

CHAPTER FIFTEEN
ENDNOTES

1. Uranium, The Joint Facilities, Disarmament and Peace, Canberra, Australian Government Publishing Service, 1984, p.11.
2. House of Representatives, Hansard, 6 June 1984. Reported in Australian Foreign Affairs Record, June 1984, pp.614-21.
3. Australian Foreign Affairs Record, June 1984, p.618.
4. Australian Foreign Affairs Record, June 1984, p.620.
5. Evidence, 9 August 1984, pp.563-64.
6. See Australian Foreign Affairs Record, August 1984, pp.835-36.
7. News release issued by Minister for Defence, Mr Kim Beazley, MP, on 18 February 1986. Quoted in Australian Foreign Affairs Record, February 1986, p.134.
8. In answer to Question on Notice No.1253, the then Defence Minister Mr Killen stated that the Joint Defence Space Communications Station commenced operations in early 1971 (House of Representatives, Hansard, 10 October 1978, p.1659). Desmond Ball claims that the facility was initially planned to become operational in 1970 'when it was reportedly to have controlled the first satellite in the 647 geostationary early-warning satellite program. However, that satellite failed to achieve geostationary orbit, and the station was operational for the first successive launch of a 647 satellite on 5 May 1971'. (Desmond Ball, A Suitable Piece of Real Estate: American Installations in Australia, Sydney, Hale and Iremonger, 1980, p.65).
9. Ball, A Suitable Piece of Real Estate. See also Desmond Ball, 'U.S. Installations in Australia's Agenda for the future', paper prepared for a Conference on National Security Interests in the Pacific Basin. The Hoover Institution on War, Revolution and Peace, Stanford University, California, 15-17 August 1983 (Incorporated as Submission, pp.8669-694)
10. Evidence, 29 April 1985, p.100. See also People for Nuclear Disarmament (Victoria), Supplementary Submission dated 30 May 1985.
11. Desmond Ball, The US Naval Ocean Surveillance Information System (NOIS) Australia's Role, SDSC Reference Paper No.77, Canberra, February 1982. Also published in Pacific Defence Reporter, June 1982, pp.40-49.
12. SIPRI Yearbook 1984, p.470.
13. SIPRI Yearbook 1984, p.471.
14. SIPRI Yearbook 1984, p.471.
15. Report of the Secretary of Defense Casper W. Weinberger to the Congress on the FY 1985 Budget, FY 1986 Authorization Request and FY 1985-89 Defense Programs February 1, 1984, U.S. Government Printing Office, Washington D.C., 1984, p.195.
16. Evidence, 23 May 1984, p.57.
17. SIPRI Yearbook 1984, p.486.
18. Report of the Secretary of Defense Casper W. Weinberger to the Congress on the FY 1985 Budget, p.199.
19. SIPRI Yearbook 1984, pp.487-88.
20. Ball, A Suitable Piece of Real Estate, pp.53-54.
21. Ball, 'US installations in Australia: Agenda for the Future', Paper prepared for a Conference on National Security Interests in the Pacific Basin, The Hoover Institution on War, Revolution and Peace, Stanford University, California, 15-17 August 1983, p.12. Incorporated as Submission, pp.5 669-94.
22. Ball, A Suitable Piece of Real Estate, pp.125-6.
23. William M. Arkin, 'Sleight of hand with Trident II', Bulletin of the Atomic Scientists, December 1984, p.6.
24. Evidence, 23 May 1984, p.56.
25. Ball, A Suitable Piece of Real Estate, pp.111-12.
26. Ball, The U.S. Naval Ocean Surveillance Information System (NOIS) Australia's Role, pp.22-32.
27. The United States uses a variety of means of locating and tracking Soviet submarines from the time they leave their bases. These include ocean surveillance satellites, reconnaissance aircraft and a range of underwater detection systems. The most important of these latter devices is the U.S. Navy's Sound Surveillance System (SOSUS). This system has been described by Paul Bracken in his book The Command and Control of Nuclear Forces, (New Haven and London Yale University Press, 1983) as follows:
Designed in the early 1950s, SOSUS was a collection of underwater acoustic sensors that could detect and locate Soviet submarines and

