

INDIA'S ROLE IN THE TEST BAN NEGOTIATIONS

*Dissertation submitted to Jawaharlal Nehru University
in partial fulfilment of the requirements
for the award of the degree of*

MASTER OF PHILOSOPHY

VIKHWENO M. MERATSU

Centre for International Politics, Organisation and Disarmament Studies
School of International Studies
Jawaharlal Nehru University
New Delhi - 110 067
INDIA
1997



जवाहरलाल नेहरू विश्वविद्यालय
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI - 110 067

CENTRE FOR INTERNATIONAL POLITICS,
ORGANISATION AND DISARMAMENT STUDIES
SCHOOL OF INTERNATIONAL STUDIES

21 July 1997

CERTIFICATE

This is to certify that the dissertation entitled, **INDIA'S ROLE IN THE TEST BAN NEGOTIATIONS** submitted by **VIKHWENO M. MERATSU** in partial fulfilment of the requirements for the award of the degree of **MASTER OF PHILOSOPHY** of this University has not been previously submitted for any degree of this or any other university. To the best of our knowledge, this is a bonafide work.

We recommend that this dissertation be placed before the examiners for evaluation.

Dr. Kanti Prasad Bajpai
(CHAIRPERSON)

Dr. Kanti Prasad Bajpai
(SUPERVISOR)

Chairperson
Centre for International Politics,
Organization and Disarmament
School of International Studies,
Jawaharlal Nehru University
New Delhi - 110 067

CONTENTS

Pages

Acknowledgements

INTRODUCTION	1-11
CHAPTER I INDIA AND THE TEST BAN: THE EARLY COLD WAR YEARS, 1954-1963	12-34
Chapter II INDIA AND THE TEST BAN: 1964-1990	35-64
Chapter III THE COMPREHENSIVE TEST BAN TREATY AND INDIA'S STAND SINCE 1990	65-90
CONCLUSION	91-95
BIBLIOGRAPHY	96-107

Acknowledgements

I owe a special debt of gratitude to my supervisor Dr. Kanti Prasad Bajpai for his tireless efforts in steering me through the often harrowing experience of writing a dissertation. His many insights and comments on the various drafts has been invaluable.

I'm more than grateful to Deepika not only for her moral support but as a friend who put me back on track whenever the pressure of work overwhelmed me.

There are many people to thank. In particular I would like to extend my thanks to Prashant, Anil, Rakesh and Manish.

I would also remain indebted to my parents. Their constant prayers and encouragement has always been a source of strength to me.

Lastly, to Chandan, Manbar, Kailash and Narender for typing and formating my dissertation.

V. Meratsu

21 July 1997

Vikhweno M. Meratsu

INTRODUCTION

This study relates to India's role in the nuclear test ban negotiations. In 1954, the first Prime Minister of India, Jawaharlal Nehru, had proposed a Comprehensive Test Ban Treaty (CTBT) as part of a programme of disarmament. As late as 1993, India had co-sponsored the United Nations (UN) resolution charging the conference on Disarmament (CD) with drafting a treaty.

India has been an important and respected voice in advocating disarmament. Since Nehru's time, it has believed that the cause of peace could be advanced by a structure of arms control and disarmament. Yet, in 1996, in the Conference on Disarmament it blocked passage of the long-awaited test ban draft treaty. When the treaty went to a vote in the United Nations General Assembly (UNGA) some weeks later, it was one of the three countries to vote against it. India has continued to oppose the treaty on the grounds that it is ineffective, unequal and against international treaty convention in its Entry Into Force (EIF) provisions.

What happened between 1954 and 1993? What was India's thinking on the test ban over these four decades? What happened between 1993 and 1996 to change India's mind on the CTBT? This study will attempt to answer these questions.

India Reacts to the Atomic Bomb

The use of the atom bomb over Hiroshima and Nagasaki in 1945 energised the international community to think in terms of disarmament. The devastating and destructive potential of nuclear weapons shocked the world. The very first resolution adopted by the UN General Assembly on 24 January 1946 created the international commission which was asked to "proceed with the utmost dispatch and enquire into all phases of the problem" and to make "specific proposals" for, inter alia, "the elimination from national armaments of atomic weapons".¹

Since then India has taken a consistent stand against nuclear weapons, particularly in the UN and in other international fora. Mohandas Karamchand Gandhi said that: "unless now the world adopts non-violence, it will spell certain suicide for mankind".² He affirmed a commitment to fight against and outlaw the atomic bomb. Gandhi's vow was reaffirmed by Nehru. In September 1945, at the meeting of the All India Congress Committee Nehru deplored "the appearance of the atom bomb as a weapon of war, with its frightful and horrible powers of destruction", and described

¹ Afronso, Garcia Rebels, *Nuclear Disarmament: A Crucial Issue for the Survival of Mankind* (New Delhi: Indian Council for Cultural Relations, 1984), p.12.

² T.B. Mukherjee, *Peace, Security and Disarmament: Indian Perspective* (New Delhi: New Delhi Publishing House, 1987), p.21.

the bomb as "the immoral and self-destructive elements of the present-day political, economic and spiritual structure of the world".³ As nuclear weapons spread like a contagious disease, Nehru came to regard disarmament as one of the key challenges facing mankind. He declared that "something has got to be done in regard to disarmament before we pass this point of no return. There might be a point of no return when we have gone too far and atomic and nuclear bombs and the rest spread out".⁴ In this regard he believed that an international agreement to stop all nuclear weapon tests would serve as a first step to avert nuclear catastrophe. "This major challenge confronts our times" Nehru said, "with a choice between co-destruction and co-prosperity, and makes it imperative for the world to outlaw war, particularly nuclear war. With the creation of nuclear weapons, the technology of the armament race threatens to run out of control unless it is checked and reversed in time with disarmament, beginning with nuclear disarmament under a universal test ban agreement."⁵

³ G.G. Mirchandani, *India's Nuclear Dilemma* (New Delhi: Popular Book Service, 1968), p.2.

⁴ Jawaharlal Nehru, *India's Foreign Policy, Selected Speeches, September 1946 - April 1961* (New Delhi: Publications Division, Ministry of Information and Broadcasting, Government of India, August 1961), p.235.

⁵ R.K. Karanjia, *The Philosophy of Mr. Nehru* (London: George Allan and Unwin Ltd., 1966), p.55.

Nehru's campaign for disarmament had a profound effect on India's nuclear policy. For the enhancement of economic development, India embarked on a nuclear programme for peaceful purposes and not for the manufacture of nuclear weapons. Nehru persistently urged that "atomic energy can be used for peaceful purposes, to the immense benefit of humanity... that the use of atomic energy for peaceful purposes is far more important for a country like India whose power resources are limited, than for a country like France, an industrially advanced country".⁶

The radiation accident which followed the thermonuclear explosion conducted by the US on 1 March 1964 aroused popular opinion against nuclear testing.⁷ A test ban, it was argued, would reduce the pollution of the environment. To save mankind from the radioactive debris, India insisted on the prohibition and elimination of atomic weapons. These weapons, New Delhi stressed, were not weapons of defence but of offence and suicide.⁸ A war with nuclear weapons, Nehru stated, was a war not only "against one country or a group

⁶ Jawaharlal Nehru, *India's Foreign Policy, Selected Speeches, September 1946 - April 1961*, p.191.

⁷ Robert, A. Divine, *Blowing in the Wind: The Nuclear Test Ban Debate, 1950-1960* (New York: Oxford University Press, 1978), p.3.

⁸ Ibid.

of countries but against the entire creation".⁹ On the basis of the statements made, a CTBT would be a first step toward general and complete disarmament and a better world. Thus, in proposing a test ban, as early as 1954, New Delhi argued that "cessation of explosions would serve as an important initial step in nuclear disarmament which might make subsequent steps less difficult."¹⁰

India was the first country to officially appeal to the international community for a standstill agreement in 1954. It subsequently signed the Partial Test Ban Treaty (PTBT) of 1963 which banned nuclear tests in the atmosphere, outer space, and under water. It also supported the Threshold Test Ban Treaty (TTBT) of 1974, signed between the United States and Soviet Union. The TTBT limits underground explosions to yield of 150 kilotons or less. In 1993, New Delhi co-sponsored a UN resolution on the CTBT in the General Assembly.

The Meaning of a Comprehensive Test Ban

The comprehensive test ban treaty is one of the oldest items and has been one of the highest priorities on the agenda of nuclear arms control and disarmament. A test ban

⁹ J.P. Jain, *India and Disarmament: Nehru Era, An Analytical Study*, vol.1 (New Delhi: Radiant Publishers, 1974), p.5.

¹⁰ T.T. Poulouse, *The CTBT and the Rise of Nuclear Nationalism in India* (New Delhi: lancers Books, 1996), p.173.

has often been proposed as a possible 'first step' to disarmament. Although it would not in itself be a disarmament measure, many have felt it could lead to further agreements.¹¹ A CTBT would stop all testing of nuclear weapons which would also stop the design and development of new weapons.¹² Thus, the CTBT is an arms control measure that has implications for future disarmament.

Praful Bidwai and Achin Vanaik succinctly summarise the arguments for a CTBT. First, a CTBT would weaken and eliminate the technological push which has fuelled the nuclear arms race. Secondly, a CTBT would help stop what has been called the 'talk - test - build' format (or spiral) in which arms control efforts have largely remained trapped. It would restrain the development of sophisticated weapons. Thirdly, a CTBT would have a major ameliorative effect on 'the fear factor' in the nuclear arms race. Fourthly, a CTBT would create a new climate for further nuclear disarmament.¹³

Since negotiations on a CTBT began in 1958, one of the central problems has been the definition of a truly

¹¹ Joseph Orear, "Detection of Nuclear Weapons Tests", *The Bulletin of the Atomic Scientists* (New York), vol.XIV, no.1 (January 1958), p.74.

¹² Jasjit Singh, "The Nuclear Dilemma", *Gentleman* (Bombay), May 1996, p.62.

¹³ Praful Bidwai and Achin Varaiik, *Testing Times: The Global Stake in Nuclear Test Ban* (Hammarskjold Foundation, 1996), p.17.

comprehensive ban. It is important to bear in mind the difference between nuclear tests and nuclear explosions. Nuclear tests are experiments which involve high explosives and small quantities of fissile materials but negligible fission energy release, whereas a nuclear explosion is where fission energy is significant in controlling the outcome of the experiment. Nuclear explosions involve an object usable as a nuclear weapon.¹⁴ These nuclear explosions release fall-out (the residual radioactivity) and endanger human health. In war, fall-out will be employed to subdue the enemy; there will be very heavy doses of radiation over a wide area, heavy enough to kill people who spend thirty - six hours in the open within 140 miles of where a 'dirty' H-bomb falls.¹⁵ The fall-out of experimental nuclear explosions even in time of peace, some harm is certain to result.¹⁶ As all radiation is harmful, in greater or lessar degree, to human health, small doses if repeated often will shorten life.¹⁷ The first i.e., tests would most probably be for the purpose of confirming that the device one had built

¹⁴ Donald R. Westervelt, "The Role of Laboratory Tests", in Josef Goldblat and David Cox, eds., *Nuclear Weapon Tests: Prohibition or Limitation?* (Oxford: Oxford University Press, 1988), p.47.

¹⁵ Cited in Philip Noel - Baker, *The Arms Race: A Programme for World Disarmament* (London: Atlantic Books, 1958), p.250.

¹⁶ *ibid.*

¹⁷ *Ibid.*, p.253.

would actually produce nuclear explosions.¹⁸ Nuclear explosions are also closely associated with the purpose of the development and sophistication of nuclear weapons. Nuclear tests make nuclear weapons cheaper, more efficient, more 'versatile', more powerful per kilogram of fissile material.¹⁹

A truly 'comprehensive' ban must therefore prohibit all tests and explosions, even those at such low levels that might escape verification by technical means.²⁰ The current CTBT text commits the signatories to the cessation of all nuclear weapons test explosions and all other nuclear explosions. In doing so, it promises to constrain the development and qualitative improvement of nuclear weapons and to end the possibility of advanced new types of nuclear weapons. If carried through, the CTBT would constitute an effective measure of non-proliferation in all its aspects.²¹ During the negotiations at the CD, the five nuclear powers (the US, Russia, UK, China and France) wanted to exempt

¹⁸ J. Casslor Mark, "The Purpose of Nuclear Test Explosions", in Josef Goldblat and David COX, eds., *Nuclear Weapon Tests: Prohibition or Limitation?* p.31.

¹⁹ Philip Noel - Baker, *The Arms Race: A Programme for World Disarmament*, p.258.

²⁰ Annette Schaper, "The Problem of Definition: Just What is a Nuclear Weapons Test?", *Pugwash Meeting No.208, 45th Pugwash Conference on Science and World Affairs, Hiroshima, Japan, 23-19 July, 1995*, p.26.

²¹ Quoted in Annette Schaper, "The Problem of Definition", p.26.

hydro-nuclear experiments (HNEs) under the CTBT. There were concerns therefore that the CTBT would not be a comprehensive treaty as it would not have prohibited the nuclear powers from developing new weapons in their laboratories.²² New Delhi proposed instead "to prohibit any release of nuclear energy caused in the rapid assembly or compression of fissile or fusion material by chemical, explosive or other means".²³ The words 'the release of nuclear energy' bans HNEs as well as full nuclear weapon explosions, since HNEs involve the detonation of a slightly modified nuclear weapon. Hydrodynamic explosions (HDEs) would also be banned.²⁴ Full-fledged nuclear test explosions, HNEs and HDEs should be banned under a CTBT, India argues, to prevent both vertical and horizontal proliferation.²⁵

Broadly speaking, Indian policy on the CTBT rested on four pillars:

1. The treaty should be linked with complete nuclear disarmament.

²² I.K. Gujral, "The Post-Cold War Era: An Indian Perspective", *World Affairs* (New Delhi), vol.1, no.1 (January - March, 1997), p.33.

²³ Brig.Vijai K. Nair, "The Comprehensive Test Ban in the UNGA: Ramifications", *Indian Defence Review*, vol.II no.4 (October - December, 1996), p.28.

²⁴ Annette Schaper, "The Problem of Definition: Just What is a Nuclear Weapons Test?", p.47.

²⁵ Praful Bidwai and Achin Vanaik, *Testing Times: The Global Stake in a Nuclear Test Ban*, p.17.

2. There should be a time-bound plan for complete disarmament.
3. Intrusive inspections of nuclear facilities should not infringe sovereign rights beyond some limits.
4. The ban should be comprehensive and non - discriminatory.

As will be shown, India felt that these concerns were insufficiently addressed by the 1996 CTBT draft text.

The following chapters will attempt to review and comprehend the direction of India's policy on the comprehensive test ban since 1954. It is organised in the following manner.

Chapter I looks at the period from 1954 to 1963, that is, from Nehru's proposal for a standstill agreement on nuclear tests to the signing of the PTBT of 1963. The aim is to describe India's arms control and disarmament approach with particular attention to the issue of a test ban.

Chapter II covers the period from 1964 to 1990, the middle and end period of the Cold War. It will look at India's effort to keep the CTBT issue in this period alive. Finally, it looks at international reactions to India's underground test explosion of 1974 and draws out the implications for India's test ban stand.

Chapter III focuses on India's policy since the end of the Cold War, that is, from 1991 onwards. It also surveys the ongoing debate on India's nuclear diplomacy. The chapter

will ask why India seemingly changed its stand between 1993 and 1996.

The conclusion assesses the effect of the CTBT negotiations on global disarmament and India's future role in multilateral arms control and disarmament negotiations.

Chapter I

INDIA AND THE TEST BAN: THE EARLY COLD WAR YEARS, 1954-1963

The desire for a universal ban on nuclear tests began after the United States for the first time detonated a powerful hydrogen bomb, code-named 'BRAVO', a 15 megaton explosion at the Bikini Atoll on 1 March 1954. Twenty three Japanese fishermen aboard the Tuna Fukuryu Maru were afflicted by the radioactive debris. Jawaharlal Nehru expressed his sympathy for the Japanese fishermen and others saying, "the open ocean appears no longer open, except in that those who sail on it for fishing or other legitimate purposes take greater and unknown risks caused by these explosions. It is of great concern to us that Asia and her peoples appear to be always nearer these occurrences and experiments and their fearsome consequences, actual and potential."¹

The event spearheaded the world's concern over the hazardous effects of nuclear tests. India, in particular, voiced deep concern over thermonuclear testing and made persistent efforts to stop nuclear testing altogether.

¹ Jawaharlal Nehru's Speech in the Lok Sabha on 2 April 1954, *Lok Sabha Debates*, vol.3, Part 11, April 2, 1954, Col.3919.

