued in favour of nuclear sharing.<sup>17</sup> At the same time, there was also frustration in military circles about nuclear matters being managed 'among Americans, with the British being treated as privileged allies'.<sup>18</sup> Others in the military thought that nuclear weapons were needed to make France 'militarily adult'.<sup>19</sup> However, an independent programme would mean a diversion of resources and a reduction of conventional weapon budgets and forces. Thus, as one commentator puts it, 'France is the only nuclear power to have thrust nuclear weapons upon the military.'<sup>20</sup> Since France entered the nuclear age later than its allies, civilian control of nuclear weapons was made easier: by the mid-1960s nuclear weapons were recognized by NATO as tools of deterrence and not war-fighting.

From the late 1950s to the late 1960s, as France established itself as a nuclear weapon power, so too presidential control over these weapons was established and steadily strengthened. On 1 June 1958 de Gaulle became prime minister; the next day he nominated Pierre Guillaumat, the CEA

B. M., *Will Terrorists Go Nuclear?* (Prometheus Books: New York, 2008), p. 144. While researching for this paper in France, this author found that the real story was complex. Some of the rebels were indeed interested in seizing the test site, but it seems that the date of the test was put forward partly for weather reasons, and partly for the reason suggested by Cohen.

<sup>16</sup> Beaufre, A., *NATO and Europe* (Knopf: New York, 1966), p. 25 (*O.T.A.N. et l'Europe*, Translated from the French by Joseph Green).

<sup>17</sup> Trachtenberg, M., 'La formation du système de défense occidental: les Etats-Unis, la France et MC 48' [The establishment of a Western defence system: the United States, France and MC 48], eds M. Vaisse, P. Mélandri and F. Bozo, *La France et l'OTAN, 1949–1996* [France and NATO, 1949–1996] (Complexe: Brussels, 1996).

<sup>18</sup> 'Testimony of General François Valentin' in Université de Franche-Comté and Institut Charles-de-Gaulle, *L'aventure de la bombe: De Gaulle et la dissuasion nucléaire, 1958–1969* [The bomb experience: de Gaulle and nuclear deterrence] (Plon: Paris, 1985), pp. 222–70 (author's translation).

<sup>19</sup> Beaufort quoted in Mongin (note 5), (author's translation).

<sup>20</sup> Cohen (note 15), p. 160.

administrator, as his first defence minister. A few days later, de Gaulle ordered the development of a full-scale military nuclear programme. On 7 January 1959 a key text redefining governmental responsibilities on defence was promulgated (see below), and the next day de Gaulle was elected president by the electoral college. On 13 February 1960 France conducted its first nuclear test. In October 1962 the Constitution was reformed. In 1964 the first nuclear-capable French strategic bomber, the Mirage-IV, went on alert, and a decree stating the authority of the president over the nuclear forces was issued.<sup>21</sup> In 1965 de Gaulle was re-elected, this time by direct election. In 1967 France withdrew from NATO's integrated military structure. The 'nuclear monarchy' was in place.

### III. The French nuclear 'priesthood'

#### **The pre-eminence of the president**

Several key elements form the basis of presidential authority over nuclear matters. The first two stem from the 1958 Constitution: Article 5 of the Constitution states that the president is the guarantor of 'national independence' and 'territorial integrity'; Article 15 establishes the president as the 'Commander-in-Chief of the Armed Forces' who presides over 'the higher national defence councils and committees'.<sup>22</sup> While presidential pre-eminence was meant to extend to all areas of foreign policy and national defence matters, this was not enough to make the president the undisputed authority in nuclear matters. Two other features gave de Gaulle and his successor's overwhelming control over such matters. First, there is evidence that, as suggested above, the direct election of the president by the French people was linked with France's new nuclear status.<sup>23</sup> Second, a 1964 decree based on Article 5 of the Constitution regarding the president's

<sup>21</sup> Décret no. 64-46 du 14 janvier 1964 relatif aux forces aériennes stratégiques [Decree no. 64-46 of 14 January 1964 relating to the strategic air forces].

<sup>22</sup> French Constitution (note 1), articles 5 and 15. A 1959 ordinance created the Higher Council for National Defence (Conseil supérieur de défense), the Defence Committee (Comité de défense) and the Restricted Defence Committee (Comité restreint de défense). In practice, the first does not exist, the second has become the Defence Council (Conseil de défense), and the third has become, since 1991, the Restricted Council (Conseil restreint), where not all ministers participate, for instance, in crisis management. The name Restricted Committee (Comité restreint) now applies to rare government meetings devoted to foreign policy and defence that are chaired by the prime minister. In 2008 it was decided to enlarge the missions of the Defence Council, and it was renamed the Defence and National Security Council (Conseil de défense et de sécurité nationale, CDSN). This has no particular consequence for nuclear matters. Ordonnance no. 59-147 du 7 janvier 1959 portant organisation générale de la défense [Ordinance no. 59-147 of 7 January 1959 on the general organization of the defence], Article 7; and French Government, *Défense et sécurité nationale: Le livre blanc* [Defence and national security: the white paper] (Odile Jacob: Paris, June 2008). English translation: *French Government, The French White Paper on Defence and National Security* (Odile Jacob: New York, 2008), pp. 2, 1–16.

<sup>23</sup> Peyrefitte (note 4), p. 1359; Chantebout (note 1), p. 22; and Messmer, P., 'Notre politique militaire' [Our military policy], *Revue de défense nationale* (May 1963), pp. 755–65.

capacity as chairman of the Defence Council (now known as the Defence and National Security Council) and as head of the armed forces gave the president legal authority over the use of the nuclear forces.<sup>24</sup> However, this control stemmed from an extended interpretation of the decree, which on paper concerned only the strategic air forces. A decree published in June 1996, which was revised in 2010, formalized presidential authority over the use of nuclear forces.<sup>25</sup>

In addition, two presidential-level institutions are critical to the president's exercise of nuclear authority—both for command and control and policymaking. One is the president's private military staff (État-major particulier) and its chief of staff (Chef d'état-major particulier, CEMP); the other is the Defence and National Security Council.

The president's private military staff is a small team (four general officers plus staff) that has acquired considerable importance in French defence policy, although it has not been established by any official act.<sup>26</sup> The CEMP is a four-star officer who serves as the private military adviser to the president and is a key person in French nuclear matters. The CEMP's high position in the hierarchy of the president's office (third after the president and the general secretary) is a reflection of the adviser's importance. In contrast, there is no civilian position in the presidential office whose sole role is to advise the president on national security affairs.<sup>27</sup>

The Defence and National Security Council includes the president, the prime minister and the ministers of foreign affairs, defence, interior and finance. Military chiefs normally participate as well. Other people (e.g. top MOD officials) may be invited to join the meetings. The authority of the Defence Council on nuclear matters was originally defined by the 1964 decree.<sup>28</sup> It meets on an irregular basis, subject to presidential will. The meetings are not publicly announced in advance and its proceedings are not published. Its conclusions are signed by the president. The Defence and National Security Council's meetings are prepared by the General Secretariat for National Defence (Secrétariat général de la défense nationale,

<sup>24</sup> Décret no. 64-46 (note 21). It is also noteworthy that a 1962 decree gave the president the power to convene the Defence Council, instead of the prime minister, as stated by the 1959 ordinance. Décret no. 62-808 du 18 juillet 1962 relatif à l'organisation de la défense nationale [Decree no. 62-808 of 18 July 1962 related to the organization of national defence]; and Ordonnance no. 59-147 (note 22).

<sup>25</sup> The 1996 decree is a 'décret délibéré en Conseil des ministres', meaning that it cannot be modified without the president's signature. This decree also elevated the legal standing of presidential authority. 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 determination of responsibilities related to nuclear forces].

<sup>26</sup> Pac, H., *Le droit de la défense nucléaire* [Law on nuclear defence] (Presses Universitaires de France: Paris, 1989), pp. 79–80.

<sup>27</sup> The advising role of the CEMP has varied, depending on the nature of the personal relationship between the person holding the position and the president.

<sup>28</sup> Décret no. 64-46 (note 21), Article 1.

SGDN), an inter-agency body that, organizationally speaking, reports to the prime minister but which operationally reports to the president.<sup>29</sup> The role of the SGDN in nuclear affairs has varied. It was originally the prime minister's personal military staff, but after 1962 it has mainly served administrative functions. At times it has been the key nuclear policy coordination body across government ministries.

Neither the MOD procurement office (Délégation générale pour l'armement, DGA) nor the CEA normally participate in the Defence and National Security Council, thus limiting the influence of scientists and engineers in the policymaking process. In fact, over the past three decades, key decisions that have been made by presidents against the general opinion expressed by scientists and engineers demonstrate that the 'nuclear lobby' has lost the influence it had under the Fourth Republic: e.g. the cancellation of plans to build a third wing of medium-range ballistic missiles and the move towards underground testing, under President Valéry Giscard d'Estaing (1974–81); the decision to not produce enhanced-radiation warheads, the refusal to build a mobile missile, the reduction of nuclear testing and the ensuing moratorium, under President François Mitterrand (1981–95); the adoption of the zero option in the negotiations for a comprehensive-test-ban treaty and a drastic reduction in the format of the nuclear forces, under President Jacques Chirac (1995–2007).

However, since the late 1990s, when nuclear policy is discussed, the Defence Council has been meeting in a restricted, informal format called the Nuclear Weapons Council. Among the reforms made under Sarkozy were the enlargement of the Defence Council responsibilities (hence the Defence and National Security Council) and the formalization in December 2009 of the Nuclear Weapons Council as a specialized meeting of the Defence and National Security Council.<sup>30</sup> Participants in the Nuclear Weapons Council are the president, the prime minister, the defence minister, CEMA, the head of the DGA and the head of Military Applications of the CEA. Other participants may be invited by the president. As a result, in recent years nuclear policy has been made by an even smaller number of individuals and institutions.

<sup>29</sup> In 2008 it was decided to enlarge the mission of the SGDN, which is to be called General Secretariat for Defence and National Security (Secrétariat général de la défense et de la sécurité nationale, SGDSN). This has no particular consequence for nuclear matters. French Government (note 22), p. 16.

<sup>30</sup> Décret no. 2009-1657 du 24 décembre 2009 relatif au conseil de défense et de sécurité nationale et au secrétariat général de la défense et de la sécurité nationale [Decree no. 2009-1657 of 24 December 2009 related to the Council for National Defense and Security and to the General Secretariat for National Defense and Security].

## Command and control

Since the elimination in 1996 of the medium-range missiles stationed on the Plateau d'Albion, which were the last of France's land-based systems, the French nuclear force structure has remained broadly unchanged. One recent but important change was the reduction of the air force component in 2008 from three squadrons to two. France currently possesses four nuclear-powered submarines (SSBNs) and 48 submarine-launched ballistic missiles (SLBMs) as well as two air force squadrons of nuclear-capable fighter-bombers and a navy 'flotilla' (a small unit of fighter-bombers) dedicated to aircraft carriers armed with cruise missiles.<sup>31</sup>

Civilian authorities maintain three different types of control of the French nuclear arsenal: (a) control over the custody of warheads and fissile materials (*contrôle de l'intégrité des moyens*); (b) control of warhead release (*contrôle de l'engagement*), in both its positive and negative dimensions; and (c) control of the execution of approved plans (*contrôle de la conformité de l'emploi*). A nuclear weapon inspector (a general officer who reports directly to the president independently from any other institution) is responsible for monitoring the proper implementation of these three controls and ensures independent oversight of civilian control of French nuclear weapons.<sup>32</sup>

The devolution of command established at the start of the Fifth Republic broke with the tradition of distinguishing between peacetime and wartime: the 1959 ordinance stated that national defence is 'permanent'.<sup>33</sup> This principle was adopted in part to adapt to the nuclear age. Constitutionally, if the president is unable to exercise his powers, authority falls to the president of the Senate and then to the prime minister. The ordinance goes further and states that in cases where there is an institutional breakdown *and* the president, the president of the Senate and the prime minister are all unable to exercise their functions, war powers would go to the defence minister, and then to other ministers according to protocol.<sup>34</sup> However, there is a specific procedure for nuclear matters. After the president, authority would go directly to the prime minister, then to the defence minister.<sup>35</sup> Beyond the defence minister, it would devolve to a civilian pos-

<sup>31</sup> In the period 2008–10 France had only 3 SSBNs available. This was due to the retirement of the last SSBN of the first generation, while the fourth new SSBN was planned to enter service in 2010. On France's nuclear forces see appendix A in this volume.

<sup>32</sup> Décret no. 2002-702 du 29 avril 2002 relatif à l'inspection des armements nucléaires [Decree no. 2002-702 of 29 April 2002 related to the inspection of nuclear weapons], revised in 2009.

<sup>33</sup> Ordonnance no. 59-147 (note 22), Article 1 (author's translation).

<sup>34</sup> Ordonnance no. 59-147 (note 22), Article 14.

<sup>35</sup> See Messmer, P. *Après tant de batailles. Mémoires* [After So Many Years of Fighting: Memories] (Albin Michel: Paris, 1992), p. 320; and 'Testimony of General Maurin' in Université de Franche-Comté and Institut Charles-de-Gaulle (note 18), p. 335.

ition designated by the president.<sup>36</sup> The military is excluded from the devolution process. The Defence and National Security Council normally exercises the conduct of warfare.<sup>37</sup> However, it is doubtful whether it would cast the deciding vote to exercise a nuclear strike. In addition, in 1996 all French nuclear weapons were lumped into a single category of strategic weapons: thus there is no reason for military commanders to have flexibility in the timing or scope of a nuclear response.<sup>38</sup>

Over the years, the role of the chief of the defence staff (CEMA), a position formally created in 1962, has grown dramatically in both the nuclear and conventional fields.<sup>39</sup> Since 1982 the CEMA has had sole responsibility for military operations. The creation within the Joint Staff of a single nuclear forces division in 1991 and of a joint operational centre (Centre opérationnel des forces nucléaires, COFN) in 1993 has reinforced the centralized character of French nuclear operations. Apart from the president's 'Jupiter' command post in the Elysée Palace (the president's office and residence), the COFN is the only other headquarters that can use all means of communication to execute a nuclear order. In 1996 the CEMA was given overall responsibility for preparing nuclear plans and 'ensuring the execution of the order of engagement given by the president'.<sup>40</sup>

Thus, the French nuclear chain-of-command is very short: while the prime minister's and president's civilian advisers would in all likelihood be consulted before the use of nuclear weapons, the final decision would perhaps involve only three persons: the president, the CEMP and the CEMA. The president would approve any nuclear plan, release and strike, and the CEMA would be the only military commander with an operational responsibility in the implementation of the president's order to execute a nuclear strike. Political control over the nuclear forces is thus particularly tight. At the extreme, only the president and the nuclear units themselves would physically need to be involved in the execution of a nuclear strike.

<sup>36</sup> Cohen (note 14), p. 79. Prime Minister Georges Pompidou stated during the 1964 parliamentary debate that a 'qualified personality' could be given the nuclear authority in the name of the government. Quoted in Cumin, D., *L'arme nucléaire française devant le droit international et le droit constitutionnel* [French nuclear arms confronted with international law and constitutional law] (CLESID, Université de Lyon-III: Lyon, 2000), <<http://clesid.univ-lyon3.fr/pub.ligne.html>>, p. 87. The list is personally reviewed and revised by each president. Theleri, M., *Initiation à la force de frappe française 1945–2010* [Initiation to the French strike force] (Stock: Paris, 1997), p. 263.

<sup>37</sup> Décret no. 62-808 (note 24), Article 1.

<sup>38</sup> In the past, France's arsenal included a distinct category of 'final warning weapons', previously called 'pre-strategic weapons'. This change was meant to communicate that any use of nuclear weapons would be a 'sea change in the nature of the conflict, and therefore would be of a strategic nature'. Tertrais (note 12), 52–54.

<sup>39</sup> From 1958 to 1962 there were in fact 2 joint chiefs of staff: the Chef de l'état-major général de la défense nationale in the Prime Minister's Office and the Chef de l'état-major des forces armées in the armed forces (which was called the Chef de l'état-major interarmées for 1 year, 1961). This reflected the hybrid and evolving nature of the regime during its first 4 years of existence.

<sup>40</sup> Décret no. 96-520 du 12 juin 1996 (note 25), (author's translation). This responsibility was previously held by the commander of strategic forces. Décret no. 64-46 (note 21).

The engagement order would be transmitted by the president, normally from the Jupiter command post. The order would go first to the CEMA via the COFN. Its validity would be verified through multiple means. The order would then go straight to the nuclear units. Presumably, it would include a specific strike plan and the designation of associated warheads, with relevant codes and access keys. Simultaneously, if air-launched weapons were involved, the COFN would presumably authorize the gendarmerie (see below) to release the designated warheads.<sup>41</sup> A two-man rule applies for the release of weapons. While multiple technical options exist to transmit nuclear orders, three networks deserve mention: (a) Jupiter, which links the president with the CEMA; (b) RAMSES, through which the orders would normally be relayed to the units; and (c) SYDEREC, a last-resort option in case a massive nuclear strike has taken place against France.<sup>42</sup> Mechanisms have been set up to guarantee that the engagement order would reach the nuclear units in all foreseeable circumstances. These mechanisms include a 'nuclear suitcase', held by the president's aide-de-camp, and, if needed, a light mobile command post. The president is said to carry the launch codes at all times. A former aide-de-camp to de Gaulle has testified that he had a copy of this code.<sup>43</sup> Since 1981, reportedly due to President François Mitterrand's fear of terrorism, one of the president's military aides is said to carry a portion of the code, and a 'super-code' allows the whole formula to be reconstituted.<sup>44</sup>

The defence minister plays a key role in the civilian control of nuclear weapons. His responsibilities reportedly include the coding of the hard disks that are mounted on the warheads.<sup>45</sup> His personal staff includes a nuclear affairs adviser in charge of the coding procedure. This procedure is independent from the CEMA and is said to be designed in such a way that only the president or president's office can reconstitute the chain of codes, access keys and warhead identification in its entirety.<sup>46</sup> It has been reported that this code is not only an authorization code but also an enabling one.<sup>47</sup> No weapon can physically be detonated without this code.

The defence minister also commands the Gendarmerie de sécurité des armements nucléaires (GSAN), a special unit of the Gendarmerie nationale,

<sup>41</sup> Theleri (note 36).

<sup>42</sup> RAMSES stands for Réseau Amont Maillé Stratégique et de Survie (Amont Maillé strategic and survival network), and SYDEREC stands for Système de Dernier Recours (System of Last Resort)

<sup>43</sup> 'Testimony of Admiral Flohic' in Université de Franche-Comté and Institut Charles-de-Gaulle (note 18), p. 336.

<sup>44</sup> Cohen (note 15), p. 161.

<sup>45</sup> 'Testimony of General Maurin' (note 35), p. 231; and Theleri (note 36), p. 261.

<sup>46</sup> Cohen (note 14), p. 78; and Theleri (note 36).

<sup>47</sup> Isnard, J., 'Le code d'engagement de la force nucléaire' [The code for launching the nuclear force], *Le Monde*, 20 May 1981.



which is responsible for the physical security of the warheads.<sup>48</sup> No French nuclear weapon can be physically moved without civilian executive authorization, and the president personally approves any change in alert status. Unlike their US counterparts, for instance, French SSBN commanders have never been able, technically, to launch armed missiles on their own.

### **Policy-making**

French nuclear policy-making has always been the responsibility of a handful of political leaders and officials. Generally speaking, neither the Parliament nor the strategic community has a significant influence on nuclear decisions.

According to the Constitution, the prime minister is ‘responsible for national defence’, and according to the 1959 ordinance, he convenes the Defence Committee which exerts general leadership and military leadership on defence.<sup>49</sup> However, these provisions predate the 1962 reforms and the advent of French nuclear weapons. Today the government’s role in nuclear policy-making is limited. Convened by the president, the Defence Committee, now the Defence and National Security Council, is the key body for nuclear policy-making.<sup>50</sup> The prime minister only ‘ensures the implementation of general measures’ taken by the Defence and National Security Council concerning nuclear forces.<sup>51</sup> The continued ‘presidentialization’ of the regime under Sarkozy has confirmed that the prime minister only plays a marginal role in nuclear matters (see below).

The defence minister is ‘responsible for the organization, the management and the conditioning of nuclear forces and their necessary infrastructure’.<sup>52</sup> The key nuclear actors in the MOD are the minister and his private staff; the chief of the joint staff and his Nuclear Forces Division; the DGA; the three operational commands of the Force Océanique Stratégique (submarines), the Forces Aériennes Stratégiques (air force fighter-bombers) and the Force Aéronavale Nucléaire (navy fighter-bombers); and the Policy Division (Délégation aux affaires stratégiques, DAS). The creation of the DAS in 1993 has helped give the MOD a more important role in nuclear policy-making and has given civilian experts some additional influence in the policy process. The Plans Division of the Joint Staff is involved when budgetary or programme decisions are made.

<sup>48</sup> The Gendarmerie nationale is a separate military service that combines police and territorial defence functions.

<sup>49</sup> French Constitution (note 1), article 21; and Ordonnance no. 59-147 (note 22), articles 7 and 11 (author’s translation).

<sup>50</sup> Décret no. 62-808 (note 24), Article 1.

<sup>51</sup> Décret no. 96-520 (note 25), Article 2 (author’s translation).

<sup>52</sup> Décret no. 64-46 (note 21), Article 2; and Décret no. 96-520 (note 25), Article 3 (author’s translation).

The elaboration of nuclear policy closely mirrors command and control policy. Policy orientations are made top-down, from the president's office down through the bureaucracy. If a request is not made by the president's office, innovative ideas or concepts have little chance of finding their way to the president's desk, and even less of being adopted. By the author's estimate, nuclear policy in France is made by a group of fewer than 20 people.<sup>53</sup> All in this group hold two clearances: one is *très secret* (top secret), and the other is a special clearance required to have access to Defence and National Security Council deliberations and the technical details of nuclear systems.

Furthermore, similar to command and control, nuclear policymaking has become ever more centralized since 1958. Presidents no longer meet with their whole private military staff (only the CEMP now has direct access to the president). Military commanders have lost their say in nuclear matters with the consolidation of all French nuclear weapons in a single category of strategic weapons.<sup>54</sup> The SGDN is no longer headed by a military officer, as was often the case in the past, and since 1978 it reports to the president in addition to the prime minister. The CEMP and the CEMA are now the only key military nuclear policymakers. Actual nuclear policymaking is done by the president's office and the Joint Staff, with nuclear commands providing only technical support; only a handful of officials are involved in the most classified nuclear discussions. The CEA has, under the Fifth Republic, lost the influence it previously had.<sup>55</sup> The armaments engineers have also seen their importance diminish. With the creation of the DAS, they have lost the pre-eminence they had from 1964 to 1993 in defence studies and policy framing.

Although prime ministers can occasionally play a role in nuclear policy by privately and informally advising presidents, only in times of cohabitation would the prime minister's office play a significant role.<sup>56</sup> However, the prime minister would rarely challenge the president's pre-eminence in nuclear affairs. In fact, presidential authority on nuclear policy has been confirmed by the three cohabitations that have occurred between 1986 and 2002. During the first cohabitation (1986–88), Prime Minister Jacques

<sup>53</sup> Of the people estimated to be involved in nuclear policymaking, about a third are political authorities and their private advisers, another third are civilian bureaucrats and the remaining third are military staff.

<sup>54</sup> See Cohen (note 14), chapter 3.

<sup>55</sup> Cohen (note 2), p. 204. Political control over the CEA was tightened in 1976 with the creation of the Nuclear External Policy Council (Conseil de politique nucléaire extérieure, CPNE), which monitors nuclear exports.

<sup>56</sup> When the coalition supporting the president is defeated at the National Assembly elections, the parliamentary majority is different from the presidential majority. This situation—when the president and prime minister belong to different majorities—is called 'cohabitation'. During cohabitation, the opposition controls the National Assembly (and thus government funding and most legislation) and the president is in effect forced to choose a prime minister from the opposition.

Chirac attempted to challenge official views on nuclear doctrine and systems procurement. He was supported by the defence minister, André Giraud, a man often portrayed as embodying the nuclear industry's interests. However, their views were thwarted by President Mitterrand. During the second cohabitation (1993–95), Prime Minister Edouard Balladur had to conform to Mitterrand's views on testing as well as on doctrinal issues, including those raised in the process of drafting the 1994 white paper on defence and national security.<sup>57</sup> During the third cohabitation (1997–2002), Prime Minister Lionel Jospin managed to leave his mark on nuclear policy, but he did so through consensus within the executive and did not seek to challenge President Chirac the way Chirac himself had done when prime minister in Mitterrand's government. Under the Fifth Republic, the government plays a useful political role in 'shielding' the president by allowing him to stay in the shadows when nuclear policy is debated in the Parliament.

Over time nuclear policymaking has become a three-tiered mechanism: (a) the experts level, with a key role for the Joint Staff and the DAS (who often co-chair working groups); (b) the interagency level, with a key role for the SGDN; and (c) the decision-making level of the Defence and National Security Council.

### **The limited role of other actors**

#### *Parliament*

According to the Constitution, the Parliament lays down 'the basic principles of the general organisation of national defence'.<sup>58</sup> However, since 1958 it has been excluded from most of the nuclear decision-making process. De Gaulle set up five-year defence plans known as military planning laws (*lois de programmation militaire*) so that budget continuity to build the French deterrent would be ensured, and also so that the Parliament would have fewer opportunities to challenge French defence policy. Defence issues, in particular nuclear ones, are to a large extent 'sleeping issues' in parliamentary circles.

The Parliament does report on nuclear policy every year on the occasion of the preparation of the budget vote, and every five years or so on the occasion of the preparation of a new military planning law. Special parliamentary reports on nuclear deterrence issues also appear on an irregular basis (every three or four years) on the Parliament's own initiative. Reports can question government policy, but if their recommendations are highly

<sup>57</sup> French Government, *Livre Blanc sur la Défense 1994* [White paper on defence 1994], Paris, June 1994.

<sup>58</sup> French Constitution (note 1), Article 34.

critical towards such policy, they have almost no chance of being implemented. These reports do, however, play an important role as quasi-official information documents for the parliamentarians and also for the general public, since their authors have access to direct government information.<sup>59</sup> This is also true of hearings of public officials and of written or oral answers to parliamentary questions. Some parliamentary amendments to the budget or military planning law have been accepted by the government, but they have been minor. For instance, in 1996 the government agreed to an amendment to the 1997–2002 Draft Military Planning Law that changed the format of the future nuclear submarine force from four to ‘at least four’.<sup>60</sup>

It would be erroneous to conclude that there is no parliamentary control of nuclear policy in France. Through the reports mentioned, parliamentarians have the most important doctrinal, technical and budgetary data on French nuclear policy at their disposal. The draft laws they are asked to vote on contain less data, but they do contain the most important elements or milestones of nuclear modernization.<sup>61</sup> In addition, the Parliament may be keener in the future to debate nuclear issues given the fact that the 2008 white paper on defence and national security increased the Parliament’s role in overseeing defence policies, in particular peacekeeping operations.<sup>62</sup>

### *Independent advisers*

Academics and non-governmental experts have only a limited role in advising the government on nuclear policy. This may be one reason why French nuclear policy tends to be conservative. While individual influence may exist, it is as a result of informal contacts, not because of publications or studies. A key reason for this limited advisory role is the absence in France of a ‘revolving-door’ through which experts go in and out of government. Instead, for legal and cultural reasons, policymaking at the administrative level is in the hands of professional civil servants and the military. Another reason is the ‘vicious circle’ that has developed since the end of the cold war wherein government and military officials are less transparent about nuclear policy. This has meant that outside experts frequently lack a

<sup>59</sup> These parliamentary reports are the best unclassified official sources for technical or budgetary details. ‘La dissuasion nucléaire : quel rôle dans la défense française aujourd’hui?’ [The nuclear discussion: What is its role in French defence today?] Rapport d’information de M. Serge VINÇON, fait au nom de la commission des affaires étrangères, no. 36 (2006–2007), 24 Oct. 2006, <<http://www.senat.fr/noticerap/2006/r06-036-notice.html>>.

<sup>60</sup> Projet de loi relatif à la programmation militaire pour les années 1997 à 2002 [Draft Military Planning Law 1997–2002], Article 1, <<http://www.senat.fr/rap/195-427/195-4277.html>>.

<sup>61</sup> The exact characteristics of the systems and the number and type of nuclear warheads are classified.

<sup>62</sup> French Government (note 22).

good understanding of existing policy; their ideas and suggestions fall on deaf ears; and nuclear policy thinking remains insulated.<sup>63</sup>

A handful of individuals outside the formal nuclear weapon decision-making structure, all serving military officers, have had an impact on the origins and development of French nuclear strategy. In 1945 Admiral Raoul Castex published a seminal article that was the French equivalent to Bernard Brodie's *The Absolute Weapon* (often referred to as the first book on nuclear strategy), which may have influenced de Gaulle's decision to create the CEA.<sup>64</sup> Other key figures who have influenced French nuclear strategy include Charles Ailleret, Pierre-Marie Gallois, André Beaufre and Lucien Poirier. All four were influential in the 1970s, but their reputation in France and abroad is to some extent overvalued; French strategy was, above all, de Gaulle's strategy.<sup>65</sup> Today, only a few outside experts participate in high-level nuclear policy discussions—and on an ad hoc basis.

### *The media*

There is little to say about the influence of the media on nuclear affairs. Nuclear issues rarely make headlines in France, and editorialists seldom choose them to make a point or to criticize the government. However, proliferation and other nuclear-related international topics are fairly well covered. Articles about nuclear affairs appear in journals, while information and debates on nuclear issues can be found in daily newspapers, often in the form of an editorial by a private analyst or a member of Parliament, and in the weeklies.<sup>66</sup> It is exceptional that issues related to French nuclear weapons find their way onto the front page.<sup>67</sup> In the past few years only specialized media outlets have devoted significant space or special issues to French nuclear affairs.<sup>68</sup>

<sup>63</sup> See chapter 2, section III in this volume.

<sup>64</sup> Castex, R., 'Aperçus sur la bombe atomique' [Survey on the atomic bomb], *Revue de défense nationale* (Oct. 1945), pp. 466–73; and Brodie, B. (ed.), *The Absolute Weapon: Atomic Power and World Order* (Harcourt, Brace: New York, 1946). De Gaulle admired and respected Castex, and the decision to create the CEA was taken a few days after the publication of the article. This causal link with de Gaulle's decision is suggested in Lacouture, J., *De Gaulle (III): Le souverain, 1959–1970* [De Gaulle (III): the sovereign, 1950–1970] (Seuil: Paris, 1986), p. 453.

<sup>65</sup> When Valéry Giscard d'Estaing was elected president in 1974, he invited Beaufre and Gallois as well as the journalist and intellectual Raymond Aron for lunch to inform him about nuclear strategy. Tertrais (note 8).

<sup>66</sup> A sample of such publications includes journals such as *Politique étrangère*, *Politique internationale*, *Critique internationale* and *Relations internationales et stratégiques*; dailies such as *Le Figaro*, *Libération* and *Le Monde*; and weeklies such as *Le Nouvel Observateur*, *Le Point* and *L'Express*.

<sup>67</sup> A rare exception was *Libération*, which claimed in Oct. 2003 that the authorities were about to announce a new nuclear doctrine, information which turned out to be erroneous. 'Nucléaire: la petite bombe de Chirac' [Nuclear issue: Chirac's small bomb], *Libération*, 27 Oct. 2003. See Tertrais (note 12).

<sup>68</sup> Specialized defence media covering French nuclear issues include *Armées d'aujourd'hui* and *L'Armement* (the 2 monthly magazines published by the MOD), *Défense nationale*, *Les Cahiers de Mars*, *Défense* and the newsletter *TTU (Très Très Urgent)*.

This lack of interest within the media on nuclear affairs has actually become a subject of concern to the political authorities. They fear that the French strategic community is losing its nuclear culture. In recent years there has been a deliberate attempt at rejuvenating the knowledge of nuclear weapon issues in the curriculum of military schools as well as in the Institute for Higher National Defence Studies (Institut des hautes études de défense nationale, IHEDN), an official institution that provides special training in defence issues for the French political and military elite. Likewise, French authorities have expressed concern about the lack of debate on nuclear deterrence, which could affect public support and thus the credibility of French deterrence.<sup>69</sup>

## Legal challenges

### *Domestic challenges*

A few weeks after the 1964 decree was published, its legality was challenged and the Left alleged that it was unconstitutional.<sup>70</sup> The challenge went nowhere: at that time the Parliament did not have the possibility to ask the Constitutional Council (Conseil constitutionnel), the guardian of France's constitutional texts, for a judgement. The Left could have tried to oppose the 1964 decree through a law presented by the Senate, but it refrained from doing so. The reality is that it was not ready to suggest a transfer of the nuclear authority to the prime minister or a sharing of such power. More recently, French courts have had the opportunity to rule on nuclear weapons policies and procedures.

In 1992 the State Council (Conseil d'Etat), the highest French administrative court, was requested by a grassroots organization to declare that the 1964 decree was illegal. The executive branch argued that it was an act of government (related to foreign policy) and therefore protected from such a legal challenge. In December 1995 the request was rejected on the grounds that the plaintiffs were not directly and personally affected by the text.<sup>71</sup> However, the State Council rejected the government's position and judged that the decree was an 'administrative act' (related to the organization of national defence). This important decision was a bonus for democratic control: it meant that the 1964 decree (or, for that matter, the 1996 decree and subsequent revisions) was not immune to legal challenge. However,

<sup>69</sup> Bentegeat, H., 'Dissuasion' [Deterrence], *Défense nationale*, Aug. 2004, p. 16.

<sup>70</sup> Décret no. 64-46 (note 21). The arguments were that such an important text should have taken the form of a law and that it bypassed the constitutional authority of the prime minister on defence. See Chantebout (note 1), p. 27.

<sup>71</sup> A few weeks earlier the Council had rejected a request by Greenpeace related to the authority to resume nuclear testing, on the grounds that this was an 'act of government'.

there is a consensus among lawyers that presidential authority on nuclear forces is a now customary practice.

In 2002 the Constitutional Council rejected a request by another grassroots organization to invalidate the presidential candidacies of Chirac and Jospin on the grounds that their policies had contravened the NPT.

### *International challenges*

Unlike the UK and the USA, France has traditionally shown less interest in ensuring the international legality of its nuclear policy. The reasons for this may lie in differences between French and Anglo-Saxon political cultures. However, international jurisdictions have had opportunities to rule or advise on French nuclear weapon policies.

In 1973 Australia and New Zealand asked the International Court of Justice (ICJ) to rule on French atmospheric testing. In a letter to the ICJ, France declared that it did not believe the court was legally competent in this matter and thus refused to participate in the proceedings. In any case, by the time the ICJ was ready to give its ruling, France had moved to underground testing for diplomatic and arms control reasons, and the controversy had become moot.<sup>72</sup>

In 1995 the European Parliament requested the EU Commission to declare whether or not French nuclear testing represented a dangerous activity prohibited by EU law. After an on-site inspection, the Commission ruled that it was not. A group of EU citizens petitioned the European Court of Justice to challenge the Commission's opinion, but their request was rejected.<sup>73</sup>

In 1996 the ICJ was asked by the United Nations General Assembly to give an advisory opinion on the legality of the use or threat of use of nuclear weapons. Contrary to its British and US allies, France considers explicitly that possession of nuclear weapons is based on the natural right to self-defence recognized by Article 51 of the UN Charter, and that this article does not restrict the means to be used. Unlike its allies, France's arguments were based on *jus ad bellum*, and not on *jus in bello* (France refused to enter a discussion on the distinction between civilian and military targets, proportionality etc.). The advisory opinion given by the ICJ in July 1996 was welcomed by the French Government, which also noted with satisfaction

<sup>72</sup> International Court of Justice, Reports of Judgments, Advisory Opinions and Orders, Nuclear Tests Case (Australia v. France), 20 Dec. 1974, <<http://www.icj-cij.org/docket/index.php?p1=3&p2=3&code=af&case=58&k=78>>.

<sup>73</sup> Order of the President of the Court of First Instance of 22 December 1995, *Marie-Thérèse Danielsson, Pierre Largentreau and Edwin Haa v Commission of the European Communities*, Case T-219/95 R, European Court reports 1995 Page II-03051, <[http://eur-lex.europa.eu/smartapi/cgi/sga\\_doc?smartapi!celexplus!prod!CELEXnumdoc&lg=en&numdoc=61995B0219](http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!CELEXnumdoc&lg=en&numdoc=61995B0219)>.

that the court had refrained from commenting on deterrence policies.<sup>74</sup> In 2000 France ratified the treaty creating the International Criminal Court and in 2001 it ratified Protocol I to the Geneva Conventions.<sup>75</sup> In both cases it did so with reservations. France specified that neither text affected the right to self-defence recognized by Article 51 and, like the UK, it explicitly excluded the use of nuclear weapons from the scope of implementation of both treaties.

## IV. The French national consensus

### The birth of the consensus

France's nuclear programme was not controversial in the 1950s. Things changed with de Gaulle's return to power. His decision to build an operational, independent nuclear deterrent was met with strong opposition, both from his coalition partners of the Centre-Right and from the Left. Some believed that France could not afford such an expense or that the military priority should have been Algeria. Others thought that it would weaken the European project or were worried about the cohesion of NATO; the Atlanticist faction of the Right believed that an independent deterrent was not credible.<sup>76</sup> The debate on the first military planning law in 1960 may have been the most serious domestic nuclear controversy that de Gaulle had to face, which was followed in short order by the difficult debate on the 1964 decree.<sup>77</sup>

The French national consensus on an independent nuclear programme coalesced gradually. In the 1970s there were still heated debates between Gaullists and other Centre-Right parties—the former arguing that President Giscard d'Estaing was weak on defence.<sup>78</sup> Arguably, the most important event in the birth of the consensus was the Socialist Party's acceptance of French nuclear policy in the mid-to-late 1970s. Its ally, the Communist Party, opposed Gaullist policies, but like the Socialist Party came to accept

<sup>74</sup> International Court of Justice, Reports of Judgments, Advisory Opinions and Orders, *Legality of the Threat or Use of Nuclear Weapons*, 8 July 1996, <<http://www.icj-cij.org/docket/index.php?p1=3&p2=4&k=09&case=95>>. See also Kile, S. N., 'Nuclear arms control', *SIPRI Yearbook 1997: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1997), pp. 391–392.

<sup>75</sup> Rome Statute of the International Criminal Court, opened for signature on 17 July 1998, entered into force on 1 July 2002, <<http://treaties.un.org/>>; and Protocol I Additional to the 1949 Geneva Conventions, and Relating to the Protection of Victims of International Armed Conflicts, opened for signature on 12 Dec. 1977, entered into force on 7 Dec. 1978, <<http://www.eda.admin.ch/eda/fr/home/topics/intla/intrea/chdep/warvic.html>>.

<sup>76</sup> Aron, R., *Mémoires: 50 ans de réflexion politique* [Memories: 50 years of political reflection] (Julliard: Paris, 1983).

<sup>77</sup> Rynning, S., *Changing Military Doctrine: Presidents and Military Power in Fifth Republic France, 1958–2000* (Praeger: Westport, CT, 2001), pp. 37–38.

<sup>78</sup> E.g. Chirac, when prime minister under Giscard d'Estaing (1974–76), came close to challenging some of the president's nuclear choices, which was a reminder of the 1960s debates pitting the Gaullists against the Centre-Right parties.



the French nuclear deterrent in the late 1970s. Although supportive of nuclear disarmament, the Communist Party thought that a policy independent from that of the USA was the lesser of two evils. The Communist Party also had links with the *Confédération Générale du Travail*—a trade union that was strong in the defence industry. Thus, supporting French national defence policy meant supporting French jobs.

The consensus solidified when the Left came to power in 1981—for the first time in the history of the Fifth Republic—and President Mitterrand became the staunchest supporter of a policy that had been designed by his arch-rival, Charles de Gaulle. No major political party has challenged the need for a nuclear deterrent since 1978. While nuclear controversies have continued, they have concerned the refinements of the doctrine or the need for a particular weapon system. In addition, nuclear debates do not always reflect a clear-cut division between the Right and the Left. The Socialist Party remains a supporter of nuclear deterrence, and the bipartisan review conducted in 1999–2000 re-established the consensus.

Public support for the continued existence of the French nuclear deterrent remains remarkably stable. According to an unpublished opinion poll conducted for the MOD in 2007, 57 per cent of respondents supported French nuclear weapons while 34 per cent were opposed, with almost equal percentages on the Left and on the Right. There was also still a large majority in favour of ‘modernizing’ (43 per cent) or ‘maintaining’ (35 per cent) the deterrent force over ‘reducing’ (23 per cent) it.<sup>79</sup>

France has never had a significant anti-nuclear movement. The Green Party became a government force in 1997 but focused its criticism of French nuclear policy on the civilian side. The French branches of transnational organizations supporting nuclear disarmament (e.g. Greenpeace, Pax Christi or the International Association of Physicians for the Prevention of Nuclear War) are dwarfed by, for example, their British or German counterparts. There are only a small number of grassroots organizations and interest groups devoted to nuclear weapon issues. Among them are the *Mouvement de la Paix*, which since May 2004 has coordinated a multi-organization campaign for nuclear disarmament; the *Centre de documentation et de recherche sur la paix et les conflits*, a dynamic organization active on the Internet and in the media; and *Action des citoyens pour le désarmement nucléaire*. About 40 French organizations are affiliated with the Abolition 2000 network.<sup>80</sup> Religious institutions rarely participate in public policy debates, given the strong separation between Church and State that exists in France; the rare positions

<sup>79</sup> Opinion poll conducted by BVA for the French Ministry of Defence in June 2007. The results were privately communicated to the author.

<sup>80</sup> Abolition 2000 is a network of over 2000 organizations in more than 90 countries working for a global treaty to eliminate nuclear weapons. See Abolition 2000, <<http://www.abolition2000.org/>>.

taken by the French bishops generally mirror the Vatican's line. Only one significant public figure is openly in favour of the abolition of nuclear weapons: former Socialist Prime Minister Michel Rocard.

Unlike some other countries with nuclear weapons, there is little public debate about these weapons in France. Why is this the case? First, nuclear weapons in France remain the positive symbol of an independent foreign and defence policy. French political culture has long identified nuclear technology with independence. It is significant in this respect that the consensus includes nuclear energy—a posthumous legacy of de Gaulle.<sup>81</sup> The French tend to have a benign view of nuclear power, which provides 80 per cent of the country's electricity. Second, the 1967 withdrawal from the NATO integrated command structure insulated French public opinion from the broader Western strategy debate. During the cold war the nuclear debate in Europe was linked with the relationship with NATO and the USA. France was largely spared from this, and did not have massive anti-nuclear demonstrations in the 1980s as most of its neighbours did. These two factors explain the relative apathy of the French public when it comes to nuclear weapon issues, which are rarely affected by the broader debates on foreign policy or on nuclear energy.

By lacking controversy, nuclear weapon policy also has a strong culture of secrecy. Until the 1990s there was a 'nuclear state' comprising five government or publicly controlled entities that was supported by a cast of high-level civil servants: not only the CEA, but also Framatome (power plants), Technicatome (reactors), Cogema (fissile materials) and Electricité de France (the operator of power plants). They were subject to little pressure from political parties or the media for better transparency and public information. Things have changed slightly since the early 2000s. The nuclear industry has been made more independent from the state and has been consolidated with creation of the nuclear giant Areva by the merger of Framatome and Cogema in September 2001.<sup>82</sup> The 1997–2002 Socialist government enhanced public information on nuclear matters, and in 2008 President Sarkozy adopted a policy of increased transparency on the French arsenal and installations (see below). In the post-cold war period, France and Russia are probably the only permanent members of the UN Security Council whose highest political leaders devote a major speech to nuclear deterrence issues every three years or so.