ships. It gave shore-based centers the approximate location of enemy vessels by matching the noises of ships and submarines against the known patterns of American and Soviet vessels. The approximate location was relayed to U.S. Navy coastal airbases and ships at sea so that they could close in for the final precise detection needed to destroy the vessel in question. SOSUS has been expanded and improved over the years, and it is now deployed off the American Atlantic and Pacific coasts, in the Barents Sea, throughout European waters, and in the seas of northeast Asia. It provides information to the U.S. Navy about Soviet naval buildups and played a crucial role in the 1962 Cuban missile crisis, when every Soviet submarine in the area was found and closely trailed. [Bracken: 1983:14].

Information is also obtained from the U.S. Navy's Ocean Surveillance system which is a world-wide network of signals intelligence (SIGINT) stations that intercept and monitor high-frequency radio signals by Soviet naval vessels and aircraft.

28. Ball, A Suitable Piece of Real Estate, pp.98-9.
29. Report of the Secretary of Defense Casper W. Weinberger to the Congress on the FY 1985 Budget, p.148.
30. Admiral James D. Watkins, USN, 'The Maritime Strategy', Proceedings of the U.S. Naval Institute, January 1986, pp. 2-17.
31. Watkins, 'The Maritime Strategy', p.14.
32. Evidence, 29 April 1985, pp.95 and 102.
33. Desmond Ball, The Rhyolite Programme, SDSC Reference Paper No.86, Canberra, November 1981 (incorporated as Submission, pp.5696-5728), p.1.
34. Ball, The Rhyolite Programme, p.8.
35. Ball, The Rhyolite Programme, p.9.
36. Ball, The Rhyolite Programme, p.16.
37. Bracken, The Command and Control of Nuclear Forces, pp.39-41.
38. Andrew Mack, 'Arms Control and the Joint Facilities: the case of Nurrungar', Paper presented to the Conference on The Future of Arms Control, 21-23 August 1985, pp.52-3.

39. Bracken, The Command and Control of Nuclear Forces, p.61.
40. Uranium. The Joint Facilities, Disarmament and Peace, p.17.
41. House of Representatives, Hansard, 6 June 1984, p.2987.
42. Mack, 'Arms Control and the Joint Facilities: the case of Nurrungar', p.13.
43. Bracken, The Command and Control of Nuclear Forces, p.107.
44. Report of the Secretary of Defense Caspar W. Weinberger to the Congress on the FY 1985 Budget, p.196.
45. SIPRI Yearbook 1984, p.503.
46. Mack, 'Arms Control and the Joint Facilities; the case of Nurrungar', pp.20-21.
47. Ball, The Rhyolite Programme, p.15.
48. Ball, A Suitable Piece of Real Estate, p.81.
49. Ball, A Suitable Piece of Real Estate, p.128.
50. See Ball, 'U.S. installations in Australia: Agenda for the future', p.8 and p.18.
51. House of Representatives, Hansard, 6 June 1984, p.2988.
52. Uranium. The Joint Facilities, Disarmament and Peace, p.18.
53. See Michelle Gratton, 'Greeks fail to get firm answer on Pine Gap', Age, 10 April 1985.
54. Ball, 'U.S. installations in Australia: Agenda for the future', p.18.
55. Evidence, 23 May 1984, p.68.
56. Joint Committee on Foreign Affairs and Defence, The ANZUS Alliance, Canberra, Australian Government Publishing Service, 1982, pp.60-61.
57. Ball, 'U.S. installations in Australia: Agenda for the future', pp.18-19.
58. Evidence, 9 August 1984, p.553.

59. Ball, 'U.S. installations in Australia: Agenda for the future', p.20.
60. Evidence, 9 August 1984, p.557.
61. Evidence, 9 August 1984, p.558.
62. Uranium, The Joint Facilities, Disarmament and Peace, p.13.
63. Mack, 'US bases in Australia - the Controversy Grows', Asian Defence Journal, 11/84, p.53.
64. The following discussion is largely derived from Gary Brown, The Joint Defence Facilities as Bargaining Chips: Pros and Cons, Legislative Research Service, Current Issues Brief Number 1, 1986-87, Department of the Parliamentary Library, The Parliament of the Commonwealth of Australia.