Nehru's Approach Towards A Nuclear Test Ban

India was the first country to formally call for a nuclear test ban. Speaking in the Lok Sabha on 2 April 1954, Jawaharlal Nehru proposed a "Standstill Agreement" on nuclear testing pending progress towards the prohibition and elimination of weapons of mass destruction. Among the steps to be taken were the following:

- i) A "standstill agreement" in respect, at least, of actual explosions, even if arrangements about the discontinuance of production and stockpiling must await more substantial agreements among those principally concerned;
- ii) Full publicity by those principally concerned in the production of nuclear weapons and by the United Nations of the destructive power and effects of these weapons as also "adequate indication" of the unknown but probable effects. Informed world public opinion would be, India argued, a most effective factor in bringing about the desired results;
- iii) Immediate (and continuing) private meetings of the sub-committee of the Disarmament Commission to consider the "standstill" proposal.² In addition, Nehru argued for the mobilisation of public opinion, throughout the world - by citizens of the nuclear weapons countries as

² Ibid., pp.3918-3919.

elsewhere. Thus, Nehru said that, "they [i.e., ordinary people] would, I venture to hope, express their concern and add their voices and influence in as effective a manner as possible to arrest the progress of this destructive potential which menaces all alike."³ Nehru claimed that "however limited these explosions might be, an agreement to suspend nuclear explosion with a view to banning them later would be a definite step".⁴ Thus, India emphasised the cessation of nuclear testing as a first step towards general and complete disarmament and not as an end itself.

India's Initiatives in the Disarmament Commission (DC)

Nehru's standstill proposal was forwarded to the UN Secretary General for circulation to the Disarmament Commission (DC) by the Indian Permanent Representative, Rajeshwar Dayal, on 8 April 1954. Thereafter, it was to be discussed in the DC and its special Sub-Committee. Unfortunately, little attention was paid to the proposal. Nevertheless, India persistently urged the UN and other countries to consider and support it. New Delhi's earnest appeal for a test ban was evident in various meetings and

³ Ibid.

⁴ Jawaharlal Nehru, *India's Foreign Policy, Selected Speeches, September 1946 - April 1961* (New Delhi: Publication, Ministry of Information and Broadcasting, Government of India, August 1961), pp.197-198.

communiqués with other countries: for instance, the Colombo Conference of South Asian Prime Ministers in 1954; the Bandung Conference of Asian - African countries in April 1955; the communiqué at the end of the Soviet Premier's visit in 1955, with Ceylon in 1957, and also with Japan.⁵

India was greatly concerned about the effects of atomic radiation. In an appeal to the world on 31 October 1955, the Indian delegation to the UN General Assembly pointed out the danger and harmful effects of nuclear test explosions. In its proposal (A/2949/Add.1) on the agenda item "Dissemination of Information on the Effects of Atomic Radiation and on the Effects of Experimental Explosions of Thermonuclear Bombs", Krishna Menon said that the peaceful use of atomic energy also created problems that if ignored would be outweighed by its disastrous genetic repercussions.⁶ The Indian delegation stated that India was approaching the problem not from the point of view of partisan agitation, but from the point of view of making constructive contributions. It had declared its readiness to place at the disposal of the international community the facilities for observation which it possessed and which were

⁵ J.P. Jain, *India and Disarmament: Nehru Era, An Analytical Study*, Vol.I (New Delhi: Radiant Publishers, 1974), p.73.

⁶ *General Assembly, Official Records, Tenth Session, First Committee, 774th Meeting 31 October 1955*, p.99.

by no means negligible.⁷ In 1955, as a result of India's suggestion a Scientific Committee to study the effects of atomic radiation was established by the UN. The Conference of Experts on 21 August 1955 concluded with full agreement on the methods of monitoring nuclear weapon tests. In March 1962, the Scientific Committee report proved that the radiation hazards from the nuclear weapon tests "was not a myth but a dangerous fact."⁸

On 1 December 1955, India in the First Committee of the UN General Assembly requested the states concerned to initiate negotiations on the suspension of nuclear weapon tests and to report to the DC at an early date.⁹ The Indian delegation led by Krishna Menon stated on 9 December 1955 that it was not enough to present scientific conclusions. It was persuaded that research on nuclear weapons was being continued with the utmost diligence and competence.¹⁰ Menon argued therefore that a policy, once determined, should not only operate effectively to stop testing but should also include the detection of hidden stocks of nuclear weapons. He asked the states concerned to enter into negotiations

⁷ Ibid.

⁸ Quoted in J.P. Jain, *India and Disarmament*, p.74.

⁹ T.T. Poulouse, *The CTBT and the Rise of Nuclear Nationalism in India* (New Delhi: Lancer Books, 1996), p.143.

¹⁰ *General Assembly, Official Records, Tenth Session, First Committee, 808th Meeting, 9 December 1955, p.278.*

immediately because of the harmful results of nuclear explosions and because the knowledge available to the technicians of the great powers was only too sufficient.¹¹

On 12 July 1956, the Government of India presented its proposal item "Cessation of all Explosions of Nuclear and Other Weapons of Mass Destruction" to the Disarmament Commission of the United Nations. Among other things the Government stated that "contrary to all past practice, these war preparations affect neutrals and consequently offend against the accepted canons of international law. Since the existing stockpiles of weapons of mass destruction are sufficient to destroy the world there would seem to be no utility, even from the military point of view, in further experimental explosions."¹² The proposal emphasised that the prohibition of further explosions would be to a large extent self-enforcing.

During 1957, there was a series of test explosions by the nuclear powers. International awareness of the evils of testing elicited protests. Public opinion, scientists, governments and prominent individuals from all over the world had warned the nuclear powers that "if testing continued humanity can be eventually exterminated, even

¹¹ Ibid.

¹² *Documents and Papers on Disarmament, Second Series, 1956-1958, The Bulletin of the World Council of Peace (Vienna, 1958),*

without a nuclear war".¹³ In the revised Draft Resolution on "Suspension of Test Explosions" (A/C.1/L.176/Rev.4) on 1 November 1957, India expressed its grave concern that a further increase in nuclear weapon tests would bring dangers and difficulties in relation to the problem of a nuclear test ban. It requested the states concerned to agree to the suspension of nuclear and thermonuclear weapons tests without delay. In addition, New Delhi felt that the suspension of tests would, in some measure, open the way to lowering world tensions and pave the way towards further agreements.¹⁴ Further, there was a need to protect people from the biomedical consequences of testing. Speaking in the Lok Sabha on 27 November 1957, Nehru said, "Nuclear explosions take place, contaminating air, water and food, as well as directly injuring the present and future generations of mankind."¹⁵ India felt that no nation had the right to contaminate the air and seas of the world, even on the pretext of assuring its own security and the security of its allies.¹⁶ Finally, Nehru was afraid that if many other

¹³ V.K. Arora, "Reactions to the Test Ban Treaty", *Foreign Affairs Report* (New Delhi), vol.XII, no.12, p.101.

¹⁴ *Documents and Papers on Disarmament, Second Series, 1956-1958, The Bulletin of the World Council of Peace* (Vienna, 1958), pp.72-73.

¹⁵ Jawaharlal Nehru, *India's Foreign Policy Selected Speeches September 1946-April 1961*, p.202.

¹⁶ Cited in a Ashwani Kumar Chopra, *India's Policy on Disarmament* (New Delhi: ABC Publishing House, 1984), p.77.

countries came to possess nuclear weapons the capacity to control them would go out of the range of human power. He expressed his conviction that there could be no effective control of proliferation, vertical as well as horizontal, unless the nuclear powers decided to suspend their nuclear tests. India's position in this regard remained unchanged.

Among the superpowers, the Soviet Union was the first in urging a test ban. In the 1957 session of the UN Disarmament Sub-Committee, the Soviets proposed a temporary moratorium on testing. India welcomed the Soviets decision as a good step.¹⁷ India also supported the Soviets proposal for control and inspection of nuclear test sites because there could be no certain way of detecting the explosions by Technical means. India and the Soviet Union called for a separate nuclear test ban agreement, one that should be immediate and permanent. In contrast, the Western powers wanted to link the test ban to a broader programme of arms control. In the thirteenth session of the General Assembly, in 1958, Krishna Menon firmly stated that the discontinuance of nuclear tests should be a separate agreement because he thought it would be fallacious and dangerous to place less importance on ending tests than on the problem of general disarmament.¹⁸

¹⁷ Jawaharlal Nehru, *India's Foreign Policy Selected Speeches*, September 1946 - August 1961, p.208.

¹⁸ *General Assembly, Official Records, Thirteen Session, First Committee, 952nd Meeting, 17 October 1958, p.48.*

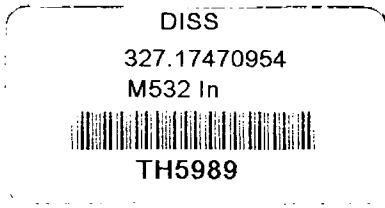
The First Test Ban Negotiations

Important negotiations began in 1958 which marked a turning point for the actual test ban talks. An exchange of letters between the Soviet Union and the United States in 1958 resulted in the two countries convening a Conference of Experts.¹⁹ The Conference of Experts was asked to produce a study on "The Possibility of Detecting Violations of a Possible Agreement on Suspension of Nuclear Tests". The Conference was convened in Geneva from 1 July to 21 August 1958. The Experts considered four methods of detecting and identifying nuclear explosions: recording acoustic waves; monitoring hydroacoustic waves for underwater tests; monitoring radio signals and seismic waves; and collecting radioactive debris.²⁰ The main difficulty was distinguishing underground tests from earthquakes. However, the Experts concluded that it was technically feasible to set up an effective control system to detect seismic events down to a magnitude of 4.75.. The Experts also provided for on-site Inspections (OSIs). They concluded that underground test above 5 kilotons could be reliably detected.

This effort led to the tripartite talks between the US, UK and USSR that began on 31 October 1958 to arrive at a

¹⁹ *United Nations and Disarmament, 1945-1985* (New York: United Nations, 1985), p.60.

²⁰ April Carter, *Success and Failure in Arms Control Negotiations* (Oxford: Oxford University Press, 1989), p.46.



comprehensive test ban. As a result of the repeated memoranda on the discontinuance of testing at the UN and its Sub-Committee, as also informal negotiations between the superpowers, little attention was paid to the Indian proposals. In part this was because in the period from 1954 to 1958 India was not a member of either the DC nor its Sub-Committee.²¹

In the tripartite talks, the Soviet Union insisted on a complete test ban, while the US and the Western powers focused on control systems and inspections. The differing views on verification techniques and on-site inspections blocked the negotiation process. Thereafter, the conference went into a complete deadlock when the nuclear powers resumed testing. The atomic test carried out in the Sahara Desert by the French in 1960 caused grave concern in India. India considered it a matter of regret because it was carried out after a 15-month suspension of testing.²² India also protested against Moscow's nuclear explosion. Nehru portrayed Moscow's nuclear explosion as a kind of "evil" because "not only do they [i.e., tests] pollute the atmosphere of the world we live in, but they also pollute the minds of men and carry the world to the side of

TH-5989



²¹ J.P. Jain, *India and Disarmament*, p.78.

²² *Lok Sabha Debates*, vol.XXXVIII, Second Series, 17 February 1960, Col.1398-1399.

DISS
327.17470954 (3155) NY
N7

destruction".²³ Nehru was greatly concerned about the resumption of American testing too. He feared that the fall-out of these tests would inflict environmental and health damage and emphasised that the tests might lead to a progressive deterioration in the diplomatic atmosphere.²⁴

Though the nuclear powers had resumed testing, India urged that the moratorium should be reinstated. New Delhi therefore continued to press the nuclear powers to refrain from carrying out any further tests. India's Permanent Representative to the UN, C.S. Jha, submitted the item "Suspension of Nuclear and Thermonuclear Tests" for consideration by the General Assembly. India argued that the purpose of nuclear and thermonuclear explosions were to increase re-armament and to perfect and augment the destructive power of nuclear weapons. Without the cessation of test explosions, there could be no advance towards the universally desired goal of total and general disarmament. The following statement was made by Jha in the Political Committee of the General Assembly on 18 November 1959. He stated that: "if the nations of the world which possess nuclear weapons, and others which do not possess such weapons but are in a position to manufacture them now or in near future, can agree to the suspension of test explosions

²³ J.P. Jain, *India and Disarmament*, p.97.

²⁴ *Lok Sabha Debate*, vol.1, Third Series, 24 April 1962, col.677-678.

of nuclear and thermo-nuclear weapons, the first major breakthrough in disarmament will have been made. The establishment of the necessary machinery for inspection and control, and experience of its working, will show the way to the comprehensive controls which must form part of any general and complete disarmament."²⁵

In 1960, the Western powers and the Soviets agreed to a 'phased treaty' proposed by the US which would ban all testing in the atmosphere, outer space, under water and under ground which went over a threshold of 4.75 in seismic magnitude . The treaty included an international control system and on-site inspections to check the unidentified events. However, agreement on this did not last, because the US feared espionage and, on the other side, the Soviets suspected possible secret violations of the agreement by the US.²⁶ India observed that fears and suspicions were responsible for the failure of the negotiations and that these needed to be removed. M.J. Desai, a member of the Indian delegation to the Disarmament Conference at Geneva, called for removal of the fears and suspicions of both sides on the issue of control.²⁷

²⁵ *Foreign Affairs Record* (New Delhi) vol.V, November 1959, p.389.

²⁶ Ashwani Kumar Chopra, *India's Policy on Disarmament*, p.82.

²⁷ *Ibid.*, p.83.

In any case, for a number of reasons, including the safeguarding of their "security", the superpowers intended to resume testing. On 2 November 1961, the Indian representative to the UN General Assembly, B.N. Chakravarty, argued that while the tests were justified on the ground that a state was obliged to protect its own security, the great powers nonetheless had an equal obligation not to endanger the rest of mankind. He said that "the only purpose of nuclear tests was to perfect weapons of war and if a nuclear war took place, the earth might become uninhabitable. Therefore, even if there was no war, the tests themselves would endanger the lives and well-being of millions of people".²⁸

The Eighteen Nation Disarmament Committee (ENDC) Initiatives

The test ban issue began to move rapidly when the superpowers resumed their tests at an alarming rate. On 4 March 1962, the US and the Soviet Union test ban talks went to the Eighteen Nation Disarmament Committees (ENDC). It was in this forum that the Non Nuclear Weapon States (NNWSs) for the first time were engaged in arms control negotiations with the superpowers. The Conference of the ENDC took place in Geneva. There were five NATO countries (US, UK, Canada, France and Italy), five Warsaw Pact countries (USSR,

²⁸ *General Assembly, Official Records, Sixteenth Session, First Committee, 1185th Meeting 2 November 1961, p.120.*

Bulgaria, Czechoslovakia, Poland and Rumania), and eight non-aligned countries (Brazil, Burma, Egypt, Ethiopia, India, Mexico, Nigeria and Sweden). On India's suggestion, a Sub-Committee consisting of the nuclear powers, namely, the US, USSR and UK was formed in order to continue discussion of a nuclear test ban.

The Indian representative to the ENDC, Arthur Lall, reminded the eighteen countries of the harmful effects of nuclear weapons tests "upon humanity, biologically, genetically, psychologically and otherwise".²⁹ He pointed out that, unless the nuclear weapon powers could agree to a test ban, the acquisition of nuclear armaments, would accelerate. Thus, he appealed to all nations to refrain from conducting tests while the ENDC Conference was being held. In pressing for a test ban, he added, "we have not been thinking only of the nuclear powers, but also of ourselves, of our freedom from fall out, and of our freedom from the threat of the extension of this dread disease of testing to other states."³⁰ In fact, India was more concerned that the resumption of testing would encourage other countries to conduct nuclear tests and accelerate the arms race. Both Moscow and the US agreed to India's appeal to break the impasse between the nuclear powers. The eight non-aligned nations took the initiative in making suggestions,

²⁹ Quoted in J.P. Jain, *India and Disarmament*, p.105.

³⁰ Quoted in Jain, *India an Disarmament*, p.106.

compromises and solutions and finally produced a memorandum. On 16 April 1962, following Arthur Lall's initiative, the eight non-aligned nations presented a joint memorandum with the following ideas:

- i) A control system, using existing "national networks of observations posts" as well as new posts, should be established by agreement;
- ii) An international commission consisting of "a limited number of highly qualified scientists" possibly from the non-aligned countries should be established;
- iii) The commission would be entrusted with reporting "on any nuclear explosions or suspicious events". For on-site inspections, parties to the treaty could invite the commission to investigate in case of doubts and suspicions. If the commission was not able to detect whether a "significant event" was an earthquake or explosion, it could seek clarification from the party on whose territory that event had occurred.³¹

Although the superpowers accepted the memorandum as the basis for negotiations, each side interpreted it differently, essentially to favour its own position. The US and UK submitted the 8 - Nation Memorandum on 27 August 1962, envisaging a partial test ban in three environments - the atmosphere, under water, and outer space - with national

³¹ Ibid., pp.107-108.

observation posts supervised by an international commission.³² They also proposed to eliminate the threshold of 4.75 Richter for underground tests. On the other hand, on 3 September 1963 the Soviets stated that it would agree to the test ban only if underground tests were suspended because the Soviets saw the Western proposal as an attempt to legalise underground tests.³³ Thus, in December 1962, the Soviets proposed 'black boxes' for detecting underground nuclear explosions.³⁴ The Western powers, however, failed to compromise. The non-aligned countries maintained their own non-aligned policy and urged both sides to consider that any form of compromise should not bring disadvantage to the other side.³⁵ On the questions of inspections and a control system, Arthur Lall said that India was in favour of internationally binding agreements under effective international supervision. India supported the US and UK draft resolutions (A/C, 1/L, 311) to conclude a treaty with effective and prompt international verification "which prohibited nuclear weapon tests in all environments for all time."³⁶

³² Ibid., p.110.

