

ROUTLEDGE SECURITY IN ASIA PACIFIC SERIES

South Asia's Nuclear Security

Bhumitra Chakma



South Asia's Nuclear Security

Bhumitra Chakma



First published 2015
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

and by Routledge
711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 2015 Bhumitra Chakma

The right of Bhumitra Chakma to be identified as author of this work has been asserted by him in accordance with the Copyright, Designs and Patent Act 1988.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

Trademark notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data

Chakma, Bhumitra, author.

South Asia's nuclear security / Bhumitra Chakma.

pages ; cm. – (Routledge security in Asia Pacific series ; 29)

Includes bibliographical references and index.

1. Nuclear arms control–South Asia. 2. Nuclear weapons–South Asia. 3. Security, International–South Asia. 4. Deterrence (Strategy) 5. Nuclear crisis stability. I. Title. II. Series: Routledge security in Asia Pacific series ; 29.

JZ6009.S64C435 2015

327.1'7470954–dc23

2014026989

ISBN: 978-0-415-49449-6 (hbk)

ISBN: 978-1-315-74269-4 (ebk)

Typeset in Times New Roman
by Taylor & Francis Books



Printed and bound by CPI Group (UK) Ltd, Croydon, CR0 4YY

South Asia's Nuclear Security

South Asia is often viewed as a potential nuclear flashpoint and a probable source of nuclear terrorism. But, how valid are such perceptions? This book seeks to address this question and assesses the region's nuclear security from two principal standpoints. First, it evaluates the robustness of the Indo–Pakistani mutual deterrence by analysing the strength and weaknesses of the competing arguments regarding the issue. It also analyses the causes and consequences of nuclear arms race between India and Pakistan, the nature of deterrence structure in the region and the challenges of confidence building and arms control between the two countries in order to assess the robustness of South Asia's nuclear deterrence. Second, it assesses the safety and security of the nuclear assets and nuclear infrastructure of India and Pakistan. The author holds that the debate on South Asia's nuclear security is largely misplaced because the optimists tend to overemphasise the stabilising effects of nuclear weapons and the pessimists are too alarmists. It is argued that while the risks of nuclear weapons are significant, it is unlikely that India and Pakistan will give up their nuclear arsenals in the foreseeable future. Therefore, what needs to happen is that while nuclear elimination should be the long-term goal, in the interim years the two countries need to pursue minimum deterrence policies to reduce the likelihood of deterrence failure and the possibility of obtaining fissile materials by non-state actors.

Bhumitra Chakma is Senior Lecturer in the School of Politics, Philosophy, and International Studies and Director of the South Asia Project at Hull University. Before joining the University of Hull, he taught in International Relations Department at Dhaka University and the School of History and Politics at the University of Adelaide. He has published extensively on South Asia and the region's strategic politics. His books include: *South Asia in Transition: Democracy, Political Economy and Security* (Palgrave Macmillan, 2014); *The Politics of Nuclear Weapons in South Asia* (Ashgate, 2011); *Pakistan's Nuclear Weapons* (Routledge, 2009); *Strategic Dynamics and Nuclear Weapons Proliferation in South Asia* (Peter Lang, 2004).

Routledge Security in Asia Pacific Series

Series Editors

Leszek Buszynski, Strategic and Defence Studies Centre, the Australian National University, and William Tow, Australian National University

Security issues have become more prominent in the Asia Pacific region because of the presence of global players, rising great powers, and confident middle powers, which intersect in complicated ways. This series puts forward important new work on key security issues in the region. It embraces the roles of the major actors, their defense policies and postures and their security interaction over the key issues of the region. It includes coverage of the United States, China, Japan, Russia, the Koreas, as well as the middle powers of ASEAN and South Asia. It also covers issues relating to environmental and economic security as well as transnational actors and regional groupings.