CHAPTER 16

THE SOUTH PACIFIC NUCLEAR FREE ZONE

16.1 On 6 August 1985, the Pacific Forum adopted a Treaty establishing the South Pacific as a nuclear free zone. The Treaty, known as the Treaty of Rarotonga, prohibits the possession, testing and stationing of nuclear explosive devices on territories located in the zone; bans the dumping of radioactive wastes and other radioactive matter at sea anywhere within the zone; and invites the nuclear powers to formally agree not to use or threaten to use any nuclear explosive devices against parties to the Treaty or other territories within the zone. Legislation giving effect to the substantive provisions of the proposed nuclear free zone together with a Nuclear Non-Proliferation (Safeguards) Bill and legislation to control nuclear material in Australia, was introduced into the Australian Parliament on 4 and 5 June 1986.¹ Anti-dumping legislation has also been introduced into the House of Representatives on 27 May 1986.

16.2 The South Pacific Nuclear Free Zone Treaty was generally acclaimed by the official arms control community but has been criticised by others as either going too far - by restricting possible later U.S. involvement in the region and so far enough - by allowing the continued transit of nuclear weapons through the region and the stationing of defence related facilities there.

16.3 This Chapter examines these claims as part of an evaluation of the role and effectiveness of the South Pacific Nuclear Free Zone. It starts by considering the objectives and functions of nuclear free or nuclear weapon free zones generally and then looks at the history of the current zone, and the special factors that have influenced the provisions of the Treaty. These include the nature of the zone itself - comprising predominantly international waterways - and a number of specific concerns of the member states. While noting that the South Pacific Nuclear Free Zone falls short of some of the objectives of such zones, it nonetheless makes a useful contribution to extending the non-proliferation regime and arms control generally.

Nuclear Weapon Free Zones

16.4 The continued proliferation of nuclear weapons throughout the world has led to additional avenues being sought beyond the Nuclear Non-Proliferation Treaty to restrain the further spread of such weapons. The creation of nuclear weapon free zones is one such means by which non nuclear weapon states can, by their own initiatives, ensure the absence of nuclear weapons from their territories and disassociate themselves from a system of superpower competition which they believe does not serve the interests of peace.

16.5 Nuclear weapon free zones are generally perceived as operating both as a regional measure of arms control and as a mechanism for preventing the further spread of nuclear weapons.

The expectation is that nuclear weapon free zones would deal with three central issues:

- a. non-possession of nuclear weapons where states of the region undertake not to manufacture or otherwise acquire nuclear weapons for their own use;
- b. non-deployment of nuclear weapons where nuclear weapon states undertake not to deploy or station their nuclear weapons or associated support systems within the zone in accordance with rules laid down in the agreement creating the zone; and
- c. non-use of nuclear weapons where nuclear weapon states undertake not to use or threaten to use nuclear weapons against zone states.

16.6 The benefits of nuclear weapon free zones are variously portrayed as preventing the spread or further development of nuclear weapons, limiting the environmental consequences that may stem from such proliferation, lowering the costs and burdens of the arms race, reducing the probability of nuclear war and decreasing the consequences of such an event should it occur. The proponents of nuclear weapon free zones also believe that such zones can contribute to the goals of nuclear disarmament as well as enhance regional security by freeing nations in the zone from the possible use or threatened use of nuclear weapons against them. The latter is, of course, questionable.

16.7 Over the past several decades a number of nuclear free zone proposals have been advanced concerning various regions of the world. Most of them have consisted of general concepts rather than concrete steps, but some more formal plans and proposals have been voiced, notably in the United Nations General Assembly. In 1957 Poland proposed the creation of a nuclear weapon free zone in central Europe and subsequently revised this proposal in 1958 and 1962.² Between 1957 and 1963, three major proposals for a nuclear weapon free zone in the Balkans were advanced, the first by Romania and the latter two by the Soviet Union which has also sought to make the whole of the Mediterranean missile-free. Finland has, on a number of occasions, suggested the creation of a zone involving the Nordic countries.³ Other areas for which nuclear weapon free zones have been proposed include Africa, South Asia, the Middle East, Latin America and the South Pacific.