After the cold war, three factors changed the nature of the public debate on nuclear weapons in France: (a) the 1991 Gulf War, highlighting the risks of the proliferation of weapons of mass destruction; (b) the drive for a com-

<sup>81</sup> Gordon, P. H., 'Charles de Gaulle and the nuclear revolution', *Security Studies*, vol. 5, no. 1 (autumn 1995), pp. 118–48.

<sup>82</sup> Some would argue that the privatization of the nuclear and missile industry will lessen French political control over the definition of nuclear weapon system characteristics.

prehensive nuclear test ban and the abrupt presidential decision to establish a moratorium on nuclear testing in April 1992; and (c) the birth of the EU, which raised the possibility of a nuclear dimension in the European integration process. However, in spite of occasional debates, the need for France to maintain its nuclear deterrent has never been seriously questioned.

### **Post-cold war nuclear reviews and the French position**

When he took office in April 1993, Prime Minister Edouard Balladur sought to put his stamp on defence issues by commissioning a white paper on nuclear policy (the last one had been issued in 1972). Since it was a document emanating from the prime minister, it would have been inconceivable to present views that opposed those of the president, François Mitterrand. Presidential aides participated in the drafting process. Key sentences concerning political and doctrinal issues were rewritten many times, and an early draft was presented to Mitterrand, who gave a non-committal response. The white paper included discreet shifts in policy: it did not mention an anti-cities strategy; it stated that nuclear weapons could play a role in deterring the use of weapons of mass destruction by non-major powers; and it took the stance that the EU ought to include a nuclear dimension.<sup>83</sup>

The next parliamentary elections took place immediately after the election of Jacques Chirac as president in 1995 and brought in a parliamentary majority supporting the new president. Chirac confirmed Balladur's 1994 white paper as the basis of French defence policy. At the same time, he announced his intention to commission a defence review that would include decisions on the future French nuclear posture. A Strategic Committee, mostly composed of MOD officials, was chosen to prepare options for Chirac. It worked in secrecy producing requirements and 'options papers', as recommended by Prime Minister Alain Juppé, with the president's agreement. Issues such as deterrence vis-à-vis new risks or the requirements of 'sufficiency' (the French version of minimum 'deterrence') were intensely debated.

In 1998 a series of meetings on nuclear policy review were initiated by the president's office. Originally, the idea was just to finalize the implementation decisions of the 1995–96 review, but the new Socialist government under Prime Minister Lionel Jospin insisted that it should fully participate in the process. As a result, a two-year full nuclear policy review took place in 1999 and 2000. This truly bipartisan review confirmed that the basis of French nuclear policy was still consensus. Adaptations of the concept and the weapon systems were limited. In June 2001 Chirac

<sup>83</sup> French Government (note 57).

announced some of the review's results in a public speech: notably, that deterrence of regional actors was to be achieved not by threatening their populations but their centres of power.<sup>84</sup> This approach was reiterated in his speech of 19 January 2006.<sup>85</sup>

Other than President Nicolas Sarkozy's announcement quantifying the number of French nuclear weapons at 'about 300'—thus lifting the veil of official secrecy that had existed on this question since 1994—France's nuclear doctrine and policy have stayed the course following the first nuclear policy speech by Sarkozy in March 2008 and the white paper produced in June 2008.<sup>86</sup> France is keen to emphasize that this is the total number of its nuclear weapons. In contrast, Russia, the UK and the USA until recently only declared 'operationally available' warheads (and only 'strategic' warheads in the case of Russia and the USA). China and the nuclear-armed countries that are not party to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT) remain silent on this point.<sup>87</sup>

Sarkozy's statement was meant to emphasize that, in French eyes, Russia and the USA should bear the brunt of the disarmament effort, and that they have a long way to go before reaching the British- or French-style 'minimum deterrence' posture. In the meantime, France considers the priorities of the non-proliferation and disarmament debate to be the entry into force of the 1996 Comprehensive Nuclear-Test-Ban Treaty (CTBT), the conclusion of a fissile material cut-off treaty, and increased transparency on nuclear arsenals.<sup>88</sup> In sum, France believes that it has gone a long way towards nuclear disarmament—in particular with the dismantlement of its

<sup>84</sup> Chirac, J., Discours de M. Jacques Chirac, Président de la République, devant l'IHEDN [Speech of M. Jacques Chirac, President of the Republic, before IHEDN (Graduate Institute of National Defence)], Paris, 8 June 2001, <[http://www.elysee.fr/elysee/elysee/francais\\_archives/interventions/discours\\_et\\_declarations/1996/juin/discours\\_du\\_president\\_de\\_la\\_republique\\_devant\\_l\\_institut\\_des\\_hautes\\_etudes\\_de\\_defense\\_nationale-ihedn.1449.html](http://www.elysee.fr/elysee/elysee/francais_archives/interventions/discours_et_declarations/1996/juin/discours_du_president_de_la_republique_devant_l_institut_des_hautes_etudes_de_defense_nationale-ihedn.1449.html)>. For a description of France's current nuclear policies see Tertrais (note 12). For a detailed historical account of the evolution of France's nuclear strategy see Tertrais (note 8).

<sup>85</sup> Chirac, J., Discours de M. Jacques Chirac, Président de la République, lors de sa visite aux forces aériennes et océaniques stratégiques [Speech of M. Jacques Chirac, President of the Republic, during his visit to the Strategic Air and Maritime Forces], Brest, 19 Jan. 2006, <[http://www.elysee.fr/elysee/francais/interventions/discours\\_et\\_declarations/2006/janvier/allocution\\_du\\_president\\_dela\\_republique\\_lors\\_de\\_sa\\_visite\\_aux\\_forces\\_aeriennes\\_oceanique\\_et\\_strategiques-landivisiau-l\\_ile\\_longue-finistere.38406.html](http://www.elysee.fr/elysee/francais/interventions/discours_et_declarations/2006/janvier/allocution_du_president_dela_republique_lors_de_sa_visite_aux_forces_aeriennes_oceanique_et_strategiques-landivisiau-l_ile_longue-finistere.38406.html)>.

<sup>86</sup> Sarkozy, N., Discours de M. le Président de la République à l'occasion de la présentation du SNLE « Le Terrible » [Speech by the President of the Republic on the occasion of the presentation of the SSBN Le Terrible], Cherbourg, 21 Mar. 2008, <<http://www.elysee.fr/edito/index.php?id=51>>.

<sup>87</sup> According to the NPT, only states that manufactured and exploded a nuclear device prior to 1 Jan. 1967 are recognized as nuclear weapon states. China, France, Russia, the UK and the USA are the 5 nuclear-armed states party to the NPT. Israel, India and Pakistan are nuclear-armed states that remain outside the NPT. Treaty on the Non-Proliferation of Nuclear Weapons, opened for signature on 1 July 1968, entered into force on 5 Mar. 1970, <<http://www.iaea.org/Publications/Documents/Treaties/npt.html>>.

<sup>88</sup> Comprehensive Nuclear-Test-Ban Treaty (CTBT), opened for signature on 24 Sep. 1996, not yet entered into force, <<http://treaties.un.org/Pages/CTCTreaties.aspx?id=26>>.

testing site and of its fissile material production installations—and is not inclined to go further at this point.<sup>89</sup> It remains sceptical of the calls for complete nuclear disarmament.

## V. Conclusions

The nuclear history of the Fifth Republic is that of a gradual consolidation and centralization of power: within government, to the benefit of the executive branch; within the executive branch, to the benefit of the president; within the bureaucracy, to the benefit of civilians; and within the military, to the benefit of two key general officers, the CEMP and the CEMA. The president, a directly elected official, is the main decision maker for nuclear policy and use. There is near-absolute political and civilian control over the military. The nuclear system is fairly immune to pressure from scientific and industrial interests. The Parliament votes on all major nuclear decisions concerning programmes and budgets. To be sure, there is little opportunity in practice for real, effective parliamentary control over nuclear policy; and, until recently, France did not characterize itself as having a culture of transparency and public accountability. However, the consensus that exists on nuclear weapons policy makes these two negative points less salient. The system is less ‘undemocratic’ than, to some extent, ‘ademocratic’.

By and large, continuity in French nuclear policy is to be expected. President Sarkozy has adopted the ‘nuclear heritage’ and has remained fairly conservative on nuclear matters (with the notable exception of increased transparency). Nuclear weapons have long ceased to be considered a badge of ‘prestige’, but France’s nuclear status remains linked to some extent, in the national strategic culture, with a fully independent foreign policy and the freedom of action of the president on the international scene. France has officially announced that its full reintegration in NATO’s military structure would not have any impact on its nuclear capability.<sup>90</sup>

<sup>89</sup> To bolster its transparency credentials, France organized 3 visits for diplomats, non-governmental organizations and journalists to its former fissile material production facilities at Pierrelatte and Marcoule in 2008 and 2009, respectively. See Permanent Mission of France to the United Nations in New York, ‘Adoption by the Conference on Disarmament of a work programme: Statement by the Spokesperson of the Ministry of Foreign and European Affairs’, press release, 29 May 2009.

<sup>90</sup> The debates during the drafting of the 2008 white paper on defence and security made it clear that there was still considerable political sensitivity in France regarding the independence of the French nuclear deterrent and its relationship with NATO. Even though the drafters of the white paper were aware that joining NATO’s Nuclear Planning Group (and even formally assigning France’s forces to NATO) would not necessarily have meant a lessened degree of independence, it was judged that the question was too politically sensitive. Hence the carefully crafted language of the white paper, which states that ‘Participation in the Nuclear Planning Group raises a different kind of issue since our nuclear assets are totally independent’, but also that ‘There is no *a priori* limit to France’s commitment to NATO, as long as the independence of our nuclear forces, our author-

Furthermore, even though France has often stated that the EU should include a nuclear dimension, it has always been clear in French eyes that ultimate authority on nuclear use will have to remain national. As far as the global disarmament debate is concerned, France considers that it has already done a lot and feels rather immune to possible international pressures in this regard.

While a constitutional crisis over nuclear authority is a possibility, after three cohabitations that have consolidated presidential authority, the risk seems marginal. Both the practice of nuclear policy and the nature of nuclear weapons themselves have contributed to the consolidation of presidential authority. Democratic control of nuclear weapons in France seems well assured, but the way it is practised could one day become a source of political competition. This risk is however extremely remote given the fact that the presidential term has now been reduced to five years—the length of a parliamentary mandate—and the chances of a cohabitation are thus now very low.

ities' independence of judgment and our freedom of decision with regard to the commitment of our forces are fully preserved.' French Government (note 22), pp. 102–104.

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## 6. China

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BATES GILL AND EVAN S. MEDEIROS\*

### I. Introduction

China's entire nuclear weapon posture—including its doctrine, force structure and deployment and use practices—is the least transparent and least well understood of the five legally recognized nuclear weapon states.<sup>1</sup> This lack of transparency is particularly acute on issues of command and control, the civilian control of nuclear weapons and, in particular, decision making regarding the use of nuclear weapons. Yet, understanding these issues is increasingly important to assessing the current and future stability of China's nuclear forces as the country transitions to a larger and a more accurate, lethal and mobile force structure.

To date, the most prominent research and analysis on Chinese nuclear weapon affairs have focused on assessing force structure, analysing nuclear strategy and doctrine, and detailing the bureaucratic histories of key nuclear weapon and strategic weapon programmes. Some past work attempted to weave several of these strands together to present a cultural analysis of these issues.<sup>2</sup> More recent work seeks to integrate trends in doctrine and force modernization to present a coherent and cohesive explanation of China's current nuclear weapon posture.<sup>3</sup> The growing availability

<sup>1</sup> According to the Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT), only states that manufactured and exploded a nuclear device prior to 1 Jan. 1967 are recognized as nuclear weapon states. China, France, Russia, the United Kingdom and the United States are the 5 nuclear-armed states party to the NPT. Israel, India and Pakistan are nuclear-armed states that remain outside the NPT. Treaty on the Non-Proliferation of Nuclear Weapons, opened for signature on 1 July 1968, entered into force on 5 Mar. 1970, <<http://www.iaea.org/Publications/Documents/Treaties/npt.html>>.

<sup>2</sup> Lin, C. P., *China's Nuclear Weapons Strategy: Tradition within Evolution* (Lexington Books: Lexington, MA, 1988).

<sup>3</sup> Chase, M. S., Erickson, A. S. and Yeaw, C., 'Chinese theater and strategic missile force modernization and its implications for the United States', *Journal of Strategic Studies*, vol. 32, no. 1 (2009), pp. 67–114; Medeiros, E. S., "'Minding the gap": assessing the trajectory of the PLA's Second Artillery', eds R. Kamphausen and A. Scobell, *Right-Sizing the People's Liberation Army: Exploring the Contours of China's Military* (US Army War College, Strategic Studies Institute: Carlisle, PA, 2007), pp. 143–90; Medeiros, E. S., 'Evolving nuclear doctrine', eds P. J. Bolt and A. S. Wilner, *China's Nuclear Future* (Lynne Rienner: Boulder, CO, 2005), pp. 39–78; and Wortzel, L. M., *China's*

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of Chinese writings—including those for official internal use written by military personnel, and materials for broad public consumption—on nuclear strategy and doctrine has permitted analysts to delve more deeply into these topics, with important new findings.<sup>4</sup> Despite these strides in recent research, the vast majority of this research has not made the command and control of Chinese nuclear weapons and particularly the issue of civilian control its principal focus.<sup>5</sup>

This chapter seeks to fill this gap by developing an understanding of the degree of democratic accountability and civilian control over China's nuclear weapons, based on the framework prescribed in chapter 1.<sup>6</sup> Section II provides critical background information on China's nuclear affairs, including the key actors and their relations. Section III provides an overview of the trends in force structure and doctrinal development that collectively informs an assessment of civilian control of nuclear weapons in China. Section IV assesses civilian control over nuclear weapons in China by analysing the historical development of Chinese nuclear weapons and the role of key constituencies over time in shaping nuclear doctrine and in making procurement, deployment and use decisions. Section V summarizes the key findings.

## II. Key actors and their relations

Within this volume's framework for assessing the democratic accountability and civilian control of a country's nuclear weapons, China's governance of its nuclear forces presents an anomaly. To begin with, the key actors involved in nuclear weapon decision making are not democratically accountable in China's one-party state. In addition, the historical peculiarities and symbiotic nature of the Chinese political, military, defence-industrial and scientific communities have greatly blurred the traditional distinctions between civilian and military interests, which further complicates standard analyses of civilian control of nuclear weapons. In one incarnation or another, the military has long had a major role in all aspects of Chinese nuclear weapon affairs. However, its role has been as a part of the complex party–army relationship, not as an independent and organ-

*Nuclear Forces: Operations, Training, Doctrine, Command, Control and Campaign Planning* (US Army War College, Strategic Studies Institute: Carlisle, PA, May 2007).

<sup>4</sup> Chase, Erickson and Yeaw (note 3); Medeiros, 'Minding the gap' (note 3); Medeiros, 'Evolving nuclear doctrine' (note 3); and Chase, M. S. and Medeiros, E. S., 'China's evolving nuclear calculus: modernization and doctrinal debate', eds J. C. Mulvenon and D. Finkelstein, *The Revolution in Chinese Military Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army* (CNA Corporation: Alexandria, VA, Dec. 2005).

<sup>5</sup> A notable exception is Wortzel (note 3); some command-and-control issues are addressed in Chase and Medeiros (note 4).

<sup>6</sup> On frameworks for assessing democratic accountability and civilian control of nuclear weapons see chapter 1 in this volume.



izationally differentiated actor. Furthermore, the National People's Congress, China's legislative body, exercises no control over nuclear weapon decision making (including procurement decisions); for example, there is no publicly available evidence of legislation or legislative debate on nuclear weapon-related issues.<sup>7</sup>

Other factors that might open nuclear decision making to greater transparency and democratic accountability are also absent in the Chinese case. The presence of such factors as whistle-blowers, informed civil society and non-governmental organizations (NGOs), or a doctrine of extended deterrence or joint weapon development and procurement with a democratic country do not exist in China. Since the mid- to late 1990s, some Western analysts in collaboration with a handful of Chinese nuclear weapon scientists, strategists and academics have shed some light on nuclear doctrine issues and fostered a broader acceptance in the Chinese system of international arms control and non-proliferation norms. However, these developments have not opened Chinese nuclear weapon decision making to democratic accountability in any real sense. Rather, China's nuclear weapon decision-making system is best understood as being under civilian control but lacking democratic accountability. The military continues to possess substantial influence, but it does not play a determinative role in major decisions on nuclear weapons, including, but not limited to, the size of China's nuclear forces and the ultimate use of nuclear weapons.

### **Key actors: the party, the army and the defence-industrial and scientific community**

Three constituencies have traditionally played critical roles in the development of China's nuclear forces and the doctrine that governs them: the leadership of the Chinese Communist Party (CCP), the leadership of the People's Liberation Army (PLA) and China's defence-industrial and scientific community.

#### *The Communist Party leadership*

CCP leadership consists of the uppermost political leaders in the party hierarchy. Two interesting features of this leadership have particular relevance to analyses of the command and control of nuclear weapons in China. A recurring feature of CCP leadership is the dominance of one person or of a small clique of key political individuals throughout the his-

<sup>7</sup> Author discussions with legislators from the National People's Congress in Oct. 2004 left the impression that the legislators were unaware or uninformed of their role to ratify the 1996 Comprehensive Nuclear-Test-Ban Treaty (CTBT), which is putatively pending before the body. CTBT, opened for signature on 24 Sep. 1996, not yet entered into force, <<http://treaties.un.org/Pages/CTCTreaties.aspx?id=26>>.

tory of the People's Republic of China (PRC) in general and over questions of nuclear weapons in particular.<sup>8</sup> Mao Zedong, despite occasional challenges to his authority, dominated Chinese politics and was the single-most important individual in the early development of China's nuclear arsenal and doctrinal concepts in the 1950s and 1960s. After Mao died in 1976, Deng Xiaoping came to dominate Chinese politics until the early 1990s. His full authority over military decisions and military-technical affairs came with his chairmanship from 1981 to 1989 of the Central Military Commission (CMC) of the CCP, the party organ that oversees the PLA.<sup>9</sup> Although Jiang Zemin was a far less dominant political figure than either Mao or Deng, he was nonetheless able to build considerable political and military authority.<sup>10</sup> Under the current fourth-generation leadership, unlike the past, no single figure dominates Chinese politics. Major decisions are now largely based on consensus among the collective leadership at the top of the Chinese system, which is made up of only nine men who comprise the Standing Committee of the Political Bureau (Politburo) of the CCP.<sup>11</sup>

On matters of strategic military importance such as nuclear weapons, perhaps five or six political and military leaders play key roles: the top two to three persons in the CCP hierarchy, the two uniformed vice-chairmen of the CMC (e.g. Guo Boxiong and Xu Caihou) and other key members of the CMC such as the heads of the General Staff and Armaments departments and the commander of the PLA's Second Artillery Corps, China's strategic rocket forces.<sup>12</sup> It is important to note that within this group the most important person is Hu Jintao, who is number one in the party hierarchy as general secretary of the CCP, chairman of the CMC and president of China.

<sup>8</sup> Mao Zedong, Zhou Enlai, Deng Xiaoping, Liu Shaoqi and Chen Yi were among the CCP's 1st and 2nd generation of leaders from the 1950s to the 1980s. Jiang Zemin, Zhao Ziyang and Li Peng were among the CCP's 3rd generation of leaders during the 1980s and 1990s. The 4th generation of leaders, headed by Hu Jintao, Wu Bangguo and Wen Jiabao, has been in prominent positions beginning in the mid-1990s and throughout the first decade of the 2000s.

<sup>9</sup> The PLA refers to the entire military organization of China's land, sea, air, and missile forces. The PLA falls under the CMC which is China's supreme military policymaking body and its chairman is the commander-in-chief of the PLA.

<sup>10</sup> Jiang consolidated his power as head of the CCP between 1989 and 2002, as state president from 1993 to 2003, and, most importantly, as chairman of the CMC from 1990 to 2004.

<sup>11</sup> The Standing Committee of the Politburo, typically consisting of 5–9 persons, is the most senior decision-making body in the CCP. It is drawn from the Politburo of the CCP, a body of 25 persons, which in turn is nominally appointed by the Central Committee of the CCP, a body of c. 300 persons.

<sup>12</sup> The PLA's Second Artillery Corps, also referred to as the Strategic Rocket Forces, is the branch of the PLA responsible for China's ballistic missiles, both nuclear and conventional. Unlike Russia's Strategic Rocket Forces, the Second Artillery in China is not a service branch, on par with the army, navy, and air force. Instead, the Second Artillery is only a service arm, which is one-half notch lower in bureaucratic rank, on a par with other such service arms as tank, artillery, air defence, engineering, communications and chemical defence units. See Song, S. (ed.), *Zhongguo junshi baike quanshu: junzhi fence (shang)* [Chinese military affairs encyclopedia: volume 1] (Junshi kexue chubanshe: Beijing, 1995), pp. 141–43.

These three hats provide Hu with the unique role as the only leader who truly sits astride the civilian and military leaderships.

The second interesting feature of the top leadership is how, over time, fewer and fewer serving military officials have reached positions of high political office. This is a stark break from China's past, especially during Mao's reign. Today, the most important political leaders of China—the nine members of the Standing Committee—are civilians with little to no military experience. Even if the leadership circle is broadened to include the full 25-member 17th Politburo of the CCP, appointed in 2007, only two military officials—General Guo Boxiong and General Xu Caihou are members of this group. In short, the influence of the military in the CCP leadership has declined gradually over the past 30 years.

#### *The People's Liberation Army leadership*

The military leadership is a key constituency involved in China's nuclear weapon decision making and command and control. Decisions regarding early nuclear weapon development were shaped by several key military leaders, including Marshal Nie Rongzhen, Marshal Peng Dehuai, Marshal He Long and General Zhang Aiping. From the late 1980s, such persons as General Liu Huaqing, General Ding Henggao, General Cao Gangchuan and General Qian Shaojun have been key military leaders with decision-making authority over military-technical matters, including nuclear force modernization. Generals Guo Boxiong, Xu Caihou—both vice-chairmen of the CMC—and General Jing Zhiyuan, commander of the PLA Second Artillery, are current members of the CMC who have played important roles on these matters as well.

Early military leaders drew much of their power and influence from their roles as revolutionary heroes during the CCP's struggles in the 1930s and 1940s and during the 1950–53 Korean War. Their prestige combined with their close personal relations with China's political leadership meant that they were well positioned during the establishment and first years of the PRC to assert a political authority beyond the more narrow role of a military commander. Subsequent generations of military leaders had some military-technical expertise and input to offer, but none has possessed the enormous political prestige and power that their predecessors (e.g. Nie, Zhang and Liu) had.<sup>13</sup>

#### *The defence-industrial and scientific community*

In the early years of China's nuclear weapon development programmes, weapon scientists were often highly qualified, Western-educated nuclear

<sup>13</sup> See Feigenbaum, E. A., *China's Techno-Warriors: National Security and Strategic Competition from the Nuclear to the Information Age* (Stanford University Press: Stanford, CA, 2003), p. 121.

physicists who played central scientific roles in the development of the country's nuclear weapons and ballistic missiles.<sup>14</sup> As China's nuclear weapons and missiles were deployed and the arsenal expanded in the 1970s and 1980s, the weapon scientists—such as those from the Chinese Academy of Engineering Physics (also known as *jiu suo*, 九所, or Ninth Academy)—not only worked on force structure but also played important roles in shaping Chinese thinking on nuclear strategy, doctrine and arms control policy. This latter role for scientists may have come about because China's early nuclear weapon programme 'proceeded without... strategic guidance' and 'until the early 1980s, there were no scenarios, no detailed linkage of the weapons to foreign policy objectives, and no serious strategic research' and because neither the 'Chinese leader nor his senior colleagues on the Central Military Commission considered, communicated, or authorized the investigation of the broader strategic purposes of the program'.<sup>15</sup>

### Party–army relations

Traditionally accepted analytic frameworks for assessing civilian control over nuclear weapons in specific countries—such as organization theory—assume a discernible distinction between civil and military actors and interests in a given state.<sup>16</sup> However, these conditions have been difficult to evaluate in the Chinese case because these two worlds are somewhat mixed in the Chinese political system (albeit increasingly less so than previously). This was especially true in the formative years of China's nuclear weapon development when decisions about strategic weapons programmes were first made by leaders who straddled the three worlds of party leadership, the military and the defence-industrial and scientific community. This system can be attributed in part to the peculiarities of symbiotic party–army relations in China.<sup>17</sup>

Three important points deserve further elaboration regarding party–army relations and their impact on China's nuclear posture. First, early political leaders of the CCP—such as Mao, Liu Shaoqi, Deng and Zhou Enlai—had considerable experience as military leaders during the Chinese

<sup>14</sup> E.g. Qian Xuesen, founder of China's strategic rocket programmes, and Wang Ganchang, Zhu Guangya and Qian Sanqiang.

<sup>15</sup> Lewis, J. W. and Hua, D., 'China's ballistic missile programs: technologies, strategies, goals', *International Security*, vol. 17, no. 2 (autumn 1992), pp. 5–6.

<sup>16</sup> See Posen, B. R., *The Sources of Military Doctrine: France, Britain and Germany between the World Wars* (Cornell University Press: Ithaca, NY, 1984), especially pp. 59–80; and Sagan, S. D., 'The perils of proliferation: organization theory, deterrence theory, and the spread of nuclear weapons', *International Security*, vol. 18, no. 4 (spring 1994).

<sup>17</sup> On Chinese party–army relations see Shambaugh, D., *Modernizing China's Military: Progress, Problems, Prospects* (University of California Press: Berkeley, CA, 2002), especially chapter 2; and Joffe, E., 'Party–army relations in China: retrospect and prospect', *China Quarterly*, no. 146 (June 1996), pp. 299–314.

Revolution and held much influence within the PLA. At the same time, many of China's top military leaders carried significant political power as party leaders by dint of their status as revolutionary heroes. Thus, decisions by top leaders in the early days of China's nuclear weapon programme were drawn from their distinctive political–military experience and outlook and were not simply a matter of civilian versus military interests.

Today's leaders—such as Hu—lack prestige as revolutionary heroes and do not have military experience. They must establish their credibility with military constituencies through other means such as leadership style, promotions, appointments and other forms of bureaucratic bargaining. They are also increasingly reliant on the judgement of China's top military leaders regarding military matters.

Second, the peculiarities of party–army relations have meant that key leaders have worn many hats at the same time, especially during the formative years of Chinese nuclear weapon programmes and practices. Although weapon scientists were not equivalent to military officers who commanded troops, they received military rank because the strategic weapon programmes were so closely tied to the military (a practice that persisted until the late 1990s). In addition, many officers of the PLA were trained in science and technology and made important technical contributions to China's strategic weapon programmes.<sup>18</sup>

Third, throughout the history of the PRC, the CCP has, as Mao insisted, retained firm 'control of the gun'. Overall, the military has maintained a subordinate and consultative role, relative to the CCP, in strategic matters, including on questions of weapon deployment and use. While military leaders have played crucial political and administrative roles in the decisions concerning strategic weapon and technology programmes, their authority has never trumped that of the civilian party leaders.

### III. Nuclear force structure and doctrine<sup>19</sup>

China's evolving force structure and doctrine are a central part of assessing the degree of civilian control of nuclear weapons in China. As China's deployed forces and the doctrinal thinking underlying them change, the

<sup>18</sup> Qian Xuesen is a good example of the former, and Nie Li, daughter of Nie Rongzhen, who rose to the rank of PLA general and was trained in Leningrad as an electronics and optics specialist, is a good example of the latter.

<sup>19</sup> This section relies on the following authoritative open sources on Chinese nuclear capabilities: Office of the US Secretary of Defense, *Annual Report to Congress: Military Power of the People's Republic of China, 2009* (Department of Defense: Washington, DC, Mar. 2009); US National Intelligence Council (NIC), *Foreign Missile Developments and the Ballistic Missile Threat Through 2015*, Unclassified summary of a National Intelligence Estimate (NIC: Washington, DC, Dec. 2001); and Feickart, A., *Missile Survey: Ballistic and Cruise Missiles of Foreign Countries*, Congressional Research Service (CRS) Report for Congress RL30427 (US Congress, CRS: Washington, DC, 5 Mar. 2004).

command and control—and thus civilian control—of nuclear weapons in China will face new challenges.<sup>20</sup>

### Force structure and modernization

China's small and antiquated nuclear force structure is undergoing significant and unprecedented (for China) transformation. China's nuclear modernization has two main characteristics: China is increasing the size of its nuclear force structure (especially its long-range strike capabilities) and shifting to a much more mobile force that is structured around land-based mobile intercontinental ballistic missiles (ICBMs) and submarine-launched ballistic missiles (SLBMs). The expanding size and increasing mobility of China's nuclear forces create new and complex challenges for the military and the political leadership in renovating (and in many cases creating) systems for the command and control of nuclear weapons during both peacetime and wartime operations.

China currently possesses some 200–300 nuclear weapons, based on varying open-source estimates, and its nuclear forces are a loose dyad or possibly a triad of land-based ballistic missiles, SLBMs and perhaps medium-range bombers.<sup>21</sup> All of the land-based missiles—except the DF-21A, DF-31 and DF-31A—are liquid-fuel systems, and most of the liquid-fuel systems are based in either silos or caves. The liquid-fuel missiles were developed two to three decades ago and are widely assessed to be vulnerable to first-strike attack given their long readiness times, age, questionable reliability and basing modes. China also deploys 12 JL-1 SLBMs on a single Xia Class nuclear-powered ballistic missile submarine (SSBN), but the submarine's operational status is questionable.<sup>22</sup> In addition, China reportedly

<sup>20</sup> On force structure see Kristensen, H. M., Norris, R. S. and McKinzie, M. G., *Chinese Nuclear Forces and U.S. Nuclear War Planning* (Federation of American Scientists/Natural Resources Defense Council: Washington, DC, Nov. 2006), p. 89. On doctrine see Chase, Erickson and Yeaw (note 3); Lewis, J., *The Minimum Means of Reprisal: China's Search for Security in the Nuclear Age* (MIT Press: Cambridge, MA, 2007); Schneider, M., 'The nuclear doctrine and forces of the People's Republic of China', *Comparative Strategy*, vol. 28, no. 3 (2009), pp. 244–70; Gill, B., Mulvenon, J. C. and Stokes, M. A., 'The Chinese Second Artillery Corps: transition to credible deterrence', eds J. C. Mulvenon and A. N. D. Yang, *The People's Liberation Army as Organization* (RAND Corporation: Santa Monica, CA, 2002); Johnston, A. I., 'China's new "old thinking": the concept of limited deterrence', *International Security*, vol. 20, no. 3 (winter 1995/96), pp. 5–42; and Xue, L., 'Evolution of China's nuclear strategy', eds J. C. Hopkins and W. Hu, *Strategic Views from the Second Tier: The Nuclear Weapons Policies of France, Britain, and China* (Transaction: New Brunswick, NJ, 1995).

<sup>21</sup> On China's nuclear forces see appendix A in this volume. It is important to note that these estimates vary, largely depending on the estimated number of tactical nuclear weapons in China's arsenal. The 2004 Chinese defence white paper mentions a nuclear role for the PLA Navy and for the Second Artillery Corps, but not for the PLA Air Force. Chinese State Council, *China's National Defense in 2004* (Information Office of the State Council of the People's Republic of China: Beijing, Dec. 2004), section III.

<sup>22</sup> The JL-1 is the sea-based version of the DF-21A. JL stands for *Ju Long* (巨浪) or 'giant wave'. On the operational status of the Chinese SSBN see Norris, R. S. and Kristensen, H., 'Chinese nuclear forces, 2003', *Bulletin of the Atomic Scientists*, vol. 59, no. 6 (Nov./Dec. 2003), pp. 77–80.

stores its nuclear warheads in facilities separate from the delivery vehicles, meaning that none of its missiles is on active alert status and that it would take many hours to prepare for armed launch during a crisis.<sup>23</sup>

China's nuclear modernization involves transitioning to a force structure that relies on solid-fuel, road-mobile land- and sea-based ballistic and cruise missiles with greatly improved accuracy. Part and parcel of this effort is China's development of smaller and lighter warheads for deployment on both China's newer and older missiles. The overall aim of this effort is to improve the reliability, survivability, penetrability and thus the credibility of China's nuclear arsenal. The US Department of Defense (DOD) has estimated that by 2010 China's nuclear forces will comprise tens of DF-31 and DF-31A road-mobile solid-fuel ICBMs, continued use of CSS-4/DF-5A liquid-fuelled ICBMs, CSS-5/DF-21 road-mobile solid-fuel intermediate-range ballistic missiles, and possibly Jin Class SSBNs, each carrying 12 JL-2 SLBMs.<sup>24</sup>

A critical component of this modernization effort is the improvement of China's nuclear command-and-control system. Such capabilities are central to the leadership's ability to retaliate promptly should China suffer a first strike—presuming China's adherence to its pronounced no-first-use policy. Possessing robust and reliable nuclear command-and-control capabilities is critical to the credibility of China's overall deterrent. Without such a system, China would be even more vulnerable to a decapitating first strike. In recent years, some Chinese military writings have highlighted the importance of improving command-and-control capabilities for nuclear operations; this was a theme seldom publicly mentioned in the past.<sup>25</sup> Steps for Chinese nuclear command-and-control modernization could include hardening existing communication capabilities, erecting redundant systems, establishing reliable and effective channels of communication with missile brigades and acquiring communication capabilities to work with China's new mobile-missile systems, including new ballistic missile submarines on patrol. However, it is difficult to assess the scope or pace of China's modernization efforts in this area as there is little open-source data, in English or Chinese, on this topic. That said, China's modernization of its nuclear command-and-control system is consistent with broader trends in the PLA towards improving the military's capabilities for command, control, communications, computerization, intelligence, surveillance

<sup>23</sup> Stokes, M. A., 'China's nuclear warhead storage and handling system', Project 2049 Institute report, 12 Mar. 2010, <[http://project2049.net/documents/chinas\\_nuclear\\_warhead\\_storage\\_and\\_handling\\_system.pdf](http://project2049.net/documents/chinas_nuclear_warhead_storage_and_handling_system.pdf)>.

<sup>24</sup> Office of the US Secretary of Defense (note 19), p. 24.

<sup>25</sup> See Chase and Medeiros (note 4).

and reconnaissance (C<sup>4</sup>ISR).<sup>26</sup> The command-and-control modernization efforts are also a natural follow-on to the modernization of the nuclear force structure.

### **China's nuclear doctrine<sup>27</sup>**

A key aspect of China's evolving nuclear posture relates to nuclear doctrine—the concepts and policies that dictate the roles and missions of nuclear weapons for China. The increased availability of Chinese source materials that address questions of nuclear doctrine has shed some new light on this long-opaque issue and helps inform assessments of civilian control over nuclear weapons. Based on a close reading of several Chinese sources, both general principles and specific operational concepts tend to favour an approach to nuclear weapon deployment and use that supports a continuation of highly centralized civilian control of nuclear weapons.

Chinese nuclear strategists consistently emphasize the possession of a reliable and survivable nuclear force to credibly deter nuclear aggression and coercion against China. Chinese sources emphasize the maintenance of a modest-sized or limited nuclear force to carry out retaliatory and 'counter-attack' missions. Chinese strategists also use the terms 'sufficient and effective' (*zugou yu youxiao*, 足够与有效) to refer to China's force structure needs in this regard.<sup>28</sup> They also write about possessing the ability for assured retaliation (as opposed to assured destruction) by being able to hold at risk an adversary (and its valued assets) with the credible threat of unacceptable damage. These ideas, for China, serve as the basis of a credible nuclear deterrent capability.

Chinese writings also indicate a widespread and official adherence to the concept of no-first-use, which China has articulated since its first nuclear test in 1964. The consistent use of this term in official documents suggests that it is treated as a principle which guides Second Artillery operational planning. Chinese publications and some government statements continue to be unclear about the precise conditions of the application of this concept; the threshold of its application could be lower than that assumed in Western strategic thought. For example, the US DOD's 2009 report on China's military power notes that open-source debates among Chinese strategists raise questions about whether a no-first-use policy enhances China's ability to deter aggression or coercion, and specifically whether a

<sup>26</sup> Mulvenon, J. C., 'Chinese C<sup>4</sup>I modernization: an experiment in open-source analysis', eds J. Mulvenon and A. N. D. Yang, *A Poverty of Riches: New Challenges and Opportunities in PLA Research* (RAND Corporation: Santa Monica, CA, 2003).

<sup>27</sup> The arguments and data in this section draw largely on Medeiros, 'Minding the gap' (note 3); and Medeiros, 'Evolving nuclear doctrine' (note 3).

<sup>28</sup> This term is specifically used in the publication *Zhanlue* [Science of military strategy] (Junshi Kexue Chubanshe: Beijing, 2001), p. 235.



no-first-use pledge should apply in the case of a conventional attack against China's nuclear forces or in the case of a conventional attack that generates weapons of mass destruction-like effects.<sup>29</sup> Furthermore, unlike the Soviet Union during the cold war, there seems to be little discussion in China of using nuclear weapons to limit damage during a conflict or to win a war. Such a doctrine would require a larger and more accurate nuclear force structure as well as requiring major changes in China's command-and-control architecture and practices. There are few indications that China is evolving in the direction of such a highly militarized nuclear doctrine. Indeed, that China has invested far more resources in improving its conventional military capabilities since the late 1990s suggests that the military leadership does not see nuclear weapons as an effective means of compensating for conventional inferiority, as Russia appears to be doing currently.

China's nuclear doctrine and force could evolve in the future given the transitional nature of China's nuclear forces and its external security environment; however, clear indicators of a major change have yet to emerge. Decisions about nuclear doctrine and force modernization are based on the concerns of Chinese strategists and military planners about a variety of perceived threats to the viability of its deterrent. China's key concerns currently include (a) the pursuit of global, nationwide and theatre missile defence capabilities by the United States; (b) the US development and use of conventional precision-strike weapons which many Chinese fear would be used in conjunction with missile defences to decapitate China's nuclear forces; (c) recent changes in Russia's nuclear doctrine and Russia's long-term response to US efforts to achieve decisive superiority in military capabilities; and (d) the emergence of an active Indian nuclear weapon programme. The US Nuclear Posture Review released in 2010 will also be closely scrutinized by Chinese strategic planners to determine its implications for China's nuclear forces.<sup>30</sup>

#### IV. Assessing civilian control

China's top party and military leaders—which the Chinese writings refer to as the 'supreme command' or *tongshuaibu* (统帅部)—retain ultimate command authority over decisions about the final release of nuclear weapons. Such decisions remain highly centralized and are likely to be made by consensus among the top political and military leaders. At the same time, influence over multiple aspects of China's nuclear weapon posture appears to be diversifying in critical ways from the primary purview of the defence-industrial and scientific community to include the military. In particular,

<sup>29</sup> See Office of the US Secretary of Defense (note 19), p. 26.

<sup>30</sup> US Department of Defense (DOD), *Nuclear Posture Review Report* (DOD: Washington, Apr. 2010), <<http://www.defense.gov/npr/>>.

the PLA has begun to assert itself in areas of nuclear doctrinal development and weapon procurement decisions. This assessment of civilian control over nuclear weapons is divided into four areas: (a) the decision to develop nuclear weapons, (b) doctrinal evolution, (c) research and development (R&D) and procurement choices, and (d) supreme command authority.

### **China's decision to develop nuclear weapons<sup>31</sup>**

An examination of China's decision to develop nuclear weapons highlights the country's peculiar civil–military context. It is crucial to understanding Mao's singularly important role as well as the intermingled roles of the civilian, military and defence-scientific communities in this decision. Such an understanding sets a useful benchmark from which to gauge subsequent and future developments in civilian control and the command and control of nuclear weapons in China.

China's decision to pursue nuclear weapons was made at a Politburo meeting led by Mao in January 1955 and came largely in response to the threats made against China by the USA during the 1954–55 Taiwan Strait crisis.<sup>32</sup> Subsequent decisions to pursue a more comprehensive arsenal of strategic weapons followed: the 1956 decision to build strategic missiles and strategic bombers, and the 1958 decision to build SSBNs and SLBMs.<sup>33</sup> Over the course of the late 1950s and early 1960s these decisions engendered intense debate in China between those civil–military constituencies that favoured these strategic programmes and those that did not. The latter constituency argued that China had more pressing domestic developmental needs and required conventional force modernization far more than it needed costly nuclear weapons, strategic delivery vehicles and SSBNs. The dual economic disasters of the Great Leap Forward (1958–60) and the ensuing widespread famine bolstered these claims. In the end, however, Marshal Nie prevailed by arguing that the pursuit of strategic weapons would contribute to national economic, scientific and technological development in addition to creating greater military power to deter foreign threats.<sup>34</sup> From its earliest stages, China's development of nuclear weapons has been cast as contributing to both national development and military modernization and not strictly as a military programme.

<sup>31</sup> On bureaucratic histories of key nuclear and strategic weapon programmes see Lewis, J. W. and Xue, L., *China's Strategic Seapower: The Politics of Force Modernization in the Nuclear Age* (Stanford University Press: Stanford, CA, 1994); and Lewis, J. W. and Xue, L., *China Builds the Bomb* (Stanford University Press: Stanford, CA, 1988).

<sup>32</sup> According to China specialist John Gittings, the USA threatened China 7 times with the use of force in the 1950s, although not all of these threats were nuclear in nature. See Gittings, J., *The World and China, 1922–1974* (Eyre-Methuen: London, 1974).

<sup>33</sup> On the early Chinese decisions to develop nuclear weapons see Lewis and Xue, *China Builds the Bomb* (note 31); Lewis and Xue, *China's Strategic Seapower* (note 31); and Feigenbaum (note 13).

<sup>34</sup> For details on this debate see Feigenbaum (note 13), pp. 25–31.

China's nuclear weapon and strategic missile programmes were shaped by at least three critical factors, all of which favoured civilian (party) control over nuclear weapons. First and foremost is the dominant role of Mao as China's unrivalled leader at the time. In the formative years of China's nuclear weapon programme, key decisions were dictated by the views and statements of Mao and a small number of other leaders under the powerful political sway of Maoist ideology and Mao's control of internal politics. It is also true that the development of serious strategic thinking about nuclear doctrine was hampered by the ravages of political campaigns in China, including the purges of 'Rightists' in the late 1950s and the excesses of the Cultural Revolution (1966–76).<sup>35</sup> In a political environment that stressed being 'Red' over being 'expert', China's nuclear doctrine was both under-theorized and underinstitutionalized, especially in relation to Soviet and US experiences during the cold war. As a result, Mao's minimalist position about the roles of nuclear weapons and the prevailing political conditions meant Mao's imperative that the CCP should control the gun was more readily realized and maintained.

Second, China's early nuclear weapon decisions were also shaped by the unique dynamic of party–army relations as discussed above. While the fundamental decision to 'go nuclear' was arguably about being able to stand up to and deter US (and later, Soviet) nuclear threats, strictly military thinking about the development of China's nuclear forces did not come to dominate its course.

Finally, as a developing country, China's technical obstacles and resource limitations almost immediately constrained its deployments to a small and unsophisticated nuclear arsenal that based the credibility of its deterrent capability on the threat of an uncertain but ultimate retaliation—including the possibility of retaliation by China days, if not weeks, after an attack on it. Given these political and technological constraints on Chinese nuclear weapon development, the Chinese military-technical elite could not pursue a narrowly militarist approach to nuclear weapons and was, in any event, not heavily involved in thinking about the role and mission of nuclear weapons. Essentially, it was left to China's civilian party leaders to determine the concepts and conditions for nuclear weapon use.<sup>36</sup> In practical terms, this meant that possessing a small and unsophisticated nuclear force

<sup>35</sup> In the parlance of the time, Rightists were considered insufficiently 'revolutionary'; typically these campaigns attacked the better-educated and well-off, and those with foreign associations.