³³ Ibid.

³⁴ Coit, D. Blacker and Gloria Duffy, *International Arms Control: Issues and Agreements* (Stanford: Stanford University Press, 1984), p.129.

³⁵ J.P. Jain, *India and Disarmament*, p.113.

³⁶ Ibid., p.109.

During the test ban talks, India generally avoided taking sides. However, in this period it favoured (i) the Western proposals (as well as a Canadian amendment prohibiting all tests in all environments), (ii) international verification, and (iii) cessation of tests by 1 January 1963.³⁷ This tilt towards the Western position may have reflected the fact that at that time India was receiving help from the Anglo - American powers during the border war with China.

Suddenly, the situation seemed to change for the better. The Cuban Missile crisis in October 1962 made the superpowers realise that nuclear war was not as unthinkable as they had grown to think. On 10 June 1963, the President of United States, John F. Kennedy announced that his country would not conduct any tests as long as other states did not resume testing. Moscow realised that the 'black box' demand could not be accepted. In order to break the deadlock, Soviet Premier Khrushchev agreed to an uncontrolled and unlimited moratorium.³⁸

Special discussions on the test ban began on 1 June 1963 when Kennedy at American University announced that talks on the test ban question would soon begin in Moscow and that the United States would not conduct any further

³⁷ Ibid., pp.112-113.

³⁸ Ibid., p.114.

atmospheric tests unless the Soviet Union resumed testing.³⁹ The Soviets position was indicated when Khrushchev in East Berlin said that the Soviets were prepared to accept a limited agreement.⁴⁰

The Partial Test Ban Treaty (PTBT)

The Partial Test Ban Treaty or the Limited Test Ban Treaty (LTBT) banning nuclear tests in the atmosphere, in outer space and under water was signed on 5 August 1963 and entered into force on 10 October 1963 after ratification by three nuclear power signatories. In the preamble of the treaty the "Original Parties", the US, USSR and the UK, proclaimed their desire to achieve the discontinuance of all test explosions of nuclear weapons for all time with an aim to end the armaments race and eliminate the incentive to produce nuclear weapons. The three parties reasserted their determination to work towards that end. Underground nuclear weapon explosions were not forbidden so long as they did not release radioactive debris beyond national boundaries.

After nearly two decades of ups and downs, there now seemed to be some hope for stability and peace. The PTBT made both the East and West realise the importance of a practical approach. At the ENDC on 29 August 1963 India's

³⁹ Coit D. Blacker and Gloria Duffy, *International Arms Control: Issues and Agreements* (Stanford: Stanford University Press, 1984), p.130.

⁴⁰ Ibid.

representative A.S. Mehta said: "This agreement was reached simply because both sides came to recognise that since neither could gain military supremacy over the other in this nuclear age and a continued arms race provided no real security, that they must learn to live together in peace, and they could do so only if they began reducing the existing tensions and dangers."⁴¹

While the US, UK and USSR signed the PTBT, China and France refused to do so, on the ground that the treaty was partial and the nuclear powers would monopolise nuclear weapons. At that time, both the countries were engaged in preparing for their own nuclear tests. France had exploded her first nuclear device in 1960, and China was to do so in 1964. France saw nuclear capability as an essential element for security and an independent foreign policy. China wanted to acquire international status by going nuclear. China called the treaty a "dirty fraud" and said that the "Soviets had sold out Chinese interests". The reasons for Chinese ire could have been because Moscow was aiding India rather than China in the border dispute.⁴²

India signed the treaty on 8 August 1963, as soon as it was available for signature. The Government of India welcomed the treaty and described it "as good news for them,

⁴¹ ENDC/PV. 156, 29 August 1963.

⁴² Ashok Kapur, *India's Nuclear Option: Atomic Diplomacy and Decision Making* (New York: Praeger Publishers, 1976), p.100.

good news for us and good news for the world".⁴³ Jawaharlal Nehru called the treaty "as a landmark in history. It is an augury of greater international co-operation and understanding and will, we trust, lead to other agreements on tension reducing measures and to speedy conclusion of a treaty on general and complete disarmament".⁴⁴

India's participation in the partial test ban treaty led to several criticisms both outside and inside Parliament. Some argued that instead of supporting a comprehensive test ban treaty India had signed a partial ban. Nehru, in the Lok Sabha on 3 September 1957, said that "a partial agreement does not rule out a comprehensive agreement, it is a step towards that, it produces the atmosphere and the confidence to go further. Therefore, we have always suggested, a partial agreement is better than no agreement, provided that it is a step towards the larger agreement."⁴⁵

In the eighteenth session of the UN General Assembly, Indian representative Mrs. Vijaya Lakshmi Pandit under the item "Urgent Need for Suspension of Nuclear and

⁴³ *Foreign Affairs Record*, vol.9, 37 July 1963, p.153.

⁴⁴ *Ibid.*, p.154.

⁴⁵ Jawaharlal Nehru, *India's Foreign Policy Selected Speeches September 1946 - April 1961*, p.199.

Thermonuclear Tests" (A/5428 and Add. (1) stated the reasons for signing the PTBT.⁴⁶

- i) India was primarily concerned about human health and survival. A ban would at least reduce pollution and end further radioactive contamination of the air.
- ii) A ban would lower world tensions and perhaps even help end the Cold War.
- iii) A ban would be an effective way to prevent the spread of nuclear weapons.
- iv) A ban would prevent vertical proliferation on the part of the Nuclear Weapon States (NWSs).
- v) Banning tests would serve as an initial step towards nuclear disarmament.

She pointed out the objective of a test ban would be completely fulfilled if underground tests were also banned. Fearing the risk of retrogression, she emphasised that as long as underground tests were conducted, it could lead to resumption of tests in other environments and would nullify the Moscow Treaty. She appealed to the nuclear powers as well as France and China to speedily make an agreement on the banning of underground tests.

India continued to press for an underground test ban to achieve a comprehensive test ban. New Delhi stressed that "although this was an important step towards nuclear

⁴⁶ *General Assembly, Official Records, Eighteenth Session, First Committee, 1310 Meeting, 15 October 1963, p.7.*

disarmament, it could not be regarded as an adequate step by itself. The need remained of making further progress towards a ban on nuclear tests and complete disarmament".⁴⁷

Conclusion

From the 1950s to the early 1960s India actively campaigned for disarmament. India generally always welcomed any agreement that had the effect of reducing or ending the nuclear arms race. With this objective in mind, a comprehensive test ban was sought as a first step toward disarmament.

The PTBT was one of the first international treaties between the East and West signed in the midst of the Cold War. The Treaty turned out to be more of a health and environmental measure. But it failed to check the arms race. This was due to the basic lack of trust on both sides. As a result, the question of verification and an on-site inspection system for a comprehensive ban were never quite resolved. India was committed to a strenuous effort to end Cold War tensions and to the idea that the test ban could be a first step in that direction.

However, India enthusiastically endorsed the PTBT even though it was not comprehensive. It was believed that such a step was in the right direction in leading to a slowing - down of the arms race, halting the spread of nuclear

⁴⁷ V.K. Arora, *Foreign Affairs Reports*, p.102.

weapons, removing the danger to mankind from radioactive fall-out, easing international tensions, reducing the risk of war, building up mutual confidence, and paving the way to general and complete disarmament. The Partial Test Ban Treaty facilitated progress towards further agreements, the first being the Non-Nuclear Proliferation Treaty (NPT) of 1968, a treaty India wanted the international community to enact but a treaty which, in its final form, it could not eventually sign.

Chapter II

INDIA AND THE TEST BAN: 1964-1990

The Partial Test Ban Treaty was the first major breakthrough to nuclear sanity.¹ It opened new prospects towards nuclear disarmament. The parties to the Treaty confined its objectives to the elimination of explosions in air, space and under water, leaving underground tests to be negotiated. The Treaty remained doubly partial, firstly, because it was not signed by all countries and, secondly, because it did not cover underground tests.² Although the underground tests limit was placed at 5,000 kt for isolated locales, the great majority of tests were below 300 kt.³ It was only in 1974 in the Threshold Test Ban Treaty that underground explosions were constrained to a maximum of 150 kt. Thus underground testing went on unabated.

After the PTBT no serious talks on a CTBT were convened. The ban on underground tests found no favour for a variety of reasons. The major nuclear powers continued

¹ M.S.N. Menon, "Towards Nuclear Sanity", *Mainstream* (New Delhi) vol.5, no.32, 8 April 1967, p.34.

² Speech by V.C. Trivedi, leader of the Indian delegation to the Eighteen-Nation Committee on Disarmament, at the 269th Session, *Foreign Affairs Record* (New Delhi), vol.XII, no.6, June 1966, p.146.

³ Cited in Paul Doty, "A Nuclear Test Ban", *Foreign Affairs* (New York), vol.53, no.4 (Spring 1987), p.754.

their research on the further sophistication of nuclear weapons. This enabled them to develop new generations of nuclear warheads and related missile systems such as Anti-Ballistic Missiles (ABMs) and Multiple Independent Targetable Reentry Vehicles (MIRVs)⁴. In short, the NWSs went on to develop an overkill capacity. The underground tests were used for miniaturizing nuclear weapons, for improving and perfecting those weapons in such a way that smaller but quite powerful nuclear warheads could be more conveniently mounted on their artillery, guns, rockets and missiles and used both as tactical and strategic weapons.⁵ In addition, the PTBT, by prohibiting all but underground tests, became an anti-proliferation measure. Underground tests were expensive and no non-nuclear country would independently construct nuclear weapons without testing.⁶ The PTBT therefore greatly complicated the calculations of new nuclear aspirants. As a result, the PTBT had a greater effect on horizontal proliferation than it did on the nuclear arms race between the United States and the Soviet Union.

⁴ Josef Goldblat, *Agreements for Arms Control: A Critical Survey*, SIPRI (London: Taylor and Francis Ltd., 1982), p.25.

⁵ J.P. Jain, *India and Disarmament: Nehru Era, An Analytical Study*, vol.1 (New Delhi: Radiant Publishers, 1979), p.69.

⁶ Cited in Mahesh Kumar Bhargava, *Disarmament From Versailles to Test Ban Treaty* (New Delhi: National Publishing House, 1979), p.98.

Between 1964 and the signing of the Nuclear Non-Proliferation Treaty in 1968 massive nuclear tests were resumed. In addition, France and China enlarged the membership of the nuclear club from three to five.⁷ India pressed for negotiations with a view to making the PTBT a comprehensive one. The Indian delegation to the ENDC said: "Until the ban has been extended to cover all tests, there will be a continuing danger of the dissemination of nuclear weapons, apart from many other dangers."⁸

India's Reaction to the Chinese Bomb

The explosion of an atom bomb by China on 16 October 1964 damaged the prospects of the Partial Test Ban Treaty. China proceeded to conduct a series of tests.⁹ This caused varied reactions in India, although the predominant feeling was one of insecurity and condemnation. China was admired on the ground that at least one Asian country had demolished the monopoly of European powers to manufacture the atom bomb.¹⁰ But more generally the Chinese bomb was seen with fear and disapproval. Prime Minister Lal Bahadur Shastri

⁷ Herbert F. York, *Arms Control* (San Francisco: W.H. Freeman and Company, 1973), p.140.

⁸ ENDC/PV 170, 27 February 1964, p.26.

⁹ For details, see G.G. Mirchandani, *India's Nuclear Dilemma* (New Delhi: Popular Book Services, 1968).

¹⁰ M.K. Dandavate "Chinese Nuclear Challenge to Indian Democracy", *Janata* (Bombay), vol.XX, nos.1 and 2, Republic Day, 1965, p.12.

described the Chinese explosion as a danger to the maintenance of peace and called upon peace-loving people in all the countries to raise their voice and awaken the world conscience to fight "this aggression on peace and security."

Chinese entry into the nuclear club in 1964 posed a dilemma for India: whether to manufacture nuclear weapons or not. Wide-ranging reactions came from the different political parties. The Seventh Congress of the Communist Party of India (CPI) appealed to the people of India not to make the bomb because atomic weapons would only place a further crippling burden on the national economy and would also weaken India's role in the preservation and consolidation of world peace.¹² The Jan Sangh was the first party to express its determination to build up India's military strength if necessary through the bomb.¹³ The Indian National Congress in its resolution of Durgapur in 1965 deplored the Chinese test in defiance of world opinion and called all peace loving nations to unite together in raising their voice against the increasing threat to human

¹¹ G.G. Mirchandani, *India's Nuclear Dilemma*, New Delhi: Popular Book Services, 1968, p.25.

¹² "Atom for Defence: Spectrum of Views", *Janata* (Bombay), vol.XX, nos.1 and 2, Republic Day, 1965, p.19.

¹³ *Ibid.*, p.20.

existence.¹⁴ The Congress urged that the world community proceed to ban all underground tests by all countries.

Prime Minister Lal Bahadur Shastri took a strong status-quo stand. He continued to pursue the traditional policy, namely, that India would use nuclear energy for peaceful purposes and would not go in for the bomb.¹⁵ On economic, moral, and political grounds, he said that "the cult of the bomb is a danger to world peace and we reject it categorically".¹⁶ The Deputy Prime Minister of India, Morarji Desai, argued that India signed the Partial Test Ban Treaty despite knowing of Chinese nuclear capabilities and the 1964 explosion had not changed the position.¹⁷ Desai argued that "our people will die of poverty and get destroyed even before any destruction can take place by a bomb thrown by China".¹⁸

Keeping the Chinese capability in mind, many in India considered the country's adherence to the PTBT an unnecessary sacrifice. Nevertheless, the government's strategy was to restrain as well as discredit China diplomatically rather than pull out of the Treaty or test a

¹⁴ "Atom for Defence: Spectrum of Views", *Janata* (Bombay), vol.XX, nos.1 and 2, Republic Day, 1965, p.19.

¹⁵ *Ibid.*, p.19.

¹⁶ G.G. Mirchandani, *India's Nuclear Dilemma*, p.38.

¹⁷ *Ibid.*, p.37.

¹⁸ *Ibid.*

nuclear device. On 4 March 1965, India's representative to the U.N. stated: "Most nations have observed the prohibition [on testing], whether they have signed the treaty or not [i.e. the PTBT]. There has been only one solitary defiance of international will as reflected in the Moscow treaty... Of course the defiance hurled by the PRC needs to be countered, and we trust the international community will take note of the affront given to it and the damage done to it".¹⁹

However, the UN as well as the great powers failed to appeal to the Chinese to refrain from testing. Under the aegis of the UN, India believed that the great powers should take concrete steps towards general and complete disarmament in order to build a safer and more peaceful world. The leader of the Indian delegation to the Disarmament Commission, V.C. Trivedi, said after the second Chinese explosion on 14 May 1965 that the "atmospheric explosion carried out by China with its attendant radioactive fall out constitutes a genetic and health danger, not only to the present generation, but to future generations as well".²⁰ Although China did not sign the Partial Test Ban Treaty, UN Resolution 1762 (XVILL), the Bandung Declaration, and the

¹⁹ Quoted in Ziba Moshaver, *Nuclear Weapons Proliferation in the Indian Subcontinent* (New York: St. Martin's Press, 1991), pp.117-118.

²⁰ *Foreign Affairs Record* (New Delhi) vol.XI, no.5, May 1965, pp.95-96.

Cairo Declaration, all had specifically asked that nuclear weapons tests should not be undertaken.²¹ China was accused therefore of not respecting international understandings which had the backing of the vast majority of countries.

The second Chinese nuclear test in the atmosphere was, in India's view, an even greater affront given that the Disarmament Commission was then in session. On 12 August 1965 in the Eighteen-Nation Disarmament Committee (ENDC), Indian representative V.C. Trivedi stated: "It is a sad commentary on the state of the world when a country flouts with impunity the combined will of the rest of the world and wages a blatant attack on the health of humanity."²² India looked forward to the achievement of a CTBT, that is, to an extension of "the scope of the Partial Test Ban Treaty to cover underground tests". India considered it imperative that all underground tests should be discontinued immediately, either by unilateral decisions based on the policy of mutual example or in some other appropriate way, while negotiations were going on for reconciling the differences between the nuclear powers. As the nuclear powers continued talks to enter into another Partial Treaty for cessation of tests above a limited threshold, scientific exchanges were suggested for the specific purpose of

²¹ Ibid.

²² *Foreign Affairs Record* (New Delhi), vol.XI, no.8, August 1965, p.157.

lowering the initially - agreed threshold [PTBT]. "We trust that the nuclear powers will follow the same high minded pattern and achieve a satisfactory agreement in our committee so that this evil of underground explosions is eliminated forever from the earth. Delay only gives excuses to the chauvinists among us who glorify war and to whom peaceful co-existence is a crime",²³ the Indian delegation said.