16.8 Prior to the establishment of the South Pacific Nuclear Free Zone (SPNFZ) in 1985 - to be described in detail shortly - the only successful examples of nuclear weapon free treaties have been the 1967 Outer Space Treaty, the 1968 Treaty for the prohibition of nuclear weapons in Latin America (Treaty of Tlatelolco), the 1969 Antarctic Treaty and the 1971 Seabed Treaty. Of these, the most important is the Tlatelolco Treaty which is the only agreement covering an inhabited area.

The Treaty of Tlatelolco

16.9 In the wake of the 1962 Cuban Missile crisis, Mexico developed a proposal for the non-nuclearisation of Latin America which was subsequently presented to the United Nations by five countries (Mexico, Bolivia, Brazil, Chile and Ecuador) and formally adopted on 27 November 1963. Following detailed negotiations between the parties involved, the Treaty of Tlatelolco was signed by the countries of Latin America in 1967, and endorsed by the General Assembly in the same year. It entered into force on 22 April 1968.

16.10 The Treaty prohibits the testing, use, manufacture, production or acquisition by any means, as well as the receipt, storage, installation, deployment and any form of possession of any nuclear weapons by Latin American countries. The Treaty allows for the peaceful use of nuclear energy but requires the parties to conclude agreements with the International Atomic Energy Agency for the application of safeguards to their nuclear activities. Under an Additional Protocol I, annexed to the Treaty, those extra-continental or continental states which are responsible for territories within the zone (France, the Netherlands, the UK and the U.S.A), undertake to apply the statute of denuclearisation, as defined in the Treaty, to such territories. Under Additional Protocol II, nuclear weapon states undertake to respect the statute of military denuclearisation, and not to use or threaten to use nuclear weapons against the parties to the Treaty.

16.11 The Treaty is open to signature by all Latin American states. It is to remain in force indefinitely, but any party may withdraw on three months notice. The SIPRI Yearbook 1986 shows that of the eligible zone states, Cuba, Guyana and Saint Lucia have not signed the Treaty. Argentina and Brazil have signed on the understanding that parties are able to carry out nuclear explosions for peaceful purposes. Chile and Brazil have ratified the Treaty but it is not yet in force for them because they require prior ratification by all eligible states.⁴

16.12 The Treaty of Tlatelolco seeks a total absence of nuclear weapons through an undertaking by states both within and outside the region to prohibit nuclear weapons in the area, and a complementary system of verification to ensure that this undertaking is respected. It thus goes well beyond the obligations imposed under the NPT, which do not, for example, prevent the stationing of nuclear weapons on the territory of an NPT party by a superpower. There are, nonetheless, a number of gaps and ambiguities in the Treaty which could serve to limit its effectiveness:

- a. there are no provisions covering the transit of nuclear weapons through the zone, or methods of monitoring such transit;
- b. the zones of application defined under the Treaty (the Treaty defines two zones, one provisional and one definitive) are subject to different interpretations particularly with respect to ocean boundaries and the right of navigation;

- c. the Treaty allows peaceful use of nuclear explosive devices; and
- d. the Treaty does not provide for verification or control procedures covering potential military activities of a nuclear power in a disputed area of the zone. (It does, however, provide for the control of activities through the IAEA and an Agency for the Prohibition of Nuclear Weapons in Latin America).