<sup>36</sup> 'Nie [Rongzhen]'s group did not discuss or appear to consider relevant how these programs, if successful, would fit any new strategic concept. The members of Nie's group did not explicate the underlying strategic rationale for the program, and no one asked them to do so . . . [China's] strategic doctrines are the product, not the cause, of the [weapon] project's political-technical evolution'. Lewis and Xue, *Strategic Seapower* (note 31), pp. 4, 20. '[C]hinese nuclear weapons development was apparently target- and technology-, and not specifically doctrinally driven'. Swaine, M. D., *The Role of the Chinese Military in National Security Policymaking*, rev. edn (RAND Corporation: Santa Monica, 1998), p. 39.

structure for decades allowed for a less complex and more manageable command-and-control system for China's civilian party leadership.

### **Doctrinal evolution**

China conducted its first nuclear test on 16 October 1964 and in the two and a half decades that followed, the country's nuclear doctrine was highly undertheorized and underinstitutionalized. There is little evidence that any organization (e.g. the PLA or central government or party organ) conducted systematic and detailed research on the role and mission of nuclear weapons until the 1980s. Rather, the prevailing evidence indicates that China's initial nuclear doctrine, if it can be called that, was based on a loose set of Mao's ideas about deterring a nuclear-armed adversary by possessing a small retaliatory capability.<sup>37</sup> As in all issues related to military doctrine during the period of his leadership, Mao set the tone and content of Chinese policies. In this context, Mao argued that China's nuclear modernization should be guided by the three general principles of 'build a few weapons, keep the number small, make the quality high'.<sup>38</sup> In the Western nuclear lexicon, Mao's ideas closely approximate the minimum deterrence school of thought.

Within this general Maoist approach to nuclear weapons, China's technological and resource capabilities essentially shaped the evolution of its nuclear doctrine in the 1960s and 1970s. The development of specific warhead and delivery system capabilities influenced its nuclear weapon policies. As noted, China's technological capabilities (especially the limitations) were determining doctrine far more than doctrine was determining nuclear and missile procurement requirements. Mao's view of warfare, specifically his doctrine of 'people's war'—which stressed a belief in man over machine—meant that nuclear weapons served in a supporting, rather than a starring, role. This legacy has remained in place for many decades. In contrast, during the cold war, nuclear weapons were the crown jewels of the Soviet and US militaries.

During Mao's rule, China's nuclear and missile scientists loosely influenced doctrinal issues through their role in shaping procurement decisions and determining how fast nuclear and missile capabilities were acquired. China's weapon scientists played a dominant role in internal meetings about nuclear weapons, and their advice was always highly regarded among China's top party and military leaders. This was evident in the early to mid-1990s during China's internal debate about signing the 1996 Com-

<sup>37</sup> This argument is made in Lewis and Xue, *China Builds the Bomb* (note 31); Johnston, 'China's new "old thinking"' (note 20); and Xue (note 20).

<sup>38</sup> Mao Zedong as quoted in Xue (note 20), p. 171.

prehensive Nuclear-Test-Ban Treaty.<sup>39</sup> While Mao's views on nuclear weapons continued to set the boundaries of such discussions, the defence-scientific community was viewed as a critical locus of experience and expertise on all nuclear weapon-related issues. Its bureaucratic power and influence was institutionalized by the founding of the Commission on Science, Technology, and Industry for National Defence (COSTIND) in 1982 and reinforced by the ascension of key defence scientists throughout the government and the military in the 1980s.

*The People's Liberation Army and the Second Artillery Corps*

During the 1966–76 Cultural Revolution, all of China's military academic institutions were closed: the PLA and the Second Artillery took their cues entirely from Mao. This intellectual hiatus, beginning two years after China became a nuclear weapon state, left an indelible mark on the PLA's involvement in the development of a formal nuclear doctrine. A Chinese study on the history of 'military academic research' explicitly reveals that the Second Artillery conducted very little, if any, work in the 1960s and 1970s on nuclear doctrine.<sup>40</sup>

Deng's return to power in 1978 catalysed the Second Artillery (and the entire PLA) to begin exploring military strategy and doctrine issues for the first time.<sup>41</sup> However, it was not until 1985 that the Second Artillery began to research nuclear strategy theory as part of a broad promotion of military strategy research throughout the PLA. In 1990 the Second Artillery held its first operations research theory meeting, which sought, for the first time, to link its nuclear strategy, campaign and tactics—a critical step in the operationalization of its doctrine.

Since the 1990s, the role of the PLA, especially the Second Artillery, in the formulation, articulation and operationalization of military doctrine has continued to expand. This has occurred at the same time as the dominant influence of China's civilian weapon scientists appears to have receded in relation to the PLA. China's weapon scientists no longer appear to dominate the development of policies related to operational nuclear doctrine. One possible indicator of this trend is the PLA's publication of several authoritative books on military strategy and doctrine that include detailed discussions of China's policies on the timing, targeting and basing of nuclear weapons. These PLA books are far more detailed than any previous Chinese publications on nuclear doctrine questions.<sup>42</sup>

<sup>39</sup> On the Comprehensive Nuclear-Test-Ban Treaty see note 7.

<sup>40</sup> 'Dier Paobing junshi xueshu' [Second Artillery military studies], *Junshixue Yanjiu Huigu yu Zhanwang* (Junshi Kexueyuan Chubanshe: Beijing, 1995), pp. 358–71.

<sup>41</sup> *Junshixue Yanjiu* (note 40), p. 361.

<sup>42</sup> These include Hongqing, W. and Xingye, Z. (eds), *Zhanyixue* [Science of military campaigns] (Guofang Daxue Chubanshe: Beijing, 2000); *Zhanluexue* (note 28); and *Zhanyixue Yanjiu* [Research on the science of military campaigns] (Guofang Daxue Chubanshe: Beijing, 1997).

Three additional factors further support the argument about the growing role of the PLA in nuclear doctrine formulation and operationalization. First, an expanded role is consistent with the PLA's renovation of its entire military doctrine. This doctrinal modernization effort culminated in 1999 with the CMC's issuance of several new 'directives' which provide 'new authoritative operational guidance to the PLA at the campaign and tactical levels of warfare'.<sup>43</sup> The PLA also issued new Second Artillery guidelines, which probably further specified various policies related to the role and mission of nuclear weapons.<sup>44</sup> These developments suggest that the PLA is more active in and has an increasing effect on the operationalization of Chinese nuclear doctrine.

Second, the institutional base of support for China's weapon scientists has eroded in recent years. Few of China's original and highly revered nuclear and missile scientists are still alive or active in internal discussions. In addition, late 1990s organizational changes in the defence-industry bureaucracy severely curtailed the institutional basis of defence-scientific influence in China's bureaucracy. As a result, China's current defence-industry organs are not nearly as powerful as they once were. In 1998–99 much of the defence-scientific establishment was folded into the PLA's procurement agency, which has further limited any vestiges of independent authority, while augmenting the military's role.<sup>45</sup>

Third, decisions in the mid-2000s at the top of China's military-power structure appear to give the PLA some increasing influence in strategic military decision making, including nuclear force doctrine. When Jiang Zemin stepped down as head of the CMC in September 2004, he was succeeded by Hu Jintao, who had held one of three vice-chairmanships on the CMC. Hu's vice-chair vacancy was not filled by another civilian but by a military leader, General Xu Caihou, who was the chief of the PLA's General Political Department. At the same time, the head of the Second Artillery, Lieutenant General Jing Zhiyuan, was elevated to a seat as a regular member of the CMC—the first time that the commander of the Second Artillery Corps (as well as the army, navy and air force) had been brought onto this powerful body.

<sup>43</sup> These were known as 'new generation operations regulations' (*Xin Yidai Zuozhan Tiaoling*, 新一代作战条令). See Finkelstein, D. M., 'Thinking about the PLAs "revolution in doctrinal affairs"', eds Mulvenon and Finkelstein (note 4).

<sup>44</sup> These Second Artillery guidelines are found in a document known as the Chinese People's Liberation Army Second Artillery Corps campaign directive (*Zhongguo Renmin Jiefangjun Dierpaobing Zhanyi Gangyao*, 中国人民解放军第二炮兵战役纲要). A *gangyao* is a type of highly classified Chinese document which outlines core military concepts for a service branch. In 1999 *gangyaos* were also issued for the army, navy and air force and for joint military operations.

<sup>45</sup> The PLA's procurement agency, the General Armaments Department, is discussed below.

### Research, development and procurement choices

For most of the half-century of Chinese nuclear weapon programmes, civilian party leaders and civilian and military weapon scientists have been at the decision-making core on military R&D and procurement choices. Such decisions—especially under the conditions of a planned economy throughout the 1950s, 1960s and 1970s—were not dictated by narrow military requirements (such as doctrine or specific scenarios), but rather by parameters of the possible as determined by Mao's statements about nuclear weapons, the constraints and demands of the national economic plan, threat assessments, and national science and technology capabilities. Even as China embarked on its dramatic period of reform and opening in the late 1970s, Deng Xiaoping relegated military modernization to the fourth, and last, place, of his 'four modernizations'—behind agriculture, industry, and science and technology.

This set of priorities is clearly reflected in the comparatively modest R&D and procurement patterns of China's nuclear weapon programme. While China presumably could have pursued certain nuclear technologies and capabilities more vigorously, especially with dramatically increased resources in the 1980s and 1990s, it did not. For example, China's 32-year-old programme of nuclear testing is the smallest of the five recognized nuclear weapon states, with 45 tests between 1964 and 1996.<sup>46</sup> In comparison, the USA has tested more than 20 times as often, with more than a thousand documented tests between 1945 and 1992. China's last atmospheric test was conducted on 16 October 1980, and its last underground test was on 16 August 1996.

China's warhead design and deployment have been limited as well. According to the US DOD, China is conducting research on, but has not deployed missiles with, MIRV (multiple independently targetable re-entry vehicle) capabilities.<sup>47</sup> In another example of restrained nuclear weapon R&D and procurement efforts, work on solid-fuel missiles in China dates back to October 1956, but it was not until the 1990s that China first deployed solid-fuel ballistic missiles. Similar problems and lengthy delays have characterized the development of nuclear submarines and solid-fuel SLBMs.<sup>48</sup>

<sup>46</sup> On nuclear weapon testing see Fedchenko, V., 'Nuclear explosions, 1945–2009', *SIPRI Yearbook 2010: Armaments, Disarmament and Security* (Oxford University Press: Oxford, 2010), appendix 8B, pp. 371–76. On nuclear weapon states see the NPT (note 1).

<sup>47</sup> Office of the US Secretary of Defense (note 19), p. 24.

<sup>48</sup> See 'China's solid propellant ICBM research', Xie, G. et al. (eds), *Dangdai Zhongguo de Guofang Keji Shiye* [Contemporary China's defence science and technology undertakings], vol. 1 (Dangdai Zhongguo Chubanshe: Beijing, 1992).

*The restructuring of China's defence-industrial and scientific community*

Several critical developments in the late 1990s and early 2000s suggest that the military will be taking a far more significant role in military R&D and procurement decisions, including those related to strategic weapon systems. Most significantly, the Chinese defence procurement system underwent a major overhaul in 1998, which subordinated military R&D and procurement, including the work of civilian weapon scientists, more directly under the authority of the PLA. Four steps in this process are notable.

First, the formerly important role of COSTIND in R&D and procurement was significantly curtailed. In March 1998 COSTIND was formally abolished. It was immediately reconstituted as a strictly civilian entity with the same name, but the 'new' COSTIND was stripped of its military-related agencies and was given an entirely civilian leadership. It was designated to serve in an administrative capacity to manage the production of China's vast defence-industrial base—both military and civilian products—as well as oversee and implement its own continued downsizing and reform.

Second, in April 1998 the General Armaments Department (GAD) was established as a general staff-level department of the PLA. The GAD was set up to serve as the procurement branch for the PLA (from both foreign and domestic weapon sources) and to act as a watchdog and quality-control mechanism over weapon production, while also conducting some R&D.

Third, the defence industry itself has also undergone significant reorganization. In July 1999 the Chinese Government announced that the five giant state-owned, defence-industrial conglomerates would each be divided in two, thereby forming ten new 'defence-industrial enterprise group companies', or 'group companies' for short, including those responsible for producing nuclear weapons, ballistic missiles and other technologies for China's nuclear force. The purpose of this step was to enhance competition, marketization and the streamlining of China's defence-industrial base. In the latter part of the 2000s, many of these group companies were recombined into one group to once again try to capture economies of scale and improve international competitiveness.

Fourth, in March 2008 COSTIND was fully abolished as a free-standing commission and was subordinated under a new 'super-ministry', the Ministry of Industry and Information Technology, and renamed the State Administration for Science, Technology and Industry for National Defence (SASTIND).

These reforms placed COSTIND (now SASTIND) and the defence-industrial and scientific community more generally in the subordinate role of producer, but not planner, and placed military R&D and procurement decisions directly and almost exclusively in the hands of the military. The



GAD gained significantly by taking control of a diverse array of departments and bases from parts of the COSTIND and PLA hierarchy. The GAD took control of COSTIND's scientific advisory body, weapon-testing centres, satellite-launch bases, intelligence and research facilities, and some schools and universities. In addition, the GAD drew from within the PLA, including arms procurement bureaus from the General Logistics Department and the General Staff Department.<sup>49</sup>

The GAD consolidated weapon development, procurement and maintenance oversight, and it now serves as the principal point of contact to mediate between PLA equipment needs and their sources, whether domestically produced under defence industry auspices or procured from abroad. In short, rather than the state- and civilian-defence scientists determining what the PLA will buy (as was past practice), the PLA has a far greater hand in determining what it needs, where to procure it and whether the final product meets PLA requirements. In these ways, the PLA, via the GAD, plays a substantially greater role than in the past in determining the direction and pace of the PLA's modernization process, including for its nuclear forces.

These structural changes combined with steadily increased procurement budgets over the 1990s and early 2000s and the expansion of the CMC in September 2004 to include chiefs of the service branches (including the Second Artillery) give the PLA greater consultative and decision-making authority over weapon procurement than ever before. As the PLA, including its nuclear forces, becomes more professional and less politicized, better trained and technologically sophisticated, it can be expected to play an even more important R&D and procurement role.

### **Command and control**

As noted above, China's nuclear command-and-control system faces significant challenges in the coming years due to the growing size and increasing mobility of its nuclear forces. These two developments create new demands on the political leadership and the PLA to modernize its existing nuclear command-and-control capabilities and to possibly modify its nuclear command-and-control procedures (e.g. decisions about pre-delegation of launch authority).

Of all of China's nuclear weapons issues, command and control are among the most tightly guarded. Chinese writings reveal only the general

<sup>49</sup> This point and others in this discussion on GAD and COSTIND draw on Jencks, H. W., 'COSTIND is dead, long live COSTIND! Restructuring China's defence scientific, technological and industrial sector', eds J. C. Mulvenon and R. H. Yang, *The People's Liberation Army in the Information Age* (RAND Corporation: Santa Monica, CA, 1999), pp. 59–77; and Jencks, H. W., 'The General Armament Department', eds Mulvenon and Yang (note 20).

characteristics of such decisions: their most prominent theme is the high degree of centralization of nuclear command and control among China's top leaders. According to Chinese Government sources, any decision to use nuclear weapons would be made by a combination of China's top party and military leaders, although the specific size and composition of that decision-making body is unclear.<sup>50</sup> Following such deliberations, the choice to gauge consensus and make the command decision would likely fall to the acknowledged 'first among equals' in the Chinese leadership, who would also typically hold the chairmanship of the CMC (currently, President Hu). Some Chinese military publications offer limited insights into nuclear command-and-control issues. China's 2000 defence white paper states that its 'nuclear forces are under the direct command' of the CMC, and its 2008 defence white paper reiterated that the 'Second Artillery Force is . . . under the direct command-and-control of the CMC'.<sup>51</sup>

The National Defence University's *Science of Military Campaigns* emphasizes the necessity of ensuring that, whether in peacetime or in the event of war, the 'supreme command' (*tongshaibu* 统帅部 or *zuigao tongshuaibu*, 最高统帅部) retains extraordinarily strict command and control of nuclear operations. In the space of a few pages, this authoritative book reiterates this point several times.<sup>52</sup> Similarly, a companion volume, the *Science of Military Strategy*, strongly emphasizes that only the supreme national leadership (*guojia zuigao lingdaoceng*, 国家最高领导层) and supreme command have the authority to order the use of nuclear weapons.<sup>53</sup> A third book, *Research on the Science of Military Campaigns*, is similarly explicit about the role and importance of the supreme command in nuclear weapon operations:

The use of nuclear weapons is an important policy decision of a country in wartime. In terms of the scale of combat operations and the scope of the organization of command, it is both part of a war and also is part campaign, and normally belongs to the strategic campaign. As a result, the authority to use the nuclear forces must be highly centralized in the Supreme Command and combat operations must be carried out by highly centralized command.<sup>54</sup>

<sup>50</sup> Given China's historical propensity to form ad hoc 'leading small groups' among the leadership during national security crises, it is not clear that the government has specified the membership of such a group. The lack of an institutional basis for crisis decision making is a well-documented feature of the Chinese political system. See various chapters in Swaine, M. D. and Zhang, T. (eds) with Cohen, D. F. S., *Managing Sino-American Crises: Case Studies and Analysis* (Carnegie Endowment for International Peace: Washington, DC, 2006).

<sup>51</sup> Chinese State Council, *China's National Defense in 2000* (Information Office of the State Council of the People's Republic of China: Beijing, Oct. 2000); and Chinese State Council, *China's National Defense in 2008* (Information Office of the State Council of the People's Republic of China: Beijing, Jan. 2009), p. 40.

<sup>52</sup> *Zhanyixue* (note 42), pp. 369–71.

<sup>53</sup> *Zhanluexue* (note 28).

<sup>54</sup> *Zhanyixue Yanjiu* (note 42), p. 375 (authors' translation).

*Science of Military Campaigns* and *Research on the Science of Military Campaigns* even specify the tasks of the supreme command regarding nuclear warfare. The key responsibilities include (a) setting the guiding principles of the nuclear counter-attack campaign; (b) determining the objectives of the campaign; (c) determining campaign deployments; (d) selecting strike targets; and (e) timing and coordinating every type of nuclear attack.<sup>55</sup>

In addressing the relationship between the command authority in Beijing and the campaign commanders in the field, these Chinese texts stress the importance of adhering to a strict chain of command and specify the roles and responsibilities of the Second Artillery commanders. There are even regulations that outline such responsibilities.

[Carrying out nuclear counter-attack campaigns] requires that the Second Artillery campaign commanders must have a high degree of strategic awareness. This begins by looking at the overall campaign and correctly understanding the intent of the Supreme Command, and *extremely strictly and extremely precisely* in accordance with the orders and unified plan of the Supreme Command to organize combat operations and to carry out strict control and precise command. When unusual changes occur in the situation, [the Second Artillery campaign commanders] should of course handle them within the authorized scope of the regulations. When the Supreme Command takes over command, they should actively perform the support work well and ensure the ability to smoothly carry it out.<sup>56</sup>

Furthermore, *Research on the Science of Military Campaigns* uniquely discusses the issue of ‘skip-echelon’ command-and-control arrangements during a crisis. It indicates that the PLA has adopted skip-echelon procedures in which a layer of authority in the nuclear chain of command can be ‘passed over’ if communications fail or are extremely time-sensitive during a nuclear crisis. The text states:

Under normal conditions, the orders can be issued down through the levels. Under urgent conditions, levels can be skipped and the superiors of those executing the order can be informed later. When necessary, commanders can go down to the forces to provide personal instruction or dispatch a command contact small group [指挥联络小组] for direct transmittal [of orders]. Campaign commanders and their headquarters should direct the forces to carry out orders precisely.<sup>57</sup>

These texts on command and control raise two issues that are not addressed in more openly available Chinese writings on the topic. First, the PLA would need to possess adequate communication capabilities to maintain such strict centralized control and to implement authorized and coordinated skip-echelon arrangements during a crisis. Given China’s stated no-first-use policy, Chinese planners would have to assume that

<sup>55</sup> *Zhanyixue Yanjiu* (note 42), p. 279.

<sup>56</sup> *Zhanyixue Yanjiu* (note 42), p. 280 (authors’ translation, emphasis added).

<sup>57</sup> *Zhanyixue Yanjiu* (note 42), pp. 284–85 (authors’ translation).

China was operating in a highly chaotic post-nuclear attack environment, which presents numerous technical hurdles for reliable and secure communication among military commanders. Conducting a counter-strike campaign in such an environment may be complicated by the desire of the leadership and the PLA to maintain strict centralized control and to communicate with troops in the field, assuming communication channels were not eliminated. Some literature suggests that China maintains a central emergency war command centre, allegedly located under Yuquan Mountain on the outskirts of Beijing, and that there are additional, alternative command centres in more remote parts of the country.

A second issue implied in the Chinese texts about nuclear command and control is that China adheres to neither a launch-on-warning nor a launch-under-attack posture. The writings suggest that although China's nuclear counter-strike would not necessarily be immediate, it would be inevitable.<sup>58</sup> Mao argued that China's retaliation could come weeks or months after the initial attack. While current Chinese sources on the topic emphasize the importance of immediately and resolutely retaliating against a first strike, it is not clear that China possesses either the communications or early-warning capabilities for such operations (such as satellites that could warn of a pending nuclear attack). The current and future alert status of Chinese nuclear weapons will also significantly influence China's ability to retaliate promptly.<sup>59</sup>

One of the greatest limitations of assessing the Chinese literature on nuclear command-and-control issues is the complete lack of discussion of the composition of the 'supreme command'. This lack of data hinders assessments of the degree of civilian control over China's nuclear weapons. It is argued here that the supreme command is probably comprised of both China's top CCP and PLA leaders, drawn from the Politburo Standing Committee and the newly expanded CMC. This argument is consistent with China's past and current emphasis on collective decision making, especially in times of crisis. This model of group decision making is also in line with past decisions on critical national security issues such as entering the Korean War in 1950, invading Viet Nam in 1979 and the 1995–96 Taiwan missile crisis.<sup>60</sup> The recent emphasis in Chinese defence white papers on the command-and-control role of the CMC over the Second

<sup>58</sup> On this issue see China's defence white paper of 2000, which specifically states: 'Any such attack *will inevitably result in a retaliatory nuclear counterstrike by China.*' Chinese State Council, 2000 (note 51), section II (emphasis added). The 2008 version of the defence white paper states: 'If China comes under a nuclear attack, the nuclear missile force of the Second Artillery Force will use nuclear missiles to launch a resolute counterattack against the enemy either independently or together with the nuclear forces of other services.' Chinese State Council, 2008 (note 51), p. 40.

<sup>59</sup> As noted above, Chinese missiles are stored separately from their warheads, which would complicate rapid counter-strikes during a conflict.

<sup>60</sup> See various chapters in Swaine, Zhang with Cohen (note 50).

Artillery also suggests the important role for this body, which is headed by a civilian (currently Hu Jintao) but otherwise consists of military leaders.

Nowadays, such sensitive military decisions are even more collective given the lack of one powerful leader, such as Mao or Deng, and the relative lack of military experience among China's top civilian leaders. A collective approach to nuclear command-and-control decisions would also balance the various interests of the party leadership and the CMC, which is directly involved in conducting military operations. Moreover, the division of labour on national security decisions among government agencies appears to have become more distinct in recent years. In particular, as the PLA has become professionalized and less involved in party affairs, its role in national security decision making has become more narrowly defined to providing military-related information to China's leaders. This suggests China's top military leaders would have an important influence but probably not final decision powers over the use of nuclear weapons; rather, China's military leaders appear to be having a somewhat greater role in decisions about doctrine and the sizing of force structure.

## V. Conclusions

In covering the key aspects of China's nuclear posture—including the key actors in the nuclear decision-making hierarchy, the ongoing force structure modernization process and doctrinal developments—and assessing civilian control of nuclear weapons in the country, four principal conclusions can be drawn.

First, analytic frameworks for understanding the role of the military in shaping nuclear weapon decisions—such as those which require identifiable preferences among civilian and military constituencies—do not easily apply to China, primarily because of the past and current peculiarities of Chinese party–army relations. Within the framework set out in this volume, the Chinese case can be uniquely described as falling under civilian control but lacking democratic accountability. In addition, there is significant input on a range of issues from individuals from the military, civilian party and defence-industrial community leaderships.

Second, the civilian party leadership, currently led by Hu Jintao, retains ultimate command authority over the use of nuclear weapons. However, those decisions would be made in a collective, albeit highly centralized, consensus process among the top civilian officials that would include critical input from China's top military leaders. This presumed composition of China's 'supreme command' derives from the fact that there is no single paramount leader in China and that CCP leaders increasingly have little or no military background and rely on PLA leaders for functional expertise.

Third, as China's nuclear posture evolves, two emergent features bear close scrutiny. The expanding size, technical sophistication and increasing mobility of China's nuclear forces create new and complex command-and-control challenges for the political leadership and for the military. Assuming that the military possesses or develops the necessary communications technologies, Chinese authorities have limited experience communicating with submarines on patrol and lack sustained experience overseeing the operations of multiple nuclear-armed submarines at sea.<sup>61</sup> China's command-and-control systems and procedures will have to adapt to accommodate the new force structure, and these shifts carry implications for civilian control. As a result, China's top leaders are likely to face pressures to delegate authority to mobile-missile units and in particular to submarines. In addition, the PLA is likely to gain a more defined role in certain areas of nuclear weapon decision making. The overall role of the PLA in the formulation and operationalization of nuclear doctrine has consistently grown as the influence of China's nuclear and missile scientists appears to have declined. Similarly, the role of the PLA in the R&D and procurement process for nuclear weapon, missile and command-and-control systems has grown since the late 1990s. This has resulted from the accelerating professionalization of the PLA, the re-examination of the PLA's operational doctrine and the reorganization of China's defence-industrial base and the defence-procurement process.

Fourth, looking ahead, the division of labour between Chinese civilian and military leaders is likely to bifurcate further as China's traditional party-army interrelations erode. As a result, tensions could arise between more clearly defined civilian versus military preferences (e.g. regarding the size of China's nuclear forces), and these tensions are likely to affect some aspects of China's nuclear weapon policies, such as command and control, doctrine, and procurement. In this sense, over the medium- to long-term, China is evolving in a direction where traditional models of command and control, with a clear-cut differentiation between civilian and military interests, would apply and may increasingly elucidate the understanding of China's evolving nuclear posture.

<sup>61</sup> These points are made in Office of the US Secretary of Defense (note 19), p. 24.

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# 7. Israel

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AVNER COHEN

## I. Introduction<sup>1</sup>

Israel was the sixth state in the world and the first in the Middle East to develop and acquire nuclear weapons. It initiated its nuclear programme in earnest in the late 1950s when it constructed its primary nuclear facility, the Negev Nuclear Research Center—also known by KAMAG, its Hebrew acronym—outside the town of Dimona. Within a decade, Israel had completed the initial research and development stage of its nuclear weapon programme. By the eve of the 1967 Six-Day War, Israel had secretly improvised the construction of two or three rudimentary, but operational, nuclear devices.<sup>2</sup>

By 1970 it was widely presumed that Israel had crossed the threshold of nuclear weapon capability.<sup>3</sup> Since 1986—in the wake of the disclosures made by Mordechai Vanunu, Israel’s infamous nuclear whistle-blower—Israel has been believed to have a mature nuclear weapon programme and is viewed as an established nuclear weapon state, in both the quality and quantity of its arsenal. Estimates of the size of Israel’s nuclear arsenal vary significantly, ranging from less than 100 up to 300 warheads.<sup>4</sup>

However, Israel’s nuclear ‘code of conduct’ is distinctly different from that of all other nuclear weapon states. Unlike the other seven established nuclear weapon states, Israel has never openly acknowledged its nuclear status. Israeli nuclear weapons are conspicuously absent from most of the official global nuclear dialogue. As a matter of long-held policy, the Israeli Government neither confirms nor denies possession of nuclear weapons. While Israel keeps the status of its nuclear capability deliberately veiled and unacknowledged, it does so in a manner that has shaped the strategic perceptions and actions of others—friends and foes alike. This nuclear code of conduct has become known as Israel’s policy of ‘nuclear opacity’ (some refer to it as ‘nuclear ambiguity’), or, in Hebrew, *amimut*.

<sup>1</sup> Much of the content of this chapter is elaborated more fully in Cohen, A., *The Worst-Kept Secret: Israel’s Bargain with the Bomb* (Columbia University Press: New York, 2010).

<sup>2</sup> Cohen, A., ‘Crossing the threshold: the untold nuclear dimension of the 1967 Arab–Israeli War and its contemporary lessons’, *Arms Control Today*, vol. 37, no. 5 (June 2007), pp. 12–16.

<sup>3</sup> ‘The near-nuclear countries and the Non-Proliferation Treaty’, *SIPRI Yearbook 1972: World Armaments and Disarmament* (Almqvist & Wiksell: Stockholm, 1972), 309–12.

<sup>4</sup> ‘Revealed: the secrets of Israel’s nuclear arsenals’, *Sunday Times*, 5 Oct. 1986; and Cirincione, J., Wolfsthal, J. B. and Rajkumar, M., *Deadly Arsenals: Nuclear, Biological, and Chemical Threats*, 2nd edn (Carnegie Endowment for International Peace: Washington, DC, 2005). On Israel’s nuclear forces see appendix A in this volume.

There is a logical connection between the domestic aspects of opacity and Israel's ability to stay outside of the international non-proliferation regime: a nuclear weapon complex—let alone the arsenal itself—which is secret and unacknowledged cannot, in principle, be subject to any measures of international transparency. Israel's policy of nuclear opacity is so comprehensive in this regard that it does not even acknowledge the production of fissile material. Such a commitment to nuclear opacity is incompatible with any semblance of international transparency.

Nuclear opacity—in its international and domestic manifestations—is Israel's single-most noteworthy contribution to the nuclear age. Four decades after Israel crossed the nuclear threshold, the country still remains faithful to an anachronistic code of conduct based on total non-acknowledgement and secrecy. Through the policy of opacity and with the tacit support of the United States, Israel has remained a non-signatory to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT) and hence outside nearly all of the various international oversight and accountability obligations of the international non-proliferation regime.<sup>5</sup> Domestically, the commitment to the policy of nuclear opacity requires Israel to treat its entire nuclear complex as a 'black box'—kept as secret as possible to Israel's own citizens. The fact that Israel's big secret is now regarded as 'the world's worst kept secret' makes no difference to the way in which the Israeli Government practices its policy.<sup>6</sup>

Israel's commitment to a posture of nuclear opacity has profound ramifications for all aspects of the question of democratic control of the nuclear complex. It sets the Israeli case apart from the other seven cases in this volume. Nuclear opacity stands in strong negation to the ideal type of democratic governance of nuclear weapons. In particular, it is at odds with most of the public features of the ideal type of such governance.

Paradoxically, Israel pursues this non-democratic conduct with a tremendous level of (tacit) citizenry support as successive public surveys have clearly indicated.<sup>7</sup> On the nuclear issue, Israeli citizens defer their democratic rights, in particular the right to know and to debate national policies, by accepting—even endorsing—the policy of opacity, and they do so in a most democratic fashion. This conduct manifests a uniquely Israeli paradox about democratic control of nuclear weapons.

<sup>5</sup> According to the NPT, only states that manufactured and exploded a nuclear device prior to 1 Jan. 1967 are recognized as nuclear weapon states. China, France, Russia, the UK and the USA are the 5 nuclear-armed states party to the NPT. Israel, India and Pakistan are nuclear-armed states that remain outside the NPT. Treaty on the Non-Proliferation of Nuclear Weapons opened for signature on 1 July 1968, entered into force on 5 Mar. 1970, <<http://www.iaea.org/Publications/Documents/Treaties/npt.html>>.

<sup>6</sup> This phrase was the headline of a report in *The Economist*, 26 Oct. 1991.

<sup>7</sup> Arian, A., *Security Threatened: Surveying Israeli Opinion on Peace and War* (Cambridge University Press: Cambridge, 1995).



This chapter explores this Israeli paradox, covering both its descriptive and prescriptive sides. Section II briefly considers some of the features of the civilian control system that Israel has devised for its nuclear programme, focusing on the links between civilian control and the policy of nuclear opacity. Section III reviews the concrete socio-political and legal features of the culture of nuclear opacity. Section IV analyses the ways in which Israel, both as a state and as a civic society, has addressed—or chosen not to address—the issue of democratic control of its nuclear complex under the policy of nuclear opacity. Israel has compensated for the thin layer of democratic control of the nuclear complex by developing a tight and multilayered internal system of civilian control, including publicly invisible mechanisms of oversight. Section V concludes with some comments on the unique place of the Israeli case in a broader comparative perspective.

## II. A brief history of Israeli civilian nuclear control

From its inception, the Israeli nuclear project was set up under strict civilian control. A civilian coalition of three men made the project possible. David Ben-Gurion, Israel's first prime minister and minister of defence, was at the helm. He believed that the bomb would be the ultimate answer to Israel's security predicament.<sup>8</sup> Professor Ernst David Bergmann, a civil servant scientist and organic chemist by training, served as Ben-Gurion's scientific adviser. A young Shimon Peres, then director-general of the Ministry of Defence, was the civil servant executive of the nuclear project during its formative stage and served in that capacity from 1955 until 1965. In 1952, with the authorization of Ben-Gurion, Bergmann founded the Israel Atomic Energy Commission (IAEC) as the organization dedicated to realizing their vision. All three men were committed to the notion that a national nuclear project must be run solely by civilians, as a civilian governmental organization.<sup>9</sup>

The existence of the IAEC, Israel's state nuclear agency, was only announced in 1954, two years after it had been established.<sup>10</sup> The IAEC functioned as a secret civil organization within the Ministry of Defence, and its activities were designed to bypass due process. A debate, even a closed-door debate among insiders, would have meant controversy, dissent and opposition, and had to be avoided at all costs. For this reason, Ben-Gurion decided to keep the military (the Israel Defence Forces, IDF) as an

<sup>8</sup> Ben-Gurion simultaneously served as Israel's prime minister and minister of defence in the periods 1948–54 and 1955–63. He was the country's longest serving prime minister.

<sup>9</sup> Peres, S., *Battling for Peace: A Memoir*, ed. D. Landau (Weidenfeld and Nicolson: London, 1995), pp. 132–35; and Cohen, A., *Israel and the Bomb* (Columbia University Press: New York, 1998), pp. 9–24.

<sup>10</sup> Cohen (note 9), p. 31.

institution—except for the chief of staff, Moshe Dayan, with whom he was close—out of the nuclear decision-making loop. In so doing, Ben-Gurion signalled unequivocally that this was his own project—the prime minister’s project. Israel’s nuclear project was initiated in an era when its national leader still had the authority and the means to initiate a project of this scale on his own.<sup>11</sup>

The desire to bypass both the IDF’s top generals and cabinet ministers required that the project be funded through non-conventional methods. Ben-Gurion wanted to avoid a situation where the nuclear project and the IDF would be competing for the same financial resources. Maintaining separate and unaccountable funding was important not only for secrecy and expediency, but also for maintaining some measure of political deniability. Most of the funding in the early stages of the project was extra-budgetary: Peres distributed the funds directly to the organizations involved, without the involvement of the state treasury. It was done in a manner that was outside of the normal procedures of state oversight and accountability.<sup>12</sup> Decades later Peres acknowledged that he had to raise money ‘on the side’ to pay for the building of the project at Dimona.<sup>13</sup>

In the initial stage of the nuclear project, roughly the period 1955–61, it is widely understood that virtually no democratic mechanism of oversight, such as the Knesset (the Israeli Parliament) or the State Comptroller’s Office, was involved. Around 1962 Ben-Gurion recognized the need to set up a special parliamentary committee to approve the budget of the project and to provide the veneer of parliamentary oversight. The committee consisted of seven of the most senior members of the Knesset—coalition and opposition alike. Although they were prominent politicians, most of them had a very limited background in defence, let alone technology. The committee received classified briefings (but members were not allowed to take any notes about the briefings) and in return the committee provided a parliamentary cover for the secret project. This was the first mechanism resembling parliamentary control of nuclear-related matters. However, the establishment of the parliamentary committee was not meant as a step towards more democratization of nuclear matters for Ben-Gurion, but rather a way to enforce secrecy given his legal obligation to receive parliamentary approval of the budget.<sup>14</sup>

<sup>11</sup> Cohen (note 9), pp. 63–72.

<sup>12</sup> Cohen (note 9), pp. 67–70; Karpin, M., *The Bomb in the Basement: How Israel Went Nuclear and What That Means for the World* (Simon & Schuster: New York, 2006), pp. 127–33. In 1997 influential Israeli journalist and commentator Dan Margalit recalled in his memoirs that ‘The Israel in which I started as a journalist had built the atomic reactor in Dimona in ways which, in 1997, would have resulted in the imprisonment of David Ben-Gurion and his lieutenants. In the 1990s, with exposure, investigative journalism and criticism, the nuclear reactor would have never been built.’ Margalit, D., *Raiti Otam* [I saw them] (Zamorah-Bitan: Tel Aviv, 1997), p. 7.

<sup>13</sup> Peres (note 9), pp. 136–37.

<sup>14</sup> Cohen (note 9), p. 147.

Ben-Gurion also shielded the nuclear project from democratic control by presenting its objectives in vague, flexible and open-ended terms. Decades later, Peres acknowledged that Ben-Gurion was deliberately reluctant to ‘nail down’ the specifics of his nuclear vision, ‘for nailing down would have meant to identify specific objectives too early, and too fast, and that would have been too complicated’.<sup>15</sup> Those long-term objectives were left deliberately opaque, often unwritten or even unspoken. For example, certain explicit words (e.g. nuclear weapon) were never used by the programme’s insiders, not even in classified documents.<sup>16</sup>

Ben-Gurion’s *modus operandi* allowed him maximum political flexibility, even deniability. Indeed, he often described the project as no more than a way of hedging for the future that aimed at establishing a broad national infrastructure and allowing the next moves to be decided by future leaders. This approach also operated at lower levels. Munya Mardor, one of the administrators of the project, noted in a veiled passage in his autobiography that it was more convenient to present the task at hand in terms of research on various ‘subcomponents’, emphasizing that no decision had been made about producing a complete weapon system.<sup>17</sup>

By the mid-1960s, as the nuclear research and development work was close to completion, it became evident that Peres’s system of running the project through two separate primary organizations (and other smaller ones) was no longer feasible. There was a need to merge the two major dimensions of the project—the production of fissile material and work on the explosive device—in one central administration with even tighter executive control of the entire project.<sup>18</sup> In response, the IAEC was reorganized in 1966 under the leadership of Professor Israel Dostrovsky as its director-general, and Prime Minister Levi Eshkol, who appointed himself as the chairman. This reorganization, which effectively involved setting up a new scientific directorate with management responsibility for Israel’s entire nuclear complex, remains the foundation of Israel’s current civilian control system.<sup>19</sup>

### **Israel’s nuclear complex**

The IAEC is probably the most secretive and guarded governmental agency in Israel. Its personnel must pass the highest security checks, including

<sup>15</sup> Peres, S., ‘About Shalheveth’, ed. R. Marom, *Shalheveth Freier 1920–1994* (Israel Atomic Energy Commission: Tel Aviv, 1995), p. 9.

<sup>16</sup> Cohen (note 9), p. 78.

<sup>17</sup> Cohen (note 9), p. 78; and Mardor, M. M., *Refá’el: bi-netive ha-mehkar vaha-pituah le-vithon Yisra’el* [RAFAEL: the path to Israel’s security research and development], 2nd edn (Ministry of Defence: Tel Aviv, 1981).

<sup>18</sup> Cohen (note 9), pp. 225–26; and Mardor (note 17), pp. 388–89.

<sup>19</sup> Cohen (note 9), pp. 223–31.

periodic polygraph tests. Virtually every factual aspect of its operations—including its budget, its organizational structure, its relations with other military and defence organizations, and even matters regarding its parliamentary oversight—is classified. The mandate of the IAEC to oversee the Israeli nuclear weapons is roughly similar to that of the US Department of Energy and its oversight of US nuclear weapons. But in many respects the IAEC mandate is even more comprehensive, as it operates and maintains the entire nuclear complex and its outputs from cradle to grave.<sup>20</sup>

The director-general of the IAEC is the chief executive of the Israeli nuclear bureaucracy and is a direct appointee of the prime minister (presumably in consultation with the minister of defence). However, it is the Israeli prime minister—ex officio chairman of the IAEC—who has ministerial responsibility over nuclear matters (which can be delegated in part to another minister). It is believed that some of the functional responsibilities of that administration reside or are shared with the Ministry of Defence. It is unknown if, and to what extent, this civilian control structure was ever formally submitted to the approval of the cabinet or one of its sub-committees.<sup>21</sup>

The Office of Security at the Ministry of Defence (or MALMAB, its Hebrew acronym) provides all security services for the nuclear complex, including the protection of the opacity policy.<sup>22</sup> Much of the operational budget of the nuclear complex comes from the classified part of the Ministry of Defence's budget. While a small budget for the public side of the IAEC is posted within the open budget of the Prime Minister's Office, the much larger budget of the scientific directorate—including the operational budget for the Negev Nuclear Research Center and the Soreq Nuclear Research Center, which was opened in 1960—is classified and apparently buried within the large classified budget of the Ministry of Defence.<sup>23</sup>

## Command and control

Virtually nothing is publicly known about Israel's nuclear command and control structure, but it is assumed that Israel has invested a great deal of funds and resources to devise a secure system of civilian command, control and custodianship of its nuclear weapons and related infrastructure. It is

<sup>20</sup> In US terms the IAEC includes not only the nuclear weapon functions of the US Department of Energy but also some of the nuclear functions of the US Department of Defense as well as some functions of the Nuclear Regulatory Commission that regulates the US nuclear power industry. See chapter 2 in this volume.

<sup>21</sup> Cohen (note 1).

<sup>22</sup> Bergman, R. and Meltzer, G., 'Mashtikkol' [The Silence Enforcer], *Yedioth Ahronoth*, 6 Aug. 2004, pp. 10–14, 16, 18–19, 50–51; and Oren, A., 'A secret guard for nuclear ambiguity', *Ha'aretz*, 8 Aug. 2007.

<sup>23</sup> Benn, A., 'No legal authorization for security services budgets', *Ha'aretz*, 21 Nov. 2004.

presumed that the custodianship of the nuclear components of Israel's strategic assets are under the command of civilian officials from the nuclear administration, not the military, and that the administration was set up in a manner that ensures full civilian control.<sup>24</sup>

It has been claimed that in the 1980s Israel developed and installed permissive action links (PAL) on its nuclear warheads to prevent the possibility of unauthorized use or theft. In the early 1990s, in the wake of 1991 Gulf War, the minister of defence, Moshe Arens, set up a new secret directorate at the Ministry of Defence under the veiled title Directorate for Special Means. It is possible that this directorate assumes some of the functional responsibilities of the minister of defence in sharing responsibility for and control of Israel's strategic issues.<sup>25</sup>

Tight security, secrecy and compartmentalization do not mean that the Israeli civilian system lacks internal mechanisms and procedures of oversight and accountability. For example, almost from the beginning of the nuclear project, various internal advisory and auditing bodies were extensively used. Those bodies were made up of former senior scientists, army officers, economists and even academics with top security clearances, who were authorized to oversee various aspects of the complex. Some of those advisory panels functioned in an ad hoc fashion, while others were assigned more permanent oversight responsibilities. There is no public record of those arrangements and the public knows almost nothing about them. Clearly, these bodies do not meet the broad definition of democratic control, but they do reflect that the system of civilian guardianship recognizes the need for internal mechanisms to review and oversee its own activities.

### III. The political culture of nuclear opacity

On 21 December 1960 Prime Minister Ben-Gurion informed the Knesset that a new 24-megawatt thermal nuclear research reactor was under construction. He characterized the project as 'peaceful'. It was the first and last time that an Israeli prime minister—or the Israeli Government—made a public statement of fact about the Negev Nuclear Research Center or any other Israeli nuclear project.<sup>26</sup> A few years later, Ben-Gurion's successor, Prime Minister Levi Eshkol, no longer spoke publicly about civil research at the Negev Nuclear Research Center. Instead, by 1966 he began to use the ambiguous statement: 'Israel will not be the first to introduce nuclear

<sup>24</sup> Hersh, S. M., *The Samson Option: Israel's Nuclear Arsenal and American Foreign Policy* (Random House: New York, 1991), p. 84.