- 1 Bush and Asia**
America's evolving relations with East Asia
Edited by Mark Beeson
- 2 Japan, Australia and Asia-Pacific Security**
Edited by Brad Williams and Andrew Newman
- 3 Regional Cooperation and Its Enemies in Northeast Asia**
The impact of domestic forces
Edited by Edward Friedman and Sung Chull Kim
- 4 Energy Security in Asia**
Edited by Michael Wesley
- 5 Australia as an Asia Pacific Regional Power**
Friendships in flux?
Edited by Brendan Taylor
- 6 Securing Southeast Asia**
The politics of security sector reform
Mark Beeson and Alex J. Bellamy
- 7 Pakistan's Nuclear Weapons**
Bhumitra Chakma
- 8 Human Security in East Asia**
Challenges for collaborative action
Edited by Sorpong Peou
- 9 Security and International Politics in the South China Sea**
Towards a co-operative management regime
Edited by Sam Bateman and Ralf Emmers
- 10 Japan's Peace Building Diplomacy in Asia**
Seeking a more active political role
Lam Peng Er
- 11 Geopolitics and Maritime Territorial Disputes in East Asia**
Ralf Emmers
- 12 North Korea's Military-Diplomatic Campaigns, 1966-2008**
Narushige Michishita

- 13 Political Change, Democratic Transitions and Security in Southeast Asia**
Mely Caballero-Anthony
- 14 American Sanctions in the Asia-Pacific**
Brendan Taylor
- 15 Southeast Asia and the Rise of Chinese and Indian Naval Power**
Between rising naval powers
Edited by Sam Bateman and Joshua Ho
- 16 Human Security in Southeast Asia**
Yukiko Nishikawa
- 17 ASEAN and the Institutionalization of East Asia**
Ralf Emmers
- 18 India as an Asia Pacific Power**
David Brewster
- 19 ASEAN Regionalism**
Cooperation, values and institutionalisation
Christopher B. Roberts
- 20 Nuclear Power and Energy Security in Asia**
Edited by Rajesh Basrur and Koh Swee Lean Collin
- 21 Maritime Challenges and Priorities in Asia**
Implications for regional security
Edited by Joshua Ho and Sam Bateman
- 22 Human Security and Climate Change in Southeast Asia**
Managing risk and resilience
Edited by Lorraine Elliott and Mely Caballero-Anthony
- 23 Ten Years After 9/11**
Rethinking the Jihadist Threat
Arabinda Acharya
- 24 Bilateralism, Multilateralism and Asia-Pacific Security**
Contending cooperation
Edited by William T. Tow and Brendan Taylor
- 25 Negotiating with North Korea**
The Six Party Talks and the nuclear issue
Leszek Buszynski
- 26 India's Ocean**
The story of India's bid for regional leadership
David Brewster
- 27 Defence Planning and Uncertainty**
Preparing for the next Asia-Pacific war
Stephan Frühling
- 28 The South China Sea Maritime Dispute**
Political, legal, and regional perspectives
Edited by Leszek Buszynski and Christopher B. Roberts
- 29 South Asia's Nuclear Security**
Bhumitra Chakma
- 30 The New US Strategy towards Asia**
Adapting to the American pivot
Edited by William T. Tow and Douglas Stuart

Contents

<i>List of illustrations</i>	viii
<i>List of abbreviations</i>	ix
Introduction	1
1 South Asia's nuclear evolution and nuclear postures of India and Pakistan	15
2 The promise of nuclear revolution in South Asia	36
3 The perils of nuclear revolution	58
4 Causes and consequences of the Indo–Pakistani nuclear arms race	83
5 South Asia's regional nuclear deterrence structure	103
6 Nuclear terrorism and South Asia	127
7 Confidence building and nuclear arms control in South Asia	146
8 Conclusion: minimum deterrence to nuclear zero	164
<i>Bibliography</i>	172
<i>Index</i>	191

List of illustrations

Figures

5.1	Complex deterrence (global – general)	105
5.2	Cold War central deterrence	109
5.3	The South Asian regional deterrence structure	110