16.13 The experience of the Tlatelolco Treaty and other nuclear weapon free proposals that were put before it have stimulated the United Nations to take a more general interest in the subject. In 1974, the Conference on Disarmament conducted a comprehensive study of nuclear weapon free zones.⁵ The study's findings were subsequently endorsed by the United Nations General Assembly which also provided an agreed definition of a nuclear weapon free zone as follows:

A nuclear weapon free zone shall, as a general rule, be deemed to be any zone recognised as such by the General Assembly of the United Nations, which any group of states, in free exercise of their sovereignty, has established by virtue of a treaty or convention whereby: (a) the statute of total absence of nuclear weapons to which the zone shall be subject, including the procedure for the delimitation of the zone, is defined; (b) an international system of verification and control is established to guarantee compliance with obligations deriving from that statute.⁶

16.14 The United Nations study generally endorsed the value of nuclear weapon free zones. It stated that the basic goal of such zones was to ensure freedom from all nuclear weapons, although it noted that their degree and practicality of application will vary from region to region. The study identified a number of principles which should be taken into account in establishing a nuclear weapon free zone or determining its prospects for success. These included:

- a. an absence of serious tension or fundamental differences between the states in the region;
- b. the proposal should be initiated by countries from within the region and it should have the support of all member states;
- c. the proposed zone should preserve the regional status quo including existing security arrangements;
- d. it should provide for the participation of all states of military importance in the region;

- e. it should have the support of the nuclear weapon states;
- f. its provisions should be capable of verification;
- g. the zone should have clearly defined and recognised boundaries and it should take into account existing international legal provisions;
- h. peaceful nuclear development should be allowed; and
- i. the specific provisions of the zone should be negotiated between the regional member states in the form of a multilateral treaty establishing the zone in perpetuity.

16.15 The Final Document of the 1978 Special Session of the United Nations on Disarmament also recognised NWFZs as an important disarmament step and concluded that the 'process of establishing such zones in different parts of the world should be encouraged with the ultimate objective of achieving a world entirely free of nuclear weapons'.⁷

A Nuclear Weapon Free Zone in the South Pacific

16.16 The continued interest in the concept of nuclear weapon free zones and their potential use as a regional instrument of arms control, together with long-held concerns over various nuclear activities in the region, led a number of Pacific states, including Australia, to advocate the establishment of such a zone in the South Pacific.

Nuclear Activities in the South Pacific

16.17 The presence of nuclear weapons and weapons-related facilities in the South and Central Pacific is shown in Table 16.1. The region has a long and sorry history of involvement in the nuclear arms race. The relative isolation of the region and its sparse population made it an attractive site for the testing of nuclear weapons by the nuclear powers. The United States has conducted nuclear activities in the region but outside the officially declared zone. These included an atomic test site at Bikini and Enewetak atolls in the Marshall Islands and the explosion of 66 warheads there between 1946 and 1958, including the first thermonuclear device. During this time, Bikini islanders and the Enewetakese were resettled to other islands in the Marshall group, and the people of Rongelap and Utiirik, two other atolls in the Marshalls group, were subjected to the effects of fall-out from a 15 megaton hydrogen bomb exploded over Bikini in 1954. Bikini was resettled again in the 1970s after the United States Government declared the island safe, but in 1978 the islanders had to be relocated again because of the high levels of plutonium they had ingested. The atoll remains

TABLE 16.1

SOUTH PACIFIC: PRESENCE OF NUCLEAR WEAPONS
AND WEAPONS-RELATED FACILITIES

1. PAST

<u>Place</u>	<u>Country Involved</u>	<u>Nature of Involvement</u>
Bikini atoll, Marshall Islands	U.S.A.	Atmospheric nuclear testing 1946-58 (23 tests)
Enewetok, Marshall Islands	U.S.A.	Atmospheric nuclear testing 1948-58 (43 tests)
Johnston Island	U.S.A.	Atmospheric nuclear testing 1958-62 (12 tests)
Christmas Island, Line Islands	Britain-U.S.A.	Atmospheric nuclear testing 1952-57 (25 tests)

2. CURRENT

Moruroa and Fangataufa atolls, French Polynesia	France	Underground nuclear 1975-83 (57 tests) Previously atmospheric testing 1966-74 (41 tests)
Guam/Andersen Air Force Base, Apra Harbor Naval Base, and Agana Naval Air Station	U.S.A.	Base for nuclear-armed ships and aircraft [B-52's] nuclear weapon storage; surveillance/ communications (weapons-related)
Kwajalein atoll, Marshall Islands	U.S.A.	Missile testing range; communications/ surveillance (weapons-related)
North West Cape, Australia	U.S.A./Aust	Communications (weapons-related)
Pine Gap, Australia	U.S.A./Aust	Surveillance (weapons-related)