<sup>25</sup> Cirincione, Wolfsthal and Rajkumar (note 4).

<sup>26</sup> Cohen (note 9), pp. 91–93.

weapons to the region'.<sup>27</sup> At that point, Israel did not actually possess nuclear weapons.<sup>28</sup>

In the several decades since Eshkol made this statement, it has remained in place as Israel's official declaration on nuclear weapons. Virtually nothing has changed in terms of Israel's official acknowledgement of its nuclear programme, and very little has changed in Israel's public nuclear discourse. While most people and governments presume that Israel's nuclear status is advanced, it is interesting to note that—apart from the infamous Vanunu disclosure—no Israeli source has ever publicly revealed information on the programme.<sup>29</sup> The Israeli Government has only acknowledged that Israel operates two research reactors: the Soreq Nuclear Research Center, a small 5-MW reactor under International Atomic Energy Agency (IAEA) safeguards, and the Negev Nuclear Research Center, a larger reactor that is not under IAEA safeguards.<sup>30</sup>

How can it be that, after spending billions of taxpayers' dollars on a nuclear programme (including related strategic programmes, such as the missile and the submarine programme) over a period of several decades, the programme is still not publicly acknowledged? How is it that virtually no one among the (Jewish) Israeli public demands to know the financial figures? Why does the Israeli citizenry go along, and in fact support, such an undemocratic way of doing national business?<sup>31</sup> The answer to this democratic paradox lies in Israel's unique political, legal and social fabric—what might be called the political culture of nuclear opacity. This fabric consists of three distinct (but interrelated) components: (a) opacity as a national security policy and strategy; (b) censorship as a law enforcement mechanism; and (c) societal taboo as a legitimizing instrument.

### **Opacity: the policy and strategy component**

While individuals, events and strategic considerations shaped Israel's policy of opacity throughout the 1960s and 1970s, by 2010 opacity as national policy and posture has become deeply embedded in Israel's national security mindset. Nuclear opacity as a posture is rooted in a number of basic Israeli strategic convictions: (a) that it is vital for Israeli

<sup>27</sup> Cohen (note 9), pp. 231–35.

<sup>28</sup> Cohen (note 2).

<sup>29</sup> *Sunday Times* (note 4).

<sup>30</sup> Israel Atomic Energy Commission, 'About us', <[http://www.iaec.gov.il/pages\\_e/card\\_e.asp](http://www.iaec.gov.il/pages_e/card_e.asp)>.

<sup>31</sup> These questions are hardly being asked, let alone debated, in Israel either as an academic issue or as a citizenry concern. Indeed, it is in the nature of a taboo that those who practice it do not question it. A wider and even more intriguing question is why virtually no one in Israel, academics or otherwise, dares or cares to study those questions, as a sociological, anthropological, legal or political phenomenon? For a thorough exploration of these issues see Cohen (note 1); and Cohen, A., *ha-tabu ha-acharon: sod ha-matsav ha-gar'ini shel Yiśra'el u-mah she-tsarikh la-'asot ito* [The last taboo: the secret of Israel's nuclear status and what to do with it] (Kinneret Zmora-Bitan: Tel Aviv, 2005).

security to possess nuclear weapons for deterrence; (b) that Israel's Arab neighbours should not be allowed to possess nuclear weapons, and thus Israel must do everything it can to maintain its nuclear monopoly; (c) that Israel cannot make a case for regional nuclear monopoly and thus must keep its own nuclear weapons unacknowledged; (d) that nuclear issues must be kept out of the public (and political) discourse; (e) that decisions over nuclear matters must be made quietly, primarily by anonymous professionals (approved by the political leadership), not through democratic debates; and (f) that the policy of opacity has served the nation well, and (as long as Israel maintains its monopoly) there is no real alternative.<sup>32</sup>

The depth of respect that the policy has received within Israel's culture of national security as well as within the country's body politic should not be underestimated. Indeed, the opacity policy is highly revered by almost all Israelis—political elite and ordinary citizens alike.<sup>33</sup> There is another feature of Israeli nuclear opacity that makes it so revered: the country's nuclear policy is generally perceived as a sacrosanct national subject that must be left outside the political debate. The policy of nuclear opacity is perceived as the most effective and most successful national strategy that Israel has ever devised to advance its national interests, and there is a great deal of public consensus behind it.<sup>34</sup> It is almost universally agreed that an open public debate would only harm national interests because it would undermine opacity. Hence, most Israelis believe that classified or semi-classified forums are the most appropriate places for such debates.<sup>35</sup>

### **Censorship: the law-enforcement component**

The ability to effectively practise the policy of nuclear opacity is predicated on the ability of the government to enforce secrecy. The Office of the Military Censor, which enforces the policy of nuclear opacity on the press, is nearly as old as the IDF itself: it was created in May 1948 soon after Israel declared its independence. Its initial purpose was 'to prevent the publication of security-related information that could aid the enemy or harm the defence of the state'.<sup>36</sup> Israel is the only liberal democracy that maintains a military censorship office with the sole task of reviewing, prior to publication, all items which may include information that, were they to be published, could harm national security. The legal scope of the censorship

<sup>32</sup> Cohen (note 9), p. 343; and Cohen (note 31), pp. 156–57.

<sup>33</sup> Schiff, Z., 'How long can nuclear ambiguity last?', *Ha'aretz*, 24 Aug. 2000; Schiff, Z., 'The nuclear debate has not been silenced', *Ha'aretz*, 29 Mar. 2000; Schiff, Z., 'Comments on the balance of national strength and security', ed. U. Arad, *Ma'azan ha'chosen vehabitachon haleumi* [The balance of national strength and security in Israel: policy directions?] (Yedioth Ahronoth: Tel Aviv, 2001).

<sup>34</sup> Schiff, 'Comments on the balance of national strength and security' (note 33).

<sup>35</sup> Cohen (note 31) pp. 141–42.

<sup>36</sup> Cohen (note 1).

office is broad and covers any publication that originates in Israel (both print and electronic media, including, in principle, foreign media). The office is run as a military unit and is led by a senior military officer who is appointed by the minister of defence. In addition to the censor, MALMAB, as the security and intelligence arm of the nuclear project, is also involved in protecting and enforcing nuclear secrecy. MALMAB is the least subject to democratic oversight and accountability of all four Israeli intelligence service agencies, and yet it has extraordinary power and influence in controlling the nuclear programme, including on matters of policy.<sup>37</sup>

In the 1970s a council of 'wise men' at the IAEC was asked to conceptualize the idea of nuclear opacity as an operational policy. As part of that effort, the role of the censor in supporting the policy was articulated and codified. The challenge was to design a censorship policy that, on the one hand, delivers appropriate and tacit messages that enhance Israeli deterrence, but, on the other hand, does not compromise the requirements of opacity and non-acknowledgement. Given that Israel's nuclear status was already known and unquestioned, the solution was a censorship policy that allows the Israeli press to assume that Israel has unspecified nuclear capabilities yet that does not allow it to make direct reference to nuclear weapons, hence without confirming or acknowledging nuclear-related matters.<sup>38</sup>

Since this censorship policy was established, the Office of the Military Censor has become a major player in supporting and promoting the Israeli Government's policy of nuclear opacity. Its job is twofold: (a) it bans the publication of any Israeli-based statement regarding the nuclear weapon programme, in particular information that implies that Israel possesses nuclear weapons; and (b) it controls the discourse—that is, the language—with which the Israeli media speaks about the nuclear issue. Specifically, the censor forbids using explicit nuclear and nuclear-related words and phrases (e.g. 'nuclear weapons' or 'nukes' or even more generic terms such as 'the bomb'). In fact, the censor actively replaces them with vaguer, softer and less concrete words and phrases such as 'nuclear option', 'nuclear capabilities' or 'nuclear potential'. Surprisingly, the phrase 'doomsday weapons' is allowed by the censor, even to refer to Israel's nuclear status, but just not the use of more precise terms.<sup>39</sup>

<sup>37</sup> Bergman and Meltzer (note 22); and Arbel, D. and Edelist, R, *Ivaron: ha-modi'in ha-ma'aravi u-kerisat Berit-ha-Mo'atsot, 1980-1991* [Blind spot: Western intelligence and the collapse of the Soviet Union, 1980-1991] (Yedioth Ahronoth: Tel-Aviv, 1998). The other 3 security agencies are the Mossad; Shaback, also known as the General Security Service (the GSS) or Shin Bet; and AMAN, the military intelligence branch of the IDF.

<sup>38</sup> Cohen, A., *Amimut garinit usheelat gvulut ha'meda* [Nuclear opacity and the question of boundaries of information in a democratic governance], *Politica*, vol. 13 (winter 2005), pp. 33-52.

<sup>39</sup> Cohen (note 1); Cohen (note 31); Cohen (note 38); and Karpin (note 12), pp. ix-x.



The Office of the Military Censor provides ground rules for the media to work out its differences with the censor, and even to appeal its decisions, without resorting to a formal legal petition before the Supreme Court. For decades, the Israeli media has accommodated itself to these ground rules without questioning them before an outside authority.<sup>40</sup> This changed in 1988. Meir Schnitzer, an editor of a Tel Aviv weekly magazine, petitioned for a formal judicial review of the censor's action regarding an article about the Mossad that had been submitted to the censor by his magazine. Schnitzer claimed that the censor's deletions were excessive and unjustifiable. In a historical ruling, the Supreme Court intervened and placed limits on the censor's judgement: only information whose publication is deemed a 'near certainty' for causing tangible harm to national security justifies the censor's action. Information that is short of this 'near certainty' should be allowed to be published.<sup>41</sup>

This landmark ruling established Israel's line between the needs of national security and the rights of the free press. Since then the reference to 'near certainty' has become associated with the issue of the scope of censorship in Israel. At least in theory, the threshold for censorship intervention entailed in the Supreme Court's ruling, with its explicit reference to 'near certainty' is much higher than the threshold of the 'classified' designation. According to the terms of this ruling, it would be insufficient for the censor to argue that a certain item of information ought to be censored merely because its contents are classified. The military censor would have to show that the publication of that classified information would near certainly cause tangible damage to national security.

Since that 1988 ruling, the extent of the military censor's intervention has decreased significantly. Many Israeli journalists view the censor as a 'tamed beast'—one that will only charge when cornered. Changes to news production, (e.g. satellite imaging, the Internet, mobile phones, etc.) have made the job of the military censor more difficult and more anachronistic. The censor has accepted, even internalized, these new norms and has limited its intervention to the minimum necessary. These changes have not visibly changed the way the censor deals with the nuclear issue. In fact, it is against this background that the nuclear issue stands out as the sole exception to the general trend. Despite the normative changes, including

<sup>40</sup> Segal, Z., *Chofesh haitonut: byin mitos lemtziut* [Freedom of the press: between myth and reality] (Papyrus: Tel Aviv, 1996), pp. 59–91; Negbi, M., *Namer shel neyar: ha'maavak kechofesh ha'ittonut be'yisrael* [Paper tiger: The struggle for freedom of the press in Israel] (Sifriyat Hapoalim: Tel Aviv, 1985); and Nosek, H. and Limor, Y., *Censora tzvait beyisrael: pshara zmanit mitmashechet bein arachim mitnagshim* [Military censorship in Israel: temporary compromise between conflicting values], eds B. Neuberger and I. Ben-Ami, *Democratia ve'bitchon leumi beyisrael* [Democracy and national security in Israel] (Open University Press: Tel Aviv, 1996), pp. 415–48.

<sup>41</sup> Segal (note 40), pp. 59–91; and *Meir Schnitzer and Ors v. Chief Military Censor*, HC 42 (4) PD 617 (1988).

the 1988 Supreme Court ruling, the censor has essentially treated the nuclear issue in the same way since the body was created.

This nuclear censorship practice is by now anachronistic and yet the Israeli press tends to go along with it. If there are signs of change, it is not in the censorship policy but in the practices of the press. More and more editors have found the nuclear censorship policy ridiculous so they have stopped submitting articles for censorship review, thus rendering the censor much less relevant in its ability to influence the opacity discourse. The forbidden words sneak into the Israeli media not through a legal fight but through the back door.

### **Taboo: the social and cultural components**

Over time opacity has become embedded in Israel's culture of national security. It has become engraved in the values, attitudes and norms that are passed on through education and socialization. The code of nuclear opacity has not been imposed from the outside on the Israeli public. It is as much self-imposed as it is externally enforced and has a deep societal–normative base.

The Israeli press has changed a great deal since the nuclear weapon issue was first introduced to Israeli politics in the 1950s. The press has become more aggressive in its pursuit of news. In its ethos, the press has become more sceptical and critical, even more cynical, about governmental secrecy. In recent years the Israeli press has slaughtered almost all of the 'sacred cows' in the area of national security, including revealing inside information about other security agency such as the Mossad and Shaback.<sup>42</sup> However, there is one issue that the Israeli press is incapable or unwilling to touch: the nuclear issue. The Israeli media community has never really questioned, let alone fought, the severe restrictions that the censor appears to impose on it under the rules of nuclear opacity.<sup>43</sup>

In a sense, having censorship with its compulsory prepublication review power relieves the Israeli press of an otherwise inevitable and unwanted job: making editorial decisions about the most sensitive national subject. Instead, there is an outside governmental authority, the censor, whose job is to make those determinations for the press. This way of thinking reflects the ambivalent way that the Israeli press views the role of the censor. It also means that one of the principal means of democratic oversight of nuclear weapons—that of an independent and inquisitive press—is for all practical intents and purposes absent in Israel.

Moreover, the fact that the Israeli press accepts, whether desired or not, the off-limits status of the nuclear issue highlights the not-so-adversarial

<sup>42</sup> See note 37.

<sup>43</sup> Cohen (note 1); Cohen (note 31); and Cohen (note 38).

relations between the press and the censor on the question of nuclear opacity. In a way, the existence of censorship allows the press to resolve its discomfort—built on inhibition, ambivalence and taboo—towards the nuclear issue. The censor policy would have had no chance of surviving—let alone of being successfully executed for so long—had it not been a policy that the Israeli media accepted and supported on deep societal grounds.<sup>44</sup>

Another example of the complicity of the Israeli media with the nuclear taboo concerns its lack of struggle with the censor's guidelines on the nuclear issue.<sup>45</sup> It could be argued that the censor's practice of banning certain nuclear-related words and phrases stands at odds with the 1988 Supreme Court ruling and that the censor's common practice of adding the phrase 'according to foreign sources' next to any reference to Israeli nuclear weapons is also at odds with that ruling. Concerning both practices, the censor's intervention goes beyond the 'near certainty' criteria. It would be difficult to conceive how using nuclear phrases, which in themselves do not reveal any facts about the situation, could cause Israel's national security 'near certain' tangible and irreparable damage. However, to this day, no Israeli news organization takes the position that such interventions over matters of discourse are unjustified, illegal or require at least a judicial review.<sup>46</sup>

These patterns of complicity and duplicity by the Israeli press illuminate the way in which the Israeli citizenry deals with the nuclear issue. The Israeli public is, of course, aware that the state possesses nuclear weapons, but it prefers not to know much more than that. Whether for strategic or for psychological reasons—and perhaps for both—Israelis leave the handling of this issue vague, opaque and non-explicit. Ultimately, it is not that the public is deprived by their government of their democratic right to know, but rather, more accurately, that the citizenry willingly defers this right to the government's own institutions of oversight and accountability. On the nuclear issue the citizenry prefers not to know and indeed suspends its democratic right to know.

This deferential attitude manifests itself in a multitude of ways ranging from the media, through the legal sphere, to the body politic and ultimately

<sup>44</sup> Cohen (note 31); Cohen, Y., *The Whistleblower of Dimona: Israel, Vanunu and the Bomb* (Holmes & Meier: New York, 2003); and Cohen, Y., *Whistleblowers and the Bomb: Vanunu, Israel and Nuclear Secrecy* (Pluto Press: London, 2005).

<sup>45</sup> The Israeli daily newspaper *Yedioth Ahronoth* attempted to force the government to release the records of the Vanunu trial by submitting a petition to the Supreme Court. The action was not directed at the censors but against the Ministry of Justice, which kept all testimony from the trial sealed. The petition was never ruled on by the court because the government, in its effort to avoid losing a battle in court, decided to voluntarily release approximately 40% of the records. It appears that the government released material that it believed it could not defend in court, given the 1998 ruling on the Schnitzer petition. To the best of the author's knowledge, other than this case, the Israeli press has never tried to test the censor's policies in court.

<sup>46</sup> Cohen (note 31); and Cohen (note 38).

to the public side of the Knesset. Israeli citizens have internalized nuclear opacity and have become accustomed to the notion that it is inappropriate for the nuclear issue to be discussed in the public arena.

After decades of censorship and inhibition—of being accustomed to total nuclear secrecy as the norm—how would it be possible for the Israeli public to actively seek ‘democratic control’ over the issue of nuclear weapons? The public is too inhibited (and, as a result of the opacity policy, also not well enough informed) to express an opinion on a forbidden subject that is perceived as belonging solely to those within the nuclear establishment appointed to govern Israel’s nuclear weapons.<sup>47</sup>

#### IV. Auditing, oversight and accountability

While the abstract and conceptual principles of Israel’s nuclear opacity policy have changed little over the decades, attitudes and norms towards auditing, oversight and accountability have changed significantly over the past two decades. New measures of external auditing, oversight and accountability have been implanted into the nuclear bureaucracy. Senior IAEC officials argue that the opacity policy is no longer inconsistent with a commitment to auditing, oversight, accountability, due process and the rule of law. Even under opacity, they argue that it is possible to maintain the norms of democratic governance. In addition to the IAEC’s own system of internal checks and balances, it is now subjected to various new measures of independent auditing and oversight from the Knesset, the State Comptroller’s Office and even from the higher executive level (i.e. the Prime Minister’s Office).

In the formative years of Israel’s nuclear project, an attitude of suspicion, and even hostility, towards state institutions under democratic control was part of the nuclear project’s organizational culture and ethos. Executive authority on the one hand and true democratic control on the other were perceived as polar opposites. This was perhaps primarily due to the nature of opacity as a national security commitment that meant keeping the gates of the nuclear project closed to anybody from the outside. Thus, the idea of independent state auditing and oversight was viewed as an anathema, an intrusion. Furthermore, until well into the 1980s, Israel had limited and rudimentary systems for state auditing, oversight and accountability. Those mechanisms were legally and organizationally oceans apart from what Israel has today. In those days the Ministry of Defence was not exposed to rigorous oversight. Israel was inured to the extensive use of secrecy on behalf of national security.<sup>48</sup> It is also true that outside of Israel, especially

<sup>47</sup> Cohen (note 1); and Cohen (note 31).

<sup>48</sup> Galnoor, I. (ed.), *Government Secrecy in Democracies* (Harper & Row: New York, 1977); Hofnung, M., *Bitchon hamedinah mul shilton hachok* [Israel: security needs versus the rule of law 1948–

in the 1950s and 1960s as nuclear weapons were first developed, extreme secrecy was the norm in nuclear weapon matters.<sup>49</sup>

While the details regarding the oversight activities of the Knesset are not in the public domain, it is often stated by parliamentarians that more effective measures of parliamentary control have been installed into the system to oversee Israel's secret organizations, including in the nuclear field. For example, since the late 1970s, the Defence and Foreign Affairs Committee of the Knesset has established eight permanent subcommittees to oversee various aspects of Israel's defence bureaucracy, including one whose name is even classified and is apparently solely dedicated to nuclear matters. According to Yuval Steinitz, a member of Knesset and former chair of the committee, the subcommittee is regularly briefed on virtually all classified matters.<sup>50</sup>

However, it is widely agreed that the Knesset's oversight system over the defence establishment is fairly limited in scope and understaffed in structure. It is inferior in comparison with, for example, the system of oversight exercised by the US Congress. Israeli parliamentarians openly acknowledge that the Knesset lacks the staff and resources to thoroughly oversee its defence bureaucracy in the way that the US Congress does.<sup>51</sup> For example, the Knesset has no independent body of expertise (either factual or analytical) that allows it to scrutinize the executive branch in a meaningful way. However, the basic barrier is that virtually all knowledge in this area is both classified and tightly held by the executive branch. Under the present structural circumstances it is doubtful how effective the Knesset's oversight capabilities could be.<sup>52</sup>

The primary independent auditing and oversight authority in Israel is the State Comptroller's Office. Until the late 1980s, the State Comptroller's

1991] (Nevo: Jerusalem, 1991); Yaniv, A. (ed.), *National Security and Democracy in Israel* (Lynne Rienner: Boulder, CO, 1993); and Ya'ari, A., *Ha'derech mi'merchavia* [The road from Merhaviah] (Or Yehuda: Kinneret, 2003), pp. 221–53.

<sup>49</sup> Rourke, F. E., *Secrecy and Publicity: Dilemmas of Democracy* (Johns Hopkins University Press: Baltimore, MD, 1961); Moynihan, D. P., *Secrecy: The American Experience* (Yale University Press: New Haven, CT, 1998); and Schwartz, S. I. (ed.), *Atomic Audit: The Costs and Consequences of U.S. Nuclear Weapons Since 1940* (Brookings Institution: Washington, DC, 1998).

<sup>50</sup> The 7 official subcommittees are for Legislation, for Foreign Affairs and Publicity, for Intelligence and Secret Services, for Personnel in the IDF, for Security Perception, for the State of Alert and Field Security, and for the Examination of Home-Front Readiness. The name of the additional subcommittee is apparently 'strategic means'. Steinitz, Y., 'Hapikuach haezrachi al Tzahal vehamimsad habitchoni' [The civilian control of the IDF and the defence establishment], ed. G. Shefer, *Tza'va zava Shesh lo* [An army that has a state: a new view on Israel's security and security sector] (Van Leer: Jerusalem, 2007), pp. 71–76; and Alon, G., 'Substandard subcommittees?', *Ha'aretz*, 2 Apr. 2002. See also <<http://www.knesset.gov.il/>>.

<sup>51</sup> Steinitz (note 50).

<sup>52</sup> In Dec. 2004 a 3-man panel, headed by former minister (and former member of Knesset) Amnon Rubinstein with 2 former chiefs of staff, submitted to the Knesset a critical report on the question of executive and parliamentary oversight of the defence establishment in Israel. The report refers to the Israeli system of executive oversight of the defence establishment as 'partial, flawed and arbitrary'. Alon, G., 'Panel: monitoring the defence system is flawed', *Ha'aretz*, 26 Dec. 2004.

access to Israel's defence establishment was limited to financial auditing, not policy oversight. The current version of Israel's Basic Law on the State Comptroller, passed in 1988, provides the State Comptroller with virtually limitless scope and authority to audit both financial and policy outcomes.<sup>53</sup> Since that time, the State Comptroller has introduced a more rigorous and thorough system of auditing (and even policy oversight) into the entire defence structure.<sup>54</sup> The principle became that no territory of the huge defence establishment is too sacred or too classified for proper auditing and oversight. It was in the 1990s that the State Comptroller established a permanent presence on site at the Negev Nuclear Research Center (as well as at several other sensitive defence facilities).<sup>55</sup>

Nevertheless, the question of auditing and oversight of the nuclear complex remains problematic—indeed unsatisfactory—in at least two fundamental ways. First, there is the issue of the lack of visibility of the oversight system. Although there are claims about new mechanisms and procedures of democratic control that may have been installed within the system, these are virtually invisible to the public eye. Since the scope and effectiveness of those changes are invisible, any public assessment of their value is impossible. For example, absolutely none of the various reports of the State Comptroller on nuclear matters is public. In principle, the State Comptroller is committed to release as much as possible of its findings on the defence establishment to the public. Moreover, if and when open reports are impossible due to security concerns, there are non-classified summaries of the full classified reports. However, the nuclear issue is viewed as fundamentally different. The State Comptroller treats every aspect of its reports on the nuclear issue as classified. Its reports on this matter are considered so secretive that some of them are not even shared with the Knesset.

On both the symbolic and practical level such extreme secrecy stands at odds with the very idea of the State Comptroller as the public watchdog. The credibility of the Comptroller's reports depends, to a large extent, on their public visibility. Without such visibility, a great deal of the democratic credibility of public auditing and oversight is lost.

Second, there is the issue of the effectiveness of the oversight mechanisms that are in place. For example, a ministerial report to Prime Minister Ariel Sharon in 2004 acknowledged the structural weaknesses of the

<sup>53</sup> According to Article 2 of the Israel State Comptroller Basic Law, the mission of the State Comptroller is to (a) 'audit the economy, the property, the finances, the obligations and the administration of the State, of Government Ministries, of all enterprises, institutions, or corporations of the State, of Local Authorities'; and to (b) 'inspect the legality, integrity, managerial norms, efficiency and economy of the audited bodies, as well as any other matter which he deems necessary'. Basic Law: State Comptroller, passed by the Knesset 15 Feb. 1988, <<http://www.mevaker.gov.il/serve/site/english/eyesod.asp>>.

<sup>54</sup> Ya'ari (note 48).

<sup>55</sup> Ya'ari (note 48); and Cohen (note 31), p. 208.

Prime Minister's Office maintaining control over the organizations that are secret or otherwise kept out of the public eye. The report recommended the creation of a permanent mechanism within the Prime Minister's Office, run by a minister, whose sole task would be the executive oversight of the state secret organization, including monitoring and following up on the annual classified reports of the State Comptroller.<sup>56</sup> The fact that Sharon accepted those recommendations is a clear indication that even he recognized that there is a need to design an executive system of control and oversight over his own secret organizations.<sup>57</sup> In 2009 Prime Minister Benjamin Netanyahu appointed a special minister, Dan Meridor, to be in charge of oversight on the three secret organizations under the Prime Minister's Office.<sup>58</sup>

Despite these changes, in general Israeli civil society has virtually no access to the nuclear arena. The public is neither aware of the country's nuclear developments, nor does Israel attempt to promote transparency and openness in domestic nuclear-related matters.

## V. Conclusions

The interest in advancing democratic norms and values regarding open government (e.g. transparency and accountability, freedom of information, etc.) is a new phenomenon worldwide as well as a normative interest. For the most part, these ideas were introduced, both at the scholarly and the citizenry levels, beginning in the mid-1960s.<sup>59</sup> The application of 'transparency' to nuclear-related matters is even more recent.<sup>60</sup>

By the early 1990s, there was a solid body of literature about nuclear custodianship and command and control, almost exclusively from the perspective of civil-military relations studies and organizational theory.<sup>61</sup> The

<sup>56</sup> Benn (note 23).

<sup>57</sup> Benn (note 23).

<sup>58</sup> Israeli Ministry of Foreign Affairs, 'Dan Meridor, MK: Deputy Prime Minister and Minister of Intelligence and Atomic Energy (Likud)', Feb. 2003, <[http://www.mfa.gov.il/MFA/MFAArchive/2000\\_2009/2003/2/Dan+Meridor.htm](http://www.mfa.gov.il/MFA/MFAArchive/2000_2009/2003/2/Dan+Meridor.htm)>.

<sup>59</sup> Florini, A., 'The end of secrecy', *Foreign Policy* (summer 1998); Theoharis, A. G. (ed.), *A Culture of Secrecy: The Government versus the People's Right to Know* (University Press of Kansas: Lawrence, KS, 1998); and Westwick, P. J., 'In the beginning: the origin of nuclear secrecy', *Bulletin of Atomic Scientists*, vol. 56, no. 6 (Nov./Dec. 2000). E.g. The US Freedom of Information Act (FOIA) was only conceived in the late 1950s, debated in the 1960s, and enacted in 1966. It is only in the past 20 years that other democratic countries (including Israel) have adopted their own versions of the FOIA. Currently, the idea of freedom of information is understood as part of the code of human rights, treating the citizen's right to know as a fundamental human right. The political culture related to the freedom of information, which this volume is part of, is all but a new phenomenon.

<sup>60</sup> Zarimpas, N. (ed.), SIPRI, *Transparency in Nuclear Warhead and Materials: The Political and Technical Dimensions* (Oxford University Press: Oxford, 2003).

<sup>61</sup> Bracken, P., *The Command and Control of Nuclear Forces* (Yale University Press: New Haven, CT, 1983); Feaver, P. D., *Guarding the Guardians: Civilian Control of Nuclear Weapons in the United*

question of democratic control of nuclear weapons was hardly touched. Robert Dahl was one of the first few scholars of democracy who, in response to the anti-nuclear protests of the 1980s, called attention to the 'tragic paradox' which nuclear weapons pose for liberal democracy. As he put it: 'No decisions can be more fateful for Americans, and for the world, than decisions about nuclear weapons. Yet, these decisions have largely escaped the control of democratic process'.<sup>62</sup> International law scholar Richard Falk argued similarly that nuclear weapons create 'structural necessities' which contradict the spirit of democratic governance.<sup>63</sup> While the general claim was that nuclear weapons by their very nature corrode and corrupt democratic rule, there was little empirical research on this issue, partially because worldwide data was largely unavailable.

This background is relevant in assessing the Israeli case. Israel initiated its nuclear weapon programme in the same period that the Manhattan Project came into being, in an era when nuclear secrecy was the norm. Israel started its nuclear pursuit in a world that preceded the NPT—a world without clear international norms on nuclear proliferation—virtually in parallel to the nuclear pursuits of China and France. While China and France conducted nuclear tests to signal their crossing of the nuclear threshold—moving from the phase of near-total secrecy to functional secrecy—Israel took a different path. Why was this the case?

Israel had a population of less than two million people when it initiated its nuclear programme and it lacked the status and political influence of China and France. Technically, Israel could have tested its first nuclear device sometime in late 1966, when it completed the research and development phase of its programme, but it chose not to for political reasons. Instead, Israel chose to cloak its nuclear weapon programme in secrecy and enforce a policy of nuclear opacity.<sup>64</sup> Israeli leaders believed then, as they still do, that Israel's national security requires a nuclear posture of opacity, not transparency. By 1969 the USA agreed that opacity was the only way under which Israel could keep its nuclear capabilities.<sup>65</sup>

By the 1970s, Israeli policymakers recognized that opacity would mean a long-term commitment to total nuclear secrecy at the expense of transparency. A great deal of attention was paid to designing a reliable command

*States* (Cornell University Press: Ithaca, NY, 1992); and Sagan, S. D., *The Limits of Safety: Organisation, Weapons and Nuclear Weapons* (Princeton University Press: Princeton, NJ, 1995).

<sup>62</sup> Dahl, R. A., *Controlling Nuclear Weapons: Democracy versus Guardianship* (Syracuse University Press: Syracuse, NY, 1985), p. 5.

<sup>63</sup> Cohen, A. and Lee, S. (eds), *Nuclear Weapons and the Future of Humanity* (Rowman & Allanheld: Totowa, NJ, 1986), pp. 437–56.

<sup>64</sup> Technologically, Israel could have conducted a nuclear test that would have qualified it as an NPT nuclear weapon state. See note 5. See also Rabinowitz, O., 'The path to the legitimate bomb', *Ha'aretz*, 30 May 2010, <<http://www.haaretz.co.il/hasite/spages/1171225.html>>.

<sup>65</sup> Cohen, A. and Burr, W., 'Israel crosses the threshold', *Bulletin of the Atomic Scientists*, vol. 62, no. 3 (May/June 2006), pp. 22–30.



and control system, a system that would subject Israel's nuclear assets to the tightest means of civilian-executive control without compromising the security requirements of nuclear opacity. The focus was on expediency and prudence. Very little attention and care, if any, was given to the non-democratic nature of the commitment to nuclear opacity. Nobody pressed such questions; the public endorsed opacity without asking too many questions.

The difficulty of assessing Israel's nuclear situation through the lens of democratic control is twofold: conceptual and factual.

On the conceptual side, there is the difficulty of defining what constitutes proper democratic control. If the question of democratic control is defined broadly in terms of open procedures, norms and measures of transparency, and by the level of the involvement of a democratic citizenry, there is no doubt that Israel's conduct of opacity is at odds with democratic control. Defined in those terms, the commitment to opacity places the Israeli nuclear case at the non-democratic end of the comparative spectrum.

However, if democratic control is conceptualized as something defined and measured by the existence of a plurality of institutions and procedures—some more visible and public than others—then the Israeli case is more complex and subtle. If this is the case, then opacity can still be consistent, at least in principle, with the legal requirements of due process. However, even within the well-defined parameters of opacity, there is still room for the introduction of reforms in the areas of democratic oversight and accountability.

On the factual side, there is the difficulty in obtaining public information about the Israeli nuclear situation. Ultimately, it is this factual void, and not the conceptual difficulty, that creates suspicion. The real issue is not the intentions of the IAEC leadership or the commitment of the Knesset and the State Comptroller's Office to the norms of oversight and accountability, but rather the fundamental policy of opacity with which they must comply.

A commitment to nuclear opacity has inescapable consequences for the question of democratic control. First and foremost, Israel's nuclear opacity necessitates strict secrecy. As long as Israel maintains its commitment to the policy of opacity the way that it is practised today, the scope of democratic reform and democratic control remains limited. In practical terms, this means that democratic reforms and oversight can only be conducted through classified or other invisible bodies. The fundamental situation is that under the regime of nuclear opacity there is almost no space for open and public democratic control.

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# 8. India

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WAHEGURU PAL SINGH SIDHU

## I. Introduction

In May 1998 India conducted five underground nuclear tests and declared itself a nuclear weapon state. Since then the control of India's nuclear weapons has remained divided between the nuclear and defence scientists who control the warheads, and the military who command the delivery systems.<sup>1</sup> This structure of divided control is further safeguarded against accidental or unauthorized use by maintaining a de-alerted posture, with weapons de-mated from their delivery systems during peacetime and a no-first-use doctrine.<sup>2</sup> In addition, the overall command of this arrangement remains in the hands of the civilian Political Council of the Nuclear Command Authority (NCA), which is led by the prime minister or the prime minister's successor, who alone can authorize the use of nuclear weapons.<sup>3</sup> Thus, India's nuclear weapons are subject to a combination of civilian executive control coupled with divided control between the military and the nuclear- and defence-scientific complex, rather than complete democratic accountability and civilian control as defined in the introductory chapter of this volume.

Although India boasts of a Westminster-style parliamentary system of government, its democratic accountability mechanisms do not extend to the governance of nuclear weapons.<sup>4</sup> While the Parliament was responsible for passing the 1962 Atomic Energy Act and often questions the executive on different aspects of India's nuclear weapons, there are no constitutional mechanisms to ensure that the executive is subject to either parliamentary or judicial oversight on nuclear matters.<sup>5</sup>

<sup>1</sup> Chengappa, R., 'Worrying about broken arrows', *India Today*, 13 July 1998; and Joshi, M., 'Atomic age warfare', *India Today*, 20 July 1998.

<sup>2</sup> Sidhu, W. P. S., 'A virtual de-alert in South Asia', *UNIDIR Newsletter—Nuclear De-alerting: Taking a Step Back*, no. 38 (Aug. 1998); and Sidhu, W. P. S., *Evolution of India's Nuclear Doctrine*, Occasional Paper Series 2004–05, Occasional Paper no. 9 (Centre for Policy Research: New Delhi, 2004).

<sup>3</sup> Indian Ministry of External Affairs, 'The Cabinet Committee on Security reviews operationalization of India's nuclear doctrine', Press release, 4 Jan. 2003, <<http://www.meaindia.nic.in/pressrelease/2003/01/04pr01.htm>>.

<sup>4</sup> India's national executive power is centered around the prime minister and the cabinet (senior members of the council of ministers). The prime minister is normally the leader of the majority party and is appointed by an indirectly elected and largely ceremonial president. This executive is kept in check and balanced by the legislature and an independent and increasingly activist judiciary.

<sup>5</sup> The Atomic Energy Act of 1962, no. 33 of 1962, 15 Sep. 1962.

The existing literature is bereft of serious studies on the governance of nuclear weapons because of the limited democratic accountability of India's nuclear weapons and the strategic studies and international relations bias of the majority of the scholars who write about India's nuclear weapons. These scholars have focused on the possible force structures, deployment and use patterns of India's nuclear weapons, and there are few sources—either primary or secondary—that deal with the issue of the democratic accountability of these weapons. The only exception is the brief and often cursory examinations of the financial implications of India's nuclear arsenal. However, the absence of official figures and budgets makes most of these studies estimates. These studies also offer a glimpse into the complexities of making India's nuclear weapon programme both transparent and accountable. Only after the May 1998 tests have attempts been made to question the credibility of the command-and-control structure and thereby to seek a degree of transparency and accountability from the executive on the management of these weapons.<sup>6</sup>

This chapter assesses the level of democratic accountability and civilian control of nuclear weapons in India and the reasons for the limits of this accountability. Section II provides a historical overview of the evolution of India's nuclear weapon programme and its associated strategy. Section III identifies the key actors in the development of India's nuclear weapon programme and also examines the oversight role of domestic democratic institutions, international regimes and other states in holding these actors accountable. Section IV looks at India's policy of divided control and examines the implications of the 2005 India–United States Civil Nuclear Cooperation Initiative (CNCI) in the context of establishing greater transparency and accountability. Section V offers conclusions and some suggestions for strengthening democratic accountability of nuclear weapons in India. The chapter's main point is that domestic politics, coupled with the parochial organizational interests of the executive, the nuclear- and defence-scientific complex and the military, and the limited role played by the Parliament have created a modicum of democratic oversight.

## II. Historical overview

The development of India's nuclear weapons and strategy has had four distinct phases: (a) the 'weapon option' phase from the establishment of the Atomic Energy Commission (AEC) in 1948 to the first nuclear test in 1974; (b) the 'un-weaponized' phase from 1975, when India slowed its march towards weaponization to around the mid-1980s, when, reportedly, the

<sup>6</sup> See e.g. 'Discussion on the statement made by the prime minister in the House on 27.5.98 on the recent nuclear tests in Pokhran', XII Lok Sabha Debates, Session II (Budget) on 27 May 1998, <<http://parliamentofindia.nic.in/lisdeb/lis12/ses2/0827059801.htm>>.

decision to covertly weaponize was made; (c) the ‘recessed deterrence’ phase from the covert development and fabrication of nuclear weapons and their delivery systems in the mid-1980s to the overt nuclear tests in May 1998; and (d) the ‘credible minimum deterrent’ phase from May 1998 to the present.<sup>7</sup>

### **The weapon option phase**

There is near unanimity that the option to develop weapons was built into India’s nuclear programme from its inception in the late 1940s and that both India’s first prime minister, Jawaharlal Nehru, and first chief of the AEC, Homi Jehangir Bhabha, were the option’s principal architects.<sup>8</sup> This built-in ability to weaponize came to be known as the ‘weapon option’. Although the exact origin of the phrase is elusive, it appears to have been coined by Nehru.<sup>9</sup> Interestingly, the move towards establishing this option was embarked on well before there was any perceivable nuclear threat to India. By the time of China’s first nuclear test in 1964, India already had an implicit policy of keeping the weapon option open. This option had become viable by 1965, when India completed construction of the 40-megawatt CIRUS plutonium production reactor (in 1960) and the Trombay Plutonium reprocessing plant (in 1964) and drew up plans for the Subterranean Nuclear Explosion Project (SNEP).<sup>10</sup>

Even before this technical wherewithal was in place, Nehru and Bhabha sought to insulate the embryonic nuclear programme—both its peaceful and, potentially, military aspects—from public and even parliamentary scrutiny. In 1948 Nehru introduced the Indian Atomic Energy Bill in the Constituent Assembly, India’s first elected legislature which drafted the Indian Constitution.<sup>11</sup> Although this Act was in line with the 1946 British Atomic Energy Act, it imposed a level of secrecy that went far beyond that of the British act. Nehru argued in favour of such secrecy on two grounds:

<sup>7</sup> Sidhu, *Evolution of India’s Nuclear Doctrine* (note 2), p. 2.

<sup>8</sup> Karnad, B., *Nuclear Weapons and Indian Security: The Realist Foundations of Strategy* (Macmillan: New Delhi, 2002); Perkovich, G., *India’s Nuclear Bomb: The Impact on Global Proliferation* (University of California: Berkeley, CA, 1999); Abraham, I., *The Making of the Indian Atomic Bomb: Science, Secrecy and the Postcolonial State* (Zed Books: London, 1998); Lavoy, P. R., ‘Learning to live with the bomb: India and nuclear weapons 1947–1974’, Unpublished PhD dissertation, University of California, 1997; and Sidhu, W. P. S., ‘The development of an Indian nuclear doctrine since 1980’, Unpublished PhD dissertation, University of Cambridge, Feb. 1997.

<sup>9</sup> Subrahmanyam, K., former official in the Ministry of Defence, Interview with the author, New Delhi, Jan. 1995.

<sup>10</sup> Nuclear Threat Initiative, ‘India profile: nuclear overview’, Oct. 2009, <[http://www.nti.org/e\\_research/profiles/India/Nuclear/](http://www.nti.org/e_research/profiles/India/Nuclear/)>.

<sup>11</sup> The Atomic Energy Act of 1948, no. 29 of 1948, 15 Apr. 1948. This act was repealed by the 1962 Atomic Energy Act (note 5). The 1962 Act was amended by the Atomic Energy (Amendment) Act of 1986, no. 59 of 1986, 23 Dec. 1986; and the Atomic Energy (Amendment) Act of 1987, no. 29 of 1987, 8 Sep. 1987, <<http://www.dae.gov.in/rules/aeact.htm>>.

first, to protect Indian materials and technical knowledge from being exploited by other industrialized countries and, second, to facilitate potential cooperation between India and other secrecy-obsessed countries, like the United Kingdom and the USA.<sup>12</sup>

Following passage of the Atomic Energy Act, a three-member AEC was constituted in August 1948 with the primary objective of developing the nuclear policies of independent India. The AEC came under the direct personal oversight of the prime minister.<sup>13</sup> The Department of Atomic Energy (DAE) was established in August 1954 and took over the execution of AEC policies.<sup>14</sup> Subsequently, in 1958 the AEC was established within the DAE and the secretary of the DAE was also the chairman of the AEC and the holder of these positions reports directly to the prime minister. Thus, from its inception, the nuclear establishment enjoyed tremendous administrative, bureaucratic and financial autonomy and limited oversight. This arrangement has continued ever since, although the AEC has now expanded into a more representative nine-member body.<sup>15</sup>

Indeed, during Nehru's long tenure (1947–64), the issue of nuclear weapons was raised only once in the Parliament. Speaking during the debate on the budget for the DAE in March 1963, Ramchandra Bade of the right-wing Jan Sangh Party (the precursor of the Hindu nationalist Bharatiya Janata Party, BJP) argued that 'only those who wish to see Russians and Chinese ruling India will oppose the development of nuclear weapons'.<sup>16</sup> Nehru countered that the cost and effort involved and the hypocrisy of making bombs while asking others to give them up did not justify the small psychological benefit of nuclear status.<sup>17</sup> Thus, although Nehru ensured a high degree of autonomy for the nuclear programme and restricted parliamentary oversight and debate on the subject, he also sought to keep in check any weapon ambitions that either Bhabha or members of Parliament, like Bade, might have. This indicated an early form of the present 'divided control'.

Thus, between 1948 and 1964, while the technical and bureaucratic foundation was being laid for a sophisticated nuclear programme with a built-in weapon option by Nehru and Bhabha, it was done without any public debate or even knowledge, let alone parliamentary oversight. This ambitious programme was ultimately responsible to only one man—Nehru.

<sup>12</sup> Perkovich (note 8), pp. 17–20.

<sup>13</sup> Abraham (note 8), p. 61.

<sup>14</sup> Anderson, R. S., *Building Scientific Institutions in India: Saha and Bhabha*, Occasional Paper no. 11 (Centre for Developing-Area Studies/McGill University: Montreal, 1975), p. 40.

<sup>15</sup> The recent move to separate the civilian and military components of the Indian nuclear programme (as required by the 2005 India–USA CNCD) is likely to create greater bureaucratic and financial control as well as national and international oversight on at least the civilian nuclear programme.