Speaking in the Lok Sabha, the Minister of External Affairs, Swaran Singh, condemned the third Chinese explosion (on 9 May 1966) as an arrogant defiance of the clearly expressed desire of people all over the world to discontinue nuclear tests and to arrest nuclear proliferation. India's own nuclear policy remained unaltered, though the policy was kept under constant review. The External Affairs Minister said, "since the partial test ban has been signed to which India is a signatory, admittedly progress [to end all nuclear tests] has been slow. Government still feel that the interests of world peace and our own security are better achieved by giving all support to the efforts for world nuclear disarmament than by building our own nuclear weapons".²⁴

²³ Ibid.

²⁴ *Lok Sabha Debates*, Third Series, vol.LV, 10 may 1966, Cols.15713.

With the Chinese continuing to test, India was convinced that the main security threat came from China. Since China's main threat would be conventional, the need of the hour for India was strong conventional defence without weakening its economic development programme.²⁵ In addition, for moral reasons, India decided not to enter the nuclear arms race. Instead, India decided to mobilise world opinion to see that atomic weapons were destroyed.

The Drive for an Underground Test Ban

In 1966, the Indian delegation to the ENDC reiterated that cessation of nuclear tests was the first path to nuclear sanity. It noted with regret that nuclear tests had taken place notwithstanding the test ban. The Indian representative further said: "On the question of all nuclear weapon tests, including underground tests, India has consistently advocated a two-pronged approach, one dealing with the suspension of actual explosions and the other dealing with an international treaty embodying a formal legal obligation prohibiting them."²⁶ As far as the first aspect was concerned, India had continued to urge that all nuclear weapons tests be suspended pending finalisation of

²⁵ R.K. Nehru, "The Challenge of the Chinese Bomb-I", *India Quarterly* (New Delhi), January - March 1965, p.11.

²⁶ *Foreign Affairs Record* (New Delhi), vol.XII, no.8, June 1966, p.147.

formal instruments. On the second part of the problem namely, agreement on an international treaty India had consistently attempted to advance several specific ideas individually as well as collectively. In this context the Indian delegation quoted some relevant passages from the memorandum submitted by it to the ENDC which formed part of the committee's report of 13 September 1964 to the General Assembly. With regard to the differences among nuclear powers on the question of identification and verification of underground tests, India endorsed the position of the non-aligned nations that all underground tests be discontinued based on a policy of mutual example. India also suggested that the superpowers should agree to a formal treaty prohibiting underground tests above an agreed threshold, i.e. of a seismic magnitude of 4.75 or 4.8. India urged that scientific advances be made in the field of identification so that the agreed threshold could be monitored and the conversion of a de facto suspension of tests into a de jure prohibition could proceed as early as possible. India pointed out that though nuclear proliferation was dangerous, the menace of testing was even more real and awesome. The Indian delegation concluded by saying that, "continued underground explosions are intended only to serve the interest of an intensified arms race and are bound to lead to giant missiles and improved capability missiles and a host of new generations of offensive missiles creating a

vicious circle of defensive - offensive systems. When that takes place, scant attention will be paid to the proposition that we put forward in this committee for a freeze in the production of fissile material or for a suspension of nuclear weapon tests. It is essential, therefore, that we act before it is too late".²⁷

The decisive factor, India held, was to bring about agreement on arms control and disarmament, which it considered the only solution to the problem of national security in the nuclear age. But its view met with no immediate response from the nuclear powers. Explosions in the atmosphere and under ground continued to be carried out.

In 1966, Indian representative V.C. Trivedi, in the First Political Committee on General and Complete Disarmament, stated that continued testing had weakened the PTBT irretrievably. The first requisite was that the PTBT should be adhered to universally and that negotiations would proceed more constructively if all nuclear tests were suspended.²⁸ "A total test ban is, in addition, an effective non-proliferation measure, at least in so far as the non-nuclear weapon countries are concerned. As far as the nuclear weapon powers are concerned, they have indulged in enough testing already and it is in the interest of

²⁷ Ibid., p.148.

²⁸ *Foreign Affairs Record* (New Delhi), vol.XII, no.11, November 1966, p.291.

international peace and stability that they stop further testing",²⁹ Trivedi said. The controversy between the two super nuclear weapon powers, on the need for on-site verification of underground nuclear weapon tests as distinct from natural seismic events, had held up the conclusion of a treaty banning underground nuclear tests. The Indian delegation believed that negotiations on this matter could proceed more constructively if there were in existence a suspension of all nuclear weapon tests.³⁰

Complicating India's position on the suspension of test was the question of whether or not, and under what circumstances, peaceful nuclear explosions were to be permitted. The 4 May 1967 draft treaty for a Latin American nuclear-weapon-free zone contained a definition that permitted nuclear explosions for peaceful purposes but not for weaponisation.³¹ Such a definition would have created a large loophole in the NPT (which was under discussion because the true intention of the state conducting peaceful nuclear tests would be difficult to assess. Intention was irrelevant to the possessor's acquisition of the capability to make nuclear weapons because the technology for weapons

²⁹ Ibid.

³⁰ Ibid.

³¹ George Bunn and Roland Timerbaev, "Avoiding the 'Definition' Pitfall to a Comprehensive Test Ban", *Arms Control Today*, Washington, D.C. vol.23, no.4, May 1993, p.17.

and "peaceful" explosions was the same.³² Realizing the need to deal with this problem in the NPT, the Soviet Union and the United States proposed to prohibit acquisition of both weapons and "other nuclear explosive devices" by non-nuclear weapon countries. Few, if any countries, except Brazil and India, wanted the NPT to permit the manufacture and testing of nuclear explosive devices for peaceful purposes.³³

India, in league with others, tried to move the nuclear powers to a test ban in yet another way. In the NPT negotiations, it tried to directly connect a test ban to the preamble of the NPT. Thus, paragraph 10 of the NPT preamble recalls "the determination expressed by the parties to the 1963 Treaty banning nuclear weapon tests in the atmosphere, in the outer space and under water in its Preamble [i.e. of the 1963 treaty] to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time and to continue negotiations to this end".³⁴ Many countries urged that a test ban should be the primary measure for achieving "the cessation of the nuclear arms race at an early date", as provided in Article VI of the NPT. But the testing powers insisted that Article VI should refer to negotiations between the NWSs for nuclear disarmament and should not

³² Ibid.

³³ Ibid.

³⁴ Harald Miller, David Fischer and Wolfgang Kotter, *Nuclear Non-Proliferation and Global Order* (New York: Oxford University Press, 1994), p.210..

refer to a test ban. In the end, the nuclear powers simply pledged in Article VI to end their "vertical" proliferation of nuclear weapons through negotiations in exchange for a binding commitment on the part of the non-nuclear states not to engage in "horizontal" proliferation.

Although a comprehensive test ban cannot by itself stop the nuclear arms race, the race cannot be halted without a test ban.³⁵ In 1969, at the 334th meeting of the ENDC, the Government of India urged a cessation of nuclear weapons tests and an "armament truce" among the big powers.³⁶ It was of the view that the only way to prevent the spread of nuclear weapons to additional countries was for the NWSs to stop further production of nuclear weapons themselves.

As to the problem of verification of a comprehensive test ban, India, along with other non-aligned countries, made various proposals which were not agreed to by the NWSs. It was against this background that India welcomed the initiatives taken by the Swedish Minister of State, Alva Myrdal.³⁷ On the verification issue, the Swedes proposed an exchange of seismic information among countries to make it easier to detect underground events and to identify

³⁵ William Epstein, "The Nuclear Testing Threat", *The Bulletin of the Atomic Scientists* (New York), vol.45, no.6, July-August 1990, p.35.

³⁶ *Foreign Affairs Record* (New Delhi), vol.XIII, no.9, September 1969, p.131.

³⁷ *Foreign Affairs Record* (New Delhi), vol.XV, no.12, April 1969, p.83.

earthquakes.³⁸ The proposal was opposed by the US and the USSR who, in turn, forwarded their own suggestions. The US asserted the need for regular on-site-inspections on the ground that other methods could not reliably detect and identify low-level under ground explosions; the USSR objected to the provision of on-site verification, even if such verification was by invitation.³⁹

India, on its part, favoured the intensification of co-operation for an international exchange of seismological data. The Indian representative, Azim Hussain, therefore welcomed the submission by the delegation of Canada, (ENDC/251/Rev.1) on the exchange of seismological data. The Indian delegation stated that "undoubtedly, an effective scheme for the unrestricted exchange of high-quality seismic data on a world wide basis..... will help to remove to a very great extent, if not fully, the remaining reservation as to the effectiveness of seismic means of verifying a CTBT."⁴⁰ He said that India would be ready to co-operate actively in any system of seismological data exchange, provided it was effective and based on equal participation and full co-operation of all concerned.

³⁸ April Carter, *Success and Failure in Arms, Control Negotiations, SIPRI* (Oxford: Oxford University Press, 1989), p.82.

³⁹ Ibid.

⁴⁰ *Foreign Affairs Record* (New Delhi), vol.XV, no.12, December 1969, p.275.

Peaceful Nuclear Explosions And India's 1974 Test

The question of peaceful nuclear explosions (PNEs) and how they would be dealt with in a CTBT was a ticklish problem. At this time, there was a view that PNEs were viable and could play a role in developmental efforts (for instance, in earth moving or mining) but if PNEs were to be permitted, how were they to be distinguished from weapons test?

At the Conference of Non-Nuclear Weapon states, on 12 September 1968, Indian representative Azim Hussain asserted that the peaceful uses of nuclear energy should be sought not by way of modification of the PTBT but in the context of a CTBT. In the first instance, India emphasised a total prohibition of all nuclear explosions, for all states, nuclear as well as non-nuclear. Thereafter, the conduct of explosions should be dealt with by the International Atomic Energy Agency (IAEA) without any discrimination against any category of states.⁴¹ The Government of India viewed the IAEA to be fully competent in rendering expert evaluations and reviews of health and safety in respect of peaceful nuclear explosions. It urged the Agency not to go into the "political" aspects of any proposal, bilateral or otherwise, for peaceful nuclear explosions.⁴² On 23 May 1969,

⁴¹ J.P. Jain, *Nuclear India*, vol.I, (New Delhi: Radiant Publishers, 1974), pp.211-213.

⁴² *Ibid.*, p.229.

Ambassador Azim Hussain, in the Eighteen-Nation Disarmament Committee, dealt with two equally important aspects of nuclear explosions for peaceful purposes: the economic aspect and the disarmament aspect.

The Ambassador suggested that in the development of peaceful nuclear technology, nuclear explosions for peaceful purposes occupied a very important place and perhaps the most significant instrument for the economic development of developing countries. In this regard, he stated that there should be neither any monopoly nor any discrimination in regard to the development of the technology of nuclear explosions for peaceful purposes.⁴³ This would avoid enlarging the gulf between the rich and the poor nations.

The disarmament aspect of nuclear explosions for peaceful purposes required a complete end to all nuclear explosions with a view to putting a stop to the nuclear arms race. He said: "It has to be ensured that nuclear explosions for peaceful purposes are not misused in any manner for military purposes and that they do not contribute to a further aggravation of the nuclear arms race."⁴⁴

On 18 May 1974, India conducted her first and only underground test. India argued that its device was peaceful and was intended to generate insights into the uses of

⁴³ *Foreign Affairs Record* (New Delhi), vol.xv, no.5, May 1969, p.107.

⁴⁴ *Ibid.*

nuclear explosions for development purposes. Moreover, it had been made with native plutonium and had not violated the agreement safeguarding the Canadian-supplied reactor. Since the Indian test was less than 15 kt, it also did not violate the Threshold Treaty which the superpowers had fashioned.⁴⁵

Thus, in a press note on the nuclear explosion of 18 May, the Atomic Energy Commission (AEC) announced that it had carried out a peaceful nuclear explosion experiment using an implosion device. India affirmed that it had exploded a device in keeping with its interest in the peaceful applications of nuclear technology. In particular, the government made reference to the use of nuclear implosions in the service of mining and earth-moving operations. The Atomic Energy Commission also stated that India had no intention of producing nuclear weapons and reiterated its strong opposition to the military uses of nuclear explosions.⁴⁶ The experiment, India claimed, was successful, and there was very little "venting" of radioactive gases or materials.⁴⁷ Even before India ventured to explode a peaceful nuclear device in 1974, Prime Minister Indira Gandhi had informed the Parliament on 15 November 1972 that the Atomic Energy Commission was studying the

⁴⁵ K.K. Pathak, *India's Nuclear Policy: A Third World Perspective* (New Delhi: Gitangali Prakashan), 1978 p.170.

⁴⁶ J.P. Jain, *Nuclear India*, p.332.

⁴⁷ Ibid.

conditions under which a peaceful nuclear explosion under ground could be of economic benefit to India without causing environmental hazards.⁴⁸

Apprehension over the 1974 test spread far and wide. The international community called it a severe setback to non-proliferation efforts and to the possibility of a test ban. In due course of time, India's explosion of May 1974, which India claimed to be for peaceful purposes, was grudgingly accepted by the international community. A complaint by Pakistan about the radioactive contamination of its territory from the Indian underground explosion, in violation of the PTBT was rejected by India and the matter was not pursued.⁴⁹

Though the 1974 test was not a prelude to building a nuclear arsenal, the Indian government decided to keep its option open. In practice, India has continued research and development, largely out of sight of the public.⁵⁰ And as

⁴⁸ Lok Sabha Debates, Fifth Series, vol.XX, 15 November 1972, p.125. Incidentally, it should be noted that it was exactly eighteen months later that India conducted its Pokharan test, Indian scientists since Bhabha had claimed that it would take them that time to prepare India's first explosion.

⁴⁹ Josef Coldblat, *Agreements for Arms Control: A Critical Survey*, p.26.

⁵⁰ David Albright and Mark Hibbs, "India's Silent Bomb", *The Bulletin of the Atomic Scientists* (New York), vol.48, no.7, September 1992, p.28.

Pakistan's programme seemingly achieved success in the 1980s, India accelerated its own programme.⁵¹

Thus, India's 1974 test seemed to demonstrate its nuclear capability. The Western powers, led by the United States, avoided direct and conclusive resolution of India's status in the nuclear realm, banking on continuation of the ambiguous Indian policy.⁵² The Western powers were also concerned that India's explosion might accelerate proliferation of "peaceful nuclear explosions". To control the export of nuclear science and technology the London Nuclear Supplier's Group (LSG) was formed in 1975.⁵³ The United States and other Western countries accused India of diverting its scarce resources to prestige projects such as nuclear detonations when she should be utilising them to feed her population.⁵⁴

The Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty

In July 1974, the United States and the Soviet Union signed the treaty on the Limitation of Underground Nuclear Weapon Tests, also known as the Threshold Test Ban Treaty

⁵¹ Ibid.

⁵² O.P. Sabherwal, "India's Nuclear Policy Under Siege", *World Focus* (New Delhi), vol.17, no.2, February 1996, p.13.

⁵³ K.K. Pathak, *India's Nuclear Policy: A Third World Perspective*, p.118.

⁵⁴ Ibid., p.143.

(TTBT). The Treaty prohibited any underground nuclear weapon tests with a yield in excess of 150kt. The treaty did not enter into force until 31 March 1976. Formal negotiations were delayed because certain nuclear warheads were to have a yield exceeding the agreed limit, and their testing had to take place before the restrictions became effective.⁵⁵ Indeed, during the period between the Treaty signing and 31 March 1976, the US conducted 12 tests with a yield of more than 200 kt and the Soviets conducted 5 tests with yields of over 200 kt.⁵⁶

India welcomed the TTBT as an important step towards a CTBT. New Delhi had always urged that in pursuit of a comprehensive test ban, the nuclear weapon powers should negotiate intermediate, incremental agreements on testing. It was better, in the Indian view, that the disarmament momentum be maintained and that the nuclear powers do whatever they could to constrain testing even as they continued to explore the possibility of a complete ban.

In general, India was in agreement with some of the criticisms of the TTBT. First, the Treaty did not help the great powers to scale down their nuclear arsenals and therefore failed to strengthen the NPT. The Treaty only served to exacerbate the distrust, because the 150kt

⁵⁵ Josef Goldblat, *Agreements for Arms Control: A Critical Survey*, p.26.

⁵⁶ Cited in April Carter, *Success and Failure in Arms Control Negotiations*, p.84.

limitation possessed no arms control value and no relation to verification possibilities. Further, the TTBT resulted in an indefinite postponement of serious talks concerning a CTBT. A final objection was that the Treaty did not address the questions of PNEs.⁵⁷ This was addressed over the next two years and found expression in a treaty on peaceful nuclear explosions.