<u>Place</u>	<u>Country Involved</u>	<u>Nature of Involvement</u>
Nurrungar, Australia	U.S.A./Aust	Surveillance (weapons-related)
Cockburn Sound, Australia, (HMAS Stirling)	U.S.A.	Naval base used by U.S. nuclear-powered attack and hunter-killer submarines
East of Solomon Islands	People's Republic of China	Missile testing
Near Cook Islands	U.S.S.R.	Missile testing
Runit, Enewetak Atoll, Marshall Islands	U.S.A.	Nuclear wastes storage (from nuclear testing)
All region (except Vanuatu)	U.S.A.	Transit of high seas and port calls by nuclear-armed and nuclear-powered American ships and submarines

Source: Based on Greg Fry, A Nuclear-Free Zone for the Southwest Pacific: Prospects and Significance, SDSC Working Paper No 75, Canberra, September 1983, pp.22-3. It should be noted that some of the above should be more correctly called the Central Pacific.

uninhabited. The Enewetakese returned home in 1980 but Runit Island, where radioactive debris left over from the tests has been stored, remains out of bounds.

16.18 Great Britain conducted a series of nuclear tests in Australia between 1952 and 1957, on sites at Maralinga, Emu Field and Monte Bello Island. It then moved its tests to Christmas Island which was also used by the United States until the signing of the Partial Test Ban Treaty in 1963. The processes leading to the decision to conduct nuclear tests in Australia, together with the operating and safety conditions that applied during the tests, were strongly criticised in The Report of the Royal Commission into British Nuclear Tests in Australia.⁸ The Royal Commission concluded that the nuclear fall-out from the tests probably caused a greater incidence of cancer among the Australian population in general and Australian servicemen associated with the tests in particular. It also reported that the ranges had not been sufficiently decontaminated and that they need to be cleaned up.

16.19 Between them, the United States and Great Britain conducted some 120 nuclear tests in the Pacific region. The majority of these were atmospheric tests although some were conducted underwater. With the signing of the Partial Test Ban Treaty, both countries ceased using their Pacific testing sites and U.S. and British tests now occur exclusively at the Nevada test site in the United States. There have been 490 tests conducted at the site between 6 August 1983 and 31 December 1985.⁹

16.20 France continues to test nuclear weapons in the Pacific despite vigorous opposition from many countries in the region. After being forced to abandon its Sahara test site following Algerian independence, France established its Centre d'Experimentation du Pacifique at the Moruroa atoll in the Tuamotu Archipelago in French Polynesia in 1963. It exploded its first nuclear device there in 1966 and continues to test on a regular basis. France has carried out 41 atmospheric and over 80 underground tests at or around Moruroa, and there seems little chance that it will discontinue testing in the region for the foreseeable future.

16.21 In addition to nuclear testing, there are a number of other forms of nuclear involvement or potential involvement in the South Pacific region. These have been described in some detail by Fry and include:¹⁰

- a. **Transit of nuclear weapons.** Nuclear weapons are carried through the region on submarines, surface ships and aircraft, including ships and submarines making calls to port facilities in Australia and elsewhere. The majority of these belong to the United States and the U.K. although there has been some speculation that Soviet submarines have used the area. United States and British naval vessels are welcome at all ports in the South Pacific except New Zealand

and Vanuatu where they are banned specifically because they may be carrying nuclear weapons. The only regular port calls within the region by U.S. nuclear-armed vessels (outside U.S. Pacific territories) are at HMAS Stirling at Cockburn Sound in Western Australia.