<sup>16</sup> Quoted in Perkovich (note 8), p. 46.

<sup>17</sup> Cited in Bhatia, S., *India's Nuclear Bomb* (Vikas Publishers: Ghaziabad, India, 1979), p. 109.

Following Nehru's death in May 1964, the succession of Lal Bahadur Shastri as prime minister in June, and the first Chinese nuclear test in October, there was a spate of official and semi-official declarations and pronouncements that revealed not only an intensive debate within and outside the government on the entire question of the nuclear option, but also a reasonable understanding of the sophisticated nuclear strategies of the time. Some politicians demanded that India should build up an independent deterrent, while others insisted that India should not develop nuclear weapons under any circumstances.<sup>18</sup> Clearly, the Chinese nuclear test sparked off an Indian debate that had not existed earlier.

The parameters of this debate were set by Bhabha. In a radio address on 24 October 1964 he argued in favour of nuclear weapons and for using the US AEC figures for ploughshare devices.<sup>19</sup> Bhabha claimed that the manufacture of a 10 kiloton device would cost a mere 1.8 million rupees (about \$350 000) and could be accomplished in only 18 months.<sup>20</sup> These figures formed the basis of the subsequent debate both within and outside the Parliament and were only feebly challenged by anti-nuclear protagonists, such as V. K. Krishna Menon (defence minister, 1957–62).<sup>21</sup>

Following the defeat of a proposal asking the government to develop an independent nuclear deterrent in 1964, the debate, at least in the Parliament, appears to have gone against developing weapons.<sup>22</sup> However, the prime minister decided to approve the development of a nuclear explosive capability, and in April 1965 Shastri is reported to have formally approved the SNEP. Following the war between India and Pakistan over Kashmir in 1965 (which also raised the spectre of Sino-Pakistan collusion), Shastri told the Rajya Sabha (the Council of States, India's upper house of Parliament) on 16 November 1965 that India would reconsider its policy of not developing nuclear weapons if China succeeded in stockpiling nuclear weapons and perfecting a delivery system.<sup>23</sup> Thus, by the end of December 1965, India appeared to be set on a course to build nuclear weapons. However,

<sup>18</sup> Perkovich (note 8), p. 67.

<sup>19</sup> The term 'ploughshare device' refers to a non-military 'peaceful' nuclear explosive. The term is derived from the US Operation Plowshare, better known as Project Plowshare, which sought to develop techniques for using nuclear explosives for peaceful construction (e.g. blasting caverns or shifting waterways). A similar Soviet programme was known as Nuclear Explosions for the National Economy. Bhabha, H. J., All India radio address, 24 Oct. 1964, ed. J. P. Jain, *Nuclear India*, vol. 2 (Radiant: New Delhi, 1974), pp.159–61.

<sup>20</sup> Perkovich (note 8), p. 67.

<sup>21</sup> Brecher, M., *India and World Politics: Krishna Menon's View of the World* (Frederick A. Fraeger: New York, 1968), pp. 228, 313; Nehru, R. K., 'The challenge of the Chinese Bomb-I', *India Quarterly*, vol. 21, no. 1 (Jan.–Mar. 1965), pp. 3–14; and Masani, M. R., 'The challenge of the Chinese Bomb-II', *India Quarterly*, vol. 21, no. 1 (Jan.–Mar. 1965), pp. 15–28. See also Khera, S. S., *India's Defence Problem* (Orient Longmans: Bombay, 1968), pp. 317–18; and Suryanarayanan, V., 'Reflections on India's nuclear policy during the Nehru era', Paper no. 3711, *South Asia Analysis Group*, 10 Mar. 2010, <<http://www.southasiaanalysis.org/papers38/paper3711.html>>.

<sup>22</sup> Bhatia (note 17), p. 112.

<sup>23</sup> Ray, J. K., *Security in the Missile Age* (Allied Publishers: Bombay, 1967), p. 129.

the sudden deaths of Shastri and Bhabha in 1966 virtually halted this project.

After the Shastri period, all decisions related to India's nuclear weapons were taken by a small group within the executive and without any democratic debate. If there was any debate it was inevitably *ex post facto*. Thus, the decision to conduct the nuclear explosion test on 18 May 1974 was taken by Prime Minister Indira Gandhi primarily for domestic political reasons when the scientists were ready to test the device.

### **The un-weaponized phase**

Opinion polls taken a month after the 1974 nuclear test indicated that a staggering 90 per cent of those polled felt 'personally proud of this achievement'.<sup>24</sup> In addition, annual reports of the minister of defence just a couple of years before the test warned of an increasing Chinese nuclear threat. For instance, the report in 1971 seemed particularly concerned about China's medium-range ballistic missiles (with a range of up to 3200 kilometres), which when operational were 'capable of reaching targets in India from launching bases in Tibet'.<sup>25</sup> Therefore, based on the popularity of the 1974 test and the growing threat perceived from China's nuclear arsenal, there was a case to improve India's nuclear weapon capability. Instead, this capability was curtailed. Although the scientists were eager to go ahead with further developments of the nuclear arsenal—including the development of a thermonuclear capability—the technical capacity to do so was drastically reduced. With the 1974 test, the availability of fissile material went 'from one to zero'.<sup>26</sup> Indira Gandhi, who had been a supporter of the programme, became increasingly distracted by domestic political challenges in the mid-1970s and was eventually voted out in 1977. The new prime minister, Morarji Desai (1977–79), ensured that during his brief tenure the weapon option remained unexercised.<sup>27</sup>

The return of Indira Gandhi as prime minister in 1980 saw not only a move to resume nuclear tests in 1982, but also the launch of an ambitious Integrated Guided Missile Development Programme (IGMDP) in 1983. The IGMDP was tasked to develop at least two missiles capable of delivering nuclear warheads: the Prithvi (a surface-to-surface short-range missile)

<sup>24</sup> See 'Public opinion on India's nuclear device', *Monthly Public Opinion Surveys*, Indian Institute of Public Opinion, vol. 19, no. 9 (June 1974), Blue supplement, III-IV, cited in Sagan, S., 'Why do states build nuclear weapons? Three models in search of a bomb', *International Security*, vol. 21, no. 3 (winter 1996–97), p. 68.

<sup>25</sup> Indian Ministry of Defence, *Annual Report 1970–1971* (Government of India: New Delhi, 1971), pp. 1–2.

<sup>26</sup> Dr Raja Ramanna, top nuclear scientist associated with the 1974 nuclear test, Interview with the author, Bangalore, Jan. 1995.

<sup>27</sup> Sidhu, *Evolution of India's Nuclear Doctrine* (note 2), p. 4.

and the Agni (a surface-to-surface intermediate-range missile). However, despite growing evidence that Pakistan was well on its way to acquiring a nuclear weapon capability, Indira Gandhi continued the no-testing policy, and nuclear tests were never revisited until after her assassination in 1984. This un-weaponized phase lasted at least until the mid- to late-1980s, when the decision to weaponize appears to have been made by the late prime minister's son and successor, Rajiv Gandhi.<sup>28</sup>

### **The recessed deterrence phase**

Since 1974, but more evidently from 1985, during the premiership of Rajiv Gandhi when a formal decision to weaponize without conducting further tests appears to have been taken, India had developed aircraft and missile-based delivery systems for its covert arsenal of nuclear weapons and started to adopt a deterrence policy without actually deploying nuclear weapons. Scholars have described this situation as non-weaponized deterrence or recessed deterrence.<sup>29</sup>

A series of military crises between India and Pakistan in 1983–84, 1986–87 and 1989–90 stopped short of actual war.<sup>30</sup> These clashes were clearly played out against the emerging nuclear scenario on the subcontinent. It is likely that Rajiv Gandhi ordered nuclear scientists to develop weapons after the first but before the second of these crises. Various components for the nuclear devices were built and assembled to provide air-deliverable weapons.<sup>31</sup>

Thus, in response to these crises, India's military doctrine moved from a purely conventional deterrent in 1983–84 to one that incorporated nuclear weapons. While the conventional deterrent was based on a doctrine of offensive defence, which implied a strategy of preventive war, nuclear deterrence was based on a doctrine of no-first-use and second-strike retaliation. Conventional deterrence was not abandoned. Instead, it was

<sup>28</sup> According to one report, covert weaponization took place in 1988. Chengappa, R., 'The bomb makers', *India Today*, 22 June 1998, p. 29. More recently, senior personnel involved in the weaponization process have hinted that the formal decision to covertly weaponize India's nuclear capability was taken soon after Rajiv Gandhi became prime minister in 1984. The Director of the Institute for Defence and Strategic Analyses, K. Santhanam, one of the key personnel in the May 1998 tests, indicated this at a seminar on 'India's nuclear doctrine' at the Centre for Policy Research on 5 May 2003.

<sup>29</sup> On 'non-weaponized deterrence' see Perkovich, G., 'A nuclear third way in South Asia', *Foreign Policy*, no. 91 (summer 1993), p. 86. Perkovich describes 'non-weaponized deterrence' as the deterrence derived 'from the power of each to construct nuclear weapons quickly'. On 'recessed deterrence' see Singh, J., 'Prospects for nuclear proliferation', ed. S. Sur, *Nuclear Deterrence: Problems and Perspectives in the 1990s* (United Nations Institute for Disarmament Research: New York, 1993), p. 66. Singh describes 'recessed deterrence' as having the capability to build and deliver nuclear weapons, but not exercising this ability.

<sup>30</sup> Sidhu, 'The development of an Indian nuclear doctrine since 1980' (note 8) pp. 119–43.

<sup>31</sup> Author's interviews with senior scientists involved with the nuclear weapon programme, New Delhi, 1995 and 2004.



buttressed by nuclear deterrence, without nuclear weapons actually being deployed. This policy was not the result of democratic debate but emerged from an informal, covert consensus among key political, technical and military actors. The weaponization phase of recessed deterrence was possible only because the fruition of the scientific and technological capabilities coincided with the will of the political leadership to covertly cross the nuclear Rubicon. It continued until the nuclear tests of 1998 that ushered in the phase of minimum credible deterrence.<sup>32</sup>

### **The minimum credible deterrence phase**

The Indian nuclear tests on 11 and 13 May 1998 proved to be as popular with the Indian public as the 1974 test.<sup>33</sup> Although the May 1998 parliamentary debate following both the statement on India's nuclear statehood by Prime Minister Atal Bihari Vajpayee (1998–2004) and the tabling of the paper on the 'Evolution of India's nuclear policy' was often stormy and highly critical of the motives of the BJP-led coalition government, there was general support for the tests themselves.<sup>34</sup> The opposition raised three issues: the covert nature of the decision to conduct the tests and the timing of the tests; the articulation of the 'China threat' as a justification for the tests; and the cost of weaponization as unaffordable and inevitably leading to an arms race. The government responded to these criticisms by citing the 1974 test as a precedent for covert decision making and timing; underplaying the Chinese threat and highlighting the Pakistani threat (which was facilitated by Pakistan's nuclear weapon tests on 28 and 30 May—right in the middle of this crucial parliamentary debate); and asserting that the costs would be manageable (although it failed to provide any figures) and would not lead to an arms race.

Apart from this brief and perfunctory parliamentary scrutiny, the government grappled with the 'always/never' dilemma of deterrence.<sup>35</sup> On

<sup>32</sup> Author's interviews with senior scientists and military officials involved with the nuclear weapon programme, New Delhi, 1995.

<sup>33</sup> A survey conducted by a leading Indian news magazine indicated that 87% of the respondents approved of the testing of the nuclear bomb and that 86% supported weaponization. See 'Solid support', *India Today*, 25 May 1998.

<sup>34</sup> 'Our decision not to sign the [1968 Non-Proliferation Treaty] was in keeping with our basic objectives. In 1974, we demonstrated our nuclear capability. Successive Governments thereafter have taken all necessary steps in keeping with that resolve and national will, to safeguard India's nuclear option. This was the primary reason behind the 1996 decision for not signing the [Comprehensive Nuclear-Test-Ban Treaty], a decision that also enjoyed consensus of this House. . . . India is now a nuclear weapon state. This is a reality that cannot be denied.' Vajpayee, A. B., *Suo motu statement by Prime Minister Shri Atal Bihari Vajpayee in Parliament, XII Lok Sabha Debates, Session II (Budget), 27 May 1998*, <<http://www.indianembassy.org/pic/pm-parliament.htm>>; and 'Discussion on the statement made by the prime minister' (note 6).

<sup>35</sup> The 'always/never dilemma' refers to the 'two desiderata that motivate the nuclear command-and-control structure: that nuclear weapons always explode in the prescribed fashion when authorized leaders so direct, and that nuclear weapons never explode when authorized leaders have not

the one hand India needs to convince Pakistan, China and others that if nuclear deterrence breaks down, India can always rely on an assured nuclear retaliation against Pakistan. On the other hand, India must also convince itself and the international community that its nuclear weapons will never be used accidentally or in an unauthorized manner. However, the 'always' aspect of India's minimum credible deterrence posture has been found wanting. Thus, resolving the always/never dilemma is likely to pose the greatest challenge to governing India's nuclear establishment.

India initially sought to address this challenge by opting for a tacit 'never/never' use position. This was evident in a 4 August 1998 statement by Prime Minister Vajpayee in the Parliament. He reasoned that 'the fact that we've become a nuclear weapon state should be deterrent enough'. When challenged by opposition leaders as to what India would do if attacked, Vajpayee declared that the 'thought should be discarded, that other countries use these weapons and we cannot retaliate. Our arsenal is a credible deterrent'.<sup>36</sup> Given that India's second-strike capability was nowhere near ready, this declaration lacked credibility. India believed that 'it was adequate to make an adversary *uncertain* that nuclear threats or attacks on India would *not* be met with nuclear reprisals'.<sup>37</sup>

Following the May 1998 nuclear tests and the parliamentary debate, the government established the post of national security adviser, the National Security Secretariat and the National Security Advisor Board (NSAB) in November 1998. The NSAB is a government appointed board of around two-dozen strategists, setup to 'advise' the national security adviser (who is appointed by the prime minister) on all matters of national security, including, but not exclusively, the nuclear aspect. It was promoted as a forum for informed debate on nuclear issues among experts, including on the size of the nuclear arsenal and its use. It was also expected to provide an element of oversight on the emerging nuclear arsenal and the related command-and-control system. However, the selection of members and the functioning of the NSAB has been undemocratic. In some instances the NSAB has been simply used to rubber-stamp some of the adviser's decisions. Despite these serious limitations, the first NSAB, which was primarily responsible for drawing up the draft nuclear doctrine of 17 August 1999, did

directed their use'. The 'always' side of command and control requires survivable forces, reliable weapons and strong communications links. The 'never' side requires the prevention of accidental and unauthorized use. Feaver, P., *Guarding the Guardians: Civilian Control of Nuclear Weapons in the United States* (Cornell University Press: Ithaca, NY, 1992), p. 12. For more details see chapter 1 in this volume.

<sup>36</sup> 'PM declares no-first strike', *Indian Express*, 4 Aug. 1998; and 'CTBT only after Parliament's nod: PM', *Indian Express*, 5 Aug. 1998.

<sup>37</sup> Perkovich (note 8), p. 3 (emphasis in original).

witness some lively debate especially on key issues, such as no-first-use and tactical nuclear weapons.<sup>38</sup>

However, the Kargil crisis of 1999, which followed after Pakistani forces crossed the 'line of control'—the de facto border between India and Pakistan—and occupied significant and strategic parts of Indian-administered territory in Kashmir, severely tested India's original never/never position.<sup>39</sup> Consequently, in the draft nuclear doctrine unveiled just after the conclusion of the crisis, India sought to lend credibility to its second-strike capability by declaring its intentions to acquire a nuclear triad.<sup>40</sup> Soon thereafter, in January 2000, India also propounded the doctrine of conventional limited war under nuclear conditions, which sought to 'ensure that conventional war . . . is kept below the nuclear threshold'.<sup>41</sup> This limited war doctrine formed the basis for Operation Parakram (Strength), the biggest Indian military mobilization since the 1971 India–Pakistan War. Operation Parakram was launched in December 2001 following a series of attacks, including one on the Indian Parliament on 13 December 2001 by terrorist groups reportedly operating from Pakistan.<sup>42</sup>

Pakistan rejected the Indian limited war concept and also cautioned that it could resort to the use of nuclear weapons even in a conventional conflict if it considered the losses to be unacceptable.<sup>43</sup> Thus, unable to sustain the never/never option, India appears to have reluctantly moved towards a 'sometimes/never' position. The best indication of this shift was the Indian Government's establishment of an elaborate nuclear command-and-control structure as well as the updated doctrine released on 4 January 2003.<sup>44</sup>

As per the declared command-and-control structure, the decision to use nuclear weapons would be made by the NCA, which is composed of the Political Council (led by the prime minister) and the Executive Council (presided over by the national security adviser). The exact composition of the Political Council and the Executive Council has not been made public.<sup>45</sup> The decision of the NCA will be executed by a tri-service command called the Strategic Forces Command (SFC), which, in theory, controls all of

<sup>38</sup> See 'Draft report of National Security Advisory Board on Indian nuclear doctrine', 17 Aug. 1999, <[http://www.indianembassy.org/policy/CTBT/nuclear\\_doctrine\\_aug\\_17\\_1999.html](http://www.indianembassy.org/policy/CTBT/nuclear_doctrine_aug_17_1999.html)>.

<sup>39</sup> On the Kargil conflict see Sidhu, W. P. S., 'In the shadow of Kargil: keeping peace in nuclear South Asia', *International Peacekeeping Special Issue*, vol. 7, no. 4 (winter 2000), pp. 189–206.

<sup>40</sup> See 'Draft Report' (note 38).

<sup>41</sup> Mantri, R. [George Fernandes], Inaugural address at a seminar on 'The challenges of limited war: parameters and options', Institute for Defence Studies and Analyses, New Delhi, 5–6 Jan. 2000.

<sup>42</sup> Gupta, S., 'When India came close to war', *India Today*, 23 Dec. 2002, pp. 27–29; and Jayaraman, T., 'Nuclear crisis in South Asia', *Frontline*, vol. 19, no. 12 (8–21 June 2002).

<sup>43</sup> Lodhi, M., Pakistani Ambassador to the USA, 'New security architecture for South Asia', Paper distributed at International Institute for Strategic Studies Conference on Minimum Deterrence, Concepts and Practices, Mauritius, 22–23 June 2000; and Jayaraman (note 42).

<sup>44</sup> Government of India (note 3).

<sup>45</sup> Cherian, J., 'The nuclear button', *Frontline*, vol. 20, no. 2 (18–31 Jan. 2003).

India's nuclear warheads and delivery systems.<sup>46</sup> Thus, the decision of the NCA to use nuclear weapons would involve three critical steps: (a) following a nuclear strike, the Political Council would give authorization to the Executive Council to launch a retaliatory strike; (b) the Executive Council would pass authorization to the SFC; and (c) the SFC would mate the warheads (under the control of the Defence Research and Development Organisation, DRDO) and the delivery systems (under the control of individual services) and launch a strike. One reason for this rather cumbersome arrangement, especially the mating of the warheads and the delivery systems after a nuclear strike has already occurred, might be the rudimentary nature of the permissive action links (PALs) being used by India. Clearly, given the chaos that is likely to ensue in the wake of a nuclear strike (especially if it is a decapitating strike) and the three-stage launch approach, this system does not guarantee a retaliatory strike. At best, it ensures that nuclear weapons might be used.<sup>47</sup>

### III. Key actors

Despite the present elaborate command-and-control system and a fairly detailed doctrine, it still remains uncertain whether India will always be able to launch an assured retaliation in case deterrence breaks down. The doctrinal development of 2003 was not the result of an open democratic debate but partly a response to the perceived nuclear threat and crises in 1999 and 2001–2002 and primarily a result of the compromise between the three key actors in the nuclear decision-making process: the political leadership, the nuclear- and defence-scientific complex, and the armed forces.<sup>48</sup> The Parliament and civil society played a negligible role and essentially endorsed the consensus of the other three actors.

#### **Political leaders**

India's prime ministers have the ultimate executive authority. Indira Gandhi, who sanctioned the first nuclear test, Rajiv Gandhi, who ordered weaponization, and Atal Behari Vajpayee, who declared India's overt nuclear status, did the bare minimum to operationalize and institutionalize the development, deployment and use of nuclear weapons. They did even less to ensure democratic accountability of this capability. Rather, they

<sup>46</sup> Pant, H. V., 'India's nuclear doctrine and command structure: implications for India and the world', Paper prepared for the annual meeting of the American Political Science Association, Chicago, 2–5 Sep. 2004, pp. 6–7.

<sup>47</sup> On India's nuclear forces see appendix A in this volume.

<sup>48</sup> Indeed, the only 'debate' that occurred was in the confines of the NSAB. Sidhu, W. P. S., 'This doctrine is full of holes', *Indian Express*, 8 Sep. 1999; and 'Advantage moderates', *The Hindu*, 11 Sep. 1999.

vehemently adhered to the principle of ensuring the civilian control of nuclear weapons while consistently also trying to maximize the role of nuclear weapon capability in providing a greater degree of domestic political popularity for them. In the former case they were remarkably successful whereas in the latter instance they consistently disappointed and failed to convert the popular support surrounding key nuclear events into electoral advantage.

If governments with clear majorities sought to use nuclear achievements to strengthen their domestic political standing, it was even more important for the minority governments in the 1990s to use them as symbols of prestige to improve their domestic position and to support what has been described as 'nuclear nationalism'.<sup>49</sup> After the May 1998 tests, Prime Minister Vajpayee coined the populist slogan *jai vigyan* (hail science) and 11 May was designated Shakti Diwas (Strength Day) after the code names for the nuclear tests. Nuclear nationalism became evident in the government's treatment of international treaties and regimes that impinge on domestic politics. The crossover of external pressure into the domestic political arena was evident during the 1993–97 negotiations on the 1996 Comprehensive Nuclear-Test-Ban Treaty (CTBT).<sup>50</sup> The governments of prime ministers P. V. Narasimha Rao (1991–96) and H. D. Deve Gowda (1996–97) both showed unwavering support for India's strategic enclave of nuclear and defence scientists when the opposition parties warned that signing the CTBT would compromise national security. The expectation that the CTBT would enter into force in 1999 also was partially responsible for the May 1998 tests. Although India has opposed the CTBT and did not sign it, the perception was that after 1999 the door would be closed to improving India's nuclear weapon capabilities, a highly unpopular situation as far as domestic politics is concerned.

The advent of the BJP-led government and the May 1998 tests and the marked at least a rhetorical, if not operational, shift in the attitude of India's political leaders towards nuclear weapons. For instance, Jaswant Singh (foreign minister, 1998–2002) made a case for political leaders to weigh in on the development of strategy and military doctrines.<sup>51</sup> In a similar vein, Prime Minister Vajpayee was the first Indian leader to declare that nuclear weapons would be used for 'self-defence' before he made a qualified no-first-use offer.<sup>52</sup> Interestingly, while the BJP leadership stressed the need for a minimum deterrence capability, they never quan-

<sup>49</sup> Lavoy, P. R., 'Nuclear arms control in South Asia', eds J. A. Larsen and G. J. Rattray, *Arms Control Toward the 21st Century* (Lynne Rienner Publishers: Boulder, CO, 1996), p. 280.

<sup>50</sup> Comprehensive Nuclear-Test-Ban Treaty (CTBT), opened for signature on 24 Sep. 1996, not yet entered into force, <<http://treaties.un.org/Pages/CTCTreaties.aspx?id=26>>.

<sup>51</sup> Singh, S. J., *What Constitutes National Security in a Changing World Order?*, Occasional Paper no. 6 (Center for the Advanced Study of India: Philadelphia, PA, June 1998), pp. 6–7.

<sup>52</sup> 'Nuclear weapons only for self-defence, says PM', *The Hindu*, 15 May 1998.

tified what the 'minimum' should be. Thus, despite the change in attitude introduced by the BJP leadership, which continued with the subsequent Congress Party-led government, the traditional reluctance of Indian politicians to think about the deployment and use of nuclear weapons has meant that these issues were left to the two bureaucracies associated with nuclear weapons: the nuclear and defence scientists and the armed forces.

### **Nuclear and defence scientists**

Indian nuclear and defence scientists retain physical possession of the nuclear warheads. They primarily regard nuclear weapons and their associated delivery systems as symbols of prestige. Nuclear weapons are touted as evidence of India's technical prowess and scientific competence, especially when compared with the low level of development in other sectors of the economy. A well-known comment about India's space programme—'in a country where the bullock cart still constitutes a principal mode of transportation, India's space programme stands out as a dramatic achievement'—certainly applies equally in the case of nuclear weapons.<sup>53</sup>

The technical success achieved in the nuclear weapon field should be seen in the broader context of other projects run by the DRDO and the AEC, particularly the main battle tank, the light combat aircraft and indigenous nuclear power reactors—all of which have fallen behind schedule. For instance, an ambitious combat aircraft project was commissioned in 1983 to replace the MiG-21 fleet by the mid-1990s. However, the first flight occurred only in 2001 and the most optimistic date for its entry into service is after 2011.<sup>54</sup> Against this background, the Agni missile programme's success has been critical for the continued funding and patronage of the DRDO by the political establishment. It is no coincidence that the person chosen to succeed Dr V. S. Arunachalam as the head of the DRDO was Dr A. P. J. Abdul Kalam, chief of the IGMDP.

The scientists' pride in the nuclear programme is enhanced because these capabilities were developed despite concerted efforts, particularly by the nuclear powers as defined by the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT), to prevent India from acquiring technology through various technology control regimes.<sup>55</sup>

<sup>53</sup> Elkin, J. F. and Fredericks, B., 'Military implications of India's space program', *Air University Review*, May–June 1983, p. 56.

<sup>54</sup> Indian Government, 'Induction of LCA Tejas into IAF', Press Information Bureau, 24 Feb. 2010, <<http://pib.nic.in/release/release.asp?relid=58285>>.

<sup>55</sup> According to the NPT, only states that manufactured and exploded a nuclear device prior to 1 Jan. 1967 are recognized as nuclear weapon states. China, France, Russia, the UK and the USA are the 5 nuclear-armed states party to the NPT. Israel, India and Pakistan are nuclear-armed states that remain outside the NPT. Treaty on the Non-Proliferation of Nuclear Weapons opened for signature on 1 July 1968, entered into force on 5 Mar. 1970, <<http://www.iaea.org/Publications/Documents/Treaties/npt.html>>.

India considers such mechanisms as the Missile Technology Control Regime (MTCR) and other technology control regimes discriminatory.<sup>56</sup> When asked why India should build nuclear-capable missiles, Dr Kalam rarely cited security concerns but instead repeated his favourite mantra: 'strength respects strength'.<sup>57</sup> In fact, one of the official mandates for India's defence research is 'to develop critical components, technologies . . . and to reduce the vulnerability of major programmes [such as missiles] . . . from various embargoes/denial regimes, instituted by advanced countries'.<sup>58</sup> Thus, the concern to overcome restrictions on the transfer of material, equipment and technologies that have a bearing on Indian security remains a key element.

Validating the technology became an end in itself, and nuclear and defence scientists apparently got approval to build and test prototypes on their own. However, to go beyond testing to produce weapons for military use, nuclear and defence scientists must obtain support from the military. At the same time, these scientists are reluctant to give the military too much authority because it would erode their own position in the bureaucratic hierarchy. Thus, the dilemma for the scientists is to obtain military support for various programmes, including the nuclear weapon programme, while retaining overall control and allowing the least possible delegation of authority to the military.

### **The Indian armed forces**

The Indian armed forces, which presently possess and command India's nuclear warhead-delivery systems, have, since independence in 1947, operated under strict civil and constitutional control. Since the mid-1960s, however, the civilian-led Ministry of Defence appears to have conceded operational authority to the military, particularly during periods of hostilities. Apart from this operational autonomy, in all other aspects of policy planning, weapon procurement and modernization plans, the civilian authority has had the final say.<sup>59</sup>

Nonetheless, two basic nuclear concerns have preoccupied Indian military strategists since 1964. First, how should India counter Chinese and

<sup>56</sup> See Smith, M., 'The MTCR and the future of ballistic missile non-proliferation', *Disarmament Diplomacy*, no. 54 (Feb. 2001). On the MTCR see its website at <<http://www.mtcr.info/>>.

<sup>57</sup> See e.g. Subramanian, T. S., 'Kalam as a colleague', *Frontline*, vol. 19, no. 13 (22 June–5 July 2002).

<sup>58</sup> Indian Ministry of Defence, *Annual Report 1996–1997* (Government of India: New Delhi, 1997), p. 55.

<sup>59</sup> Chari, P. R., former Ministry of Defence (MOD) Additional Secretary, Interview with the author, New Delhi, 3 Mar. 1995. In fact, until the early 1980s not only the military, but even the civilian-run MOD was expressly forbidden from speaking on the nuclear issue either publicly or officially.

Pakistani nuclear threats—by conventional or nuclear means? Second, what is the possible role of nuclear weapons in the Indian armed forces? In the former case, the military tried to evolve doctrines that would meet both the conventional and nuclear threats with their existing conventional hardware. Although this approach was followed in the pre-nuclear weaponization phase, it remains relevant even under the limited-war doctrine, which specifically calls for carrying out a limited conventional conflict without crossing the nuclear threshold. However, the military has invariably argued that conventional means alone are inadequate to counter nuclear weapons and that nuclear weapons could be deterred only by nuclear weapons. Thus, the Chiefs of Staff Committee—the highest ranking military body—has consistently recommended successive governments to ‘go nuclear’ since 1964.<sup>60</sup> The best public articulation of the military’s case is a two-volume compilation of essays edited by the then commandant of the army’s College of Combat, Lieutenant General Krishnaswami Sundarji.<sup>61</sup> The first volume made a strong case for the introduction of nuclear weapons into the Indian military. The second volume underlined that nuclear doctrines were not seen as separate from conventional doctrines but as an adjunct to them.

The three armed services—the army, the navy and the air force—had envisaged quite different and elaborate roles for nuclear weapons once they are added to their arsenals. However, political leaders and nuclear and defence scientists have been reluctant to include the armed forces in either the decision making about or the development of nuclear weapons, let alone to give them the possession of these weapons. This might partly be explained by the long and strong tradition of strict civilian control over the military in India and partly by the concerns related to inter-service rivalry.

Interestingly, in 1985, following the publication of the College of Combat essays, Prime Minister Rajiv Gandhi ordered the armed forces to conduct a classified study of nuclear weapons. A tri-service committee, which also included representatives from the DRDO and was chaired by Sundarji, vice-chief of army, conducted this study. While the study remains classified, it is understood that it strongly recommended nuclearization. Although it is now known that Rajiv Gandhi ordered weaponization of the nuclear capability, possibly sometime soon after the committee’s report, it is still not known whether this decision was influenced by the views of the armed forces. However, there was no feedback to the armed forces on the issue. In fact, even following weaponization and the May 1998 tests, the

<sup>60</sup> See e.g. Dutt, D. S., *India and the Bomb*, Adelphi Paper no. 30 (International Institute for Strategic Studies: London, 1966), p. 1.

<sup>61</sup> Sundarji, K. (ed.), *Effects of Nuclear Asymmetry on Conventional Deterrence*, Combat Paper no. 1 (College of Combat: Mhow, Apr. 1981); and Sundarji, K. (ed.), *Nuclear Weapons in Third World Context*, Combat Paper no. 2 (College of Combat: Mhow, Aug. 1981).



nuclear weapons were not handed over to the armed forces, which were only allowed limited access to the decision-making process, including the establishment of the necessary command-and-control structure. Were the military to get more involved, India would invariably move towards the 'always/never' position.

### **The Parliament, media, civil society and public opinion**

The Indian Parliament, media and elements of civil society have played a negligible role in debating nuclear issues, let alone governing them. Even in this limited context these elements of democratic accountability have (with a few notable exceptions) inevitably been used to manufacture consent for the existing policy of the government.<sup>62</sup>

#### *Parliamentary oversight*

On the parliamentary stage, the nuclear issue has been substantially debated only four times since 1950: in 1964–65, in 1974, in 1995–96 and in 1998. These debates have followed predictable lines: the communists, both the pro-Soviet Union/Russia and the pro-China wings, remain opposed to building nuclear weapons but in favour of retaining the option. They have stressed universal peace among socialist states and have seen no threat from either the Soviet Union/Russia or China.<sup>63</sup> In sharp contrast, the extreme right, the Jan Sangh Party and the BJP have always supported the nuclear bomb. The position of the Congress Party, which has dominated India for most of the past 60 years, has moved from not supporting the building of weapons through assembling a covert arsenal to now supporting the emerging overt deterrent capability.

The 1964–65 debate remains the most crucial of the formal parliamentary deliberations on nuclear weapons. In November 1964, during this debate, Jan Sangh formally introduced a proposal in the Parliament calling for nuclear weapons and argued that 'an all out effort be made to build up an independent nuclear deterrent.'<sup>64</sup> Atal Behari Vajpayee, who as prime minister ordered the nuclear tests in 1998, was a member of the Jan Sangh Party.<sup>65</sup> While a section of the ruling Congress Party supported the indigenous manufacture of nuclear weapons, the Congress Party's internal resolution that narrowly passed on 8 November 1964 at one of its internal conclaves endorsed the existing policy of developing nuclear energy for

<sup>62</sup> One such notable exception is 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).

<sup>63</sup> Patil, R. M. L., *India: Nuclear Weapons and International Politics* (National: Delhi, 1969), pp. 82–83, as cited in Bhatia (note 17), p. 113.

<sup>64</sup> Perkovich (note 8), p. 82.

<sup>65</sup> Patil (note 63), as cited in Bhatia (note 17), p. 112.

peaceful purposes only.<sup>66</sup> Although it is not clear what impact this debate had, there was a discernible shift in the nuclear posture of the Shastri government. For instance, in a speech in the Lok Sabha (the House of the People, India's lower house of Parliament) on 24 November 1964, Shastri categorically reiterated the policy of not producing an atom bomb.<sup>67</sup> However, following the defeat of the Jan Sangh proposal on 27 November, Shastri supported the development of peaceful nuclear devices for engineering purposes and, significantly, at the Congress Party session in January 1965, he noted: 'I cannot say anything about the future, but our present policy is not to manufacture the atom bomb, but to develop nuclear energy for constructive purposes.'<sup>68</sup> This nuclear debate of 1964–65, although slanted by Bhabha's speech, was the first and, perhaps, the only time that the issue of India's developing nuclear weapons was democratically debated in the Parliament. Indeed, this was probably the only instance where an aspiring nuclear weapon country had debated acquiring nuclear weapons before actually doing so. Besides this one exception, the Indian Parliament has invariably supported the position of the government of the day on the rare occasions that it has debated the nuclear issue.

Furthermore, there is no parliamentary standing committee on nuclear weapons. The standing committee on defence, which has sought to enlarge its scope to cover nuclear weapons, has rarely and only superficially examined this issue. There has always been concern about the cost of the Indian nuclear weapon programme, and India's political leadership is unlikely to accept unlimited cost for possessing a nuclear force. The nuclear- and defence-scientific complex and, increasingly the military, have sought to underplay the nuclear costs and to keep them hidden from public and parliamentary scrutiny.<sup>69</sup> This was evident in Bhabha's 1964 radio address and the subsequent semi-official studies to estimate the costs of the nuclear weapon programme.<sup>70</sup>

Consequently, contemporary cost estimates for India's nuclear arsenal vary widely from as low as 36 billion rupees (c. \$800 million) for an arsenal of 60 Agni nuclear warheads to about 400–500 billion rupees (c. \$10 billion) over 10 years for an arsenal of 150 warheads. The cost for as many as 328 warheads deployed on submarines, land- and air-based missiles and the related command-and-control system is pegged at 600 billion rupees

<sup>66</sup> *Hindu Weekly*, 8 Nov. 1964, as cited in Bhatia (note 17), pp. 110, 111.

<sup>67</sup> Extract from Shastri's speech in the Lok Sabha on 24 Nov. 1964, prepared for a seminar on nuclear weapons and foreign policy organized by the Indian School of International Studies, 6–12 Nov. 1966, reproduced in *The Challenge of Nuclear Weapons to India's Foreign Policy: Select Readings*, p. 269.

<sup>68</sup> *Hindustan Times*, 8 Jan. 1964, quoted in Bhatia (note 17), p. 121. See also Ray (note 23), p. 119; and Lall, A., 'Will India build the A-Bomb?', *War/Peace Report*, Feb. 1965, pp. 3–4.

<sup>69</sup> Lavoy, P. R., 'The costs of nuclear weapons in South Asia', eds D. R. SarDesai and R. G. C. Thomas, *Nuclear India in the 21st Century* (Palgrave Macmillan: New York, 2002), pp. 262–67.

<sup>70</sup> Bhabha (note 19).

(c. \$13.3 billion).<sup>71</sup> However, in the absence of official figures (nuclear war-heads and delivery systems do not appear as separate line items in the annual Indian budget) it is impossible to state with any certainty which of these figures is accurate. Given the absence of parliamentary and budgetary oversight, which exists for conventional defence procurements, there is an inherent danger of cost overrides and ballooning budgets without any accountability, especially when there is no budget for the nuclear force. Thus, by not providing a democratic process for determining the 'minimum' requirement or any parliamentary oversight, the political leadership is inadvertently leaving this critical issue to be determined by the nuclear and defence scientists who have a vested interest in opting for a large arsenal.

*Non-government oversight and accountability*

Apart from the virtually non-existent parliamentary debate and oversight, even the generally independent Indian media has rarely addressed nuclear issues. In fact, they did not pay any attention to the possibility of an Indian nuclear programme until 1964.<sup>72</sup> On the few occasions that the media has examined the nuclear issue, they too have supported the government's position to bear nuclear arms and have rarely criticized the scope or secrecy of the programme. This is in sharp contrast to environmental issues on which the media has increasingly played an activist role and has fought against and challenged the government on several issues.

Similarly, India's non-governmental experts in international relations and foreign policy initially ignored the nascent Indian nuclear weapon programme. Neither the journal of the Indian Council of World Affairs nor the journal of the Indian School of International Studies published a single article on the nuclear issue until 1964.<sup>73</sup> Even a key book on defence issues written in 1960 by Kavalam Madhava Panikkar, a noted Indian foreign policy scholar, devoted a mere two pages to the prospects of an Indian nuclear weapon programme.<sup>74</sup> Although several publications examined India's nuclear weapon policy and options in the post-1974 period, it was only after the nuclear tests of May 1998 that there has been a surge in the writing—both in support and in opposition—of India's decision to go nuclear. However, this spurt in scholarship is not necessarily a reflection of the desire for either greater transparency or accountability but simply an interest in a subject that was largely ignored in the past.

In the same way, the public opinion surveys conducted around the time of nuclear tests that have reflected overwhelming support for the nuclear

<sup>71</sup> Figures in this paragraph are calculated in 1999 dollars. Lavoy (note 69), p. 266.

<sup>72</sup> Bhatia (note 17), p. 115.

<sup>73</sup> Bhatia (note 17), p. 115.

<sup>74</sup> Panikkar, K. M., *Problems of Indian Defence* (Asia Publishing House: London, 1960).

capability can also be misleading. Most of these surveys have been conducted in the relatively affluent urban centres where there is certainly support for capabilities that indicate India's entry into the exclusive nuclear weapon club. Thus, these surveys do not necessarily indicate popular support in the rural areas of India.<sup>75</sup>

Furthermore, while public opinion has appeared favourable of nuclear and missile developments, this popular support has not necessarily translated into political support for the party that augmented India's nuclear and missile capabilities. For instance, despite popular support for the 1974 nuclear test authorized by Prime Minister Indira Gandhi, she actually lost popularity, faced severe opposition and was forced to impose a state of emergency from 1975 to 1977.<sup>76</sup> Subsequently, she lost the next general election in 1977. Similarly, Prime Minister Rajiv Gandhi—who supported weaponization, authorized the test of the nuclear-capable Agni missile in 1989 and used images of this missile in his party's election posters—also lost the election in 1989. Following the May 1998 nuclear tests, the ruling BJP lost power in four Indian states that held elections in November 1998.<sup>77</sup> This included the state of Rajasthan, where the nuclear tests were conducted and where the BJP used images of the mushroom cloud on some of its election posters.<sup>78</sup> Finally, although the BJP retained power in the national elections of 1999, it actually saw a drop in its popular vote, although its number of parliamentary seats remained the same.<sup>79</sup>

Indeed, if the elections following nuclear or missile tests are considered, the electorate has certainly not favoured the party that conducted the tests. This does not necessarily mean that the tests were unpopular but simply that they are not a significant issue for the general public. Their insignificance becomes apparent when surveys ask respondents to list their primary issues of concern: the cost of living, employment issues, and law and order concerns top the list; nuclear weapons have never fared well against these other concerns.<sup>80</sup>

<sup>75</sup> E.g. the ORG-MARG survey conducted soon after the nuclear tests in May 1998 was carried out in only 12 cities (Delhi, Mumbai, Calcutta, Chennai, Bangalore, Hyderabad, Ahmedabad, Lucknow, Jaipur, Patna, Bhopal and Cuttack). See *India Today* (note 33).

<sup>76</sup> On public opinion polls and the 1974 tests see Perkovich (note 8), pp. 180, 188.

<sup>77</sup> Directly after the tests in May 1998, 91% of respondents in 6 major Indian cities were in favour of the nuclear tests, which dwindled to 44% in Oct. 1998. See Perkovich (note 8), pp. 416, 439.

<sup>78</sup> 'Congress claims a repeat of 1998 victory', *The Hindu*, 15 Nov. 2003; and 'Hindutva and multiculturalism', *The Hindu*, 6 Dec. 1998.

<sup>79</sup> See *Statistical Report on General Elections, 1998 to the 12th Lok Sabha*, vol. 1 (Election Commission of India: New Delhi, 1998), <[http://eci.nic.in/eci\\_main/StatisticalReports/ElectionStatistics.asp](http://eci.nic.in/eci_main/StatisticalReports/ElectionStatistics.asp)>, p. 90.

<sup>80</sup> For illustration see the ORG-MARG survey conducted soon after the nuclear tests in May 1998. Developing a nuclear bomb was ranked only 5th in priority after 'population control', 'education', 'economic growth' and 'reducing poverty'. *India Today* (note 33).

#### IV. Divided control and its limits

The position of the Indian political leadership and the scientists in the nuclear hierarchy has always been stronger than that of the military. The former groups desired to never use nuclear weapons, while the latter aspired to ensure that retaliation is always guaranteed. The stage was set for establishing a command-and-control structure which would have a built-in bias towards non-use rather than use. Indeed, one of the earliest arrangements involved a written order from the prime minister, including 'a set of detailed instructions on how to obtain access to nuclear weapons and how to employ them' in the event of his or her death.<sup>81</sup> According to Dr Arunachalam, the former chief of the DRDO, 'If New Delhi goes up in a mushroom cloud, a certain theater commander will go to a safe, open his book, and begin reading at page one, paragraph one, and will act step by step on the basis of what he reads.'<sup>82</sup> While such an arrangement would ensure solid civilian control and prevent accidental launch, it could not be relied on to assure a retaliatory strike and underlined the tacit never/never option that was preferred by the Indian leadership.

This command-and-control arrangement has evolved into the present-day three-stage arrangement with strong civilian control as described above. Keeping the nuclear warheads and the delivery systems separated and non-deployed, possibly necessitated by the absence of appropriate PALs, might also further enhance the control of the civilian authority.

Other scenarios could be a politically weak government increasingly dependent on the military for domestic stability or a highly nationalistic government with a strategic culture similar to that of the military which might favour giving the military a more autonomous or delegated role over nuclear weapons. Moreover, the no-first-use posture, which has already been diluted by the Indian threat of a nuclear retaliation against biological and chemical weapons, might be done away with entirely.<sup>83</sup> In addition, it is not clear whether a conventional strike against the Indian nuclear force would be considered as a first strike and therefore perceived as justifying an Indian nuclear response.