Because PNEs are indistinguishable from military tests, there was a danger that they could be used to breach the TTBT. Citing peaceful, that is, developmental purposes, a country could carry out a test which exceeded the limits in the TTBT. To deal with this problem, on 28 May 1976 the US and the Soviet Union signed a treaty on Underground Nuclear Explosions for Peaceful Purposes (PNET) in which individual PNEs were permitted for a limit of 150 kt, provided each explosion could be measured.⁵⁸

Yet the PNET did not serve as an arms control measure, partly because it was attached to the unsatisfactory TTBT and partly because it was feared that it would undermine attempts to prevent proliferation.⁵⁹ It also permitted the possibility of carrying out an individual explosion above 150kt for peaceful purposes.⁶⁰ This was troublesome because

⁵⁷ Ibid.

⁵⁸ Ibid., p.85.

⁵⁹ Ibid.

⁶⁰ Ibid., p.86.

it was not clear whether one could reliably distinguish between tests for military and peaceful purposes.

The Tripartite Talks on a CTBT

In 1977, the US, the UK, and the USSR resumed the tripartite talks on a CTBT, but a series of complex technical problems related to verification hampered the negotiations. With the technical advances of the 1970s, the problems of reliability and safety of nuclear warheads received high priority. Test ban opponents argued that nuclear tests were required to maintain warhead survivability and reliability. This could be done through low yield explosions of less than 150 kt as permitted under the TTBT.⁶¹ Proponents of the nuclear test ban claimed that because the development of third generation weapons depends on nuclear explosions a comprehensive or very low-yield test ban would impede a new round of arms racing.⁶²

While recognising that a CTBT was central to the cessation of the nuclear arms race, particularly in its qualitative aspects, in 1978 the Indian representative to the Conference of the Committee on Disarmament (CCD), C.R.

⁶¹ "Nuclear Weapon Safety: How Safe is Safe?", *The Bulletin of the Atomic Scientists* (New York), vol.47, no.3, April 1991, p.36.

⁶² Dan Fenstermacher, "Arms Race: The Next Generation", *The Bulletin of the Atomic Scientists* (New York), vol.47, no.2, March 1991, p.30..

Gharekhan, called upon the Committee not to forget that a CTBT would not by itself lead to the cessation of the quantitative arms race. In that respect the CTBT should be seen not as an end in itself but as a means to achieving the ultimate objective of a world free from nuclear weapons. He also noted that a CTBT without the participation of France and China would not be truly effective.⁶³

While expressing India's opposition in principle to all weapons of mass destruction, Garekhan called for a ban on the further development and deployment of the "reduced impact and enhanced radiation" bomb.⁶⁴ He emphasised that the most significant step to reduce the danger of a nuclear confrontation was the general and complete prohibition of nuclear weapon tests. The participation of all nuclear powers was necessary if the ban was to be effective and definite. Explaining India's nuclear policy, Garekhan added that India did not intend to have any nuclear weapons and that India's nuclear energy programme was entirely wedded to peaceful uses.⁶⁵

⁶³ CCD/PV, 771, 14 February 1978, p.11.

⁶⁴ Ibid., p.6.

⁶⁵ Ibid., p.11.

Impact on the NPT

In the Review Conferences of the NPT in 1975, 1980, 1985, special reference was made to the achievement of a CTBT, the linkage having been discussed frequently ever since negotiations on the NPT began.⁶⁶ At each Conference the non-nuclear weapon states (NNWSs), especially the non-aligned nations, placed emphasis on Article VI of the NPT and on ending all underground testing. The NNWSs stressed the linkage between a CTBT and the NPT, with a hope to curb both vertical and horizontal proliferation. By contrast, the NWSs considered the test ban as an effective tool to check horizontal proliferation, and they resented the CTB being projected as a long-term goal.

In 1985, the non-aligned nations called for a vote on three resolutions : that the three participating nuclear powers resume negotiations immediately for a CTBT; that testing be halted pending the conclusion of such a treaty; and that the testing, production, and deployment of nuclear weapons be halted.⁶⁷ The non-aligned countries clearly stated that the NWSs should abide by their obligations to halt and reverse the nuclear arms race if the NPT was to endure.

⁶⁶ Savita Pande, "CTBT and NPT: A Study in Linkages", *Strategic Analyses* (New Delhi), vol.VIII, no.9, December 1994, p.1067.

⁶⁷ William Epstein, "The Nuclear Testing Threat", p.36.

The US however continued to harden its stand against a comprehensive test ban.⁶⁸ In fact, the nuclear powers and industrial states were more concerned about the proliferation of chemical weapons and sophisticated missiles among the developing countries.⁶⁹ Moreover, in the aftermath of the NPT Review Conference in 1985, the U.S. Arms Control and Disarmament Agency (ACDA) stated that before the US resumed negotiations on the CTBT, there must be an agreement on "deep reductions in the level of nuclear weapons, maintenance of a credible nuclear deterrent, improved verification capabilities and expanded confidence building measures".⁷⁰ Most of the countries regarded this change as a violation of the provisions of the 1963 PTBT as well as Article VI of the NPT which calls for negotiations in good faith for a cessation of the nuclear arms race at an early date.

The Six Nation's Initiative

In 1985, at the initiative of Prime Minister Rajiv Gandhi, the leaders of six nations (Argentina, Greece, Mexico, Sweden, Tanzania and India) met in New Delhi to

⁶⁸ Ibid.

⁶⁹ Ibid.

⁷⁰ William Epstein, "New Hope for a Comprehensive Test Ban", *The Bulletin of the Atomic Scientists* (New York), 1986, vol.42, no.2, p.30.

consider the perilous development of the nuclear arms race. They recommended two specific areas that required special attention: the prevention of an arms race in outer space and a comprehensive test ban treaty.⁷¹ The Delhi Declaration of the six nations noted, "Outer space must be used for the benefit of mankind as a whole, not as a battle ground of the future".⁷² They therefore called for prohibition on the development, testing, production, deployment and use of all space weapons. They also urged the NWSs to immediately halt the testing of all kinds of nuclear weapons and to conclude at an early date a treaty on a nuclear weapons test ban. The six argued that nuclear testing facilitated the sophistication of arsenals and the result was competitive escalation rather than reversal of the arms race. A CTBT was portrayed as a major step towards ending the continuous modernisation of nuclear arsenals. Since verification constitutes an obstacle to achieving a CTBT, the Six Nation Initiative proposed concrete verification arrangements- establishment of temporary monitoring stations at existing test sites, arrangements for utilising existing stations in the US and the USSR for monitoring their territories outside

⁷¹ "Delhi Declaration", *Rajiv Gandhi Memorial Initiative for the Advancement of Human Civilization* (Rajiv Gandhi Foundation, New Delhi), 1-2 May 1993, no page number given.

⁷² Ibid.

the test sites, as well as inspections of large chemical explosions.⁷³

In the Conference on Disarmament, Indian representative Eric Gonsalves noted two aspects to the problem of a nuclear test ban put forward by the opponents of nuclear test ban. Firstly, he reacted with dismay to the contention of the nuclear powers that continuation of nuclear testing was a key element in their security and that a test ban was a long-term goal. He stated: "Therefore, the argument that nuclear test are necessary to buttress the security policies of one military alliance or to maintain the credibility of so-called deterrence would appear to be entirely groundless".⁷⁴ Why was the argument of the superpower groundless? Gonsalves made four arguments essentially. First, the superpowers, by their own admission, had enough nuclear weapons and therefore did not need to test to produce more or to refine existing weapons. Second, the argument that testing was vital to assess the "shelf life" of existing weapons was also baseless and reflected the pressures exerted by "the armaments lobby". Third, even if testing led to the production of new weapons, it was far from clear that the "marginal advantage as may be derived by continued testing could be so significant as to alter the

⁷³ "Maxico Declaration", *Rajiv Gandhi Memorial Initiative for the Advancement of Human Civilization*, no page number given.

⁷⁴ CD/PV.342, 25 February 1986, p.21.

present state of mutual vulnerability". Fourth, the superpowers had recently argued that "a nuclear war cannot be won and must never be fought" and that "they will not seek to achieve military superiority". If so, what was the point of continued testing?

The second argument advanced by the superpowers was that the adversary may derive advantage from cheating in a test ban treaty. Here Gonsalves argued that "the efficacy of national and international seismic monitoring arrangements is by objective international scientific standards adequate for effective verification and can moreover very easily and speedily be upgraded".⁷⁵ In order to cheat, the nuclear powers had two options: either to carry out tests of less than one kiloton or to "muffle" a somewhat larger explosion by burying it in a rock cavity. Neither option would be terribly helpful to the nuclear powers because the yields would be too low to be "of significant use and is unlikely to provide any significant advantage". Finally, Gonsalves argued that the political commitment of the international community as a whole to a comprehensive nuclear test ban would in itself be an effective deterrent against attempts to cheat.⁷⁶

⁷⁵ Ibid.

⁷⁶ Ibid.

Conclusion

In the period between 1964 and 1990 the CTBT received little importance from the NWSs. They were more concerned about the NPT. Since the NNWS became disillusioned and lost their faith in other non-proliferation measures, the NNWSs favoured a linkage between the test ban and the NPT. Although important negotiations such as the TTBT and PNET were successfully concluded, there was little agreement on a comprehensive test ban. The nuclear advance of China, India and Pakistan was a chain reaction, yet India did not plan to manufacture a nuclear arsenal. As far as renunciation of nuclear weapons is concerned, India stuck to her policy of the peaceful uses of nuclear energy. All the time, New Delhi continued to work towards banning all weapons tests in all environments.

Chapter III

THE COMPREHENSIVE TEST BAN TREATY AND INDIA'S STAND SINCE 1990

With the end of the Cold War, the international community and the principal nuclear powers, the US and USSR, for the first time since the 1950s, took the possibility of nuclear disarmament seriously. The Comprehensive Test Ban Treaty was portrayed as a necessary first step towards the complete elimination of nuclear weapons. On 17 October 1991, in the First Committee of the UN General Assembly, Atal Bihari Vajpayee, as a member of the Indian delegation in New York, welcomed the unilateral moratorium on nuclear testing proposed by Russia's President Mikhail Gorbachev and strongly urged all nuclear weapon states to announce a similar moratorium in order to create a positive environment for negotiations towards a CTBT in the CD.¹

In 1993, the entire international community for the first time supported the commencement of multilateral negotiations on a CTBT. In 1993, India was a co-sponsor along with the US, of a General Assembly resolution asking for negotiations on a ban. On 10 August 1993, the CD gave its Ad Hoc Committee a mandate to "negotiate intensively a

¹ Savita Pande, *India and the Nuclear Test Ban* (New Delhi: Institute for Defence Studies and Analyses, 1996), pp.162-163.

universal and multilaterally and effectively verifiable comprehensive nuclear test ban treaty, which would contribute effectively to the prevention of the proliferation of nuclear weapons in all its aspects, to the process of nuclear disarmament and therefore to the enhancement of international peace and security".²

India enthusiastically supported the negotiations on the CTBT. This stand was indicated on 25 October 1993 in the First Committee by the Indian representative M.M. Jacob when he said that India felt that the "CTBT would go a long way in arresting the nuclear arms race and bringing to an end the development of more lethal warheads". The Comprehensive Test Ban Treaty was also required to prevent the development of "third generation nuclear weapons". Jacob added that the aim of the CTBT should be to prevent the testing of all nuclear weapons and thereby to inhibit their "proliferation in horizontal as well as vertical dimensions".³ The Ad Hoc Committee began the CTBT negotiations in January 1994 and produced a 'rolling text' of the treaty with 104 pages and 1,200 disagreements.

The sudden move forward on a CTBT should be seen in the context of the indefinite extension of the NPT in 1995. The

Sohrab Kheradi, "Introductory Remarks by the Moderator", *Strategic Digest* (New Delhi), vol. xxvi, no. 4, April 1996, p. 454.

Quoted in Savita Pande, *India and the Nuclear Test Ban Treaty*, pp.164-165.

decision to indefinitely extend the NPT at the NPT Review and Extension Conference on 11 May 1995 was part of a compromise decision including, among other things, a pledge to complete a CTBT by the end of 1996. This pledge was accepted by the five official nuclear weapon states. The Extension declaration specified that the "nuclear-weapon states reaffirm their commitment, as stated in article VI [of the NPT], to pursue in good faith, negotiations on effective measures relating to nuclear disarmament". It went on to say that the "full realization and effective implementation of Article VI" included "The completion by the Conference on Disarmament of the negotiations on a universal and internationally and effectively verifiable Comprehensive Nuclear Test Ban Treaty no later than 1996. Pending the entry into force of a Comprehensive Test Ban Treaty, the nuclear weapon States should exercise utmost restraint".⁴ The real intention of the nuclear powers behind all this was to get the support of the non-nuclear weapon powers for an indefinite and unconditional extension of the NPT. India's awareness of the intentions of the nuclear powers was expressed by Prime Minister P.V. Narasimha Rao in the Non Aligned Movement (NAM) summit in Cartagena on 15 December 1995. He said: "A handful of nations perpetuated their monopoly over the means of mutually assured destruction by

⁴ Appendix 13 A, "Documents on Nuclear Arms Control and Proliferation", *SIPRI Yearbook* (Oxford: Oxford University Press, 1996), p. 591.

the indefinite extension of the nuclear NPT. While the aim of both these treaties [NPT and CTBT] are laudable, and we support them wholeheartedly, we must ensure that we do not lose yet another opportunity to obtain a commitment to universal and comprehensive nuclear disarmament."⁵

India took a tough stand on the CTBT, apparently reasoning that with the permanent extension of the NPT it had no other way to pursue its goal of total nuclear disarmament. In a plenary statement, the Indian Ambassador to the CD, Arundhati Ghose, said that 1996 would prove "a testing time for all of us in the CD". She said: "less than a year ago, the NPT was indefinitely extended. This single act resulted in the legitimization, for the foreseeable future and beyond, of the possession of nuclear weapons by a few states and their possible use as a currency of power..."⁶ Ghose quoted India's statement to the UNGA First Committee in 1995 that "the CTBT must be an integral step in the process of nuclear disarmament. Developing new warheads or refining existing ones after the CTBT is in place, using innovative technologies, would be as contrary to the spirit of the CTBT as the NPT is to the spirit of non-proliferation".⁷

⁵ "Comprehensive Test Ban", *The Arms Control Reporter* (Massachusetts, USA), vol.15, no.1, 1996, pp.608. B.373.

⁶ Ibid., p.608, B.387.

⁷ Ibid.

When the final voting on a CTBT took place in the United Nations General Assembly on 10 September 1996, India, Bhutan and Libya opposed it. India's refusal to sign the CTBT raises important questions regarding its nuclear policy:

- (1) Why did India refuse to sign the CTBT?
- (2) Is there a real shift in India's approach towards disarmament and non-proliferation?

To anticipate our findings: First, India is not opposed to a test ban treaty per se. It simply thinks that the draft CTBT does not fulfill what it purports to do. India's fundamental objections can be broadly categorised under five heads, i.e. the Preamble of CTBT, the Treaty's scope, the verification regime, the Entry Into Force (EIF) clause, and security concerns. Secondly, there has not been a fundamental shift in India's disarmament and non-proliferation approach. India continues to insist that a time-bound plan for disarmament is both necessary and feasible and that this is the surest way to end or prevent further proliferation.

Preamble

The preamble of the CTBT defines the political context of the treaty. Being the heart and soul of the Treaty, it has been scrutinised very carefully. In the draft Preamble, the paragraphs on the goal of elimination of nuclear weapons

and the need to take steps to eliminate the use and threat of use of nuclear weapons were bracketed, indicating disagreement. Eventually, the Preamble avoided a commitment to eliminate nuclear weapons but stressed this as an ultimate goal as had been done in the NPT.

India was aware that in most treaties the Preamble is a laundry list of noble intentions rarely sought to be implemented. Hence, India called for a modification of the provisions in the draft text relating to the periodic review of the implementation of the Treaty. India was keen that the review process must ensure that the objectives and principles of the Treaty put forth in the Preamble were being realised.⁸ India had insisted that the Preamble goal must be defined in terms of nuclear disarmament within a 'time-bound framework'. Speaking in September 1995, India's representative Arundhati Ghose said: "The preamble of the treaty will have to clearly define the linkage of the CTBT to the overall framework of nuclear disarmament".⁹ On 25 January 1996, she further argued that the "treaty should be securely anchored in the global disarmament context and be

* Chitra Subramaniam, "China backs India's Call to Link N-Test Ban Disarmament" *Indian Express* (New Delhi) 22 February 1996.

⁹ Quoted in Savita Pande, *India and the Nuclear Test Ban*, p. 165.

linked through treaty language to the elimination of all nuclear weapons in a time-bound framework".¹⁰

India's insistence on a time-bound disarmament programme has been consistent. Salman Haider, Foreign Secretary of India on 21 March 1996 put forward the Indian Government's view that the CTBT should bring about a halt to the qualitative development and upgradation of nuclear weapons, thus becoming a step towards genuine nuclear disarmament within a time bound framework.