- b. **Storage of nuclear weapons.** Other than weapons located on naval vessels and aircraft moving through the area, nuclear weapons are currently stockpiled in only one location, the U.S. 'incorporated' territory of Guam. Anderson Airforce Base on Guam is a home for B52 bombers of the U.S. Strategic Air Command. Guam also provides port facilities for ships and submarines of the U.S. Pacific Fleet. The United States controls a number of other territories in the area which could be used in the future to deploy forces or stockpile nuclear weapons. These include the islands of Tinian and Saipan, which are within the Northern Marianas, and Palau, all of which form part of the American Trust Territory of the Pacific Islands.
- c. **Support for nuclear forces or activities.** This kind of involvement includes the provision of testing facilities for parts of a nuclear weapon system other than the warhead. It also includes facilities that are used for the command and control of nuclear forces or the manufacture of materials that could be used in nuclear weapons. The Pacific region has been used by the United States, the Soviet Union and China to test new missile delivery systems, although the United States is the only nuclear power with a permanent missile-testing facility in the region (located at Kwajalein Atoll in the Marshall Islands). Surveillance and C³ facilities which form part of the U.S. Strategic C³ system are found in several locations including Australia, New Zealand, Guam and Kwajalein.
- d. **Dumping and storage of nuclear waste.** Fry states that there is presently no dumping in the South Pacific, nor has there been in the past. There is some concern that Japan may seek to dump nuclear wastes in the north Pacific. No nuclear waste material is stored in the area other than material that is associated with the past and present tests.

16.22 According to Fry, a number of important conclusions can be drawn from a general survey of nuclear involvement in the South Pacific.

Firstly, the region is significantly involved in the nuclear weapons systems of France and the United States through the provision of testing facilities, communication/surveillance installations, and a base for nuclear-armed aircraft and warships. Although there is no land-based deployment of nuclear weapons, nuclear-armed ships and aircraft are deployed in the area and call at regional ports and airfields. Secondly, the land-based weapons involvement that does exist is concentrated in the French and American territories, specifically in Guam and French Polynesia. The permanent presence of nuclear weapons is confined only to Guam. Put another way, no independent country in the region has nuclear weapons stored on its territory or provides a testing site for nuclear weapons. Thirdly, future weapons involvement, if any, is likely to centre on the Northern Marianas Islands in particular on Tinian and Saipan. Palau is another possibility. Fourthly, there are several points in the region which would certainly be targeted by the Soviet Union in view of their part in nuclear weapons systems. These are Guam and Kwajalein, and Nurrungar, Pine Gap and North West Cape in Australia. Darwin and Cockburn Sound are also possibilities. Finally, no country in the region has acquired, or would be likely to acquire nuclear weapons and therefore there is no likelihood of one country in the region threatening another with such weapons.¹¹

These conclusions were said to have some important implications for the shape, acceptability and acceptance of a nuclear weapons free zone; the most important being the difficulties of contending with extra-regional nuclear states, particularly the United States and France who are likely to regard their present or intended nuclear involvement in the region as off-limits to any zone proposal.

Opposition to Nuclear Involvement in the South Pacific

16.23 At the national level, attempts to limit nuclear involvement in the region have involved general opposition to nuclear testing and formal attempts to establish a nuclear free zone in the South Pacific. Individual groups within different countries have also expressed opposition to the other forms of nuclear involvement, in particular port visits by nuclear-armed ships, the location of the Joint Facilities in Australia and the mining and export of Australian uranium. The latter is dealt with in detail in Chapter 17.

16.24 The idea of establishing a nuclear free zone in the South Pacific dates back to the early 1960s when it was actively considered by the Australian Labor Party. The concept has also been supported by various Pacific Governments, peace groups,

church organisations and trade unions. The first major proposal was made by the New Zealand Government. Under Prime Minister Rowling, it developed a specific proposal for a nuclear weapons free zone in the South Pacific which gained considerable support among nations in the region. In 1975, following consideration of the proposal at a meeting of the South Pacific Forum, New Zealand and Fiji co-sponsored a corresponding resolution to the United Nations General Assembly. The resolution endorsed the idea of establishing a nuclear weapon free zone in the South Pacific and invited the countries concerned to carry forward consultations on ways and means of realising this objective. The resolution was adopted in December of that year.