#### **The impact of regional and international agreements**

India has also entered into a number of regional confidence- and security-building measures with Pakistan. Three of these agreements are particu-

<sup>81</sup> Rosen, S. P., *Societies and Military Power: India and Its Armies* (Cornell University Press: Ithaca, NY, 1996).

<sup>82</sup> Interview with Dr V. S. Arunachalam in Rosen (note 81), pp. 251–52.

<sup>83</sup> Indian Ministry of External Affairs (note 3). See also Sidhu, W. P. S., 'A strategic mis-step?', *The Hindu*, 13 Jan. 2003.

larly significant as they have an indirect impact on the democratic control of nuclear weapons in both countries: (a) the 1988 Agreement on the prohibition of attack against nuclear installations and facilities; (b) the 2005 Agreement on pre-notification of flight testing of ballistic missiles; and (c) the 2007 Agreement on reducing the risk from accidents relating to nuclear weapons.<sup>84</sup> All of these agreements call for an exchange of sensitive data and information between India and Pakistan. For instance, the first agreement requires each country to give the other a list of nuclear installations and facilities that are not to be targeted. Interestingly, this list, which includes some of the most crucial facilities related to India's nuclear weapon programme, is shared with India's arch-rival Pakistan, but not with the Indian Parliament or public. Similarly, the 2007 Agreement on reducing risks related to nuclear weapon accidents also calls for close coordination and cooperation with Pakistan, but the same information has not been made public in India, even though such accidents would be likely to affect the Indian population directly. All of these agreements increase the prospect of greater transparency and, perhaps, accountability in India.

The India–USA CNCI Agreement in 2005, which will also enhance transparency and accountability, took more than three years to come into effect because it had to go through several complex stages.<sup>85</sup> These included amending the US law on supplying nuclear material and technology to countries that are not party to the NPT; adopting a detailed and complex plan to separate India's civil and military nuclear facilities; implementing the agreement between India and the International Atomic Energy Agency (IAEA) which would allow for safeguards inspections of previously unsafeguarded nuclear facilities in India; and, perhaps the most difficult of all, the negotiating of an exemption by the Nuclear Suppliers Group (NSG) for the transfer to India of particularly sensitive nuclear technology, specifically the technology to enrich uranium or to recover plutonium from used nuclear fuel.<sup>86</sup> The signing of the safeguard agreement with the IAEA in

<sup>84</sup> India–Pakistan Agreement on the prohibition of attack against nuclear installations and facilities, Islamabad, 31 Dec. 1988, <<http://www.fas.org/nuke/guide/india/doctrine/nucl.htm>>; Agreement between the Republic of India and the Islamic Republic of Pakistan on pre-notification of flight testing of ballistic missiles, Islamabad, 3 Oct. 2005, <<http://www.stimson.org/?SN=SA20060207949>>; and India–Pakistan Agreement on reducing the risk from accidents relating to nuclear weapons, New Delhi, 21 Feb. 2007, <<http://www.stimson.org/southasia/?SN=SA200702231219>>. See also Stimson Centre, 'South Asia confidence-building measures (CBM) timeline', <<http://www.stimson.org/southasia/?SN=SA20060207948>>.

<sup>85</sup> The White House, Office of the Press Secretary, 'Joint statement between US President George W. Bush and Indian Prime Minister Manmohan Singh', News release, Washington DC, 18 July 2005, <<http://georgewbush-whitehouse.archives.gov/news/releases/2005/07/20050718-6.html>>.

<sup>86</sup> On the background to this discussion see Ahlström, C., 'Legal aspects of the Indian–US Civil Nuclear Cooperation Initiative', *SIPRI Yearbook 2006: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2006), pp. 669–85. See also the NSG website, <<http://www.nuclearsuppliersgroup.org/>>.

February 2009 brought all the elements of this controversial deal into effect.<sup>87</sup>

The side effects of the CNCI, especially the separation plan, will certainly increase the accountability of the Indian nuclear establishment and will also subject India's civil nuclear programme to greater national and international scrutiny. In addition, the separated military part of the nuclear programme will not only be more clearly visible but will also have to be accounted for separately from the civilian programme. This is bound to relatively increase the democratic control of India's nuclear weapons.

## V. Conclusions

Does the divided and civilian control arrangement provide democratic accountability of India's nuclear weapons? Clearly, the existing arrangement, which is viable only as long as India maintains a non-deployed and a de-alerted posture, does much to ensure against accidental or unauthorized use. It also provides a rudimentary three-way system of checks and balances involving the political leadership, the nuclear scientists and the military. None of them can single-handedly take control or use nuclear weapons since they must use them in collaboration with the other agencies. While, in theory, the civilian leadership can order a nuclear strike, it cannot actually carry it out without the support of other actors. However, as noted above, this arrangement, while ensuring against accidental or unauthorized use, does not necessarily provide assured retaliation and may thereby weaken deterrence stability. In this context, the absence of appropriate permissive action links leaves the arrangement overly dependent on a complicated and cumbersome multilayered system. Finally, divided control does not preclude the possibility of the Indian military undertaking conventional actions that could inevitably lead to a nuclear escalation, as was evident during Operation Parakram, where an Indian conventional strike would almost certainly have led to a nuclear response from Pakistan.<sup>88</sup>

The actual control and use of nuclear weapons apart, divided control does not necessarily provide democratic accountability in the long run as it lacks both transparency and parliamentary oversight. For instance, while

<sup>87</sup> The agreement between the Government of India and the IAEA for the application of safeguards to civilian nuclear facilities was signed on 2 Feb. 2009 and will enter into force when India has fulfilled certain requirements. The IAEA agreement is not a comprehensive safeguards agreement. It only provides for the application of safeguards to 14 nuclear reactors in India (6 of which are already under facility-specific safeguards) by 2014, while 8 other nuclear reactors designated by India for military use will remain unsafeguarded. See IAEA, 'India safeguards agreement signed', 2 Feb. 2009, <<http://www.iaea.org/NewsCenter/News/2009/indiaagreement.html>>; and Anthony, I. and Bauer, S., 'Controls on security-related international transfers', *SIPRI Yearbook 2009: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2009), p. 469. The text of the agreement is available at <<http://www.armscontrol.org/node/3181>>.

<sup>88</sup> Jayaraman (note 43).

India seeks a minimum credible deterrence, the minimum level has never been determined, let alone tested and debated in a democratic process. While several strategists have suggested varying numbers for India's optimal nuclear arsenal, ranging from as low as 100 to as high as 500 warheads, it is not clear where in the official decision-making process this size is being determined. In the absence of such a public discussion, the 'minimum' level might well be determined by any one of the three key actors acting alone without oversight. In all probability, the minimum level is likely to be pegged at the maximum amount of fissile material available, which is presently being solely decided by the nuclear establishment. As more fissile material means more funds for research reactors and more scientists, the nuclear scientific community is likely to support the maximum possible fissile material production and stockpile capability under the 'minimum' label. One indication of this 'maximalist' approach was the testing of a fusion bomb as a part of the tests in May 1998. There is no consensus among Indian nuclear strategists on whether India needs fusion bombs in the megaton range for its strategic requirements. Indeed, even the military have sought fission weapons in the relatively modest 200-kiloton range.<sup>89</sup>

Similarly, the military is also likely to evolve a targeting strategy that would be pitched at the maximum rather than the minimum level and would inevitably depend on the maximum amount of fissile material available rather than the actual strategic requirements. This maximalist position is likely to be exacerbated by the development of a nuclear triad and the related inter-service rivalry, with each service keen to match the arsenal of the other.

Clearly, a civilian-led nuclear programme with divided control of weapons coupled with a de-alerted posture is a promising start to handle nuclear weapon responsibly, even though it does not provide for democratic accountability and complete civilian control. For that, greater parliamentary oversight would be essential. Such legislative oversight could begin with the establishment of a standing committee to initially oversee the effective functioning of the complex system of divided control. Given the existence of the NSAB, one prospect would be to convert this essentially executive-led body into a parliamentary body. Alternatively, the existing standing committee on defence could be allowed (in classified sessions) to deal with nuclear weapons as well. Subsequently, as the nuclear arsenal is likely to enlarge, this committee could expand its role to examine the implications, budgetary and otherwise, of the growing nuclear arsenal. It

<sup>89</sup> E.g. Kanwal, G., *Nuclear Defence: Shaping the Arsenal* (Knowledge World: New Delhi, 2001), pp. 129–31.



could also deliberate on the evolving doctrine, especially in determining at what level to peg the 'minimum'.

In addition, given that in the coming years Indian nuclear weapons are likely to be deployed on land; these locations can be expected to become targets. Consequently, civil society groups and voters directly affected by such deployment are likely to raise these concerns with their members of Parliament in order to ensure a modicum of civil defence preparedness, especially as the present Indian doctrine is based on the prospect of first absorbing a nuclear strike.

India's nuclear weapons are presently not subject to democratic accountability even if they are under civilian control. Instead, they are subject to a combination of controls by civilian political leaders, nuclear and defence scientists, and the military. Currently, neither the judiciary nor the legislature performs an oversight role. Similarly, the civil society, including the media, plays only a limited role in informing the general public about different aspects of India's nuclear weapons. Ironically, the role of these actors is likely to remain limited as long as the Indian nuclear arsenal remains un-deployed and de-alerted. If Indian nuclear forces move to a deployed posture with some delegated authority to the armed forces, this would provide both a severe test and an opportunity for democratic oversight. The challenge will be to take the opportunity and pass the test, otherwise democratic accountability will become the hapless victim.

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# 9. Pakistan

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ZAFAR IQBAL CHEEMA

## I. Introduction

This chapter examines Pakistan's approach to possessing and governing its nuclear weapons.<sup>1</sup> The discussion is set within the larger framework of democratic governance of nuclear weapons, despite the difficulty of applying this model to South Asia generally and to Pakistan specifically, given its particular democratic model and history. Section II presents a brief description of the South Asian security environment, Pakistan's rationale for obtaining nuclear weapons and its nuclear history. Section III examines the nuclear posture, policy and doctrine governing Pakistan's deterrent capability. It discusses the weaponization process since 1998 during which time Pakistan formulated plans and contingencies to deal with the employment of nuclear weapons and their growth into a deterrent capability. Section IV looks at Pakistan's nuclear infrastructure, including nuclear command and control, the regulatory framework for nuclear safety and the 2004 Export Control Act—the institutional mechanism developed by Pakistan to ensure against the illicit export of nuclear technology and related non-proliferation measures. Section V discusses the civilian actors that influence Pakistan's nuclear decision making. Section VI offers brief conclusions.

## II. The South Asian security context

### **The India–Pakistan nuclear context**

Conventional wisdom in Pakistan holds that nuclear weapons are fundamentally different from conventional weapons. They are essentially viewed as weapons of deterrence rather than warfare. Nonetheless, because they are weapons of mass destruction, their proliferation is dangerous for international security and global stability. However, at times, some states perceive irresistible incentives or unavoidable security compulsions to acquire nuclear weapons, even if they must disregard non-proliferation norms in order to do so. The acquisition of nuclear weapons by India, Israel and Pakistan provides examples of this view. The acqui-

<sup>1</sup> On Pakistan's nuclear forces see appendix A in this volume. An extended version of this chapter was published as Cheema, Z. I., *The Domestic Governance of Nuclear Weapons: The Case of Pakistan*, Case study report (Geneva Centre for the Democratic Control of Armed Forces: Geneva, Feb. 2008).

sition of nuclear weapons by China, France, Russia, the United Kingdom and the United States was legitimized post-facto by the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT).<sup>2</sup>

India's nuclear weapon option was first developed in the 1950s under Prime Minister Jawaharlal Nehru. It leapfrogged towards a nuclear weapon capability under successive governments, along the way deeming the NPT and other nuclear non-proliferation mechanisms to be 'discriminatory'.<sup>3</sup> The two central motivations for India's acquisition of nuclear weapons have been the development of strategic power and security, in particular vis-à-vis China and later on Pakistan, as well as international status.

India and Pakistan share a history of conflict and war with each other. The 1971 India–Pakistan War ended in the separation of East Pakistan from West Pakistan and the establishment of Bangladesh. The war resulted in an asymmetric military equilibrium in which Pakistan lacked adequate conventional military alternatives to safeguard its national security. The absence of an external security guarantee contributed to Pakistan's decision to develop its nuclear weapon capability. In 1974, following India's first nuclear test, Pakistan began to transform its exclusively peaceful nuclear programme, which had been entirely under International Atomic Energy Agency (IAEA) safeguards, to one with weapon capability.

Until India's and Pakistan's May 1998 nuclear tests, each country's nuclear weapon capability evolved as a prevailing condition rather than as an articulated policy. Even after the tests, both countries' explicit nuclear postures and policies emerged incrementally, usually driven by events and reactions to each other's provocations in the context of crisis. Two distinct periods in South Asia's nuclear history can be delineated. The first period, 1986–98, has been fittingly described as one of 'non-weaponized deterrence'.<sup>4</sup> Non-weaponized deterrence describes a policy in which India and Pakistan produced nuclear weapon components and fissile material but remained short of mating warheads with delivery systems. It is believed that India and Pakistan neither assembled nor deployed nuclear weapons during this phase.<sup>5</sup> Non-weaponized deterrence was based on the premise that building a time lag into the weapon capability would provide sufficient

<sup>2</sup> According to the NPT, only states that manufactured and exploded a nuclear device prior to 1 Jan. 1967 are recognized as nuclear weapon states. China, France, Russia, the UK and the USA are the 5 nuclear-armed states party to the NPT. Israel, India and Pakistan are nuclear-armed states that remain outside the NPT. Treaty on the Non-Proliferation of Nuclear Weapons, opened for signature on 1 July 1968 and entered into force on 5 Mar. 1970. Its text is available at <<http://www.iaea.org/Publications/Documents/Treaties/npt.html>>.

<sup>3</sup> Trevedi, V. C., 'Vertical versus horizontal proliferation', eds J. E. Dougherty and J. F. Lehman Jr, *Arms Control in the Late Sixties* (Van Nostrand: Princeton, 1967), p. 195.

<sup>4</sup> Perkovich, G., 'Non-weaponised deterrence: the case for Pakistan', *Strategic Studies* (Islamabad), vol. 17 (1994), pp. 142–46.

<sup>5</sup> Perkovich (note 4).

time for crisis management while the decision to employ nuclear weapons was taken.<sup>6</sup> The second period of overt nuclear postures began after the May 1998 nuclear tests, when both countries openly declared themselves nuclear weapon states and proclaimed policies of weaponization.

Many experts in the international strategic community believe that the threat of the use of nuclear weapons has been employed as a deterrent in conflicts between India and Pakistan on at least four occasions since 1986: (a) the winter of 1986–87, when India amassed an unprecedented number of troops close to Pakistan's southern border under the military exercise code name 'Brasstacks'; (b) the spring of 1990, following an uprising by the Kashmiri militants in the Indian part of Kashmir (Jammu and Kashmir); (c) the 1999 Kargil conflict; and (d) the 2002–2003 confrontation, when India mobilized its armed forces against Pakistan after the 13 December 2001 terrorist attack on the Indian Parliament.<sup>7</sup> Views differ on the Indian and Pakistani perceptions and crisis escalation responses on each of these occasions. It is generally believed that the two sides signalled their nuclear intentions in ways that fell short of deployed, operational nuclear weapons. From this, many experts on South Asia agree that a state of mutual deterrence has been established between India and Pakistan and that this deterrence has kept war in South Asia at bay. The Pakistani view is that nuclear weapons erode conventional disparities and have an equalizing effect on the balance of power.<sup>8</sup> The common perception in Pakistan is that the nuclear tests in 1998 redressed the asymmetries in the strategic equilibrium between India and Pakistan and restored balance to their relationship. There is near consensus in the Pakistani strategic, scientific and bureaucratic community that a nuclear weapon capability is the best guarantor available for peace, stability and the absence of all-out war with India.

However, the present state of strategic stability between India and Pakistan is precarious and requires constant monitoring and greater vigilance than did the strategic relations of the cold war. The geographical proximity of the countries does not permit adequate early-warning information: the

<sup>6</sup> It has not been established whether the non-weaponized strategy was the result of deliberate policy decisions or a condition that developed because of the situation at that time.

<sup>7</sup> Bajpai, K. et al., *Brasstacks and Beyond: Perception and Management of Crisis in South Asia*, ACDIS Research Report (University of Illinois at Urbana-Champaign, Program in Arms Control, Disarmament, and International Security: Urbana, IL, 1995), p. 30; Chari, P. R., Cheema, P. I. and Cohen, S. P., *The Compound Crisis of 1990: Perception, Politics and Insecurity*, ACDIS Research Report (University of Illinois at Urbana-Champaign, Program in Arms Control, Disarmament, and International Security: Urbana, IL, 2000); Nayar, K., 'Pakistan can make an A-bomb; says Pakistan's Strangelove', *The Observer*, 1 Mar. 1987; Hersh, S., 'On the nuclear edge', *New Yorker*, 29 Mar. 1992, pp. 62–65; Levy, A. and Das, S., 'Nuclear alert sounded in Pakistan', *Sunday Times*, 30 May 1999; Riedel, B., *American Diplomacy and the 1999 Kargil Summit at Blair House*, Policy Paper Series (University of Pennsylvania, Center for the Advanced Study of India: Philadelphia, PA, 2002), p. 3; and *News International* (Rawalpindi–Islamabad), 30 May 2002. See also Musharraf, P., Address to the nation, 23 Mar. 2002, <<http://www.ipripak.org/journal/summer2002/doc9.shtml>>.

<sup>8</sup> *The Nation*, 4 June 1998.

time lag of three to five minutes from the launch of a nuclear weapon to its detonation at the intended target is not enough to calculate a rational response. This might prompt either country to formulate a launch-on-warning policy, enhancing the chances of miscalculation.<sup>9</sup> The technologically less advanced command and control systems of both India and Pakistan in comparison to the more advanced nuclear powers raise immediate concerns about the accidental and unauthorized launch of nuclear weapons. The unresolved Kashmir dispute compounds the problems of nuclear arms competition.

### **Pakistan's nuclear history**

Zulfiqar Ali Bhutto, as the foreign minister under President Ayub Khan, was the first advocate of nuclear weapons in Pakistan.<sup>10</sup> In a famous speech in 1965, Z. A. Bhutto stated that 'If India developed an atomic bomb, we too will develop one even if we have to eat grass or leaves or to remain hungry, because there is no conventional alternative to the atomic bomb'.<sup>11</sup> He urged Ayub Khan to develop nuclear weapons, but Khan showed no interest.<sup>12</sup> Pakistan's quest for nuclear weapons began in earnest following the 1971 India–Pakistan War and was accelerated by India's 1974 nuclear test. Z. A. Bhutto, who became president in 1971 and prime minister in 1973, has been described as the political architect of Pakistan's nuclear weapon programme.<sup>13</sup> While addressing the National Assembly, the Pakistani Parliament's lower house, after India's 1974 test, Bhutto stated that 'A more grave and serious event has not taken place in the history of Pakistan. The explosion has introduced a qualitative change in the situation between the two countries.'<sup>14</sup>

In the mid-1970s the civilian government of Z. A. Bhutto launched Pakistan's nuclear weapon programme and decided to construct a uranium enrichment plant.<sup>15</sup> Initially, the Pakistani military took no interest in the

<sup>9</sup> According to Agha Shahi, former foreign minister, 'Pakistan may well be confronted with a hair-triggered alert situation. A launch on warning system would elude both countries of a 2 to 10 minutes flight time for a missile. The risk of a nuclear strike by miscalculation or unauthorized use would therefore be very high.' Iqbal, N., 'Safety lies in non-deployment, say experts', *Asia Times*, 14 Mar. 2000.

<sup>10</sup> Bhutto served as foreign minister in 1963–66; Ayub Khan served as president in 1958–69.

<sup>11</sup> Bhutto, Z. A., eds H. Jalal and K. Hasan, *Awakening the People: A Collection of Articles, Statements and Speeches, 1966–1969* (Pakistan Publications: Rawalpindi, 1970), p. 21; and Niazi, K., *Aur Line Cut Gai* [And the line was cut] (Jang Publishers: Rawalpindi, 1987), p. 77.

<sup>12</sup> Cheema, Z. I., 'Pakistan's nuclear use doctrine and command and control', eds P. R. Lavoy, S. D. Sagan and J. J. Wirtz, *Planning the Unthinkable: How New Powers Will Use Nuclear, Biological and Chemical Weapons* (Cornell University Press: Ithaca, NY, 2000), pp. 158–81.

<sup>13</sup> Cheema, Z. I., 'Pakistan's nuclear policy under Z. A. Bhutto and Zia ul-Haq: an assessment', *Journal of Strategic Studies*, vol. 14, no. 4 (summer 1992), pp. 5–20.

<sup>14</sup> Cheema (note 12); and *The Pakistan Times* (Rawalpindi), 8 June 1974, p. 1.

<sup>15</sup> Malik, Z., *Dr. A. Q. Khan and Islamic Bomb* (Hurmat: Islamabad, 1992), p. 24.

programme and played only an auxiliary role in building sites and providing security. However, General Mohammad Zia ul-Haq, Pakistan's military president from 1977 to 1988, adopted a policy of nuclear ambiguity.<sup>16</sup> By 1984, through a series of covert purchases of equipment and material from Western countries, Pakistan had established a gas centrifuge uranium enrichment plant at Kahuta.<sup>17</sup> By 1987 Pakistan had succeeded in processing highly enriched uranium and had acquired the various elements of a nuclear weapon capability.<sup>18</sup> It was only after Pakistan had attained nuclear capability that Zia ul-Haq started to hint about Pakistan's possession of the bomb.<sup>19</sup>

In December 1988, after the restoration of a civil government, Benazir Bhutto became prime minister. In January 1989, in a meeting chaired by President Ghulam Ishaq Khan and attended by Benazir Bhutto and the chief of army staff, General Mirza Aslam Beg, it was decided that 'in view of the global scenario, the regional security, and the pressing needs of economic aid, in the first phase, i.e. the stage of uranium enrichment, Pakistan should temporarily put a restraint on its effort, or so to say, a policy of restraint was adopted.'<sup>20</sup> According to Beg, all members unanimously agreed that Pakistan had the requisite nuclear capability for its security and had significantly added to its defensive strength by achieving a credible deterrent.<sup>21</sup>

A year later the next prime minister, Mohammad Nawaz Sharif, stated to the National Assembly that Pakistan's nuclear programme was intended for peaceful purposes but that it had a built-in security option.<sup>22</sup> Pakistan responded to India's nuclear explosions of 11 and 13 May 1998 by carrying out its own series of nuclear tests on 28 and 30 May 1998. This decision to 'go nuclear' was unanimously approved by Sharif's cabinet and widely supported by the public.

### III. Nuclear posture, policy and doctrine

Prior to 1998, Pakistan had gradually designed and developed the components of a small nuclear force, diversified its nuclear weapon options,

<sup>16</sup> General Zia ul-Haq imposed martial law in his capacity as chief of the Pakistani Army in July 1977, deposed Z. A. Bhutto's government and remained president in military uniform until he died in a plane crash in 1988.

<sup>17</sup> These purchases included electrical inverters from Canada and the UK; stainless steel vessels from Italy; aluminium rods and vacuum pumps from West Germany; and vacuum valves and evaporation and condensation systems from Switzerland. *Foreign Report* (London), 18 June 1980, pp. 2-3.

<sup>18</sup> Beg, M. A., *Development and Security: Thoughts and Reflections* (Foundation for Research and National Development and Security: Rawalpindi, 1994).

<sup>19</sup> Nayar (note 7).

<sup>20</sup> Beg (note 18).

<sup>21</sup> Beg (note 18).

<sup>22</sup> *Dawn*, 8 Nov. 1990.

developed comprehensive ballistic missile programmes and taken steps to miniaturize nuclear warheads.<sup>23</sup> Furthermore, Pakistani leaders had decided to use the threat of nuclear force to address the asymmetric strategic balance with India, to ward off crises that could impinge on its national security and to neutralize India as an existential threat to Pakistan. Collectively, these developments outlined an emerging Pakistani nuclear posture that aimed to (a) deter aggression, whether conventional or nuclear; (b) maintain a minimum nuclear deterrence posture; (c) retain a first-use option as a last resort; (d) establish a reliable command, control, communications, computerization and intelligence network (C<sup>4</sup>I); and (e) develop a second-strike capability.<sup>24</sup>

### Minimum credible deterrence

Pakistan has pursued a twin policy of minimum credible nuclear deterrence and adequate conventional defence that is meant to balance India's nuclear and conventional threat. Pakistan's nuclear doctrine emphasizes deterrence rather than war-fighting. Its nuclear policy aims to maintain a small but credible nuclear force that is sufficient to redress the conventional asymmetric balance with India, to thwart an Indian threat of all-out war, to safeguard Pakistan's territorial integrity and to protect its armed forces from serious damage. In 1999 General Pervez Musharraf stated that Pakistan would retain just enough missile capacity to reach 'anywhere in India and destroy a few cities, if required', and added that 'we are not concerned with a mathematical ratio and proportion. We understand and we have quantified our own minimum deterrence'.<sup>25</sup>

The Pakistani leadership has frequently emphasized the imperative of developing a minimum credible deterrent capability. In August 1999 Pakistan responded to India's draft nuclear doctrine as 'offensive, and threatening regional and global stability'.<sup>26</sup> The Defence Committee of the cabinet under Prime Minister Nawaz Sharif stated that future development of

<sup>23</sup> *The Nation*, 16 Apr. 1998.

<sup>24</sup> Pakistan continues to augment, develop and diversify its nuclear forces to maintain a strategic equilibrium with India. It is assumed that Pakistani weapon design is based on a solid core, implosion-type design requiring 15–20 kilograms of HEU each, but it is likely that Pakistan has used only part of its inventory of military fissile material in assembled warheads. Pakistan seems to be moving away from an HEU-based arsenal towards one based on plutonium. Kile, S. N., Fedchenko, V. and Kristensen, H. M., 'World nuclear forces, 2008', *SIPRI Yearbook 2008: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2008), p. 392, fn 134; and Kile, S. N., Fedchenko, V. and Kristensen, H. M., 'World nuclear forces', *SIPRI Yearbook 2009: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2009), p. 372.

<sup>25</sup> Bearak, B., 'Pakistan's boss: realist, not diplomat', *New York Times*, 18 Nov. 1999; and 'South Asia's nuclear race', BBC News, <[http://news.bbc.co.uk/2/hi/south\\_asia/681028.stm](http://news.bbc.co.uk/2/hi/south_asia/681028.stm)>. Pervez Musharraf served as chief executive of Pakistan from 1999 until 2002 and as president from 2001 to 2008.

<sup>26</sup> *News International* (Rawalpindi–Islamabad), 26 Aug. 1999.

Pakistan's nuclear weapon programme would be 'determined solely by the requirement of our minimum deterrent capability, which is now an indispensable part of our security doctrine'.<sup>27</sup> This theme has been consistently reiterated on many occasions by top leadership over the years. For example, in November 1999, the foreign minister, Abdul Sattar, declared that 'minimum nuclear deterrence will remain the guiding principle of our nuclear strategy'.<sup>28</sup> Sattar added that, as India builds up its nuclear weapon arsenal, 'Pakistan will have to maintain, preserve and upgrade its capability in order to ensure survivability and credibility of the nuclear deterrent'. Musharraf repeated the same theme in 2001: 'The minimum nuclear deterrence can and will never be compromised'.<sup>29</sup>

Minimum credible deterrence is not only the officially proclaimed nuclear posture of Pakistan, but there is general recognition within the Pakistani strategic community that it is the most suitable posture under the prevailing strategic environment. Furthermore, given Pakistan's limited resources and financial constraints, minimum credible deterrence is the most cost-effective and pragmatic option. Musharraf stated that 'Pakistan believes in maintaining a minimum credible deterrence and does not want to direct its available resources towards the race of weapons of mass destruction'.<sup>30</sup>

According to Lieutenant General Khalid Kidwai, the director-general of the Strategic Plans Division (DG SPD), Pakistan has developed 'a nuclear policy based on restraint and responsibility with four salient features: (1) deterrence of all forms of external aggression; (2) ability to deter a counter strike against strategic assets; (3) stabilization of strategic deterrence in South Asia; and (4) conventional and strategic deterrence methods'.<sup>31</sup> Kidwai stated that some of the challenges or threats to Pakistan's security demand constant maintenance and augmentation of strategic weapon capabilities. However, he also acknowledged that Pakistan's current nuclear strategy is defensive rather than offensive, and that it is based on minimum credible deterrence and driven by security concerns, not great power ambitions.

<sup>27</sup> *News International* (note 26); and 'Draft report of National Security Advisory Board on Indian nuclear doctrine', 17 Aug. 1999, <[http://www.indianembassy.org/policy/CTBT/nuclear\\_doctrine\\_aug\\_17\\_1999.html](http://www.indianembassy.org/policy/CTBT/nuclear_doctrine_aug_17_1999.html)>.

<sup>28</sup> 'Pakistan to upgrade nuclear deterrent', *Dawn*, 25 Nov. 1999.

<sup>29</sup> Hashmi, F., 'Nuclear deterrence vital to security', *Dawn*, 25 June 2001.

<sup>30</sup> Hashmi (note 29).

<sup>31</sup> Kidwai delivered a remarkably candid address on the status of Pakistan's nuclear weapon programme and the challenges it faces as a new nuclear power. Khalid, K., 'Pakistan's evolution as a nuclear weapons state', Speech at the US Naval Postgraduate School, Monterey, CA, 27 Oct. 2006, <<http://www.ccc.nps.navy.mil/news/kidwaiNov06.asp>>.



### Nuclear use doctrine

The history of Pakistani nuclear policy suggests that the government will most likely refrain from formally publishing a nuclear doctrine analogous to India's August 1999 draft document because it would possibly stir up unnecessary rancour and not necessarily contribute to the credibility of Pakistan's nuclear deterrent. Although Pakistan has not declared that its nuclear weapons will specifically target only India, it is a tacit reality. Pakistan maintains a nuclear force exclusively geared to inflict unacceptable damage to India, should Pakistan's national security interests be threatened.

Although the Government of Pakistan has not specified particular contingencies for the use of nuclear weapons, officials are reported to have indirectly signalled general contingencies that could warrant the threat of use or use of nuclear weapons. For example, in an interview in 2001 Kidwai allegedly described various scenarios that could compel Pakistan to consider the threat of use or use of nuclear weapons if: '(a) India attacks Pakistan and conquers a large part of its territory (space threshold); (b) India destroys a large part either of its land or air forces (military threshold); (c) India proceeds to the economic strangling of Pakistan (economic strangling); (d) India pushes Pakistan into political destabilization or creates a large-scale internal subversion in Pakistan (domestic destabilization)'.<sup>32</sup> While the essence of the report may be accurate, Kidwai has disagreed with how the interviewers reported these contingencies.

Pakistan has not given up its nuclear weapon first-use option—partly because it has no confidence in India's no-first-use declaration and partly because it perceives such a declaration as undermining its nuclear deterrence capability.<sup>33</sup> By retaining a first-use option, without specifying the situations in which it would threaten to use nuclear weapons, Pakistan's seeks to maintain a flexible nuclear deterrent. It signifies that nuclear weapons are integral to Pakistan's defence policy and underpin its deterrent posture.

The degradation of Pakistan's conventional military capability has lowered its threshold to invoke the threat or use of nuclear weapons; under such circumstances, the country may feel compelled to threaten the use of

<sup>32</sup> Cotta-Ramusino, P. and Martellini M., *Nuclear Safety, Nuclear Stability and Nuclear Strategy: A Concise Report of a Visit by Landau Network-Centro Volta* (Landau Network-Centro Volta: Como, Italy, 2002), pp. 4–5.

<sup>33</sup> In any case, Article VI of the operationalized Indian nuclear doctrine renders the 'no-first-use' declaration invalid by stating that, 'However, in the event of a major attack against India, or Indian forces anywhere, by biological or chemical weapons, India will retain the option of retaliating with nuclear weapons'. Indian Ministry of External Affairs, 'The Cabinet Committee on Security reviews operationalization of India's nuclear doctrine', Press release, New Delhi, 4 Jan. 2003, <<http://www.meaindia.nic.in/pressrelease/2003/01/04pr01.htm>>.

nuclear weapons at an early stage if a war looms on the horizon. However, one author suggests that ‘the current strategic equilibrium between India and Pakistan manifest[s] that the retaliatory forces of Pakistan are survivable. Therefore, Pakistan will be less inclined to use nuclear weapons to save its arsenal from the use it or lose it dilemma.’<sup>34</sup> This argument is supported by a number of statements given by Pakistani government officials, including former President Musharraf, who have stated that Pakistan will resort to use of nuclear weapons only as a last resort if its security is threatened.<sup>35</sup>

## IV. Nuclear infrastructure

### Command and control

Pakistan seems to have gradually formulated command and control systems that meet its national security requirements. Since 1975 Pakistan’s nuclear weapon programme has been controlled by the National Nuclear Command Authority and the National Nuclear Command Committee.<sup>36</sup> In 2000 Pakistan’s National Security Council, chaired by General Musharraf, formally spelled out the country’s nuclear command and control structure when it announced that it was establishing the National Command Authority (NCA), a body comprised of both military and civilian representatives tasked with managing and coordinating nuclear weapon development, use and C<sup>4</sup>I.<sup>37</sup>

Although the creation of the NCA was welcomed by Pakistan’s major political parties, initially the NCA continued to function without legislative authority. In 2007 Musharraf promulgated an ordinance to clarify the structure and function of the NCA, but the ordinance remained unapproved by the Parliament when he left office in August 2008.<sup>38</sup> In November 2009 the Standing Committee on Defence tabled a draft

<sup>34</sup> Jaspal, Z. N., ‘Assessment of Indian and Pakistani nuclear doctrines’, eds P. I. Cheema and I. H. Bokhari, *Arms Race and Nuclear Developments in South Asia* (Islamabad Policy Research Institute: Islamabad, 2004).

<sup>35</sup> Constable, P., ‘Pakistani leader “willing to cooperate” on Bin Laden’, *Washington Post*, 4 Feb. 2000.

<sup>36</sup> Bremmer, I. and Kuusisto, M., *Pakistan’s Nuclear Command and Control: Perception Matters*, Research Report no. 15 (South Asian Strategic Stability Institute: London, May 2008), pp. 8–9; and International Institute for Strategic Studies (IISS), ‘Pakistan’s nuclear oversight reforms’, *Nuclear Black Markets: Pakistan, A.Q. Khan and the Rise of Proliferation Networks* (IISS: London, May 2007), pp. 107–18.

<sup>37</sup> ‘National Command Authority established’, Federation of American Scientists, 3 Feb. 2000, <<http://www.fas.org/news/pakistan/2000/000203-pak-app1.htm>>; and ‘National Command Authority’, GlobalSecurity.org <<http://www.globalsecurity.org/wmd/world/pakistan/nca.htm>>.

<sup>38</sup> See *News International*, 4 Feb. 2000. National Command Authority Ordinance, 2007, Ordinance no. 70 of 2007, Islamabad, 13 Dec. 2007, <[http://www.na.gov.pk/ord\\_laid.html](http://www.na.gov.pk/ord_laid.html)>.

National Command Authority Bill.<sup>39</sup> It listed ‘the president as the chairman and prime minister as the vice chairman of the NCA’, reiterating the NCA chain-of-command established in 2000 and 2007 by Musharraf.<sup>40</sup> However, the bill was deferred due to a political struggle over whether the president or the prime minister should chair the NCA.<sup>41</sup> This struggle was resolved when President Asif Ali Zardari stood down as NCA chairman in favour of the prime minister, and in January 2010 this bill became law.<sup>42</sup> The 16th meeting of the NCA on 12 January 2010 was the ‘first NCA meeting which was chaired by democratically elected Prime Minister of Pakistan’.<sup>43</sup>

The NCA comprises the prime minister (chair), the minister of defence (vice-chair), the ministers of foreign affairs, finance and interior; the chairman joint chiefs of staff committee (CJCSC); the three chiefs of the armed services; and the DG SPD.<sup>44</sup> The SPD serves as the NCA secretariat; and the NCA has two special committees to manage other nuclear weapon-related issues: the Employment Control Committee (ECC) and the Development Control Committee (DCC). Each of these committees has its own deputy chairman with the requisite authority to take decisions in its respective fields in both peacetime and crisis situations if the top echelon of the NCA is unavailable or debilitated.

The formation of the NCA, the SPD, the ECC and the DCC and their membership indicate that political (civilian) and military leaders are collectively involved in decision making concerning the possible use of nuclear weapons by Pakistan.

### *The Strategic Plans Division*

The SPD is entrusted with developing and managing all dimensions of Pakistan’s nuclear capability, including operational planning, weapon development, arms control and disarmament affairs, command and control, storage, safety and budgets. In short, anything and everything that has to do

<sup>39</sup> Wasim, A., ‘Govt plans to revive some ordinances’, *Dawn*, 23 Nov. 2009; and ‘Report on NCA bill presented in NA’, *The News*, 13 Nov. 2009.

<sup>40</sup> ‘National Assembly standing committee report pertaining to ordinance on constitution of National Command Authority presented in assembly’, *Frontier Star*, 11 Nov. 2009; and Pakistan Institute of Legislative Development and Transparency (PILDAT), *13th National Assembly of Pakistan: 17th Session Roundup, 2–16 Nov. 2009* (PILDAT: Islamabad, 2009), pp. 9, 12.

<sup>41</sup> ‘NCA bill falls victim to political manoeuvring’, *Daily Times* (Islamabad), 20 Nov. 2009; and Pakistan Institute of Legislative Development and Transparency (note 40), p. 17.

<sup>42</sup> Pakistani Government, ‘President divests himself of powers of chairman NCA, 28 ordinances re-promulgated before November 28 deadline’, Press Release no. 244, Islamabad, 27 Nov. 2009, <<http://www.pid.gov.pk/press27-11-09.htm>>; and National Command Authority Act 2009, 28 Jan. 2010, <[http://www.na.gov.pk/passed\\_bill\\_na.html](http://www.na.gov.pk/passed_bill_na.html)>. See also Krepon, M., ‘Command & control in South Asia’, 9 Dec. 2009, <<http://www.armscontrolwonk.com/2558/command-control-in-south-asia>>.

<sup>43</sup> Inter Services Public Relations, ‘16th NCA meeting’, Press Release no. 11/2010-ISPR, Rawalpindi, 13 Jan. 2010, <[http://www.ispr.gov.pk/front/main.asp?o=t-press\\_release&id=1111](http://www.ispr.gov.pk/front/main.asp?o=t-press_release&id=1111)>.

<sup>44</sup> Since the changes of late 2009 and early 2010, the role of the president in the NCA remains unclear.

with the nation's nuclear capability is handled at the SPD, for and on behalf of the NCA.

The SPD's director general is a senior army officer who is appointed by the chair of the NCA. The DG SPD is usually a three-star general (lieutenant general), who is also ex officio member-secretary of the NCA. The SPD headquarters are staffed by about 70 officers from the three branches of the armed forces. The SPD has four directorates: Operations and Planning, which is responsible for operational planning; Command, Control, Communications, and Computerization, Intelligence and Information, and Surveillance and Reconnaissance (C<sup>4</sup>I<sup>2</sup>SR), which is responsible for 'developing and maintaining strategic command and communication links'; Strategic Weapons Development, which is responsible for liaising with the strategic organizations, scrutinizing their budgetary demands, and carrying out audits of funds; and Arms Control and Disarmament Affairs, which is responsible for providing 'policy recommendations on all arms control and disarmament issues and participates in relevant bilateral and multilateral nonproliferation discussions'.<sup>45</sup>

The SPD also oversees a security division. It is headed by a two-star general, who commands a 10 000 member military force that provides safety and security for nuclear weapons and ballistic missiles components at storage sites. The Security Division has four directorates: Security, Technical, Counter Intelligence and Personal Reliability Programme (PRP). Khan Research Laboratories, formerly Kahuta Research Laboratories (KRL); the Pakistan Atomic Energy Commission (PAEC); the National Engineering and Scientific Commission (NESCOM); and the Space and Upper Atmosphere Research Commission (SUPARCO) are autonomous organizations associated with the Security Directorate. The SPD also has a Strategic Communications Command, Civil Works Organization and a Consultancy directorate.

#### *The Employment Control Committee*

The ECC is primarily responsible for policymaking regarding Pakistan's employment of its nuclear deterrent. This includes defining those threats to national interests and security that warrant the possible threat or use of nuclear weapons. While the ECC is formally responsible for the identification of threats and formulation of contingencies to deal with the perceived threats, the SPD assists the ECC in its preparatory work and makes recommendations to be put before the ECC and the NCA.<sup>46</sup>

<sup>45</sup> Luongo, K. N. and Salik, N., 'Building confidence in Pakistan's nuclear security', *Arms Control Today*, vol. 37, no. 10 (Dec. 2007), <[http://www.armscontrol.org/act/2007\\_12/Luongo](http://www.armscontrol.org/act/2007_12/Luongo)>.

<sup>46</sup> The literature available on the delineation of contingencies warranting employment of the nuclear deterrent is limited, see section III above.

Under the 2007 NCA ordinance, the ECC was chaired by the president, with the minister for foreign affairs as deputy chairman. Other members of the ECC included the ministers of defence and interior, the CJCS, the three chiefs of the armed services, and the DG SPD, serving as member-secretary.<sup>47</sup> Technical advisers and other experts join through special invitation as required. Presumably, the chairmanship of the ECC has shifted to the prime minister since the passing of the 2009 NCA Act, but at the time of writing there has been no official word on this, or on whether the composition of this committee has changed.<sup>48</sup>

#### *The Development Control Committee*

The DCC is responsible for preparing and upgrading Pakistan's nuclear weapon systems. The DCC deals with the administrative policy related to the development of nuclear weapons, missile systems, related infrastructure and technologies. It is in charge of determining the size of the Pakistani nuclear force and keeping it in a credible state of readiness.

The DCC is a military-scientific committee, and its membership is similar to that of the ECC. Under the 2007 ordinance, the DCC was chaired by the president, the prime minister as vice-chairman, and the CJCS serving as deputy chairman. Other members included the three chiefs of the armed services and the DG SPD. The DCC members also include the heads of various scientific organizations (i.e. KRL, PAEC, NESCOM and SUPARCO). Like the ECC, it is presumed that it is the prime minister, and not the president, who now chairs the DCC, but there has been, as yet, no official word on this or on the committee's composition.<sup>49</sup>

#### *Strategic Forces Command*

Pakistan's Strategic Forces Command (SFC) has been established in each of the three service branches. Each SFC is responsible for the deployment of nuclear weapons and their delivery systems and the implementation of the targeting policy. The services retain training, technical and administrative control over their strategic forces. However, operational planning and control rests entirely with the NCA under the overall military direction of the CJCS. The SPD coordinates all operational and other related aspects with services headquarters.

<sup>47</sup> Musharraf played two roles: chief of army staff and president. President Asif Ali Zardari plays only a civilian role.

<sup>48</sup> Krepon, M., 'Whose hand is on the nuclear button in South Asia?', Stimson Center, Washington, DC, 3 Dec. 2009, <<http://www.stimson.org/pub.cfm?id=911>>.

<sup>49</sup> Krepon (note 48).