However, right from the beginning, none of the nuclear powers were ready to commit themselves to this. In the world of realpolitik, no nuclear power wants to give up its weapons, which are considered as a source of security as well as power. The NWSs rejected any mention of curbing nuclear weapon development as an objective of the Treaty. Instead, the text merely recognised the need to constrain the development and qualitative improvement of nuclear weapons. Michael Krepon of the Stimson Centre in Washington, D.C. noted that "Nuclear weapons are like a drug they [the nuclear powers] have been taking for fifty Years. It will be difficult for them to get off it easily".¹¹

¹⁰ T.T. Poulose, *The CTBT and the Rise of Nuclear Nationalism in India* (New Delhi: Lancers Books, 1996), p. 174.

¹¹ Sunil Narula, "In Isolation Ward Again", *Outlook* (New Delhi) vol.II, no.28, 17 July, 1996, p.28.

The US finds it impractical on the part of India to expect the nuclear powers to give up their weapons. An unambiguous rejection of the goal of nuclear disarmament was evident from the way France and China conducted their tests while the CD was negotiating the CTBT. They could not be prevented from testing until world opinion suddenly turned against them in the wake of their tests even as the negotiations were being carried forward. While the CTBT was seen by India way of putting a 'technological cap' on the Chinese nuclear programme, shutting the door on the three threshold nuclear states - India, Pakistan and Israel - was one of the CTBT's main goals as far as the five nuclear power were concerned. Thus, India perceived the CTBT as shaped more by the technological preferences of the nuclear powers than the imperatives of nuclear disarmament, and New Delhi therefore hardened its stand against the Treaty.

Scope

The disagreements on the scope of the Treaty pertained to the nature of what constitutes a nuclear weapon test, the meaning of 'comprehensive', and the inclusion of PNEs. Article 1(1) of the proposed CTBT says, "Each State Party undertakes not to carry out any nuclear weapon test explosion or any other nuclear explosion, and to prohibit and prevent any such nuclear explosion at any place under

its jurisdiction or control".¹² Differences on scope amongst the five NWS and the three threshold nuclear states emerged due to differences in national interest. In August 1995, the three nuclear weapon states accepted the idea of a 'true-zero-yield' treaty. US support to 'zero-yield' was conditional on the continuance of its weapons-related activities under a 'stockpile stewardship programme', maintenance of weapons laboratories and facilities, and the latent capacity to test nuclear weapons.¹³

The Russian position was that a CTBT should ban all nuclear test explosions without thresholds, though like US it was equally concerned about the safety, reliability and performance of its nuclear stockpile. The US decision concerning a simplified withdrawal from CTBT was welcomed by Russia.¹⁴

By contrast, China wanted to retain the option to conduct PNEs. Beijing proposed a two-pronged safeguard against misuse: "Any country which wants to conduct a PNE should seek approval from the organization of the treaty.

¹² *Comprehensive Nuclear Test Ban Treaty*, 10 September 1996, p. 1.

¹³ R. Ramachandran, "CTBT: Advantage, Weapon Powers", *Economic Times* (New Delhi), 6 June 1996.

¹⁴ Ibid.

Second, a PNE should be accompanied by an on-site inspection".¹⁵

India's position in the CD was emphasised by Arundhati Ghose who argued that the basic prohibitions, as drafted, which defined the scope, remained "very narrow and do not fulfill the mandated requirement of a comprehensive ban".¹⁶ India's objection was that this approach would give only a 'nuclear weapon test explosion ban treaty' and not a CTBT. With the help of the non-aligned group, India attempted to delete the word 'explosion' from paragraphs 1 and 2 of the scope so that the Treaty would ban all kinds of tests and explosions. This move was strongly resisted by the NWSs. In June 1995, India proposed its own definition of the scope of the CTBT:

Each state party undertakes to prohibit and to prevent and not to carry out any nuclear weapon explosion or any other nuclear test or any release of nuclear energy caused by the assembly or compression of fissile or fusion material by chemical explosive or other means, at any place under or beyond its jurisdiction or control.

Each state party undertakes furthermore to refrain from causing, encouraging or in any way participating in the carrying out of any nuclear weapon test explosion or any other nuclear explosion.¹⁷

¹⁵ Chitra Subramaniam, "China Backs India's Call to Link N-Test Ban, Disarmament", *Indian Express* (New Delhi) 22 February 1996.

¹⁶ Sunil Narula, "In Isolation Ward Again", *Outlook*, p.27.

¹⁷ Quoted in Savita Pande, *India and the Nuclear Test Ban*, p. 167.

The basic element of the Indian posture at Geneva was to ensure that there were no loopholes in the Treaty which would allow the NWSs to continue with the refinement of their atomic arsenals. India had always supported a CTBT as a means to an end, namely, the complete abolition of nuclear weapons. As India's Foreign Minister, Pranab Mukherjee, cautioned: "interim steps can't be allowed to become an end in itself".¹⁸

India has argued that the test ban's historical objectives of halting nuclear weapons modernisation and development as well as hastening the elimination of existing stockpiles cannot be fully met by any CTBT text today because the negotiations have come 30 years too late. The Western powers, in particular, because of their advanced technology, possess the ability to carry out sub-critical and other low-yield tests and conduct virtual-reality simulations in mammoth testing machines. Salman Haider, India's Foreign Secretary, put forward India's objection to the scope of the proposed Treaty which covered explosions but not non-explosive techniques like laboratory tests computer simulations, hydronuclear explosions, and simulations using laser techniques.¹⁹ In short, the

¹⁸ Brahma Chellaney, "Strategic Noose for India", *The Hindustan Times* (New Delhi), 9 March, 1996.

¹⁹ Mahendra Ved, "CTBT has no Effect on South Asian Security: India", *Times of India* (New Delhi), 21 June 1996.

comprehensiveness of the CTBT is questioned by India. India is also concerned about US plans to conduct sub-critical tests. The US conducted its first underground nuclear-related "subcritical" test to evaluate the safety and reliability of the country's ageing nuclear weapons on 3 July 1997, thus violating the spirit of the test ban that prohibited "any nuclear weapon test explosion or any other explosion".²⁰

In a statement to the CD, India had said that while the PTBT of 1963 drew nuclear testing underground from the atmosphere, outer space, and under water, the CTBT would drive nuclear testing into laboratories. As Savita Pande notes, "India wanted a universally verifiable, comprehensive, non-discriminatory treaty, which the CTBT isn't".²¹

Verification

Article IV of the CTBT, dealing with the verification regime, was the most contentious issue under negotiation at Geneva. This article lays down that:

1. In order to verify compliance with this Treaty, a verification regime shall be established consisting of the following elements:
 - (a) An International Monitoring System;
 - (b) Consultation and clarification ;

²⁰ "US Conducts N-Related Test" *The Hindu* (Delhi), 4 July 1997.

²¹ Sunil Narula, "In Isolation Ward Again", *Outlook*, p. 28.

- (c) On-site inspections; and
- (d) Confidence-building measures.

At entry into force of this Treaty, the verification regime shall be capable of meeting the verification requirements of this Treaty.

2. Verification activities shall be based on objective information, shall be limited to the subject matter of this Treaty, and shall be carried out on the basis of full respect for the sovereignty of states parties and in the least intrusive accomplishment of their objectives. Each State Party shall refrain from any abuse of the right of verification.²²

There was agreement that the verification system would be based on an International Monitoring System (IMS), analysis of data, consultations and information exchange, and on-site inspections. National technical means (NTMs) and on-site inspections (OSIs) were the main matters of disagreement during the negotiations. The Western states and Russia wanted all relevant information collected by NTMs to be used. However, China and Pakistan strongly opposed the use of NTMs.²³ Many G-21 countries were scared that NTMs could be used in a discriminatory manner for espionage.

The discussions on OSI took the shape of a battlefield, as they involved the sensitive matter of national security. The P-3 (US, Russia and UK) and most Western states favoured speedy OSI and argued that the Technical Secretariat should be empowered to conduct an inspection unless the Executive Council blocked it. On the other hand, many G-21 countries,

²² *Comprehensive Nuclear Test Ban Treaty*, September 10, 1996. p. 11.

²³ Praful Bidwai and Achin Vanaik, *Testing Times*, p.31.

including India and Pakistan, were in favour of prior sanction of the Executive Council.²⁴ India felt that OSI would be the most intrusive element of the verification regime. Routine visits were visualised for authenticated purposes, and on-site inspections were to be a rare event. India insisted on a verification system which was non-discriminatory in character and provided equal rights and obligations to the state parties including equal access to all. On 21 March 1996, India's Foreign Secretary Salman Haider expressed his concern over the technical limitations of the verification technologies. Ambassador Arundhati Ghose in a speech delivered in Geneva on 20 June 1996 stated clearly that India would not allow any monitoring or inspection of its nuclear sites by the international community.²⁵

Entry Into Force

Article XIV of the Treaty which determines how the CTBT comes into effect was the single most perplexing issue that was introduced into the negotiations. India saw the EIF, as it was taking shape, as playing into the hands of those states that did not want a thorough going CTBT. New Delhi

²⁴ Ibid., p.26.

²⁵ "The Comprehensive Test Ban Treaty: Why India Said No", (This article is excerpted from the speech of Ms. Arundhati Ghose, India's Ambassador to the CD in Geneva, to the Plenary Session), *The Pioneer* (New Delhi) 24 June 1996.

saw the final form of the EIF as an attempt to push India and the other threshold powers' backs to the wall. The CTBT draft made it incumbent on the nuclear powers and the three threshold nuclear states to sign and ratify the Treaty for it to come into effect. On 26 January 1996, India moved a proposal demanding that "this treaty shall enter into force only after all state parties have committed themselves to the attainment of the goal of total elimination of nuclear weapons within a well-defined time framework of 10 years".²⁶

On 29 July 1996, Arundhati Ghose rejected the proposed EIF and suggested an amendment saying, "This Treaty shall enter into force 180 days after the date of the deposit of the instruments of ratification by 65 states and no less than 2 years after its opening for signature".²⁷ India's strong objection to EIF was that it would take away her sovereign right not to sign the Treaty and force her to accept obligations which it does not want to accept. Arundhati Ghose told the CD that it is India's sovereign right to decide "in the light of our supreme national interest whether we should or should not accede to such a treaty".²⁸

²⁶ Quoted in Savita Pande, *India and the Nuclear Test Ban*, p.122..

²⁷ "India's Stand on CTBT", UNI Feature, *Nagaland Post* (Dimapur), 30 July 1996.

²⁸ Sunil Narula, "In Isolation Ward Again", *Outlook*, p. 32.

India had other reservations about the EIF provisions. Specifically, New Delhi objected to the Ramaker text's provision which noted that if after 3 years the 5 declared nuclear powers plus 3 threshold nuclear powers have not all ratified the Treaty the conference will reconvene and "decide by consensus what measures consistent with international law may be undertaken to accelerate the ratification process".²⁹ New Delhi saw the word "measures" as "coercive" and interpreted it as potential sanctions, even though US Secretary of State Warren Christopher assured India that the purpose of the conference in Article XIV(2) was to allow conference participants to propose non-coercive measures which might accelerate the ratification process. This bilateral assurance was not acceptable to India because the CTBT was a multilaterally negotiated Treaty. The Western media termed India the 'spoiler', but India refused to move from its stand and refused to sign the CTBT.

Security Imperatives

India's nuclear policy has been shaped by its security concerns since the early 1960s. India confronts a declared nuclear power, China, and a threshold nuclear state, Pakistan, which has a history of hostile relations with

²⁹ Ramesh Chandran, "US Will Not Allow India to Block Test Ban Treaty China Offers a Compromise Formula to Break Deadlock", *The Times of India* (New Delhi), 2 August 1996.

India. Apart from the lingering scars of the Chinese aggression of 1962, China has reportedly deployed missiles in Tibet, missiles India fears are targeted against it. In addition, China did a series of tests immediately after the NPT extension conference of 1995, which in India's eyes made a mockery of the CTBT.

The Annual Report of the Ministry of Defence highlights the threat to Indian security from the Chinese association with Pakistan's nuclear programme. Pakistan's acquisition from China of sophisticated weapon systems, including missiles and uranium enrichment equipment, has a direct bearing on India's security environment. The existence of nuclear weapons, especially in its vicinity, for more than three decades, places India in an adverse strategic asymmetry constraining India's ability to deal with political and security issues from a position of equality in the international arena, besides placing it in a grossly disadvantageous position in military terms. There has, thus, been a recognised need in India to address that asymmetry through a twin approach: work for the elimination of nuclear weapons; and retain the required autonomy to meet the asymmetry in the interim period.

India sees the CTBT as an attempt to "cap, reduce, and eliminate" India's nuclear capabilities. In the absence of a global "no - first use" commitment India would require "recessed deterrence" to deter another country with nuclear

weapons which might be hostile to New Delhi. Hence, this capability is a national security imperative. India's signing the CTBT would, in New Delhi's view, have constrained her deterrent capability. As the nuclear weapon states are not committed to total disarmament, national security considerations became a major factor in India's decision not to sign the treaty which it had originally strongly desired and supported.

India's Foreign Secretary, Salman Haider, told the CD on 21 March 1996 that India did not believe the "acquisition of nuclear weapons is essential for national security and we have followed a conscious decision in this regard".³⁰ His statement created some confusion about India's stand on the CTBT which was set at rest by Arundhati Ghose on 20 June 1996. She declared "India can not accept any restraint on its (nuclear) capability if other countries remain unwilling to accept the obligation to eliminate their nuclear weapons".³¹ India, she argued, could not support a discriminatory treaty which legitimises nuclear weapons in the hands of a few countries as a precautionary measure against threats from unspecified states while denying the same right to others.

Thus, it was made clear by India's representatives that New Delhi's global concerns about disarmament would remain,

³⁰ CD/PV. 731, 21 March 1996, p. 5.

³¹ CD/PV. 740, 20 June 1996, p. 15.

but these must not hide from the world the stark reality of India's national security interests.

India's Nuclear Option

After Jawaharlal Nehru's death and the first Chinese nuclear explosion in 1964, Prime Minister Lal Bahadur Shastri showed his discontent with India's existing nuclear policy and even made it known publicly that the policy might be diluted. On 18 May 1974 India's underground peaceful nuclear explosion at Pokhran showed that India had the capability to make a bomb. Signing the CTBT, would have closed India's nuclear option, New Delhi felt. The security interests of the country left India with little or no choice but to keep its option open to conduct nuclear tests, especially when the nuclear weapon states refused to commit themselves to abolish their stocks of nuclear weapons.

Theoretically, India had three options as it looked at the CTBT draft:

- (1) Choosing nuclear abstention, i.e., jettisoning its nuclear option completely and signing the CTBT.
- (2) Not signing the CTBT and continuing to test.
- (3) Maintaining an ambiguous nuclear posture and not signing the CTBT.

India adopted an ambiguous nuclear posture due to its security concerns, specifically because of the Chinese and Pakistani threats. In a survey done by the Kroc Institute,

57.9 percent of elite respondents supported the Government's stance of ambiguity, while 33.5 percent were nuclear "advocates" and 8.5 percent opposed India's going nuclear. Fifty seven percent of the nuclear advocates wanted to develop nuclear weapons if India was threatened by a nuclear Pakistan and forty nine percent were of the view that nuclear weapons would improve India's bargaining power in world affairs. Only 20 percent of the nuclear advocates viewed the Chinese threat as a reason for India's going nuclear.³²

The most developed argument for signing the CTBT came from Praful Bidwai and Achin Vanaik.³³ They argued that India must sign the Treaty even though it may not immediately lead to total disarmament. The Treaty provided an opportunity to control the arms race in an historic way, and this opportunity should not be lost. Any measure which increased nuclear restraint without legitimising these weapons of mass destruction should be welcomed.

³² David Cortright and Amitabh Mattoo, *India and the Bomb: Public Opinion and Nuclear Options* (Indiana: University of Notre Dame Press 1996), p. 125.

³³ These arguments are abstracted from a variety of their writings. See Praful Bidwai, "The Problem", *Seminar* (New Delhi), vol.444, August 1996, p.15; Praful Bidwai, "The CTBT Endgame: India Must Not Throw in the Towel", *Times of India* (New Delhi), 2 July 1996; Praful Bidwai, "New Security Mantra: Perils of a Paranoid Mentality", *The Times of India* (New Delhi), 2 July 1996; Praful Bidwai, "The Case for a CTBT: India Must Seize the Moment", *The Times of India* (New Delhi), 12 January 1996; Praful Bidwai and Achin Vanaik, *Testing Times: The Global Stake in a Nuclear Test Ban*, pp.66-67.

Bidwai argued against the critics of the Treaty. First of all, though critics claimed that a Treaty which bans "any nuclear test explosion or any other nuclear explosion" is ineffective and dangerous, this criticism was mistaken. Explosive testing (that is, full-fledged explosions or hydronuclear experiments which involve a nuclear chain reaction that is quickly aborted), he argued, was a reference to all sub-critical or laboratory experiments. Thus the definition banning "any nuclear weapon test explosion or any other nuclear explosion" would serve the CTBT's purpose. This definition of scope would effectively prevent the development of a new generation of weapons and qualitative improvements in existing designs.