Tables

1.1	An inventory of Indian missile systems	22
1.2	Growth of India's nuclear forces, 1998–2013	23
1.3	Growth of Pakistan's nuclear forces, 1998–2013	27
1.4	An inventory of Pakistan's missile systems	29

List of abbreviations

BJP	Bharatiya Janata Party
CBM	Confidence Building Measures
CBRN	Chemical, Biological, Radiological or Nuclear
CCS	Cabinet Committee on Security
CISF	Central Industrial Security Force
CSCF	Conference on Security and Cooperation in Europe
CTBT	Comprehensive Test Ban Treaty
DCC	Development Control Committee
DRDO	Defence Research and Development Organisation
ECC	Employment Control Committee
FBI	Federal Bureau of Investigation
HEU	Highly Enriched Uranium
IAEA	International Atomic Energy Agency
IGMDP	Integrated Guided Missile Development Programme
IND	Improvised Nuclear Device
JeM	Jaish-e-Mohammed
LeT	Laskar-e-Toiba
LoC	Line of Control
MAD	Mutual Assured Destruction
MIRV	Multiple Independently Targetable Reentry Vehicle
MTCR	Missile Technology Control Regime
NATO	North Atlantic Treaty Organisation
NBC	Nuclear, Biological or Chemical
NCA	National Command Authority
NPT	Nuclear Non-Proliferation Treaty
NSG	Nuclear Suppliers' Group
NSS	Nuclear Security Summit
PAL	Permissive Actions Link
PNE	Peaceful Nuclear Explosion
PNRA	Pakistan Nuclear Regulatory Authority
RDD	Radiological Dispersal Device
RED	Radiological Emission Device

SCOMET	Special Chemical Organisms Material, Equipment and Technology
SECDIV	Strategic Export Control Division
SFC	Strategic Forces Command
SIPRI	Swedish International Peace Research Institute
SMET	Special Materials, Equipment and Technology
SNEP	Subterranean Nuclear Explosive Project
SPD	Strategic Plans Division
TTP	Tehrik-e-Taliban Pakistan
UNDP	United Nations Development Programme
WMD	Weapons of Mass Destruction

Introduction

This book seeks to assess South Asia's nuclear security from two principal standpoints. First, how secure is South Asia from the possible use of nuclear weapons by India and/or Pakistan? Or, to put it in another way: how stable and robust is the Indo-Pakistani mutual deterrence to prevent nuclear use due to deterrence failure? Scholars have intensely debated the issue and it does not appear that there is an agreement on the matter. This book assesses the strength and weaknesses of the arguments in this debate and illuminates various practical dimensions of the issue.

Second, how safe and secure are nuclear materials of India and Pakistan in terms of not falling into the hands of terrorists or black marketeers? And, how safe and secure are the nuclear infrastructures of the two states from possible terrorist attack? Nuclear security is defined from this standpoint as the level of safety and security a state can ensure for the protection of its nuclear materials from unauthorised access and nuclear facilities from possible terrorist attack. IAEA's (International Atomic Energy Agency) definition in this context is most pertinent; it defines nuclear security as 'the prevention and detection of, and response to, theft, sabotage, unauthorised access, illegal transfer or other malicious acts involving nuclear material, other radioactive substances or their associated facilities'.¹ There are enormous concerns about the safety of the region's, particularly Pakistan's, nuclear materials for a variety of reasons. There are also huge concerns about possible terrorist attack on the nuclear infrastructures of India and Pakistan.

Before delving into details of the intricacies of South Asia's nuclear security, it will be pertinent to put the issue into a proper context. At the core of the issue is the nature of nuclear revolution and the debate over its consequences. In the following two sections the debate surrounding nuclear revolution is briefly illuminated.