### *Physical custody and control*

The SPD's Security Division is responsible for the safety and security of Pakistan's nuclear storage and missile component sites. This suggests some overlap in administrative control between the SFC and SPD's Security Division. In addition, current measures for physical control and protection were developed with India in mind. As a result, the provisions for physical custody and control of Pakistan's nuclear weapons do not appear as prepared to address threats to the safety and security of Pakistani nuclear weapons arising from other sources, such as terrorist attack from within Pakistan or actions of foreign special forces, such as from the USA, which could be tasked with seizing or disabling Pakistani nuclear weapons in case of government collapse or other national disorder.<sup>50</sup>

Following the 11 September 2001 terrorist attacks on the USA, substantial international attention was focused on the control and safety of Pakistan's nuclear weapons. In response, the Pakistani military allegedly relocated nuclear weapon components to new sites and redeployed the arsenal to at least six secret locations within two days of the attacks.<sup>51</sup> The SPD claims to have taken many important measures to ensure a reliable, safe and secure system for the management of Pakistan's nuclear capability, including but not limited to the oversight of scientific manpower, regular security and intelligence reporting, and sensitive material control and accounting. These procedural mechanisms in the chain of command help ensure that unauthorized use will not take place, especially by a single individual, and that the weapons will be ready when required and at the shortest notice. The SPD has also instituted a two-man rule, employment codes and permissive action links.<sup>52</sup>

### *Nuclear authorization*

As of 2009 the authority to allow the use of nuclear weapons is vested in the prime minister as chairman of the NCA, but Pakistan's military forces continue to play a significant role in the overall formulation of the country's nuclear strategy. Due to the Pakistani military's highly centralized com-

<sup>50</sup> Albright, D., 'Securing Pakistan's nuclear weapons complex', Institute for Science and International Security Reports, Washington, DC, 25 Oct. 2001, <<http://isis-online.org/isis-reports/detail/securing-pakistans-nuclear-weapons-complex/>>. See also Bruce, I., 'Special forces on standby over nuclear threat', *The Herald*, 31 Dec. 2007, <<http://www.heraldsotland.com/special-forces-on-stand-by-over-nuclear-threat-1.871766>>.

<sup>51</sup> Norris, R. et al., 'Pakistan's nuclear forces, 2001', *Bulletin of the Atomic Scientists*, vol. 58, no. 1 (Jan./Feb. 2002), p. 71.

<sup>52</sup> Some sources refer to a 'system of two separate codes; one of them would be civilian and the other military, amounting to a 'dual-key' system. However, other authoritative accounts mention a three-man rule'. Bremmer and Kuusisto (note 36). See also Khan, F. H., 'Nuclear security in Pakistan: separating myth from reality', *Arms Control Today*, vol. 39, no. 6 (July/Aug. 2009), <[http://www.armscontrol.org/act/2009\\_07-08/khan](http://www.armscontrol.org/act/2009_07-08/khan)>.

mand structure, it seems improbable that the authority to use nuclear weapons would be pre-delegated to field commanders. In fact, DG SPD Kidwai denies that any pre-delegation has taken place. According to a press report, during a meeting on 6 January 2003 the NCA headed by Musharraf decided that a unanimous decision would be taken for using nuclear weapons, and it announced that no individual, including the president of Pakistan, is authorized to use nuclear weapons.<sup>53</sup>

Employment of strategic forces requires a robust, sophisticated and elaborate C<sup>4</sup>I<sup>2</sup>SR system. For this system to operate efficiently, it has to be backed up by an effective and responsive strategic intelligence network, capable of providing accurate and real time information to facilitate the decision making process. The means for surveillance and reconnaissance must be built into the system. This in turn necessitates the integration and computerization of all these components.

### **The regulatory framework for nuclear safety**

Two additional organizations have played a major role in Pakistan's nuclear programme: the Pakistan Atomic Energy Commission, founded in 1955, and the Khan Research Laboratories. The PAEC, an exclusively civilian organization, is responsible for Pakistan's nuclear science and technology, including the wide range of nuclear technology programmes for power reactors and nuclear applications in agriculture, medicine and industry. The PAEC claims that over a period of several decades, no reported nuclear accident has taken place in Pakistan's nuclear establishments.<sup>54</sup> The initial purpose of the KRL was to produce enriched uranium-235 based on the centrifuge process for use in nuclear weapons. The KRL was created under the direction of Dr Abdul Qadeer Khan.

Pakistan has a modest regulatory framework to oversee its nuclear materials and installations. Initially, the legal framework for safety, control and protection was provided through the 1984 Nuclear Safety and Radiation Protection Ordinance (IV) under which the PAEC was vested with powers to make necessary rules and regulations.<sup>55</sup> A Directorate of Nuclear Safety and Radiation Protection (DNSRP) was also established in 1984 and tasked with formulating, supervising and enforcing nuclear safety and radiation protection measures.<sup>56</sup> An Advisory Committee on Fuel Cycle and Reactor Safety assists the DNSRP and the PAEC in maintaining reactor

<sup>53</sup> *Dawn*, 7 Jan. 2003.

<sup>54</sup> Butt, N. M., 'Pakistani nuclear programme', eds P. I. Cheema and I. H. Bokhari, *Arms Race and Nuclear Developments in South Asia* (Islamabad Policy Research Institute: Islamabad, 2004), pp. 44–55.

<sup>55</sup> Pakistan Atomic Energy Commission (PAEC), *Annual Report 1985* (Government of Pakistan: Islamabad, 1985).

<sup>56</sup> PAEC (note 55).

safety and controlling and protecting nuclear materials.<sup>57</sup> There has been continuous cooperation between and IAEA and the DNSRP on matters related to the 1986 Convention on Early Notification of a Nuclear Accident and the 1986 Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency.<sup>58</sup> Another body, the Pakistan Nuclear Safety Committee reviews safety reports and enforces guidelines for the safe transportation and application of nuclear materials.<sup>59</sup>

In January 2001 Pakistan established the fully autonomous Pakistan Nuclear Regulatory Authority (PNRA), partly in compliance with national obligations under the 1994 Convention on Nuclear Safety.<sup>60</sup> Major functions of the PNRA include overseeing and ensuring the safety of civilian nuclear facilities and protecting against radiation risks, especially in nuclear power plants; and licensing, registering, disposing and accounting for all radioactive sources that may have been imported for whatever purposes (e.g. X-ray machines, engineering machinery, research and development etc.). Since its establishment, the PNRA has registered all known radioactive sources and worked to develop a safety and awareness culture. While the PNRA is fully autonomous, the DG SPD is a member of the PNRA to assure coordination regarding the safety of both civilian and military nuclear materials.<sup>61</sup>

### **The Export Control Act of 2004**

The 2004 Export Control on Goods, Technologies, Material and Equipment related to Nuclear and Biological Weapons and their Delivery Systems Act provides comprehensive national controls on the export, re-export, trans-shipment and transit of goods, technologies, material and equipment related to nuclear and biological weapons and their means of delivery.<sup>62</sup> In addition to prohibiting the diversion of controlled goods and technologies, important elements of the act include controls on the materials, equipment and services that can contribute to the designing, development, production, stockpiling, maintenance or use of nuclear and

<sup>57</sup> PAEC, *Annual Report 1987* (Government of Pakistan: Islamabad, 1987).

<sup>58</sup> PAEC, *Annual Report 1992* (Government of Pakistan: Islamabad, 1992).

<sup>59</sup> PAEC, *Annual Report 1984* (Government of Pakistan: Islamabad, 1984).

<sup>60</sup> Pakistan Nuclear Regulatory Ordinance 2001, Ordinance no. 3 of 2001, Islamabad, 22 Jan. 2001; and Pakistan Nuclear Safety And Radiation Protection Ordinance 1984, Ordinance no. 4 of 1984, Islamabad, 1984. The Convention on Nuclear Safety was signed on 20 Sep. 1994 and entered into force on 24 Oct. 1996. Information about and text of the treaty are at <<http://www-ns.iaea.org/conventions/nuclear-safety.htm>>.

<sup>61</sup> See the Pakistan Nuclear Regulatory Authority website, <<http://pnra.org/>>.

<sup>62</sup> Export Control on Goods, Technologies, Material and Equipment related to Nuclear and Biological Weapons and their Delivery Systems Act 2004, Act. no. 5 of 2004, Islamabad, 27 Sep. 2004, <<http://www.mofa.gov.pk/SECDIV/Act%202004.htm>>; and United Nations, Security Council, Annex to the note verbale dated 27 October 2004 from the Permanent Mission of Pakistan to the United Nations addressed to the Chairman of the Committee, S/AC.44/2004/(02)/22, 5 Nov. 2004.



biological weapons and their delivery systems. The Act has wide jurisdiction and applies to Pakistanis visiting or working abroad. Its penal provisions provide for up to 14 years imprisonment, a fine and the possibility of property and asset confiscation. The Act is also designed to fulfil Pakistan's international obligations under United Nations Security Council Resolution 1540, which made it mandatory for member states to strengthen controls over sensitive materials and technologies.<sup>63</sup>

In October 2005, under the provision of the Act, a national control list was notified that covers Pakistan's export control obligations under national law and incorporates the internationally accepted standard lists of the Nuclear Suppliers Group, the Australia Group dealing with biological agents and toxins and the Missile Technology Control Regime.<sup>64</sup> The list provides controls over the goods, technologies, materials and equipment that can contribute to the design, development, production, stockpiling, maintenance or use of nuclear and biological weapons and their delivery systems. According to the South Asian Strategic Stability Institute,

End Use and End-User certification requirements are being followed for licensing of trade for all items on the Control Lists, items notified by the PNRA Ordinance 2001 and list of Chemicals notified under the CWC Ordinance 2000. Objectives of non-proliferation, obligations under international treaties to which Pakistan is a Party, UN embargoes, UNSC 1540 as well as considerations for regional stability, assurances against re-export/transfer and guarantees on non-diversion from specified end-use, form the basis for consideration of export applications.<sup>65</sup>

In April 2007 the prime minister approved the setting up of a national export control authority and corresponding oversight board. The authority, the Strategic Export Division (SECDIV), falls under the administration of the Ministry of Foreign Affairs. SECDIV formulates and enforces 'rules and regulations for the implementation of export controls in accordance with the Export Control Act 2004 and also act as a licensing body'.<sup>66</sup>

Pakistan does not have a private sector nuclear industry. The capacity for production of fissile material, even for civilian applications, is with the public sector, specifically the PAEC and the KRL. Therefore, while it is essential to have the elaborate export control legislation and its implementation mechanism in place, practically speaking, there is no private vendor in Pakistan that will ever apply for an export permit. Pakistan has taken special measures in the realm of physical security of nuclear-related

<sup>63</sup> UN Security Council Resolution 1540, 28 Apr. 2004; Asghar, R., 'NA passes bill to tighten N-controls: bid to meet UN requirement', *Dawn*, 15 Sep. 2004, <<http://www.dawn.com/2004/09/15/top2.htm>>; and Wasim, A., 'Senate okays nuclear anti-proliferation bill', *Dawn*, 19 Sep. 2004.

<sup>64</sup> Pakistani Ministry of Foreign Affairs, Record of Press Briefing, 30 Apr. 2007, <[http://www.mofa.gov.pk/Spokesperson/2007/April/Spokes\\_30\\_04\\_07.htm](http://www.mofa.gov.pk/Spokesperson/2007/April/Spokes_30_04_07.htm)>.

<sup>65</sup> 'Pakistan's export control regime', South Asian Strategic Stability Institute, London, n.d. <<http://www.sassi.uk.com/ec.html>>.

<sup>66</sup> Pakistani Ministry of Foreign Affairs (note 64).

materials, and these efforts continue to be improved and strengthened. In particular, these measures will build on commonly used practices regarding the physical security of nuclear weapons: multiple barriers (fences, gates and secured access points), well-trained and armed guards, and ability to detect and defeat threats from both outside and within a facility.

## V. Civilian actors and nuclear decision making

Many international analysts argue that nuclear weapons in Pakistan are under the control of the military without taking into account the nature of the Pakistani political system. Since independence in 1947, Pakistan has had a turbulent political history, spending more than half of its political life either directly under martial law or indirectly under military rule, control and influence.<sup>67</sup> The period 1971–77 was the only time when there was exclusive civilian control over the development of a nuclear weapon capability. Since the imposition of martial law in 1977, there has either been exclusive military or joint civil–military control, depending on the nature of the prevailing political set-up. As a result, the Pakistani military, especially the army, has had decisive influence on strategic and foreign policy decisions. The decision-making process pertaining to the development, maintenance and use of nuclear weapons is no exception. Consequently, Pakistan’s civilian political leadership has had limited experience and expertise in managing the various dimensions of a nuclear weapon capability, especially its related infrastructural and doctrinal issues.<sup>68</sup> The contemporary command and control structure in Pakistan, with the civil–military NCA at its apex, involves both civilian and military decision makers on issues of development and use of nuclear weapons.<sup>69</sup>

### **The executive**

In controlling nuclear weapons, it is the top leader (in Pakistan’s history, either the president or prime minister) who ultimately decides on policy regarding the threat or use of nuclear weapons. Civilian executive leaders must decide the level on which they would like to control nuclear weapons in each phase of the cycle, which is difficult to fully implement in Pakistan because its democratic institutions are still in the process of fully maturing. The role of the president in nuclear decision making in Pakistan has remained stronger than that of the prime minister, with the solitary recent

<sup>67</sup> Rizvi, H. A., *Military, State and Society in Pakistan* (Macmillan: Basingstoke, 2000).

<sup>68</sup> The partial exception is the scientific bureaucracy which has a better understanding of and greater expertise in the developmental and technological aspects of nuclear weapons. The top echelons of this bureaucracy have had a significant influence in Pakistan’s nuclear weapon programme.

<sup>69</sup> See the analysis of the National Command Authority of Pakistan in section IV above.

exception of when the prime minister was made chairman of the NCA instead of the president. This may be due to the fact that during most of Pakistan's history, the country has been under a military regime or a presidential system led by a serving or retired general. Furthermore, after the parliamentary system was restored in 1988, the Office of the President was given more powers than the prime minister under the eighth amendment to the 1973 Constitution (e.g. the president of Pakistan could dissolve the government of an elected prime minister and the National Assembly). It is also believed that the professionalism of the Pakistani military will function as a stabilizing force and that effective military control over Pakistan's nuclear weapons seems to be guaranteed. In the long term, however, true civilian control of nuclear weapons will only come with greater political stability and strong political institutions—foremost a civilian executive—as well as moving towards greater democracy.

### **The Parliament**

Pakistan's chequered political history, oscillating between democracy and martial law, has left the Parliament in a disadvantageous position vis-à-vis the military and the executive. Although consecutive military and civilian governments have strengthened Pakistan's security services in the context of the ongoing tense relations with India, the same cannot be said about its democratic institutions. Due to the Parliament's regular dissolution and dismissal, it has been unable to build up a strong constitutional or political position that would enable it to play an effective countervailing democratic role against the military and executive. Moreover, politicians in Pakistan generally have a poor image within Pakistani society owing to their reputation for underperformance and corruption, further weakening the Parliament as a credible democratic institution.

Pakistan has followed two statutory processes regarding legislation of nuclear matters. In the first process, most of the legal requirements dealing with nuclear matters were met through the issuance of presidential ordinances. These ordinances were and to some extent remain Pakistan's law-making process, although their use has been reduced. In the second process, legislative acts of Parliament have—to some extent, although not substantially—replaced the issuing of ordinances. In both processes, the Parliament's role and control over the nuclear weapon programme has been limited and indirect. Unlike other parliaments, Pakistan's Parliament has exercised little control over the nuclear weapon programme through ministerial accountability. However, issues relating to the development and use of nuclear weapons are generally not raised in the Parliament.

The Parliament has assumed some functions regarding nuclear issues. It passed the 2004 Export Control Act to address the domestic and inter-

national concerns related to the proliferation and other related activities of Dr A. Q. Khan.<sup>70</sup> A statement of objectives and justifications accompanying the bill stated that it would 'strengthen [Pakistan's] credentials as a responsible nuclear weapons state'.<sup>71</sup> If the Parliament continues to be actively engaged with such issues, it may play a more significant role in Pakistan's nuclear decision making.

### **Civil society**

Pakistan is a nascent democratic state and therefore less open about information regarding nuclear weapons despite its having a free press. However, it has one of the most vibrant and vocal anti-nuclear lobbies, and that lobby includes senior university professors, retired army generals, social workers and journalists. A. H. Nayyar, Zia Mian, Anayat Ullah and, to some extent, Pervez Hoodbony are notable Pakistani anti-nuclear activists. Organizations like the Citizens Peace Committee have produced a number of publications and organized public demonstrations to raise public awareness about the hazards posed by nuclear weapons—not only to the country possessing them but also their catastrophic military, strategic, moral and environmental consequences. However, a dominant majority of the Pakistani public supports the maintenance of a nuclear weapons capability. Pakistan's literacy rate is too low for the general public to fully comprehend the pros and cons of possessing and maintaining a nuclear weapon capability. Even most politicians have a limited understanding of what a nuclear weapon is and what it can and cannot do. The majority of non-governmental organizations in Pakistan mostly work towards alleviating poverty, strengthening democratic rights, improving the health sector and responding to natural catastrophes.

## **VI. Conclusions**

The nuclear dynamic in South Asia between India and Pakistan is still at a relatively early stage and remains in flux. While the nuclear powers of the West have had more than 50 years to sort out their respective nuclear relationships (and China joined this club in 1964), India and Pakistan became openly nuclear countries only in 1998. As a result, analysts should expect more changes in the nuclear forces of these two countries, quantitatively, qualitatively, doctrinally and in the way they are governed. This raises two important concluding points regarding the governance of nuclear weapons in Pakistan.

<sup>70</sup> On Khan's proliferation network see S. N. Kile, 'Nuclear arms control and non-proliferation', *SIPRI Yearbook 2006* (note 23), pp. 552–55.

<sup>71</sup> Asghar (note 63).

First, Pakistan's existing command and control system may not be ideal, but it is suitable for the current domestic political and regional security conditions that the country faces. The command and control system is likely to go through further changes and improvements. Pakistan's top political and military leadership exhibits an awareness of the complex issues related to the nuclear weapons complex and will seek to improve existing procedures for safe, secure and authorized use.

Second, given the particular conditions of Pakistan and its still nascent nuclear weapons capability, it is unrealistic to expect democratically elected, accountable and fully-authoritative civilian governance over the country's nuclear weapons in the near-term. For the foreseeable future, governance of nuclear weapons in Pakistan will be overseen in principle if not practice by a mixture of civilian political and military leaders. But as one of the only, if not the only, strong institutions able to provide stability and control in Pakistan, the military will retain its traditionally dominant influence over many if not most aspects of nuclear weapon strategy and use. In the long-term, democratic accountability and civilian control of nuclear weapons can only be enhanced by moving towards democracy and building other strong political institutions.

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# 10. Conclusions

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HANS BORN AND BATES GILL

## I. Introduction

The eight country studies in this volume provide insights and analysis that are much needed for their timeliness and for their implications. More than 65 years after the dawn of the nuclear age, the governance of nuclear weapons is an issue that is ripe for revisiting. 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 extension of the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT). This book adopts a broad, governance-focused perspective, examining the spectrum of political oversight and control mechanisms that may apply within and, to some extent, between nuclear weapon states. Drawing on analytical frameworks that are employed to examine civilian control and democratic accountability within the security sector, the authors of this book explore the roles played by five types of actor related to the domestic governance of nuclear weapons: core security sector actors, the executive, the legislature, the judiciary and civil society.

This chapter concludes the volume by addressing the two research questions raised in the introductory chapter. By briefly summarizing the key findings for each of the eight nuclear weapon states, section II addresses the first research question ‘What is the current state of nuclear weapon governance in possessor states in questions, and how did it evolve over time?’ The second question, ‘What is the extent of civilian control and democratic accountability regarding nuclear weapons in these states?’, is addressed in section III by assessing the role of each of the key actors involved in the domestic governance of nuclear weapons. Based on these findings and analysis, section IV offers recommendations for how states can further strengthen good governance of nuclear weapons as well as move towards increased democratic governance of these weapons.

## II. Domestic nuclear weapon governance in possessor states

### **The United States**

In 1945 the United States 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. Peter Feaver and Kristin Thompson Sharp point out in chapter 2 that, from the outset, the USA has emphasized the civilian control of its nuclear assets. In the early 1950s nuclear weapons were stored separately from the delivery vehicles by the Atomic Energy Commission (AEC) and not held by the military. Today, however, while the National Nuclear Security Administration (NNSA), within the Department of Energy (DOE), remains responsible for the research, development, production, modernization and dismantling of US nuclear weapons, the physical control of the US nuclear arsenal has been delegated to the military.

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 an advisory role on nuclear decision making, as does the National Security Council. As the commander-in-chief of the armed forces, the president also has an operational role that 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.

Feaver and Thompson Sharp discuss ideas such as the devolution of command and pre-delegation of launch authority that have emerged in debates as options to preserve civilian control of nuclear weapons under all circumstances. Devolution of command would transfer authority to the most senior surviving civilian official in the event of a decapitating attack, quickly leading to transfer of authority to the military chain of command. Pre-delegation of authority indicates a set of circumstances under which the president has authorized in advance the use of nuclear weapons. According to the authors, devolution of command in the USA presents a special problem for democratic governance in that it differs significantly from the line of succession delineated by the Constitution and the Congress.

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. More generally, the Congress has a constitutional mandate to oversee the executive branch. In order to fulfil this function, the Congress has set up a number of bodies to provide members of Congress with independent information and advice and to audit the executive branch's implementation of congressionally approved policies and programmes, including in the national security field.

The USA also has an active civil society with the potential for demonstrable impact on the nuclear debate, including an informal system of rotation of individuals between official positions dealing with nuclear matters inside the government and positions outside of government. This leads to greater awareness and expertise of nuclear weapons in the government, civil society and academia.

The authors conclude that these elements of a strong democratic system, combined with relative openness about US nuclear systems and plans—as well as the USA's record of international engagement, notably, with Russia—have made the USA somewhat of a benchmark for the evaluation of nuclear governance in other less transparent states. Nevertheless, elements of secrecy within the system and the centralization of operational power in the hands of the president are some potential obstacles to the democratic governance of the US nuclear arsenal.

## **Russia**

The Russian Federation is the legal successor state to the Soviet Union, which was the second state to test a nuclear weapon, in 1949. Alexei Arbatov argues in chapter 3 that Russia's challenges in nuclear weapon governance reflect not only the difficult and still incomplete course of its democratic transition, but also a strategic setting in which nuclear weapons have come to be seen as one of the remaining symbols of Russia's legacy as a superpower. These factors tend to concentrate nuclear decision making in the hands of a tight official circle, outside of public scrutiny.

The president takes decisions on the funding and size of the nuclear arsenal and 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. In constitutional terms, the president's authority over military policy is exercised with the support of a national Security Council, which includes the prime minister, the defence minister, the foreign minister and the director of the Federal Security Services (FSB). Arbatov points out that the president's role as the civilian arbiter of nuclear policy is limited by the lack of well-qualified and independent civilian advice. This problem has been exacerbated by military and civilian security and intelligence officials who have come to dominate top official posts. The institutional responsibilities and competences of the Russian military in relation to the civilian leadership have been curtailed in recent years. The June 2004 amendments to the 1996 law 'On Defence' placed the General Staff unequivocally under the authority of the civilian defence minister.

Problems related to the physical control of Russia's nuclear forces remain a serious concern, in particular the fragmentation of the former



Soviet system and the lack of funds that have allowed physical assets to degrade. However, according to Arbatov, the physical security of Russian warheads is generally considered to be adequate. He states that there is no evidence to counter the Russian statements that all Russian warheads have been consolidated at storage sites, and furthermore the USA has worked with Russia to upgrade the security of these sites.

The role of the State Duma (the lower house of the Russian Parliament) is confined to routinely approving the government's decisions. As a former member of the Duma himself, Arbatov points out that members of the Duma can examine the annual armaments programme documents, but most parliamentarians lack the expertise to independently assess the programme while secrecy laws effectively prevent them from engaging experts. Moreover, the staff of the Duma's Defence Committee are often either former or active military personnel and, therefore, lack independence from the military establishment. According to Arbatov, the combination of these factors has meant that the Duma has limited influence in nuclear doctrine and strategy, and its annual debate on the defence budget leads to few, if any, changes. In contrast, decades of arms control negotiations with the USA have resulted in a large body of nuclear-relevant information being available to non-governmental experts and the media. However, these actors have no channels through which to influence government decisions and risk being prosecuted for the disclosure of 'state secrets' if they engage in public debate on these issues. Journalists and scholars are understandably reluctant to comment forcefully on nuclear weapon issues.

### **The United Kingdom**

The United Kingdom conducted its first test of a nuclear weapon in 1952 and has had operational nuclear weapons since 1956. A central feature of the British nuclear weapon capability is the 1958 Mutual Defence Agreement between the UK and the USA. Under this agreement, the UK maintains independent control over its nuclear forces and builds its own warheads and submarines, but it is dependent on the USA for its delivery systems and their maintenance. Through a 1962 British-US agreement, British weapons are committed for use by the North Atlantic Treaty Organization (NATO) Supreme Allied Commander Europe (SACEUR) for war in Europe. Although the UK retains physical control over weapon use, the agreement also commits the UK to consulting with the USA before engaging in independent action.

As John Simpson and Jenny Nielsen point out in chapter 4, 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, and

there is no pre-delegation of launch authority to the military. Reportedly, these command-and-control arrangements were reviewed after the 11 September 2001 terrorist attacks on the USA, 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.

Although the British Parliament 'has the ultimate power to refuse to endorse government expenditure', in practice this power is very rarely exercised in relation to defence policy. Furthermore, the Parliament 'does not analyse specific programmes in detail and cannot exercise advance control'.<sup>1</sup> Its role remains predominantly limited to performing an audit after the executive has taken decisions, as well as questioning (on an ad hoc basis) both government policy and specific decisions. Nevertheless, based on the power of the purse, the House of Commons is formally responsible for approving defence procurement, including the development of the current Trident nuclear weapon system. 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.

Non-governmental organizations (NGOs) both in favour of and against nuclear weapons have played a prominent role in mobilizing public interest and debate. However, Simpson and Nielsen point out that secrecy clauses limit the possibility of an informed public debate. This problem was partly remedied by the 2000 Freedom of Information Act, although the government may, and does, hold back numerous nuclear-related documents from disclosure.

## France

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 those related to foreign affairs and defence policy, including nuclear weapon decision making. According to Bruno Tertrais in chapter 5, nuclear responsibilities have played a role in reinforcing the president's pre-eminence, hence the French presidential system being nicknamed the 'nuclear monarchy'.

No French nuclear weapon can be physically moved without political authorization, and the president has to personally approve any change in alert status. No weapon can be launched without both the presidential code and a military code. In exercising nuclear authority, the president is supported by a small private military staff and by the Defence and National

<sup>1</sup> McLean, S. (ed.), *How Nuclear Weapons Decisions Are Made* (Macmillan/Oxford Research Group: Basingstoke, 1986), p. 132.

Security Council, which includes the prime minister, the minister of defence and the minister of foreign affairs. 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. Given the traditionally central role of the French president in nuclear weapon matters, questions arise whether the president of the Senate has sufficient experience and information to be at the nuclear pinnacle.

According to Article 34 of the French Constitution, the French Parliament shall determine ‘the basic principles of the general organisation of national defence’. However, a presidential decree of 1964 excludes the Parliament from involvement in the president’s mandate and power over nuclear weapons. Tertrais points out that, although the Parliament was not consulted when President Charles de Gaulle started the nuclear programme in 1958, it does vote on the annual defence budget and on the five-year 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, according to Tertrais, without material consequences. Nevertheless, the reports help to provide members of Parliament and the general public with authoritative information about nuclear affairs.

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.

## **China**

China conducted its first nuclear weapon test in 1964—the last of the five NPT-defined nuclear weapon states to do so. According to Bates Gill and Evan Medeiros in chapter 6, China’s nuclear decision-making system may be described as under civilian control but lacking democratic accountability. Although the Chinese Communist Party (CCP) stays firmly in ‘control of the gun’, the military possesses a critically important, although not necessarily determinative 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. President Hu Jintao, the general secretary of the CCP, also heads the two top decision-making bodies for defence policy, the Standing Committee of the Political Bureau and the Central Military Commission (CMC). All members of the two bodies are party members, meaning that civilian control is closely equated with party control. According to Gill and Medeiros, nuclear

weapon decision making is based largely on consensus among the 'collective leadership' of these bodies, and the channels for its execution at the military level are direct and tightly controlled.

Gill and Medeiros raise the question of whether this well-established system of control will change as China itself changes. The generation of CCP leaders who were considered to be military heroes has passed and current civilian leaders must maintain their authority within the military by new means, including bureaucratic bargaining and appointments. China's economic growth combined with its global ambitions facilitates the rapid modernization of its nuclear force structure and posture, particularly its delivery vehicles. A larger, more accurate and more mobile arsenal, including the introduction of more modern nuclear-armed submarines, could demand a more professional and perhaps more delegated line of military control over nuclear weapons.

As for the legislative branch, the Constitution formally grants the National People's Congress (NPC) wide constitutional powers that amount to legislative supremacy in decision making. In reality, under the dominance of a single party, the NPC has never sought to exercise such a role and signs off on executive decisions on matters of foreign and security 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 no significant body of independent expertise on nuclear weapon issues (e.g. NGOs) that is capable of offering genuine policy alternatives. Moreover, the media remains under the direction and scrutiny of the CCP and is therefore highly unlikely to truly monitor China's nuclear weapon policy, even if it showed an interest in doing so. As a result, nuclear affairs in China remain subject to extreme secrecy. China has had relatively little engagement in substantive nuclear disarmament negotiations on the international stage, which further limits the transparency of Chinese decision-making structures and processes related to nuclear weapons. Interestingly, Chinese engagement in the negotiations resulting in the 1996 Comprehensive Test-Ban-Treaty helped foster some of the only non-governmental analyses by Chinese and non-Chinese observers of the country's nuclear weapons and arms control decision-making processes.

## **Israel**

Having started its nuclear programme in the mid-1950s, Israel was generally considered by 1970 to have achieved an operational nuclear weapon capability. Although Israel has never officially acknowledged its nuclear weapon capability, the existence of its nuclear weapon programme is widely known.

According to Avner Cohen in chapter 7, Israel's official policy of neither confirming nor denying possession of nuclear weapons is combined with strict confidentiality measures and insulation of the issue from national politics and policy debate. In such conditions, very little is known about Israel's command-and-control system. According to Cohen, Israel's nuclear arsenal is subject to a system of tight civilian control by a few officials in the executive under the direct responsibility of the prime minister. Internal advisory panels of economists, chief scientists, army officers and academics with high-level security clearance are thought to exist, but information about such bodies has not been made public.

According to Cohen, in the first period of Israel's nuclear weapon programme (1955–61), neither the Knesset (the Israeli 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 the Knesset 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 subcommittee dealing with Israel's nuclear capacity. The lack of expertise and opportunities for outside consultation limit what the Knesset can make of its role. Financial control of nuclear weapons is exercised by the State Comptroller's Office, 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 International Atomic Energy Agency (IAEA). Successive Israeli governments have rejected requests from the IAEA for the country to open its nuclear facility at Dimona for inspection.

## **India**

India detonated a nuclear device in 1974, making it the sixth country to do so. India also conducted five underground nuclear explosions in May 1998. India is not a party to the NPT and is not formally recognized as a nuclear weapon state under that treaty. India is not party to any of the multilateral nuclear weapon treaties and has yet to engage in any bilateral reduction agreements.

In chapter 8, Waheguru Pal Singh Sidhu discusses India's 'divided control' (between the military and the civilians) of its nuclear weapons. In August 1999 the Indian Government released its draft nuclear doctrine. Largely patterned on the doctrines and deployment postures of the five NPT nuclear weapon states, the draft doctrine stated that 'India shall pursue a doctrine of credible minimum nuclear deterrence' based on a policy of no-first-use. Most observers believe, as elaborated by Sidhu, that India maintains a

recessed nuclear posture, in accordance with its no-first-use policy: its nuclear warheads are not mated to their delivery vehicles and some may be stored in unassembled form.

Sidhu points out that 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 controls the delivery systems and the political authorities exercise general oversight of weapon use. The Indian case (and that of Pakistan, see below) suggests that the specialist scientific community, typically civilian in nature, should also be included among the executive branch agencies involved in the matrix of nuclear weapon governance.

The Parliament has debated nuclear weapons on a number of occasions since independence in 1947, but it has not played a decisive role. The 1974 and 1998 nuclear tests were decided by a small circle of decision makers within the executive. According to Sidhu, the Parliament's standing Defence Committee exercises only perfunctory oversight of India's nuclear arsenal. The financial costs of the nuclear arsenal are hidden and the warheads and delivery systems are not detailed as separate entries 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.

According to Sidhu, the role played by civil society is small. 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 average or even lower rates a few months later.

## **Pakistan**

Pakistan confirmed its possession of nuclear weapons in May 1998 when it carried out a series of nuclear explosions a few days after India had done so. Like India and Israel, Pakistan is not a party to the NPT and is not recognized as a nuclear weapon state under that treaty.

In chapter 9, Zafar Iqbal Cheema discusses how actors in politically fragile Pakistan—which has been chequered by many military coups—exercise control over the bomb. 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. In February 2000 the military government created the mixed civilian–military National Command Authority (NCA) that is responsible for formulating policy and exercising control over the development and employment of Pakistan's strategic nuclear forces. The authority to allow the use of nuclear weapons is vested in the prime minister.

Cheema also shows that the scientific community can be both the controller and the controlled within the country's nuclear weapon programme. On the one hand, the scientific community related to the nuclear programme can play an important role in developing, maintaining and exercising oversight over the safety of Pakistan's nuclear weapon programme. In this sense, it can be seen as a countervailing power against military dominance in Pakistan's nuclear weapon programme. On the other hand, Cheema also shows that the scientific community itself needs to be subjected to strict controls and oversight, as demonstrated by Dr Abdul Qadeer Khan's proliferation activities.

Cheema points out that 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 role of the military in Pakistan's politics. The command and control of the nuclear arsenal have historically been based on executive decrees, thus sidelining Parliament in the nuclear weapon decision-making process. Although the prime minister does remain accountable to the Parliament, the latter has never debated the development, deployment or employment of the Pakistani nuclear arsenal.

Cheema underlines that Pakistan has an active civil society, but public debate rarely extends to issues of national security and defence. In the long run, democratic accountability and civilian control of nuclear weapons can only be enhanced by building strong political institutions in Pakistan. However, in the short term, the military may be one of the few strong institutions that is able to provide the stability and control that is vital to governance of nuclear weapons.

### III. Comparing domestic nuclear weapon governance

Based on the overall findings of the eight country studies, a number of comparative analytical findings and conclusions can be drawn. Similarities and differences exist in the roles of the key players that are involved in domestic governance of nuclear weapons: core security actors, the executive, the legislature, the judiciary and civil society.<sup>2</sup>

#### **Core security actors**

Command-and-control systems dictate how nuclear weapons enter into military operations; hence, these systems involve military knowledge and action. However, despite the prevailing secrecy regarding national command-and-control systems, no country currently places the power of

<sup>2</sup> See tables 1.3 and 1.4 in chapter 1 in this volume.

decision on nuclear weapon use solely in military hands. Governments have used a variety of measures to reduce the risk of accidental or unauthorized nuclear weapon use. Such efforts include separate storage of nuclear warheads from delivery systems (e.g. in China and India) or the use of permissive action links (PALs) that may only be triggered by civilian leaders (e.g. in Russia and the USA). In some cases (e.g. India and perhaps Pakistan), elements of control by the scientific-industrial complex form an additional check on military autonomy. However, it should be noted that the inevitable need for the military to advise on general nuclear policies and to execute the use of a nuclear weapon may in some cases serve as a valuable safeguard against irresponsible civilian political decisions.

### **The executive**

Executive control is a broader 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 book, this function is formally vested in the head of state or government. In the governance of nuclear weapons, the importance of this individual (the president or prime minister) is represented by his or her authority to issue the nuclear release codes. It is worth noting that the chain of command of nuclear authority may be different from the normal constitutional line of political succession. This is the case in France, Russia and the USA.

In most cases, the pre-eminent freedom of action of the head of state or government is limited by the existence of multi-person release procedures, which normally include one or more military officers and sometimes formal bodies with advisory and policymaking powers in nuclear matters. Examples of the latter are the Indian Nuclear Command Authority, the Chinese Central Military Commission and the French Defence and National Security Council. In countries with more opaque nuclear weapons infrastructures (such as China and Israel) it is difficult to determine how far this type of constitutional arrangement can guarantee civilian control of nuclear decision making during a crisis.

### **The legislature**

The theoretical powers of the legislature over nuclear-related matters can range from debate via legislative and budgetary powers to some degree of co-decision. In some cases, the legislature’s role is formally reduced by the existence of presidential or executive decrees that determine aspects of nuclear policy and management (e.g. in France, Pakistan and the UK). The strongest combination of legislative, budgetary and debating powers is pos-



sessed by the US Congress. The British, French and Indian parliaments can hold debates and exercise more general budgetary control, while the legislatures in China, Israel and Pakistan are strongly constrained and perhaps prohibited from addressing nuclear issues at all. However, the place of the legislature in nuclear weapon policymaking is not only defined by such formal considerations but also by legislators' expertise and attitudes, as well as by the degree to which they act as mouthpieces and stimulants for a broader national debate. Most legislators have even less access to independent expertise on nuclear matters than they do in more general defence matters. In many cases their ability to remedy this is stymied by secrecy laws. In some nuclear states, such as Russia, legislators may be reluctant to challenge nuclear weapon policy due to their own political backgrounds and interests as well as their assessment of public opinion.

### **The judiciary**

While judicial rulings and interpretations theoretically and constitutionally may have an indirect effect on nuclear weapon decision making, the role of the courts in such decision making is marginal to non-existent in nuclear-armed states. Indeed, in the US chapter, the authors note that the Supreme Court has no substantial impact on nuclear weapon decision making. In addition, the authors of the chapters on China, France, India, Israel and Pakistan make little or no mention of a role for the national courts in nuclear weapon decision making. In Russia, the judiciary plays a role only to curtail public discussion on Russia's nuclear weapons in the media.

The UK is an interesting case because the absence of a written constitution makes it difficult for citizens to take any legal action against their government's nuclear weapon policy. On various occasions, citizens have brought legal challenges against their government's nuclear weapon decisions, however without much success. In the UK, as in most nuclear-armed countries, the ability of citizens to start legal actions is also seriously impeded by the high level of secrecy surrounding nuclear weapons. It is difficult, if not impossible, for citizens to challenge the government through legal action if they do not have the necessary information.

### **Civil society**

Civil society—including NGOs, think tanks, research institutes, independent experts, the media and individuals exercising their political rights—may in principle both pass judgement on official policies and generate alternatives. However, 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 at hand. As this volume demonstrates, even well-established democratic systems have a tendency to restrict information on nuclear matters, while in other systems secrecy laws are invoked to restrain or make a deterrent example of individuals that question the system (e.g. in Israel and Russia). Robert Dahl, one of the few political scientists to have written about democratic control of nuclear weapons, has argued that, as a result, citizens have generally abandoned any attempt to influence decision making on nuclear matters and are abstaining from challenging policies or engaging in debate.<sup>3</sup>

Nevertheless, civil protest, especially in democratic nuclear weapon 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. An example of this was the impact of the Campaign for Nuclear Disarmament (CND) on mainstream politics. The CND attracted as many as 400 000 people to a demonstration against the British Government's nuclear weapon policy in 1983.<sup>4</sup> These influences undoubtedly propelled the effort to reach arms control agreements and other cooperative solutions between East and West. 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 that addressed nuclear matters could find an audience.

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. It has been observed that the role of such research institutes is strongest where the 'demarcation line' between government and academics is least strict.<sup>5</sup>

## IV. Findings and recommendations

### **Towards greater scrutiny and analysis**

As noted in the introductory chapter, at least three major justifications stand out for opening the institutions and mechanisms of nuclear weapon governance to greater scrutiny and analysis. First, as long as nuclear

<sup>3</sup> Dahl, R., *Controlling Nuclear Weapons: Democracy versus Guardianship* (Syracuse University Press: Syracuse, NY, 1985), p. 3.

<sup>4</sup> 'Whatever happened to CND?', BBC News, 5 July 2006, <<http://news.bbc.co.uk/2/hi/5149520.stm>>.

<sup>5</sup> Freedman, L., *The Evolution of Nuclear Strategy*, 3rd edn (Palgrave Macmillan: Houndmills, 2003), p. 492.

weapons exist, there will be a heavy responsibility on those states possessing them to ensure that they are never used (either accidentally or in an unauthorized manner) or diverted into the wrong hands (either intentionally or unintentionally). Some would go further to argue that nuclear weapon states have a deep moral obligation never to use nuclear weapons under any circumstance. For nuclear weapon states to be held accountable for how and when these weapons are used, there is a need for greater understanding of the structures, mechanisms and protections related to nuclear weapon governance in these countries.

Second, the study and understanding of the institutions and processes for nuclear weapon governance in nuclear weapon states can help promote good governance practices leading to non-proliferation, disarmament and the diminished likelihood of nuclear weapon use.

Third, the study of nuclear weapon governance can shed light on the linkages between regime type, level of development and good governance of nuclear weapons.

With these thoughts in mind, the principal objective of the book has been to scrutinize the roles and responsibilities of the institutions and actors that are involved in the domestic governance of nuclear weapons. While this approach intends to provide empirical analysis, the underlying normative research interest is to generate insights into the opportunities, constraints and prospects for the civilian control and democratic accountability of nuclear weapons, and how these developments lead to policy that fosters non-proliferation, disarmament and the reduced likelihood of nuclear weapon use. Several important findings and overall recommendations deserve closer attention.

To begin, these studies demonstrate clearly that focusing on ‘who is pushing the launch button’ is an insufficient and oversimplified approach for evaluating the governance of nuclear weapons. Decisions at each phase of the nuclear weapon life cycle—from the decision to acquire nuclear weapons to the decision to use them—provide opportunities for substantive oversight and governance, and the ability of various actors to influence these aspects of nuclear governance varies widely across the cases.

Second, on the basis of the cases and available information presented in this volume, it is difficult to draw a clear and sustainable linkage between regime type on the one hand, and good governance of nuclear weapons on the other. The fact that a given nuclear weapon state is democratic, quasi-authoritarian or a dictatorship does not necessarily determine the decisions it will take regarding non-proliferation, disarmament or the diminished likelihood of nuclear weapon use. The USA, which is arguably the most open and democratic regarding nuclear weapon governance, nevertheless took part with the Soviet Union in a massive nuclear arms race and continues to possess one of the two largest nuclear arsenals. The USA has also

not foresworn the first use of nuclear weapons and is the only country to have used nuclear weapons in war. Israel, refuses to acknowledge its nuclear weapon capability, which in turn has made it impossible for the country to engage in discussions of disarmament. Another democracy, France, stood outside the NPT for nearly 25 years before joining the treaty in 1992. On the other hand, Pakistan, which has built up a viable nuclear arsenal while alternating between democratic governance and military rule, remains outside of the NPT. China, a single-party state, has maintained a relatively modest nuclear arsenal and has unilaterally declared a no-first-use of nuclear weapons pledge. Having said this, as mentioned in the introduction, it would be extremely difficult for governments of democratic states to initiate large-scale secret nuclear weapon programmes because they are subject to scrutiny by the legislature, the courts and the media.

This leads to a third important point: other factors in addition to regime type—such as the nature of the overall governance structure, the stage of nuclear weapon development and the security perceptions of a given country—may help determine the degree to which good governance of nuclear weapons can take firmer hold. For example, in a country such as France, which under the Fifth Republic has a tradition of a strong executive in the person of the president, nuclear governance matters are concentrated in a few hands with less input from other layers of governance such as the Parliament. In China or Russia, for example—countries with little substantive role for the legislature, judiciary or civil society in governance structures broadly defined—governance over nuclear matters tends to be concentrated in institutions with representatives from executive and military-security institutions.

### **Linking weapon development with governance**

These cases suggest that there may be some linkage between the stage of nuclear weapon development and the forms of nuclear weapon governance. Across all the cases, it appears that the decision to acquire nuclear weapons was taken and initially driven by a relatively small number of people. Depending on the country in question, the ability of other individuals to have some influence on nuclear governance grew with time, as in the UK and the USA. It is also common across several of the cases, including China, India and Pakistan, that the role of the defence-scientific community—not only in the development of the arsenal, but also in terms of doctrine, deployments and physical control of the weapons and delivery systems—was especially prominent and remained so for a lengthy period after these countries became nuclear weapon states. This community

remains important in the cases of India and Pakistan, but apparently less so than in the past in the case of China.