Secondly, the Preamble located the Treaty strongly in a nuclear disarmament context, and it emphasised that qualitative improvements in nuclear weapons technology were to be constrained. Thus, Bidwai suggested that the criticism that the Treaty was not linked to disarmament as well as restraints on the NWSs was misplaced.

Thirdly, Bidwai criticised the national security arguments being used to reject the CTBT. The scope of the term "security", he argued, needed to be extended to cover not only military-strategic matters but also non-military issues, such as food security, economic security, security of employment, environmental security, and social security. India must weigh military decisions to acquire submarines,

missiles, or nuclear warheads against the social and economic alternatives that could make India a truly secure society. Only then could a rational choice on the CTBT be made. Further, Bidwai argued that the military dangers of not signing the Treaty and of stopping a CTBT might be serious. In the absence of a test ban, the NWSs could go ahead to develop such high-technology armaments that the asymmetry between the NWSs and others would increase and a new arms race would be instigated, making India and the world more insecure. Finally, a CTBT would help not hurt regional security as it would prevent both Pakistan and China from developing a new generation of nuclear weapons. Also, a Pakistani test followed by an Indian "answer" would heighten nuclear rivalry and aggravate regional insecurity.

Bidwai and Vanaik pointed out three possibilities if India did not sign the CTBT, none of which they considered palatable from the point of view of India's national interest:

1. India does not sign the Treaty but neither forecloses nor exercises its nuclear option. The danger of such a wait-and-see approach was that the delay in signing a CTBT would gain India nothing except an interim period in which it would bear the costs of isolation, international opprobrium and growing sympathy for Pakistan.

2. A second possibility would be for India to defy a CTBT by carrying out a test or a series of tests. This could be achieved only by ending the posture of nuclear ambiguity.

3. The third possibility, to go nuclear outright, was fraught with the most dangerous consequences. Such a course of action would be disastrous and would greatly increase nuclear insecurity in the South Asian region. It would spark off rivalry both with China and Pakistan, would alienate the other NWSs as well as India's other neighbours, and would strengthen the likelihood of stronger nuclear ties between China and Pakistan.

A second option was to not sign the Treaty and go nuclear outright. A key supporter of this view, Brahma Chellaney, felt that the Pokhran nuclear test was not enough, that "we must follow it through to its logical conclusion, which means testing because testing is essential for us to retain a credible option".⁴ Chellaney also claims that it would be very shortsighted on the part of India to not sign the Treaty and then not to test either. K. Subrahmanyam compared India's position with a 60 years old bachelor who is still talking about marriage! He argued that twenty three years had gone by since India conducted its first underground test, and the time had come for India either to test or give up its option rather than to go on

⁴ Sunil Narula, "In Isolation Ward Again". *Outlook*, p. 25.

talking about ambiguity. If this was done, Subrahmanyam argued, there would be increased understanding of India's concerns and motivations among other countries, and confidence-building and arms control measures would be facilitated.³⁵ Therefore, staying out of the CTBT could bring about stability. The Former Foreign Secretary A.P. Venketaswaran also advised India to test. He said, "unless we exercise it [the option], it makes no sense to talk of an option. By merely saying we haven't used the option is not going to convince people to abolish nuclear weapons".³⁶

After a long public debate the Indian Government stayed with the third option, namely, its ambiguous stand on the nuclear issue. Keeping in mind the present international scenario and India's security concerns, India's Ambassador to the CD, Arundhati Ghose, made it very clear that India cannot give up its option until other countries eliminate their nuclear weapons.³⁷ Since China had breached the NPT by transferring ring magnets to Pakistan, India felt it could not risk its security by giving up the option to test. India's Prime Minister Narasimha Rao made it clear in the Security Council Summit meeting in January 1992 that

³⁵ K. Subrahmanyam, "Nuclear Defence Philosophy: Not a Number Game Anymore", *The Times of India* (New Delhi), 8 November 1996.

³⁶ Quoted in Sunil Narula, "In Isolation Ward Again", *Outlook*, p.25.

³⁷ CD/PV. 740, 20 June 1996, P. 15.

proliferation threats could be addressed only within the framework of a new international consensus based upon a universal, comprehensive and non-discriminatory regime linked to the goal of the complete elimination of nuclear weapons.³⁸ India's position on this issue remained the same during the CD negotiations, and India refused to renounce its nuclear option until there was a global commitment to universal non-proliferation and disarmament. India's general stand on nuclear weapons and disarmament was also supported by the results of the Kroc Institute survey where 58 percent of those supporting India's current official policy and 42 percent of those favouring its development of nuclear weapons stood for a time-bound plan for global nuclear disarmament as a necessary condition for India's renunciation of nuclear weapons.³⁹

Reacting to the recent nuclear test by the US and the test-firing of the Hatf-III missile by Pakistan, Prime Minister I.K. Gujral declared that India's nuclear option is open and the Government is taking all the necessary steps to ensure that the country's security is not threatened. Describing the Comprehensive Test Ban Treaty as a "charade", Gujral said that India's nuclear options "are open till the

³⁸ Aabha Dixit, "Status Quo: Maintaining Nuclear Ambiguity", in David Cortright and Amitabh Mattoo, eds., *India and the Bomb*, pp. 64-65.

³⁹ David Cortright and Amitabh Mattoo, *India and the Bomb*, p.123.

world moves towards abolition of nuclear weapons on a programmatic basis and not rhetorically".⁴⁰ He added that "we are a peace loving-nation and we have no designs on anybody because we don't want to disturb peace. At the same time, we cannot and have not ignored our defence requirements".⁴¹

Conclusion

Since the dawn of the atomic age, it has been an article of faith with India's foreign policy makers to advocate a world without nuclear weapons. India's stand on the Comprehensive Test Ban Treaty does not indicate a shift in its nuclear policy. India has merely adopted a stance of non-cooperation with "nuclear imperialism" and has therefore refused to accede to the NPT and CTBT.

⁴⁰ "India's Nuclear Options Are Open, says P.M." *The Hindu* (Delhi), 14 July 1996.

⁴¹ Ibid.

CONCLUSION

Disarmament occupies an important place in India's foreign policy. India has always taken a prominent part in all discussions relating to disarmament. The first measure towards nuclear sanity which India considered to be of overwhelming importance was a comprehensive test ban treaty.

India's position in this is well known. New Delhi raised its voice against nuclear test explosions from their inception and over the years addressed appeal after appeal to the Disarmament Commission and its sub-Committee asking that test explosions should be stopped pending progress towards some solution, full or partial, temporary or permanent, in respect of the prohibition and elimination of nuclear weapons. India had consistently advanced this view in all the relevant fora throughout the period from 1954 to the present. India has particularly emphasised the deleterious genetic and somatic effects of test explosions. Unfortunately, its appeals went largely unheeded. Nevertheless, India's continued to raise the issue in the United Nations year after year. The General Assembly finally adopted the resolution 1762 (XVII) which condemned all nuclear weapon tests. That resolution marked a significant landmark in the field of nuclear test discussions.

It was only when the Partial Test Ban Treaty of August 1963 was signed that the international community achieved a

measure of success on the test ban issue. India was the first country after the Original Parties to sign the Treaty in Moscow. The Partial Test Ban Treaty was an important landmark. Since then, India has consistently espoused the need for a Comprehensive Test Ban Treaty. But the Partial Test Ban Treaty merely succeeded in pushing nuclear testing under ground. The utility and practicality of on-site inspections as well as U.S.-Soviet rivalry was the main obstacle that prevented successful negotiation of a comprehensive ban.

The Threshold Test Ban Treaty of 1974 that prohibited underground tests of greater than 150 Kt was also a disappointment. The nuclear powers simply resorted to tests below this limit, and the refinement and development of weapons technology continued. Though the Treaty allowed for peaceful nuclear explosions up to a certain limit, there arose the verification problem of differentiating between explosions for peaceful purposes and explosions for military uses. Subsequently, the Peaceful Nuclear Explosion Treaty restricted individual PNEs to a 150 Kt limit.

In the 1970s and 1980s, though seismic technology had improved, the talks on a CTBT were given little attention. Instead, the Non-Proliferation Treaty received high priority. A full-fledged test ban could not be achieved because of Cold War hostilities and the deep confrontation, distrust and suspicion between the East and the West. Continuing

differences between the two blocs with regard to verification and a viable on-site inspection system were never quite resolved.

Since 1991, the nuclear weapon states, who opposed a CTBT over four decades, transformed themselves into the champions of the nuclear test ban treaty. India, which was the first country to propose a CTBT, supported the idea of a ban but finally came to oppose the Treaty. The CTBT negotiations came out of the permanent extension of the NPT in 1995. During the extension, the NWSs showed an interest in negotiating a CTBT. This left the NNWSs with the suspicion that the nuclear powers' interest in the CTBT was the short term objective of getting the NNWSs to extend the NPT indefinitely and unconditionally. Nevertheless, India and other NNWSs supported the idea of moving towards a CTBT. New Delhi's vision of a viable Comprehensive Test Ban Treaty was that it should be securely anchored in global disarmament within a time-bound framework.

On 20 June 1996, India's representative to the CD, Arundhati Ghose, formally announced India's opposition to the CTBT. Broadly speaking, India has advanced three reasons for why it is opposed to the CTBT. First of all, India regards the CTBT as relevant only if it is embedded in the disarmament process, otherwise the Treaty would become a mere supplement to the NPT and would further perpetuate a discriminatory order against the NNWSs. Despite New Delhi's

pleas, the nuclear weapon powers have refused to commit themselves to a linkage between the CTBT and total nuclear disarmament within a time-bound framework.

Secondly, India felt, and continues to feel, that a loose definition of testing under the Treaty would give the NWSs room to enhance their nuclear capabilities. According to India, the CTBT should end all nuclear testing -- explosive, non-explosive, or laboratory. However, the nuclear powers reject a wider definition of testing, one that would include subcritical, hydronuclear, and computer simulated methods.

Third, while India insists that it is committed to use nuclear energy for peaceful ends, it will not allow its national security to be compromised. The general position in this matter has been repeatedly stated by India's representatives. In 1974, India carried out its first peaceful nuclear explosion, which made India a defacto nuclear power. Since then India has exercised a policy of restraint and refrained from undertaking any further tests. However, India is deeply conscious of its two neighbouring countries, China and Pakistan, who have nuclear bombs. The recent transfer of nuclear technology from China to Pakistan underlines India's worry. As Arundhati Ghose said, "under such circumstance, it is natural that our national security considerations become a key factor in our decision-making. Our capability is demonstrated but, as a matter of policy, we

exercise restraint. Countries around us continue their weapon programmes, either openly or in a clandestine manner. In such an environment, India cannot accept any restraints on its capability if other countries remain unwilling to accept the obligations, to eliminate their nuclear weapons".¹ New Delhi made it clear that India cannot accept any treaty which aims at asking India to give up its nuclear option. India will continue to keep its option open as long as other countries are unwilling to accept the obligation of eliminating their nuclear arsenals within a time-bound plan.

Thus, India refused to sign the CTBT because the Treaty does not support the goal of nuclear abolition. Further, the Treaty is not comprehensive in that it does not verifiably ban all forms of testing. Finally, the Treaty is inconsistent with India's national security concerns for now and the foreseeable future.

The end of Cold War has brightened the prospects of nuclear disarmament. India still insists that it stands for global disarmament and a non-violent world. It believes that the world would be a safer, more peaceful, and better place without nuclear weapons. In New Delhi's view, the present CTBT is not consistent with its vision of such a world.

¹ CD/PV. 740, 20 June 1996. p. 15.

BIBLIOGRAPHY

PRIMARY SOURCES

Conference on Disarmament/PV.342, at Geneva, 25 February 1986.

_____/PV.710, at Geneva, 29 June 1995.

_____/PV.731, at Geneva, 21 March 1996.

_____/PV.740, at Geneva, 20 June 1996.

_____/PV.744, at Geneva, 8 August 1996.

Conference of the Eighteen - Nation Committee on Disarmament /PV.156, 29 August 1963.

_____/PV.170, 27 February 1964.

Documents and Papers on Disarmament, Second Series, 1956-1958, The bulletin of the World Council of Peace (Vienna, 1958).

General Assembly, Official Records, Sixteen Session, First Committee 1185 Meeting 2 November 1961.

General Assembly, Official Records, Thirteen Session, First Committee, 1952 Meeting, 17 October 1958.

General Assembly, Official Records, Eighteenth Session, First Committee, 1310 Meeting, 15 October 1963.

General Assembly Official Records, Tenth Session, First Committee, 1717 Meeting 31 October 1995.

General Assembly, Official Records, Tenth Session, First Committee, 808 Meeting, 9 December 1995.

Gujral, I.K., *Suo - Moto*, "Statements by Minister of External Affairs, in the Lok Sabha/Rajya Sabha on 15 July 1996 on India's Position with regard to Comprehensive Test Ban Treaty", *Agni* (New Delhi, India), vol.2, no.2, September-December 1990, pp.57-64.

Gujral, I.K., "The Post-Cold War Era: An Indian Perspective", *World Affairs* (New Delhi), vol.1, no.1 (January-March, 1997).

- Lok Sabha Debates*, vol.3, Part II, 2 April, 1954.
- Lok Sabha Debates*, vol.38, Second Series, 17 February 1960.
- Lok Sabha Debates*, vol.1, Third Series, 24 April 1962.
- Lok Sabha Debates, Third Series*, vol.55, 10 May 1966.
- Lok Sabha Debates, Fifth Series*, vol.20, 15 November 1972.
- Ministry of External Affairs, Government of India, *Foreign Affairs Record* (New Delhi), vol.9, 37 July 1963..
- Ministry of External Affairs, Government of India, *Foreign Affairs Record* (New Delhi), vol.11, no.5, May 1965.
- Ministry of External Affairs, Government of India, *Foreign Affairs Record* (New Delhi), vol.11, no.8, August 1965.
- Ministry of External Affairs, Government of India, *Foreign Affairs Record* (New Delhi), vol.12, no.6, June 1966.
- Ministry of External Affairs, Government of India, *Foreign Affairs Record* (New Delhi), vol.12, no.8, June 1966.
- Ministry of External Affairs, Government of India, *Foreign Affairs Record* (New Delhi), vol.12, no.II, November 1966.
- Ministry of External Affairs, Government of India, *Foreign Affairs Record* (New Delhi), vol.15, no.12, April 1969.
- Ministry of External Affairs, Government of India, *Foreign Affairs Record* (New Delhi), vol.15, no.5, May 1969.
- Ministry of External Affairs, Government of India, *Foreign Affairs Record* (New Delhi), vol.23, no.8, September 1969.
- Ministry of External Affairs, Government of India, *Foreign Affairs Record* (New Delhi), vol.23, no.8, September 1969.
- Nehru, Jawaharlal, *India's Foreign Policy: Selected Speeches, September 1946 to April 1961* (Publications Divisions Ministry of Information and Broadcasting, Government of India, New Delhi, August 1961).
- Rajiv Gandhi Memorial Initiative for the Advancement of Human Civilization* (Rajiv Gandhi Foundation, New Delhi), 1-2 May 1993.
- Schaper, Annette, "The Problem of Definition" Just what is a Nuclear Weapon Test?", *Pugwash meeting No.208*, 45th

Pugwash Conference Science and World Affairs, Hiroshima, Japan, 23-19 July, 1995.

Statements by Mr. I.K. Gujral, *World Focus* (New Delhi), vol.18, no.3, March 1997.

SECONDARY SOURCES

Books

Albright, David, Frans Berkhout, and William Waker, *World Inventory of Plutonium and Highly Enriched Uranium* (Oxford: SIPRI/Oxford University Press, 1992).

Bajpai, Kanti, P.K. Chari, Pervaiz Iqbal Cheema, Stephen P. Cohen, and Sumit Ganguly, *Brasstacks and Beyond: Perception and Management of Crisis in south Asia* (Urbana: Program in Arms Control, Disarmament and International Security, 1995).

Baker, N. Philip, *The Arms Race: A Programme for World Disarmament* (London: Atlantic Books Publishing, 1958).

Bhargava, Mahesh Kumar, *Disarmament from Versailles to Test Ban Treaty* (New Delhi: National Publishing House, 1979).

Bhatia, Shyam, *India's Nuclear Bomb* (New Delhi: Vikas Publishing House, 1979).

Bidwai, Praful and Achin Varnaik, *Testing Times: The Global Stake in a Nuclear Test Ban* (Uppsala: Dag Hammarskjold Foundation, 1996).

Blackaly, F. and Farm, R., "A Comprehensive Test Ban and Nuclear Explosion in 1988", in *SIPRI Yearbook 1986 of World Armament and Disarmament* (Oxford: Oxford University Press, 1986).

Blacker, Coit, D., and Gloria Duffy, *International Arms Control: Issues and Agreements* (Stanford: Stanford University Press, 1984).

Bolt, B.A., *Nuclear Explosions and Earthquake: The Parted Veil* (San Francisco: Fruman, 1976).

Brecher, M., *India and World Politics: K. Menon's View of the World* (London: Oxford University Press, 1968).