Nuclear revolution

Nuclear weapons were first, and thus far last, used in a war in the dying days of the Second World War. On 6 August 1945, the US Air Force dropped the first atomic bomb – *Little Boy* – on Hiroshima and three days later, on

2 Introduction

9 August, a second bomb – *Fat Man* – was used against Nagasaki, which instantly killed, respectively, 66,000 and 40,000 people. Many more thousands died subsequently as a consequence of radioactive fallout from the two bombings.²

In the wake of the destruction of Hiroshima and Nagasaki, American president Harry S. Truman observed that ‘in international relations as in domestic affairs the release of atomic energy constitutes a new force too *revolutionary* to consider in the framework of old ideas’.³ This was an astute observation as the nuclear weapon with awesome destructive capability has profoundly affected – in particular by creating a mutual condition of strategic vulnerability – the theory and practice of strategy and the dynamics of international relations.

At the beginning of the nuclear age, in one of the most influential books ever written on nuclear weapons, *The Absolute Weapons: Atomic Power and World Order*, Bernard Brodie and his colleagues – Frederick Dunn, Arnold Wolfers, Percy Corbett and William Fox – argued that nuclear weapons represented a revolutionary development which called for a fundamental rethinking of how military and political affairs should be conducted. They drew three principal conclusions: first, nuclear weapons are revolutionary military devices; second, ‘retaliation in kind’ will be the guiding principle of the nuclear age; and three, international control of nuclear weapons will be exceedingly difficult to achieve.⁴ With remarkable consensus, Brodie *et al.* concluded that nuclear weapons were *revolutionary* because they fundamentally altered the nature of warfare by reducing the efficacy of defences and the benefits provided by quantitative and qualitative superiority on the battlefield. With nuclear weapons, the idea of tolerable war was fast becoming redundant. Furthermore, they argued that the incredible leap in scope and speed of destruction in a nuclear war had fundamental military and political consequences.

Subsequently, many scholars elaborated on the revolutionary impact of nuclear weapons. Two books stand out in this context. The first is *The Nuclear Revolution: International Politics Before and After Hiroshima* by Michael Mandelbaum. Nuclear weapons are revolutionary, because (1) there is an immense difference in the availability of military force before and after 1945, which have altered the character of military operations; (2) familiar moral categories, ideas of right and wrong, from normal wars have drastically altered in the context of an all-out nuclear war; (3) the cultural mechanisms to cope with death have virtually ceased to exist; and finally, (4) ‘an all-out nuclear conflict would not be a war at all’ because nuclear weapons have made the familiar idea of war redundant in which it connoted some proportion between damage done and political goals sought.⁵ Nuclear weapons have made statesmen cautious with regard to provocations and the possibility of war. Indeed, the possibility of a nuclear war, Mandelbaum argues, has ‘encouraged the two principal rival powers during the Cold War [the USA and the Soviet Union] to behave cautiously, carefully and prudently where the interests of the others are concerned.’⁶

An expanded, elaborate and comprehensive explanation of the consequences of nuclear weapons is provided by Robert Jervis in his book, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon*.⁷ The key features of the nuclear revolution, primarily based on Jervis's analysis, are noted below.

First, nuclear weapons have fundamentally altered the nature of statecraft.⁸ The character of the state and its behaviour has undergone profound alteration following the rise of the nuclear age. This alteration is particularly visible in military behaviour, in which a nuclear power is bound to maintain exceeding caution when dealing with an adversarial nuclear weapon state.

Second, nuclear weapons have given rise to a mutual condition of strategic vulnerability which keeps the peace.⁹ Mutual vulnerability has changed the way political and military leaders think about war. This point can best be understood by the fact that nuclear weapons give their possessor unprecedented military might, yet they are unable to protect themselves. With nuclear weapons, as Thomas Schelling noted, it is not a matter of 'overkill' but of 'mutual kill' – the side that is 'losing' can inflict unprecedented destruction on the side that is 'winning' as easily as the 'winner' can do so on the 'loser'.¹⁰ This is a key difference between pre-1945 and post-1945 environments. In other words, before 1945, military forces could seize and hold what was in dispute, limit or decrease the military effectiveness of the other side's forces, inflict punishment on the other side and, most crucially, keep the adversary from doing these things to itself. Nuclear weapons have introduced a fundamental change in the last objective.¹¹ The key pointer for this is the rise of the second strike capability or 'mutually assured destruction' (MAD) between the two superpowers during the Cold War.