The degree to which a country perceives an immediate or existential threat will also have a bearing on how it chooses to govern its nuclear weapons. For example, the executive and military leaders of Israel, India and Pakistan, countries which perceive immediate threats especially from close neighbours, will wish to retain close control over decisions concerning the development and use of nuclear weapons so as to be better prepared to respond in times of crisis. This could mean that as and if nuclear and other threats diminish for a given country, it may be possible for a greater variety of governance actors to play a role in ensuring the good governance of nuclear weapons.

The cases also suggest that different layers of nuclear governance may have different influences on different aspects of good nuclear governance. For example, it appears that on questions of disarmament, it is possible for legislatures and civil society in more open and democratic societies to have some sway over decision making. However, the right to decide on the development or use of nuclear weapons is typically closely held in the hands of core security actors and the executive branch, with little outside influence of other governance layers. Nevertheless, as this volume shows, in some states (for example the USA), the legislature is able to use its budget control powers in matters of nuclear weapon procurement.

Finally, this volume clearly shows that there is a clear and widespread deficit of *democratic* governance of nuclear weapons. Montesquieu's *trias politica* government framework, in which three independent branches keep each other in check, does not apply in the case of the governance of nuclear weapons in the countries under study in this volume. This raises many serious concerns about how to hold governments accountable for their decisions regarding the development and possible use of such massively destructive weapons, and to encourage and implement good governance policies which lead to non-proliferation, disarmament and reduced possibility of the use of nuclear weapons.

It is often argued that nuclear weapon decision making cannot be subject to an open and democratic process because of the requirements for secrecy and urgent decision making.<sup>6</sup> However, not all decisions related to nuclear weapons are taken under acute time pressure or require highly specialized knowledge. This has been especially true since the end of the cold war. The

<sup>6</sup> E.g. Michael Quinlan brings forward 10 reasons for limiting the public provision of information on nuclear weapon policy, ranging from not 'to risk eroding deterrence' to avoid 'controversy within a governing party' and 'awkward domestic political controversy'. See Quinlan, M., 'Democratic control of nuclear forces: a United Kingdom perspective', Presentation at the Conference on Governing Nuclear Weapons: Addressing Political Control, Military Prerogatives and Scientific Lobbies, Johns Hopkins University-SAIS, Washington, DC, 11 Apr. 2005, <[http://www.dcaf.ch/civnuc/ev-washington\\_papers\\_quinlan.pdf](http://www.dcaf.ch/civnuc/ev-washington_papers_quinlan.pdf)>.

contention that the disclosure of the general policy objectives of nuclear decision making would endanger national security remains unproven. Nuclear policy choices have major financial, moral and environmental consequences. In a democratic system, at least, this decision making should seek to involve and balance all the interests concerned and ought to guarantee the minimum levels of democratic accountability.

### **Strengthening good governance of nuclear weapons**

The USA is a genuine, if imperfect, model for civilian control and democratic accountability of nuclear weapons because in comparison to other states it has a relatively open society, a vigorous press and expert resources, as well as a highly elaborate system of checks and balances. Nevertheless, US nuclear weapon decision making remains a jealously guarded executive privilege. The US Congress does play a substantial role in budgetary control and legislation but not in the areas of nuclear doctrine, deployment and usage. 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 in the governance of nuclear weapons.

Generally speaking, even taking into account the diversity and complexity of nuclear weapon governance in different cases, the good governance of nuclear weapons—that is, those policies which lead to non-proliferation, disarmament and a reduction of the possibilities of nuclear weapon use—will probably be strengthened if all layers of nuclear governance can play a substantial role. Actors at each layer need to play a role because they are mutually dependent on one another. For example, the military relies on the legislature for the authorization and release of funds; the executive relies on professional military and civilian personnel for advice and for the execution of mandates and decisions; the legislature depends on adequate information from the executive; and society at large depends on the government for the release of adequate public information about nuclear weapon programmes. However, the country studies demonstrate that not all of these actors are able to play a significant role, if any, in the governance of nuclear weapons.

The exclusion of particular actors from nuclear weapon governance is the result of both formal and informal features of the political process. National legislatures play a marginal role in most nuclear weapon states either because they do not have the power to control nuclear weapons effectively (as in China, India, Pakistan and Russia), or because they choose not to seriously challenge the position of the government (as in France and Israel). These outcomes are often the result of the lack of required expertise and access to information that would enable effective oversight. How-

ever, in both the UK and the USA, legislative debate occasionally influences government policy on nuclear weapons. In most cases, there seems to be considerably more room for legislatures to play a more meaningful role in decisions that require public funding, notably in the procurement and expansion phases of nuclear weapon programmes.

To achieve a more substantive contribution by the key actors to good nuclear governance—let alone democratic nuclear governance—will require a greater degree of transparency in all the cases. 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. Legislative control cannot function if the executive withholds information. Without access to government information, the legislature, the public and the media can neither judge the consistency of the government's actions nor evaluate the information gleaned from informal or confidential sources (e.g. whistle-blowers).

Looking ahead, for good governance of nuclear weapons to succeed, all countries with nuclear weapons should explore how the nuclear governance roles of the legislature, judiciary and civil society can be strengthened. First, serious thought should be given to a clearer understanding of how these bodies and institutions can contribute to the good nuclear governance aims of non-proliferation, disarmament and the reduced likelihood of nuclear weapon use. Second, research institutes could cooperate and set up an international clearing house with a view to sharing research findings on domestic nuclear governance. Third, while acknowledging that national context matters, legislators, judges and civil society representatives from various countries could more intensively exchange best practices, procedures and experiences about nuclear weapon governance.<sup>7</sup> In this context, non-official contacts (e.g. NGOs, legislators and academics) that contribute to transnational nuclear learning processes could be established or strengthened between nuclear-armed states.

While this volume focuses on domestic actors and their role in nuclear governance, it is important to note that external factors can and should also play a role in good nuclear governance. It is apparent that good governance of nuclear weapons can arise from well-crafted and effective agreements and treaties among countries which seek to strengthen non-proliferation, arms control and disarmament. However, in addition to the specific steps outlined in such agreements, the process of discussions and negotiations can in themselves help contribute to good nuclear governance by opening the process to scrutiny and debate. International commitments and pro-

<sup>7</sup> Anne-Marie Slaughter argues that in the current networked world, legislators are lagging behind government officials. Slaughter, A.-M., *A New World Order: Government Networks and the Disaggregated State* (Princeton University Press: Princeton, NJ, 2004).

cesses aimed at nuclear non-proliferation, arms control and disarmament can create elements of transparency that 'feed back' into domestic governance mechanisms and increase both the amount and quality of information available in the public domain. This process is described, for example, in the case of Russia in chapter 3.

Furthermore, international non-proliferation and disarmament efforts are likely to be more effective if they are supported by transparency and accountability at the national level. Indeed, if national stakeholders are kept in the dark about the facts and intentions of their own government's nuclear policy, how can non-proliferation and disarmament processes take shape and be enforced at the international level? If and as global momentum toward arms control and disarmament is sustained and international disarmament and arms control negotiations are expanded, they are likely to have a positive effect on the development of greater transparency related to nuclear weapons.

In summary, a judicious effort is needed to engage a wider spectrum of stakeholders in the process of nuclear weapon governance. Only with improved access to information and an enhanced capacity to act on it can 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 a more open and democratic approach to governing nuclear weapons or ever-greater opacity, unaccountability and unpredictability.



## Appendix A. World nuclear forces, 2010\*

At the start of 2010 eight nuclear weapon states possessed more than 7500 operational nuclear weapons (see table A.1). Almost 2000 of these are kept in a state of high operational alert. If all nuclear warheads are counted—operational warheads, spares, those in both active and inactive storage, and intact warheads scheduled for dismantlement—the United States, the Russian Federation, the United Kingdom, France, China, India, Pakistan and Israel together possess a total of more than 22 000 warheads.

**Table A.1.** World nuclear forces, January 2010

The figures presented here are estimates based on public information and contain some uncertainties.

Country <sup>a</sup>	Year of first nuclear test	Deployed warheads <sup>b</sup>	Other warheads <sup>c</sup>	Total
United States	1945	2 468	~7 100 <sup>d</sup>	~9 600
Russia	1949	4 630	7 300 <sup>e</sup>	~12 000
United Kingdom	1952	160	65	225
France	1960	300	–	300
China	1964	..	200 <sup>f</sup>	240
India	1974	..	60–80 <sup>g</sup>	60–80
Pakistan	1998	..	70–90 <sup>g</sup>	70–90
Israel	..	..	80 <sup>g</sup>	80
<b>Total</b>		<b>~7 560</b>	<b>~14 900</b>	<b>~22 600</b>

.. = not available or not applicable; – = nil or negligible figure

<sup>a</sup> North Korea conducted nuclear test explosions in 2006 and 2009, but there is no public information to verify that it has operational nuclear weapons.

<sup>b</sup> ‘Deployed’ means on missiles or bases with operational forces.

<sup>c</sup> These are warheads in reserve, awaiting dismantlement or that require some preparation (e.g. assembly or loading on launchers) before they become fully operationally available.

<sup>d</sup> This figure includes 2600 in reserve in the US Department of Defense stockpile (for a total stockpile of c. 5100 warheads). A further 3500–4500 are scheduled to be dismantled by 2022.

<sup>e</sup> This figure includes warheads in reserve or awaiting dismantlement.

<sup>f</sup> China’s warheads are not thought to be deployed on launchers.

<sup>g</sup> The stockpiles of India, Pakistan and Israel are thought to be only partly deployed.

\* This appendix is based on Kile, S. N., Fedchenko, V., Gopalaswamy, B. and Kristensen, H. M., ‘World nuclear forces’, *SIPRI Yearbook 2010: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2010), pp. 333–66.

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# Index

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- ABM Treaty (Anti-Ballistic Missile Treaty, 1972) 22, 31, 60
- Abolition 2000 network 122
- accidents 15, 16
- Ailleret, Charles 104, 118
- anti-nuclear protests 23, 94, 169, 227
- Arens, Moshe 158
- Argentina 7
- arms control:
- abandoned programmes 7–8
  - disarmament and non-proliferation 1, 2–3
  - regime type and 4–5
  - transparency and 233
  - treaties 99
  - see also specific countries and treaties*
- Arunachalam, V. S. 183, 190
- Australia Group 210
- Bade, Ramchandra 174
- BAE Systems 96, 98, 101
- Balladur, Edouard 116, 124
- Baluyevsky, Yury 65
- Bangladesh 196
- Beaufre, André 118
- Beg, Mirza Aslam 199
- Ben-Gurion, David 154–56, 158
- Bergmann, Ernst David 154
- Bhabha, Homi Jehangir 173, 174, 175, 176, 187
- Bhutto, Benazir 199
- Bhutto, President Zulfikar Ali 198, 223
- Blair, Tony 81, 82, 87
- border security 9
- British American Security Information Council (BASIC) 94–95
- British Nuclear Fuels Ltd 97
- Brodie, Bernard 118
- Brookings Institution 227
- Brown, Gordon 82, 92, 96
- Bush, President George W.:
- ballistic missile defence 35
  - ballistic missiles in Europe 66–67
  - COG programmes 46
  - nuclear alerting and 44
  - nuclear initiatives 68
  - nuclear strategy 32–33, 38, 39
  - pre-emptive strikes and 13
- Campaign for Nuclear Disarmament (CND) 94, 227
- Cao Gangchuan 132
- Carnegie Endowment for International Peace 227
- Carter, President Jimmy 31, 35
- Castex, Raoul 118
- CFE Treaty (1990) 55
- China:
- Central Military Commission 131, 132, 147, 149–50, 220, 225
  - civil society 130, 221
  - civilian control 130, 138–50
  - command and control 136–37, 146–50, 151, 225
  - Communist Party 220, 221
  - leadership 130–32
  - party–army relationship 129–30, 132, 133–34, 140
  - Standing Committee of Politburo 131, 132
  - conventional forces 69, 138
  - COSTIND 142, 145–46
  - CTBT debate 141–42, 221
  - Cultural Revolution 140, 142
  - democratic accountability 129–30, 150
  - four modernizations 144
  - Great Leap Forward 139
  - Indian relations 176, 178, 179, 184–85, 196
  - key actors 129–34
  - Korean War 132, 149
  - media 221
  - National People’s Congress 130, 221, 226, 231
  - NPT and 125
  - nuclear doctrine 137–38
  - evolution 141–43, 151
  - no-first-use 59, 137–38, 148–49
  - Russian de-targeting agreement 59–60
  - nuclear governance
    - assessment 150–51, 220–21, 229
    - scholarship 128–29  - nuclear tests 141, 144, 169, 173, 175
  - nuclear weapon state 7, 196
  - nuclear weapons
    - components 135–36

- decision to develop 139–41
  - modernization 135–37
  - numbers 125
  - procurement choices 144–46
  - research and development 144–46
- one-party state 129, 229
- People's Liberation Army
  - leadership 132
  - nuclear role 129–30, 142–43, 151
  - party–army relationship 129–30, 132, 133–34, 140
  - Second Artillery Corps 142–43, 147, 148
- Revolution 133–34
- scientific community 132–33, 134, 141, 142, 143, 144, 145–46, 229, 230
- secrecy 128
- supreme command 138, 149, 150
- Taiwan Strait crisis (1954) 139, 149
- United States and 138
- Viet Nam invasion (1979) 149
- Chirac, President Jacques 110, 115–16, 124, 125
- civil society:
  - alienation of authority 6, 23
  - comparisons 226–27
  - meaning 226
  - nuclear governance and 18, 20, 22–23, 24
  - security sector governance and 9, 12
  - see also specific countries*
- Clinton, President Bill 32, 38
- code management:
  - France 113
  - robustness 17, 18
  - Russia 69
  - United States 46, 216
- command and control:
  - China 136–37, 146–50, 151, 225
  - comparative studies 5–6
  - key actors 224–25
  - delegative v. assertive 19
  - disruption 16
  - France 111–14, 219–20, 225
  - India 180–81, 190, 225
  - Israel 157–58, 169–70
  - mode of governance 9
  - Pakistan 19, 203–208, 211, 214, 225
  - Russia 58, 59, 69, 73–75, 75, 225
  - security sector governance and 6–8
  - United Kingdom 84–86
  - United States 19, 42–48, 225
  - wider issues 228
- continuity of government (COG) 18, 43, 45–46
- CTBT (Comprehensive Nuclear-Test-Ban Treaty, 1996):
  - China and 141–42, 221
  - French policy 125
  - India and 182
  - UK policy and 99
  - US Senate ratification 34
- customs authorities 9
- Czech Republic, US missiles in 66–67
- Dahl, Robert 6, 23, 169, 227
- Dayan, Moshe 155
- De Gaulle, President Charles:
  - five-year defence plans 116
  - institutions 103, 118
  - legacy 123
  - Manhattan Project and 104
  - military and 106–107
  - Mitterand and 122
  - nuclear programme 107–108, 121, 220
- democracy:
  - accountability 7
  - alienation of authority 6, 23
  - democratization process 5
  - denuclearization and 4–5
  - good governance and 9, 11
  - nuclear governance and 228–29, 230–31
  - nuclear guardianship and 6
  - nuclear paradox 169
  - see also specific countries*
- Deng Xiaoping 131, 133–34, 142, 144, 150
- deployment of nuclear weapons 16–17
- Desai, Morarji 176
- Ding Henggao 132
- Dostrovsky, Israel 156
- Drell Report (1990) 47
- Eisenhower, President Dwight D. 35, 40, 45
- emerging powers, use of WMDs 4
- environmental protection 15
- Eshkol, Levi 156, 158–59
- European Union 93, 120, 127
- executive:
  - comparisons 225
  - legislative oversight 21–22
  - nuclear governance 18, 19, 20, 24
  - see also specific countries*
- Falk, Richard 169
- Feaver, Peter 19

- Feinstein, Lee 5
- fire resistant pits (FRPs) 47
- first-use policies 14, 59, 83, 136, 137–38, 148, 171, 177, 180, 182, 190, 200, 202, 223, 229
- For Mother Earth 94
- France:
- Algerian War 121
  - arms control 110, 125–26, 229
  - Areva 123
  - Atomic Energy Commission 104–105, 110, 118
  - CEMA (Chef d'état-major des armées, chief of the defence staff) 107, 112, 113, 115
  - CEMP (Chef d'état-major particulier, chief of the president's military staff) 109, 112, 115
  - civil society 122–24, 220
  - code management 113
  - COFN Centre (opérationnel des forces nucléaires, joint operational centre) 112, 113
  - command and control 111–14, 219–20, 225
  - Constitution 103, 108, 114, 220
  - Constitutional Council 119
  - CTBT and 125
  - DAS (Délégation aux affaires stratégiques, Policy Division) 114, 115, 116
  - Defence and National Security Council 109–10, 112, 114, 219–20, 225
  - defence plans 116
  - GSAN (Gendarmerie de sécurité des armements nucléaires) 113–14
  - Institute for Higher Defence Studies 119
  - International Criminal Court and 121
  - international law and 120–21, 127
  - judicial challenges 119–21, 226
  - legislature 114, 116, 116–17, 220, 225
  - media 118–19, 220
  - military role 106–107, 109, 114, 126
  - national nuclear consensus 121–26
  - NATO and 105, 106, 107, 121, 123, 126
  - NPT and 229
  - nuclear bureaucracy 104–106
  - nuclear governance
    - assessment 126–27, 219–20
    - overview 108–21
  - nuclear history 104–108
  - nuclear politics 106–108, 121–22
  - nuclear tests 120, 124, 169
  - nuclear weapon state 7, 196
  - nuclear weapons
    - components 111
    - modernity and 104
    - numbers 125
    - origins 104–108
    - status symbols 106, 108, 123, 126
    - warhead security 113–14
  - Nuclear Weapons Council 110
  - peace movement 122–23
  - policymaking 114–16
  - policy reviews 124–26
  - president
    - direct election 103
    - dominance 108–10, 114–16, 219, 229
    - line of succession 111–12
  - prime ministers 114, 115–16
  - public opinion 122–23
  - RAMSES 113
  - scientific community 110, 114, 117–18
  - secrecy 115, 117, 123
  - SGDN (Secrétariat général de la défense nationale, General Secretariat for National Defence) 109–10
  - State Council 119
  - Suez crisis (1956) 105
  - SYDEREC 113
  - UN speeches 123
  - US relations 106
- freedom of information laws 21, 22, 85–86, 90, 92, 100
- Gaillard, Félix 106
- Gallois, Pierre-Marie 118
- Gandhi, Indira 176–77, 181, 189
- Gandhi, Rajiv 177, 181, 189
- Gates, Robert 39
- Gates, Thomas 45
- gendarmeries 9, 10
- Geneva Conventions, Protocol I (1977) 121
- Germany 7
- Giraud, André 116
- Giscard d'Estaing, President Valéry 110, 121
- Gorbachev, President Mikhail 54, 55, 61, 68, 74
- governance:
  - concept 8–9
  - modes 9
  - multi-level 8
  - political and nuclear 228–29
  - security sector governance 6–17
- Gowda, H. D. Deve 182



- Greenpeace 122  
 Guillaumat, Pierre 104–105, 107–108  
 Gulf War (1991) 123, 158  
 Guo Boxiong 131, 132
- He Long 132  
 health and safety 15  
 Hiroshima, atomic bombing of 50  
 HMS *Dreadnought* 79  
 Hoodbouy, Pervez 213  
 Hoon, Geoffrey 80, 83  
 Hu Jintao, President 131–32, 134, 143, 147, 150, 220  
 human security 8  
 Huntington, Samuel 11
- India:  
 academic community 188  
 Bharatiya Janata Party (BJP) 174, 178, 182–83, 186, 189  
 Atomic Energy Act 171, 173  
 Atomic Energy Commission 172, 174, 183  
 Chinese relations 176, 178, 179, 184–85, 196  
 civil society 188–89, 223  
 command and control 180–81, 190, 225  
 CTBT and 182  
 de facto nuclear weapon state 7, 171, 195  
 democratic accountability 5, 172, 194  
 divided control 171, 190, 192–94, 223  
 DRDO 181, 183  
 executive control 171  
   Nehru era 174–75  
   politics 181–83  
 Executive Council 180–81  
 IAEA and 191–92  
 IGMDP 176–77, 183  
 India–Pakistan agreements 190–91  
 India–Pakistan War (1965) 175  
 India–Pakistan War (1971) 196, 198  
 India–USA CNCI 191–92  
 international agreements 190–92  
 Jan Sangh Party 174, 186, 187  
 judicial oversight 171, 194  
 Kargil crisis (1999) 180  
 Kashmir dispute 175, 180, 197, 198  
 key actors 181–89  
 MTCR and 184  
 media 188  
 military control 171, 184–86, 193  
 minimum credible deterrence phase 178–81  
 non-weaponized deterrence 196–97  
 NPT and 178n34, 183, 196  
 NSAB 179–80, 193  
 Nuclear Command Authority, Political Council 171, 180–81, 225  
 nuclear governance, assessment 192–94, 222–23  
 nuclear history 173–81, 196  
 nuclear posture 179–80, 190, 193, 202, 223  
 nuclear tests 171, 176, 177, 178, 181, 182, 189, 196, 198, 199  
 nuclear weapons as status symbols 183  
 Operation Brasstacks 197  
 Operation Parakram 180, 192  
 Pakistan, relations with 177, 178, 179, 185, 195–98, 200, 202  
 parliamentary oversight 171, 174, 175, 178, 186–88, 192, 223  
 permissive action links (PALs) 181, 192  
 politics of nuclear weapons 181–83  
 Project Ploughshare 175n19  
 public opinion 176, 178, 182, 189, 223  
 recessed deterrence phase 177–78  
 scholarship of nuclear weapons 172  
 scientific community 171, 183–84, 223, 229  
 secrecy 173–74  
 security context 230  
 SNEP 173, 175  
 space programme 183  
 Strategic Forces Command 180–81  
 terrorism from Pakistan 180, 197  
 Trombay plant 173  
 un-weaponized phase 176–77  
 weapon option phase 173–76
- INF Treaty (Treaty on the Elimination of Intermediate-Range and Shorter-Range Missiles, 1987) 55  
 insensitive high explosives (IHEs) 47  
 intelligence services 9, 10  
 International Association of Physicians for the Prevention of Nuclear War 122  
 International Atomic Energy Agency (IAEA):  
   India and 191–92  
   Israel and 159, 222  
   Pakistan and 196, 209  
   on world-wide nuclear capacities 3  
 International Court of Justice:  
   French nuclear testing 120  
   nuclear weapons opinion 84, 93, 94, 120–21

- International Criminal Court 121  
international customary law 93  
international relations, effect of nuclear weapons on 4  
Iran 7, 67  
Iraq 7, 57, 83, 90  
Israel:  
  acquisition of nuclear weapons 152, 221  
  arms control and 153, 221, 229  
  auditing and oversight 165–68  
  censorship 160–63  
  civil society 159, 163–64  
  civilian nuclear control, history 154–58  
  command and control 157–58, 169–70  
  de facto nuclear weapon state 7, 195  
  democratic accountability  
    concepts 170  
    history 155–56  
    mechanisms 158  
  Directorate for Special Means 158  
  IAEA and 159, 222  
  Israel Atomic Energy Commission 154, 156–57, 161, 165  
  judiciary 162, 164, 226  
  Knesset 155, 158, 165, 166, 167, 222, 226  
  MALMAB 157, 161  
  media 161, 162–65  
  military, by-passing 154–55  
  Negev Nuclear Research Center 152, 157, 158, 159  
  NPT and 153, 221  
  nuclear complex 156–57  
  nuclear governance, assessment 168–70, 221–22  
  nuclear opacity 222, 225  
    meaning 152–53  
    political culture 158–65  
    rationale 169  
    secrecy mechanisms 156–57, 222  
    social taboo 163–65  
  Office of the Military Censor 160–61, 162  
  permissive action links (PALs) 158  
  security strategy 159–60, 230  
  Soreq Nuclear Research Center 157, 159  
  State Comptroller's Office 166–67, 168, 221  
  tacit popular support 153, 159  
  United States and 153  
Ivanov, Sergei 63, 65, 66  
Jiang Zemin 131, 143  
Jing Zhiyuan 132, 143  
Johnson, President Lyndon B. 38  
Jospin, Lionel 116, 120, 124  
judiciary:  
  comparisons 226  
  independence 22  
  nuclear governance and 20, 22  
  security sector governance and 10, 12  
  *see also specific countries*  
Juppé, Alain 124  
Kalam, A. P. J. Abdul 183, 184  
Khan Research Laboratories (Kahuta Research Laboratories, KRL) 205, 208, 210  
Kargil crisis (1999) 180, 197  
Kashmir 175, 180, 197, 198  
Kennedy, President John 30, 35, 37, 45  
Khan, Abdul Qadeer 3, 208, 213, 224  
Khan, Ghulam Ishaq 199  
Khan, President Ayub 198  
Khan network 3, 213n70  
Kidder Report (1991) 47  
Kidwai, Khalid 201, 202, 208  
Korea, North 7  
Korean War 35, 132, 149  
Kudelina, Liubov 63  
Kvashnin, Anatoly 62, 63, 65  
legislatures:  
  comparisons 225–26  
  executive accountability to 21–22  
  financial powers 21  
  key governance actors 12  
  nuclear governance and 19–22, 24  
  ratification of treaties 21  
  war declarations 21  
  *see also specific countries*  
Libya 7  
Liu Huaqing 132  
Liu Shaoqi 133–34  
Lloyd, Tony 83  
Lockheed Martin 97  
McNamara, Robert 30  
Maire, Edmond 103n2  
Mao Zedong, President 131, 132, 133–34, 139, 140, 141–42, 144, 149, 150  
Mardor, Munya 156  
media:  
  China 221  
  France 118–19, 220  
  India 188  
  Israel 161, 162–65

- Pakistan 213
- Russia 70–71, 72
- security sector governance and 5, 9, 12, 22
- United Kingdom 96
- United States 29
- Medvedev, President Dmitry 39, 67, 75, 76
- Mendès-France, Pierre 105
- Menon, V. K. Krishna 175
- Meridor, Dan 168
- Mian, Zia 213
- military, nuclear governance and 17–18, 20, 24
  - see also specific countries*
- Missile Technology Control Regime (MTCR) 184, 210
- Mitterrand, President François 110, 113, 116, 122, 124
- modernity, nuclear weapons and 13, 104
- Mollet, Guy 105
- Montesquieu, Charles de 230
- Moscow Treaty *see* SORT
- Müller, Harald 5
- Musharaff, President Pervez 200, 201, 203, 204, 208
  
- Nagasaki, atomic bombing of 50
- Nassau Agreement (1962) 79
- NATO (North Atlantic Treaty Organization):
  - conventional superiority 68
  - deployment of missiles in Europe 23, 227
  - France and 105, 106, 107, 121, 123, 126
  - Nuclear Planning Group 84
  - peace protests and 227
  - SACEUR 77, 79, 83, 84, 101, 218
  - strategy debates 30, 32
  - UK and 77, 82, 83, 84, 94, 218
  - Yugoslavia 57
- Nayyar, A. H. 213
- Nehru, Jawaharlal 173–75, 196
- Netanyahu, Benjamin 168
- Nie Rongzhen 132, 139, 140n36
- Nixon, President Richard 38
- non-state actors *see* civil society
- North Korea 7
- Norway, Russian incident (1995) 59
- Norwegian Radiological Protection Authority 95
- NPT (Non-Proliferation Treaty, 1968):
  - China and 125
  - Clinton and 32
  - control of nuclear weapons 101, 215
  - disarmament v. non-proliferation 1
  - France and 125, 229
  - indefinite extension 215
  - India and 178n34, 183, 196, 222
  - Israel and 153, 169, 222
  - nuclear weapon states 7, 196
  - Pakistan and 196, 223
  - United Kingdom and 99–100
  - United States and 32
- nuclear disarmament *see* arms control
- nuclear governance:
  - acquisition and production of weapons 14–15, 229–31
  - actors 17–23, 224–28
  - alienation of authority 6, 23
  - case studies 7–8
  - comparisons 224–28
  - de jure and de facto control 18
  - democratic deficit 230–31
  - deployment and use 16–17
  - good governance, strengthening 231–33
  - good practice 3
  - greater scrutiny and transparency 227–29
  - initial decisions 13–14, 229–31
    - domestic politics model 13
    - norms model 13
    - nuclear leverage 14
    - security model 13
  - reasons for studying 3–4
  - recommendations 227–33
  - regime type and 4–5, 228–29
  - research approaches 4–8, 168–69
  - scope 6, 11–17
  - strategy development 14
- nuclear leverage 14
- nuclear non-proliferation *see* arms control; NPT
- Nuclear Suppliers Group 191, 210
- nuclear thresholds 14
- nuclear weapon states 7, 196
- nuclear weapons:
  - acquisition and production 14–15
  - cycle 23–24
  - deployment 16–17
  - governance *see* nuclear governance
  - ICJ opinion 84, 93, 94
  - initial decisions 13–14
  - renouncing 4, 7–8
  - security sector governance and 11–17
  - status symbols 13, 106, 108, 123, 126, 183, 196

- storage 17
- strategic changes 14
- threat levels 3, 5
- use 16–17
- world-wide capacities 3
- see also specific countries*
  
- Obama, President Barack 1, 33–34, 39, 41, 67, 75
- Organisation for Economic Co-operation and Development (OECD) 10, 12
  
- Pakistan:
  - anti-nuclear activists 213
  - civil society 213, 224
  - civilian control 204, 211, 214
  - command and control 19, 203–208, 211, 214, 225
  - Constitution (1973) 212
  - conventional forces 202
  - de facto nuclear weapon state 7, 195
  - democratic accountability 5
  - Development Control Committee 204, 206
  - Employment Control Committee 204, 204–205
  - executive role 211–12
  - Export Control Act (2004) 209–11, 212–13
  - IAEA and 196, 209
  - India–Pakistan agreements 190–91
  - India–Pakistan War (1965) 175
  - India–Pakistan War (1971) 196, 198
  - Indian relations 177, 178, 179, 185, 195–98, 200, 202
  - Kargil crisis (1999) 180, 197
  - Kashmir dispute 175, 180, 197, 198
  - martial law (1977) 211
  - media 213
  - military role 198–99, 203, 204, 205, 206, 207–208, 212, 214
  - military rule 211
  - minimum credible deterrence 200–201
  - National Command Authority 203–204, 206, 208, 223
  - National Nuclear Command Committee 203
  - National Security Council 203
  - non-weaponized deterrence 196–97
  - NPT and 223
  - nuclear authorization 207–208
  - nuclear governance, assessment 213–14, 223–24
  - nuclear history 198–99
  - nuclear infrastructure 203–11
  - nuclear posture 199–203
  - nuclear safety framework 208–209
  - nuclear tests 178, 196
  - nuclear use doctrine 202–203
  - nuclear weapons, control 207
  - PAEC (Pakistan Atomic Energy Commission) 205, 208, 210
  - Pakistan Nuclear Regulatory Authority 209
  - parliamentary role 203–204, 212–13, 224, 225, 226, 231
  - peace movement 213
  - public opinion 213
  - regime type 229
  - scientific community 213, 224, 229
  - South Asian security context 195–99, 230
  - Strategic Forces Command 206, 207
  - Strategic Plans Division 201, 204–205, 206, 207
  - terrorism in India 180, 197
- Panikkar, Kavalam Madhava 188
- paramilitary forces 9, 10
- Pax Christi 122
- Peng Dehuai 132
- Peres, Shimon 154, 156
- permissive action links (PALs) 17, 18, 46, 47, 158, 181, 190, 192, 225
- Pléven, René 105
- Poirier, Lucien 118
- Poland, US missiles in 66–67, 68
- Primakov, Yevgeny 57
- protests 23, 94, 169, 227
- Pugwash 95
- Putin, President Vladimir 62–66, 68, 75
- Pym, Francis 89
  
- Qian Shaojun 132
  
- RAND Corporation 35, 227
- Rao, P. V. Narasimha 182
- Reagan, President Ronald 31, 34, 35, 36, 45
- regime types:
  - denuclearization and 4–5
  - nuclear governance and 4, 228–29
- research institutes 23, 51, 54, 226, 227
- Rocard, Michel 123
- Russia:
  - 1991 putsch 74
  - 1998 financial crisis 62
  - 2008 economic crisis 66

- academic community 71
- arms control
  - 21st century 64
  - ABM Treaty 60
  - effect on transparency 233
  - executive v legislative positions 57–58, 60
  - New START Treaty 67
  - revival 67, 75, 76
  - SORT 64, 66
  - START I implementation 58
  - START II 60, 64
  - START III 60, 64
- Chechen wars 62
- civil society 51, 56, 72
- civilian expertise 51, 61–62, 65, 75
- code management 69
- command and control 58, 59, 69, 73–74, 75, 225
- Constitution (1993) 56, 57
- conventional forces 69, 138
- corruption 58
- democratic deficiency 62, 64–66, 74–75, 76, 217
- executive role 51, 217
  - Putin era 62–66
  - Yeltsin era 56–62
- judiciary 71, 226
- Kazbeck system 59, 73–74, 75
- KGB 62
- legislature
  - assertion of authority 61–62
  - Defence Law (2004) 65
  - nuclear authorization and 74
  - nuclear planning 60–61, 70–71
  - ratification of START II 60
  - weakness 51, 57, 65–66, 218, 231
- media 70–71, 72
- military
  - budgets 62, 66, 70
  - dominance 69–70, 75, 217
  - expertise 65
  - modernizing 65
  - no-first-use policy and 59
  - nuclear strategy 72–73
  - Putin era 62–63
  - rivalries 62
- National Security Strategy 72
- nuclear alert (1995) 59
- nuclear briefcase 59, 73
- nuclear governance 229
  - assessment 74–76, 217–18
  - contemporary position 69–74
  - divide and rule 56
  - post-1991 56–66
  - Putin era 62–66
  - Soviet era 52–56
  - Yeltsin era 56–62
- nuclear posture
  - 1982 no-first-use 59
  - 1993 Guidelines 58–59
  - Bush policy and 66–67
  - civilian oversight 70–71
  - contemporary process 71–73
  - de-targeting agreements 59–60
  - designed level of damage 72
  - minimal sufficiency 63
  - Obama and 75
  - parity 56, 63
  - Putin 64–65
  - strategic stability 61, 64
  - targeting 61, 72
  - triad 66
  - UN speeches 123
  - Yeltsin declaration (1992) 59
- nuclear weapon state 7, 196
- nuclear weapons
  - 21st century downgrading 63, 64, 218
  - 1990s programmes 58, 61
  - budgets 63
  - contemporary development 69–71
  - ICBMs 55, 61, 63, 64–65, 67, 68
  - negative control 69
  - numbers 125
  - physical control 69, 217–18
  - research and development 66
  - SLBMs 55, 61, 67, 68
  - structure 66–69
  - Rosatom 70
  - secrecy 56–57, 70, 74–75
  - see also* Soviet Union
- 11 September, terrorist attacks on the USA 33, 207
- safety measures 15
- Sagan, Scott 4, 13
- SALT I (Strategic Arms Limitation Talks) 53, 54
- Sarkozy, President Nicolas 110, 123, 125, 126
- Sattar, Abdul 201
- Schlesinger, James 31
- Schnitzer, Meir 162, 164n45
- Scott Report (1996) 90
- secrecy 4, 5, 23
- see also specific countries*

- security:  
 apparatus 9  
 assurances 14  
 concepts 8
- security sector governance:  
 command and control and 6–8  
 concept 8–11  
 major actors 9–10  
 multi-level 12  
 nuclear weapons and 11–17
- SERCO 97
- Serdyukov, Anatoly 66
- Sergeyev, Igor 60, 61, 62, 63
- Sharon, Ariel 167
- Sharif, Mohammad Nawaz 199, 200–201
- Shastri, Lal Bahadur 175–76, 187
- Shevardnadze, Eduard 54–55
- Singh, Jaswant 182
- Slaughter, Anne-Marie 5
- Slocombe, Walter 6
- soft governance 9
- SORT (Strategic Offensive Reductions Treaty, 2002) 39, 44, 64, 66
- South Africa 7
- South Asian Strategic Stability Institute 210
- Soviet Union:  
 arms control 53, 54, 55  
 arms race 39, 228  
 Defence Council 52–53  
 Glavpur 53  
 Gorbachev era 54–56  
 KGB 53  
 military–political leadership 52  
 Minatom 53  
 nuclear posture  
 1982 no-first-use 59  
 cold war 138  
 parity with USA 56, 63  
 pre-1990 shift 54–56  
 process 53–54  
 nuclear war scenarios 54  
 nuclear weapons  
 atomic bomb 52  
 categories 55  
 economic effect 55–56  
 Piaterka (the Five) 53  
 Politburo 52  
 preparation for nuclear war 43–44  
 shifting paradigm 54–56  
 Soviet paradigm 52–56  
 Sputnik 105  
*see also* Russia
- Sputnik 105
- START I (Strategic Arms Reduction Treaty, 1991) 32, 54, 55, 58, 66
- START II (1993) 57, 60, 64
- START III 60, 64
- START, New (New START Treaty, 2010) 1, 39, 67
- status symbols 13, 106, 108, 123, 126, 183, 196
- Suez crisis (1956) 105
- Sundarji, Krishnaswami 185
- Taiwan Strait crisis (1954) 139, 149
- think tanks 23, 35, 96, 227
- Truman, President Harry S. 45
- two-man rule 17, 18
- Ukraine 58
- Ullah, Anayat 213
- United Kingdom:  
 30-year rule 85, 92  
 air-missile attacks on Iraq 57  
 Aldermaston AWE 95, 96–98, 101  
 arms control 82, 99–100  
 civil service 87–88  
 civil society 93–96, 100–101, 219  
 Campaign for Nuclear Disarmament (CND) 94, 227  
 command and control 84–85, 101  
 constitutional framework 77, 86–87, 93, 226  
 decision-making process 86  
 defence industry 96–98, 101  
 democratic accountability 77, 86, 100–102  
 executive powers 87–88, 219  
 For Mother Earth 94  
 freedom of information 85–86, 90, 92, 100  
 House of Commons Defence Select Committee 79, 83, 86, 89, 90, 101  
 international agreements 98–100  
 Iraq and 83  
 judiciary 92–93, 226  
 media 96  
 ministerial responsibility 90  
 Nassau Agreement (1962) 79  
 NATO and 77, 82, 83, 84, 94, 218  
 nuclear governance  
 assessment 100–102, 218–19  
 overview 85–98  
 nuclear posture 83–84  
 nuclear weapon state 7, 196

- nuclear weapons
  - Chevaline 79, 86, 96
  - current capabilities 80–82
  - end of cold war 80
  - history 78–80
  - numbers 125
  - origins 104
  - Polaris 79, 80, 85, 86
  - Trident 79, 80, 81, 85, 86, 93, 96, 97, 98, 100–101
  - US dependence 77, 79, 86
  - US weaponry 78, 79, 82
- Official Secrets Act 92
- Parliament 225
  - Chevaline and 79, 86, 89
  - expert advice 21
  - influence on policy 232
  - powers 88–90, 219
  - Trident 89–90
  - Trident replacement 81–82, 86, 90, 101
- Public Accounts Committee 89, 90, 101, 219
- Royal Aircraft Establishment 96
- Russian de-targeting agreement 59–60
- secrecy 86, 89, 90–93, 100–102, 174, 219
- Strategic Defence Review (1998) 80, 95
- think tanks 23, 96
- US mutual defence agreements 78–79, 95, 98, 218
- US relationship 77, 98–99
- United Nations:
  - Security Council Resolution 984 83
  - Security Council Resolution 1540 210
  - Security Council Resolution 1887 82
  - self-defence 120
- United States:
  - air-missile attacks on Iraq 57
  - alienation of authority 6
  - arms control
    - CTBT and 99
    - loss of interest 64
    - negotiations 31, 32, 36, 41
    - revival 67, 75
    - SORT 64, 66
    - see also* START I, II, III and New START
  - arms race 39, 228
  - assessment of nuclear governance 48–50, 215–17
  - Atomic Energy Commission 27
  - ballistic missile defense 38
  - China and 138
  - estimate of nuclear forces 136
  - no-first-use policy 137–38
  - Taiwan Strait crisis (1954) 139
  - civil society 29, 35–36, 217
  - civilian control 216
  - command and control 19, 42–48, 225
  - Congress
    - ABM system and 22
    - budget control powers 27–28, 230
    - defence responsibilities 26
    - expert advice 21
    - funding powers 28
    - House International Relations Committee 27
    - influence on policy 232
    - nuclear doctrine and 231
    - nuclear force structure and 40–42
    - oversight 24, 27–29, 216, 226, 230
    - reassertion of authority 48–49
    - Senate Foreign Relations Committee 27
    - succession line 47, 48
  - Congressional Budget Office 29
  - Congressional Research Service 29
  - Constitution
    - framework 25–29
    - line of succession 47, 48
  - decision makers 39–42
  - decline in nuclear expertise 37
  - DEFCON system 44
  - democratic accountability 34–37, 217, 228, 231
  - Department of Energy 27
  - executive control 24, 26–27, 34–35, 216, 231
  - French relations 106
  - Government Accountability Office 29
  - government agencies 29
  - India–USA CNCI 191–92
  - inter-service rivalry 40
  - Israel and 153
  - judiciary 26n2
  - Manhattan Project 42, 49, 104
  - media 29
  - military-industrial complex 40
  - military role 24, 216
  - Missile Defense Agency 39
  - missile gap 35, 40
  - Nassau Agreement (1962) 79
  - National Nuclear Security Administration 27
  - National Policy Office 45
  - national security advisor 26

- National Security Council 26, 216
- nuclear authorization 45–48
  - code management 46, 216
  - continuity of government 45–46
  - delegation of authority 47
  - devolution of command 47–48
  - ENDS devices 46–47
  - line of succession 47
  - PALs 46, 47
  - pre-delegation 47–48
- nuclear debates 50
- nuclear operations
  - accidents 49–50
  - alerting 43–44
  - authorization 45–48
  - overview 42–48
  - preparation for nuclear war 43–44
  - public awareness 43
  - secrecy 43
  - targeting 44–45
- Nuclear Posture Review 28, 33, 34, 138
- nuclear strategy 229
  - assured destruction 30–31, 36
  - democracy and 34–37
  - disarmament 33–34
  - diversity 36
  - Europe 31–32, 66–67
  - flexible response 30–31
  - massive retaliation 30
  - NSDD-13 31
  - PD-59 31
  - post-September 11 33
  - post-war history 30–34, 30–37
  - triad doctrine 32, 37
  - WMD policy 32
- nuclear taboo 48
- nuclear tests 144
- nuclear weapon state 7, 196
- nuclear weapons
  - budget 42
  - bunker busters 41
  - components in UK 78, 79, 82
  - costs 50
  - custody and control 46–48, 216
  - numbers 125
  - overview 37–42
  - types 37–39
- public opinion 41
- research and development 38, 41
- RRW programme 41
- Russian de-targeting agreement 59–60
- Safeguard Programme 38, 40
- SDI 38
- secrecy 36–37, 174
  - black budgets 41–42
  - Manhattan Project 49
  - nuclear operations 43
  - trend 24, 49
- Sentinel programme 40
- SIOP 45
- Strategic Air Command 44
- terrorism 33, 207
- think tanks 23, 35, 41
- UK mutual defence agreements 78–79, 95, 98, 218
- UK relations 77, 98–100
- war games 45
- use of nuclear weapons 16–17
  
- Vajpayee, Atal Bihari 178, 179, 181–82, 186
- Vanunu, Mordechai 152
- VERTIC 95
- Viet Nam 149
  
- Waltz, Kenneth 4
- Wilson, Harold 94
  
- Xu Caihou 131, 132, 143
  
- Yazov, Dmitry 74
- Yeltsin, President Boris 56–62, 68
  
- Zardari, President Asif Ali 204
- Zhang Aiping 132
- Zhou Enlai 133–34
- Zia ul-Haq, President Mohammad 199



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