Carter, A., *Success and Failure in Arms Control Negotiations* (Oxford: SIPRI/Oxford University Press, 1989).

Chari, P.R., *Indo-Pak Nuclear Standoff: The Role of the United States* (New Delhi: Manohar, 1995).

Chaudhury, J.N., *India's Problems of National Security in the Seventies* (New Delhi: United Services Institution of India, 1973).

Chellaney, Brahma, *Nuclear proliferation: The U.S. - Indian Conflict* (New Delhi: Orient Longman, 1993).

Chidambaram, R. and Ramanna, R., *Some Studies on India's Peaceful Nuclear Explosion Experiment* (Trombay: Bhabha Atomic Research Centre, n.d.).

Chopra, Ashwani, K., *India's Policy on Disarmament* (New Delhi: ABC Publishing House, 1984).

Cohen, Stephen P. ed., *The Security of South Asia: Asian and American Perspectives* (Urbana, Ill. and Chicago: University Illinois Press, 1987).

Cortright, David and Amitabh Mattoo, *India and the Bomb: Public Opinion and Nuclear Options* (Indiana: University of Notre Dame Press, 1996).

Dean, A.H., *Test Ban and Disarmament: The Path of Negotiation* (New York: Harper and Row, 1966).

Divine, R.A., *Blowing on the Wind: The Nuclear Test Ban Debate, 1954-1960* (New York: Oxford University Press, 1978).

Epstein, W., *The Last Chance: Nuclear Proliferation and Arms Control* (New York: The Free Press, 1976).

Fetter, S., *Toward a Comprehensive Test Ban* (Cambridge: Ballinger Publishing Company, 1988).

Goldblat, Josef, *Agreements for Arms Control: A Critical Survey, SIPRI* (London: Taylor and Francis Ltd., 1982).

_____, "The Nuclear Test Ban Debate", in *SIPRI Year Book 1972 of World Armaments and Disarmaments* (Stockholm: Almquist and Iniksell, 1972).

_____, *Ten Years of Partial Test Ban Treaty, 1963-1973* (SIPRI Research Report Number 11, August 1973).

_____, ed., *Non Proliferation: The Why and Wherefore* (London: Taylor and Francis, 1985).

_____, "Multilateral Arms Control Efforts" in *SIPRI Year Book 1987 of World Armaments and Disarmament* (Oxford: Oxford University Press, 1987).

_____, and Cox, D. eds., *Nuclear Weapon Tests: Prohibition or Limitations* (New York: Oxford University Press, 1988).

_____, and David C., *The Debate about Nuclear Weapon Tests* (Ottawa: Occasional Papers No.5, Canadian Institute for International Peace and Security, 1988).

Hart, David, *Nuclear Power in India: A Comparative Analysis* (London: Allen and Unwin, 1983).

Jacobson, H.K. and Stein, E., *Diplomatic, Scientists and Politicians: The Nuclear Test Ban Negotiations* (Ann Arbor: University of Michigan Press, 1966).

Jain, J.P., *India and Disarmament: Nehru Era, An Analytical Study*, vol.1 (New Delhi: Radiant Publishers, 1974). _____, *Nuclear India*, vol.2 (New Delhi: Radiant Publishers, 1974).

Kalyadin, A., *The Problem of a Nuclear Weapon Test and Proliferation* (Moscow: Nanka, 1976).

Kapur, Ashok, *India's Nuclear Option: Atomic Diplomacy and Decision Making* (New York: Praeger, 1976).

Karanjia, R.K., *The Philosophy of Mr. Nehru* (London: George Allan and Unwin Ltd., 1966).

Karkosrka, A., "The comprehensive Test Ban", in *SIPRI Yearbook 1978 of World Armament and Disarmament* (London: Taylor and Francis, 1978).

Lall, Arthur S. (Anand), *Negotiating Disarmament: The Eighteen Nation Disarmament Conference, the First Two Years, 1962-1964* (Ithaca: Centre for International Studies, Cornell University, 1964).

Miller, Harald, David Fisher and Wolfgang Kotter, *Nuclear Non-Proliferation and Global Order* (New York: Oxford University Press, 1994).

Mirchandani, G.G., *India's Nuclear Dilemma* (New Delhi: Popular Book Services, 1968).

Moshaver, Ziba, *Nuclear Weapons Proliferation in the Indian Subcontinent* (New York: St. Martin's, 1991).

Mukherjee, T.B., *Peace Security and Disarmament: Indian Perspective* (Indian Institute for Non-Aligned Studies, New Delhi: Publishing House, 1987).

Nair, Vijai K., *Nuclear India* (New Delhi: Lancers, 1992).

Neild, R., "The Test Ban", in *SIPRI Yearbook of World Armaments and Disarmament* (Stockholm, Almqvist and Wiksell, 1972).

Pande, Savita, *India and the Nuclear Test Ban* (New Delhi: The Institute for Defence Studies and Analyses, 1996).

Pathak, K.K., *Indian Nuclear Policy: A Third World Perspective* (New Delhi: Gitangali Prakashan, 1978).

Poulose, T.T., ed., *Perspectives of India's Nuclear Policy* (New Delhi: Young Asia Publications, 1978). _____, *The CTBT and the Rise of Nuclear Nationalism in India* (New Delhi: Lancers Books, 1996).

Robles, G. Afronso, *Nuclear Disarmament: A Crucial Issue for the Survival of Mankind* (New Delhi: India Council for Cultural Relations).

Sengupta, Bhabani, ed., *Nuclear Weapon's? Policy Options for India* (New Delhi: Sage Publications, 1983).

Seshagiri, N., *The Bomb: Fall out of India's Nuclear Explosion* (New Delhi: Vikas Publishing House, 1975).

Sharma, Dharendra, *India's Nuclear Estate* (New Delhi: Lancers, 1983).

Subrahmanyam, K. ed., *Nuclear Myths and Realities: India's Dilemma* (New Delhi: ABC Publishing House, 1981).

_____, *India and Nuclear Challenge* (New Delhi: Lancer International, 1986).

United Nations and Disarmament, 1945-1985 (New York: United Nations, 1985).

York, Herbert, F., *Arms Control* (San Francisco: W.H. Freeman and Company, 1973).

Articles

Ahmed, M. Samir, "The Role of the Neutrals in the Geneva Negotiations", *Disarmament and Arms Controls*, vol.1, no.2, Summer 1963, pp.20-32.

Albright, David and Mark Hibbi, "India's Silent Bomb", *The Bulletin of the Atomic Scientists* (New York), vol.48, no.7, September 1992, pp.27-31.

Arora, V.K., "Reactions to the Test Ban Treaty", *Foreign Affairs Report* (New Delhi), vol.XII, no.12, pp.101-121.

Arun Kumar, "India and CTBT", *PTI Featura* (New Delhi), vol.5, no.34, August 24, 1996, PF - 133/96.

"Atom for Defence: Spectrum of Views", *Janata* (Bombay), vol.20, nos.1 and 2, Republic Day, 1965, pp.17-21.

Bajpai, Kanti, "Secure Without the Bomb", *Seminar* (New Delhi), 444 - August 1996, pp.57-60.

_____, "Defence and Nationalism: India and the CTBT", *Voices* (Bangalore), vol.IV, no.13, pp.26-28.

Balachandran G., "Keeping the Option: India's Nuclear Dilemma" *Strategic Analysis* (New Delhi), vol.18, no.12, March 1996, pp.1579-1588.

_____, "India's Nuclear Option: Economic Implication", *Strategic Analysis* (New Delhi), vol.19, no.2, May 1996, pp.143-156.

_____, "CTBT and India", *Strategic Analysis* (New Delhi), vol.19, no.3, June 1996, pp.493-506.

Bettle, Hans A., "The Hydrogen Bomb", *The Bulletin of the Atomic Scientists* (New York), vol.6, no.4, April 1950, pp.99-104.

_____, "Disarmament and Strategy", *The Bulletin of the Atomic Scientists* (New York), vol.18, no.7, September 1962, pp.14-22.

Bhargava, G.S., "Nuclear Power Scenario", *World Focus* (New Delhi), vol.18, no.3, March 1997, pp.20-21.

Bhaskar Uday Chitrapu, "Dispelling Some Myths", *Seminar*, 444 - August 1996, pp.52-56.

Bidwai Praful, "End-Game in Geneva: New Delhi Works Against its Own Treaty", *Economic and Political Weekly* (Bombay), vol.31, no.31, August 3, 1996, pp.2061-2063.

_____, "The Problem", Seminar House, 444 - August 1996, pp.12-16.

Bidwai, Praful, "Washington Trap: But there is a way out of the Nuclear Maze", *Frontline* (Madras), vol.11, no.9, 23 April - 6 May 1994, pp.97-99.

Bunn, George and Roland Timerbaev, "Avoiding the 'Definition' Pitfall to a Comprehensive Test Ban", *Arm Control Today* (Washington, D.C.), vol.23, no.4, May 1993, pp.15-18.

Chaudhury Roy, Rahul, "Securing India's Option", *Seminar* (New Delhi), 444 - August 1996, pp.42-45.

Chellaney, Brahma, "Will India Tie the CTBT Noose?" *World Focus* (New Delhi), vol.17, no.2, February 1996, pp.7-11.

Chengoppa, Raj, "Nuclear Dilemma", *India Today* (New Delhi), vol.19, no.8, 10-30 April 1994, pp.45-51.

"Comprehensive Test Ban", *The Arms Control Reporter* (Massachusetts), vol.15, no.1, 1996, pp.608, A.1 - 608, B.393.

D'Souza, E., "India and the Comprehensive Test Ban Treaty", *Defence Today* (Noida), vol.4, no.3, July-September 1996, pp.368-374.

Dandavate, M.K., "Chinese Nuclear Challenge to Indian Democracy", *Janata* (Bombay), vol.20, nos.1 and 2, 26 January 1965, pp.11-13.

Datt, Savita, "NPT and the Non-Nuclear Weapon States: Options and Non-Options", *Strategic Analysis* (New Delhi), vol.16, no.10, 562, January 1993, pp.911-923.

_____, "China - the Emerging Nuclear Super Power: A Review", *Strategic Analysis* (New Delhi), vol.16, no.5, August 1993, pp.547-562.

_____, "Changing Paradigms: From Non-Proliferation to Counter - Proliferation", *Strategic Analysis* (New Delhi), vol.17, no.6, September 1994, pp.747-758.

Dixit, J.N., "The Moment of Truth", *Seminar* (New Delhi), 444 - August 1996, pp.17-19.

Doty, Paul, "A Nuclear Test Ban", *Foreign Affairs* (New York), vol.53, no.4 (Spring 1987), pp.754-769.

Dubey, Muchkund, "Nuclear Options: The Choice Cannot Wait", *Frontline* (Madras), vol.13, no.1, 13-26 January 1996, pp.4-11.

Epstein, William, "CTBT: Next Steps", *The Bulletin of the Atomic Scientists* (New York), vol.52, no.6, November-December 1996, pp.36-37.

_____, "The Nuclear Testing Threat", *The Bulletin of the Atomic Scientists* (New York), vol.45, no.6, July-August 1990, pp.34-37.

Fenstermacher, "Arms Race: The Next Generation", *The Bulletin of the Atomic Scientists* (New York), vol.47, no.2, March 1991, pp.29-33.

Johnson, Rebecca, "Comprehensive Test Ban Treaty: Hanging in the Balance", *Arms Control Today* (Washington, D.C.), vol.26, no.5, July 1996, p.3-8.

_____, "Incomprehensive Test Ban", *The Bulletin of the Atomic Scientists* (New York), vol.52, no.6, November - December 1996, pp.30-35.

Kaplov, David A., "The Step by Step Approach", *Arms Control Today* (Washington), vol.20, no.9, November 1990, pp.6-8.

Karnad, Bharat, "The Quality of 'Export' Advice", *Seminar* (New Delhi), 444 - August, pp.25-29.

Keeny, Spurgeon M. and Cernullo, Craig, "CTB Treaty: A Historic Opportunity to Strengthen the Non-Proliferation Regime", *Arms Control Today* (Washington, D.C.), vol.26, no.6, August 1996, pp.15-30.

_____, "Signing of the Comprehensive Test Ban Treaty", *Arms Control Today* (Washington, D.C.), vol.26, no.7, September 1996, pp.8-14

Kennedy, E.M., "Nuclear testing: Time for a Halt", *Arms Control Today* (Washington), vol.4, no.5, May 1974, pp.

Kheradi, Sohrab, "Introductory Remarks by the Moderator", *Strategic Digest* (New Delhi), vol.26, no.4, April 1996, p.54.

Krishna, Raj, "India and the Bomb", *India Quarterly* (New Delhi), vol.21, no.2, April-June 1965.

- Malhotra, Jyoti, "Play it again, Sam", *Seminar* (New Delhi) 444 - August 1996, pp.38-41.
- Mattoo Amitabh, "Sanctions, Incentives and Nuclear proliferation: The Case of India", *Journal of Peace Studies*, July/August 1994, pp.
- Mattoo, Amitabh, "Does Public Opinion Matter?", *Seminar* (New Delhi), 444 - August 1996, pp.30-83.
- _____, "India's Nuclear Status Quo", *Survival* (London), vol.38, no.3, Autumn 1996, pp.41-57.
- Menon, S.N.M., "Towards Nuclear Sanity", *Mainstream* (New Delhi), vol.5, no.32, 8 April 1967, pp.34-38.
- Mian, Zia, "Hegemonic Nuclear Ideas", *Seminar* (New Delhi), 444 - August 1996, pp.20-24.
- Mohan, C.Raja, "India Should Exercise Nuclear Option", *World Focus* (New Delhi), vol.18, no.3, March 1997, pp.3-5.
- _____, "CTBT Should be Genuinely Comprehensive", *World Focus* (New Delhi), vol.17, no.2, February 1996, pp.21-22.
- Nair, Vijay K., "CTBT: Instrument for Eliminating Nuclear Weapons or Protection of US Policies?", *Agni* (New Delhi), vol.1, no.2, November 1995, pp.67-86.
- _____, "Comprehensive Test Ban in the UNGA: Ramifications" *Indian Defence Review*, (New Delhi), vol.11, no.4, October-December 1996, pp.27-33.
- Narula, Sunil, "In Isolation Ward Again", *Outlook* (New Delhi) vol.11, no.28, 17 July 1996, p.28.
- Nehru, R.K., "The Challenge of the Chinese Bomb-1" *India Quarterly* (New Delhi) January-March 1965 pp.3-13.
- "Nuclear Weapon Safety: How Safe is Safe?", *The Bulletin of the Atomic Scientists* (New York) vol. 47, no.3, April 1991, pp. 35-40.
- Orear, Joseph, "Detection of Nuclear Weapons Tests", *The Bulletin of the Atomic Scientists* (New York), vol.14, no.1 (January 1958), pp.74-78.
- Pande, Savita, "India's Missile Programme", *World Focus* (New Delhi), vol.18, no.3, pp.13-15.

Pande, Savita, "CTBT and NPT: A Study in Linkages", *Strategic Analysis* (New Delhi), vol.8, no.9, December 1994, pp.1067-1075.

Pant, K.C., "India, Nuclear Weapons and CTBT", *World Focus* (New Delhi), vol.17, no.2, February 1996, pp.15-17.

Poulose, T.T. "Big Boy Games", *Seminar* (New Delhi) 444-August 1996, pp.46-51.

Ravi Kumar, Veena, "CTBT Versus Nuclear Option", *World Focus* (New Delhi), vol.18, no.3, pp.16-19.

Sabherwal, O.P., "India's Nuclear Policy Under Seige", *World Focus* (New Delhi), vol.17, no.2, February 1996, pp.12-14.

Seaborg, T. Glenn, "Weapons Labs Need Thinking", *The Bulletin of the Atomic Scientists* (New York) vol. 45, no.6, July-August 1989, p.11-13.

Singh, Jasjit, "The Nuclear Dilemma", *Gentleman* (Bombay), May 1996, p.62-65.

Subrahmanyam, K., "India should leave Negotiations", *World Focus* (New Delhi), vol.17, no.2, February 1996, pp.19-20.

_____, "India's Nuclear Confusion", *World Focus*, vol.18, no.3, March 1997, pp.6-8.

Vinaik, Achin, "Indian Security and the Nuclear Question". *Seminar* (New Delhi), 444 - August 1996, pp.33-37.

Zuberi, Matin, "CTBT - Testing Times", *World Focus* (New Delhi), vol.17, no.2, February 1996, pp.3-6.

_____, "Nuclear Labyrinth", *World Focus* (New Delhi), vol.18, no.3, March 1997, pp.9-12.

Newspapers

1. Financial Times (London)
2. Hindustan Times (New Delhi)
3. Indian Express (New Delhi)
4. Independent (London)
5. The Guardian (London)
6. The Hindu (Madras)
7. The New York Times
8. The Pioneer (New Delhi)
9. The Sunday Talegraph (London)
10. The Telegraph (Calcutta)
11. The Times of India (New Delhi).