Third, flowing from the above, nuclear weapons have made major powers' war improbable. Large-scale violence is no longer a viable tool of statecraft in the nuclear age. The United States and the Soviet Union during the Cold War did prepare for a nuclear war – even thought of winning – but they never fought one.

As noted earlier, Bernard Brodie *et al.* at the dawn of the nuclear age appropriately concluded that atomic weapons were *revolutionary* devices and 'retaliation in kind' would be the guiding strategic principle of the coming era. Brodie famously noted: 'Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have almost no other useful purpose.'¹² 'Thus far' – these words were proven right as major powers have tended to avoid war against each other and eschewed extreme provocations. Many analysts claim that the absence of major war since the end of the Second World War can be attributed to the possession of nuclear weapons by major powers, these absolute weapons having made war 'unthinkable'. It was plainly clear to the leaders of the two superpowers that both sides would lose if a total war were to occur. The general conclusion is that nuclear weapons have helped maintain an unprecedented 'long peace',¹³ preserve the status quo and make the occurrence of crises infrequent.

4 Introduction

Fourth, nuclear weapons have had a profound impact on the way people think and the way nations behave. The possibility of nuclear war, which even can produce 'nuclear winter',¹⁴ generates fear in the psyche of political and military leaders. Kenneth Waltz has presented this point in a compelling fashion:

Because catastrophic outcomes of nuclear exchanges are easy to imagine, leaders of states will shrink in horror from initiating them. With nuclear weapons, stability and peace rest on easy calculations of what one country can do to another. Anyone – political leader or man in the street – can see that catastrophe lurks if events spiral out of control and nuclear warheads begin to fly.¹⁵

Brodie *et al.* observed that 'everything about the atomic bomb is overshadowed by the twin facts that it exists and its destructive power is fantastically great'.¹⁶ The fear factor ingrained in human psychology has an influential role in how nuclear deterrence works, although it is also at the core of the argument regarding how deterrence can fail.¹⁷

Fifth, nuclear weapons have altered the notion of victory in warfare. An all-out nuclear war cannot be won by any side, for if there were to be a nuclear war, both sides would lose it. President Eisenhower realised this: 'there is no victory [in a US–Soviet nuclear war] except through our imaginations'.¹⁸ At an NSC meeting, Eisenhower stated again: 'No one was going to be the winner in such a nuclear war. The destruction might be such that we might have ultimately to go back to bows and arrows'.¹⁹

At one stage of their nuclear stand-off, both the USA and the Soviet Union contemplated 'limited nuclear war' and assumed they could win it. But such a notion was seriously contested and both sides eventually realised that a victory in a nuclear war was impossible. US president Ronald Reagan and Soviet leader Mikhail Gorbachev in a joint statement on 21 November 1985 concluded that 'A nuclear war cannot be won and must never be fought'.²⁰

Nuclear weapons have severed the connection between war and political objectives due to their terrifying destructive power. In 1918 and 1945, 'the winners were still better off in having fought the war than they would have been had they made the concessions necessary to avoid it'.²¹ Now with nuclear weapons, no such gain can be had in a war.

Nuclear weapons have increased the 'speed' of war to an unprecedented level. In earlier wars punishment was slow and there was time and scope for bargaining. But in the nuclear context, punishment is total and speedy.

The notion that military victory is impossible in a nuclear context is revolutionary and immensely significant for international relations. In recorded history, violence at the highest level has been a tool of statecraft and the ability to resort to such violence has driven international change. In the nuclear age, superior force can no longer be applied to bring about change and many usual patterns of international relations have been altered.

Sixth, in a nuclear environment, the status quo cannot be altered as nuclear weapons have made force as a tool of foreign policy redundant. The status quo may be changed in other contexts, but where two major powers' bargaining is involved, the status quo is likely to be maintained.²²

Seventh, nuclear weapons are supposed to make crises infrequent because 'lines of status quo' are drawn and both sides have adequate nuclear weapons to inflict unacceptable damage on the other in second-strike mode. If crises were to occur, they would be in peripheral areas where high stakes are not involved.²³ In the pre-nuclear era, interests were typically involved in wide-ranging areas, generating frequent crises.

Critics of nuclear revolution

The scholarship on the consequences of nuclear weapons since 1945 is premised on the condition of the bipolar distribution of power or the dynamics of Cold War international politics. It contextualises the system as the level of analysis. How do these assumptions about nuclear revolution hold in a different distribution of power, i.e. unipolar or multipolar environments? Moreover, how do they fare in the context of analysis below the system level, for example in the context of a region?

T. V. Paul, Richard J. Harknett and James J. Wirtz in an edited volume – *The Absolute Weapon Revisited: Nuclear Arms and the Emerging International Order* – have re-examined the nuclear revolution, in particular the first principles enunciated by Brodie *et al.*, and provided, unlike Brodie *et al.*, who had a consensus on the impact of nuclear weapons, conflicting perspectives about the significance of these weapons on state relations.²⁴ Two papers by T. V. Paul and John Mueller even challenge the postulate that nuclear weapons represent a revolutionary increase in military capabilities.²⁵ Paul argues that although nuclear weapons do increase deterrent power like any other conventional capability, they have not, despite their unique status in international politics, translated into significant compellent power. In a similar vein, Mueller posits that although nuclear weapons added a new element of terror to the superpower stand-off, they have not instigated a revolutionary shift in politics. Both Paul and Mueller ascribe the significance of nuclear weapons to the peculiarities of bipolar competition.

Furthermore, John Mueller is not convinced of the connection between nuclear weapons and peace during the Cold War. He argues that the absence of war between major powers in the post-war era was due to the incredible rise in the cost of war resulting from technological sophistication and a change in attitude to war among populations and not because of the possession of nuclear weapons by the United States and the Soviet Union.²⁶

Stephen Walt also makes the point that there are questions about how far-reaching the impact of the nuclear revolution has been, because it does not appear that nuclear weapons have resolved the 'security dilemma for the nuclear weapons states, [which] continue to spend in the same way in building

6 Introduction

conventional capabilities the way they did in the pre-nuclear era'. Turning to India and Pakistan, Walt says: 'each tested nuclear weapons in order to enhance their security, yet the security competition between the two states has not declined by as much the "nuclear revolution" thesis suggests'. He concludes that 'nuclear weapons, indeed, have very limited value'.²⁷

The above highlights that the relevance of nuclear weapons can mostly be found in the context of the bipolar superpower competition between the USA and Soviet Union during the Cold War. The question therefore arises whether the revolutionary consequences of nuclear weapons may be applied in a similar fashion in other contexts and with different distributions of power. Specifically, it might be intriguing to see whether the assumptions of the nuclear revolution hold true under the conditions of the post-Cold War international environment. Two interrelated contexts are interesting in this regard.

First, the rise of the 'Second Nuclear Age' has raised a set of interesting questions about nuclear weapons and their revolutionary consequences.²⁸ The nuclear age since 1945 has evolved in two distinct phases: the first phase from 1945 to the fall of the Berlin wall in 1989 was defined by superpower competition during the Cold War in the context of a bipolar distribution of power.²⁹ The US-Soviet nuclear rivalry was so overwhelming in this period that other nuclear possessors made little impact on the general deterrence structure. The Second Nuclear Age took gradual root during the first phase and surfaced in the aftermath of the end of the Cold War. Paul Bracken argues that the Second Nuclear Age rose 'out of a hodge podge of unrelated regional issues'³⁰ and in this process, the overt nuclear tests of India and Pakistan in May 1998 marked the actual beginning of the new nuclear era.³¹ The Second Nuclear Age is conspicuous by the absence of bipolar superpower rivalry and, very significantly, it has a decentralised nuclear structure. The intriguing question is: how far the assumptions of the nuclear revolution, which are primarily based on the reality of the Cold War, hold true in the context of a new nuclear age?

Second, related to the above, after the end of the Cold War, a 'complex deterrence' has arisen. T. V. Paul defines complex deterrence as:

an ambiguous deterrence relationship, which is caused by fluid structural elements of the international system to the extent that the nature and type of actors, their power relationships, and their motives become unclear, making it difficult to mount and signal credible deterrent threats in accordance with the established precepts of deterrence theory.

Paul conceptualises five dimensions of complex deterrence in the post-Cold War era: (1) deterrence among great powers; (2) deterrence among new nuclear states; (3) deterrence and extended deterrence involving nuclear great powers and regional powers armed with chemical, biological and nuclear weapons; (4) deterrence between nuclear states and non-state actors; and (5) deterrence by collective actors.³² The question is: how should we account for the

consequences of the nuclear revolution on state relations under the condition of complex deterrence?

Furthermore, a traditionally neglected consequence of the nuclear revolution is the possibility of nuclear terrorism, which has only in recent years gained adequate attention against the background of the unprecedented rise in terrorist violence.³³ As will be discussed in Chapter 6, there are growing international concerns about the possibility that terrorists may obtain nuclear materials or may carry out attacks on nuclear infrastructure. South Asia is a particular concern in this regard, which deserves careful attention.

Following on from the above background, this study provides a comprehensive assessment of South Asia's nuclear security from two key standpoints. In the concluding chapter, it attempts to develop a policy-oriented approach to deal with the issue of nuclear security in the region.

Consistent with the general debate on nuclear revolution, as discussed above, two schools of thought are discernible in the scholarly arguments on South Asia's nuclear revolution. On the one hand, there is the optimist school of nuclear revolution, which believes that nuclear weapons have stabilised the strategic relationship of the two traditional rivals – India and Pakistan – and made major war between them improbable. On the other hand, there is the pessimist school of thought, which posits that nuclear weapons have made the Indo-Pakistani strategic relationship far more precarious than before and brought the region closer to nuclear Armageddon. Scholars of this school view nuclear deterrence as inherently unstable, the civil-military relationship in Pakistan as precarious and the political relationship of the two adversary states as fraught and unsuitable for stable deterrence. Further, this school worries about the weak control structure of India and Pakistan and their ability to ensure the safety of nuclear materials in order to prevent any possibility of terrorists obtaining those materials.

A closer scrutiny of the optimist-pessimist debate highlights that both schools are narrowly focussed in their argumentations. While there is no doubt that the introduction of nuclear weapons has altered the strategic calculations of India and Pakistan and the dynamics of strategic politics in the region, optimists in general overemphasise the stabilising effects of nuclear weapons in a complex and difficult region like South Asia and underestimate the risks that are inherent in the Indo-Pakistani nuclear standoff.

Conversely, pessimists are too alarmist and obsessively focussed on the risks of nuclear weapons, as if to posit that strategic fallouts of nuclearisation are *only* negative and denuclearisation is the only way forward. They fail to observe that both India and Pakistan have demonstrated considerable restraint in their behaviour with nuclear weapons. Furthermore, they also tend to forget that nuclear weapons are here to stay in South Asia, at least for the foreseeable future. Therefore, there is a case for balance and a pragmatic approach in assessing the implications of Indo-Pakistani nuclear weapons.

Additionally, the analyses of both optimists and pessimists are chiefly premised on the nuclear deterrence framework that was developed in the United