16.25 Despite this support, the New Zealand initiative went no further, largely due to concerns that it would disadvantage U.S. security interests and arrangements in the South Pacific and pose problems for ANZUS. According to Greg Fry, these concerns were first raised with Australia by the United States prior to the 1975 Pacific Forum meeting. They were also discussed at the Forum meeting in Rotorua in February 1976 and led to much of the original support being withdrawn. Fry concluded that the failure of New Zealand's proposal demonstrated the overriding importance of U.S. concerns.

The 1975 episode revealed that an NZF would have to clearly exclude the question of transit if it were not to provoke U.S. opposition. It also demonstrated U.S. preparedness to put its views of these matters in a manner which regional states could hardly refuse - 'ship visits or no protection'. Further it showed that the Pacific States took the American concerns very seriously. They were prepared to shelve the proposal rather than risk damaging their security relations with the United States.¹²

16.26 The issue of a nuclear free zone was not considered again by the South Pacific Forum until 1983 when it was raised by Australia. No decisions on the zone were taken at that meeting, although it was agreed that Australia could provide member countries with background information on nuclear weapon free zones in other parts of the world. This was extended by the 1984 South Pacific Forum which appointed a Working Group of officials to undertake an examination of the substantive legal and other issues involved in establishing a nuclear free zone in the region with a view to preparing a draft treaty for consideration by the Forum Meeting in 1985. The meeting also laid down a set of principles that were to be followed in developing the draft treaty. These were that:

- a. South Pacific countries should be free to live in peace and independence and to run their own affairs in accordance with the wishes and traditions of their people;

- b. South Pacific countries should enjoy peaceful social and economic development free from the threat of environmental pollution;
- c. South Pacific countries acknowledge existing international treaties, organisations and regional arrangements, such as the Charter of the United Nations, the Nuclear Non-Proliferation Treaty and the Law of the Sea Convention, which contribute to these objectives;
- d. there should be no use, testing or stationing of nuclear explosive devices in the South Pacific;
- e. no South Pacific country would develop or manufacture, or receive from others, or acquire or test any nuclear explosive device;
- f. nuclear activities of South Pacific countries should be in accordance with applicable international principles and treaties, notably the Non-Proliferation Treaty and take into account regional arrangements;
- g. South Pacific countries retain their unqualified sovereign rights to decide for themselves, consistent with their support for these objectives, their security arrangements, and such questions as the access to their ports and airfields by vessels and aircraft of other countries; and
- h. Forum members should observe the principle of freedom of navigation and overflight.

16.27 On 6 August 1985, at its meeting at Rarotonga in the Cook Islands, the 13 member Forum adopted the South Pacific Nuclear Free Zone Treaty that had been developed by the Working Group and declared it open for signature. Australia and seven other Forum members signed the Treaty immediately and Papua New Guinea signed it on 16 September. Three other Forum states have promised to sign the agreement in due course, leaving Vanuatu as the only state that will not sign the Treaty. The SPNFZ Treaty is of indefinite duration although it provides for a right of withdrawal on twelve months notice. The Treaty is required to be ratified by the signatories and will enter into force when the eighth instrument of ratification has been deposited.

Issues raised in submissions to the inquiry

16.28 There was considerable support among submissions to this inquiry for the establishment of nuclear weapon free zones in Australia's area of interest, although there were differences

over the proposed scope and provisions of such agreements. Most agreed, however, that Australia's proposals for a nuclear weapon free zone in the South Pacific, as they were understood at the time, did not go far enough. Dr and Ms Redner, for example, while welcoming Australia's efforts in this area, argued that:

... to provide assurances to the U.S., as the Prime Minister has done, that such a zone would explicitly permit transit over Australian territory and use of Australian ports by our allies' vessels and aircraft, regardless of whether or not these are nuclear-armed, is to restrict the potential effectiveness of such a zone.¹³

16.29 They accepted the view that no nuclear weapon free zone can be effective without superpower guarantees and so it 'makes more sense for Australia to persuade the U.S. to accept the zone than to defy it to ignore it' [sic], with all the consequences this would have for Australia's own security arrangements. In their view, the United States could be persuaded to forego certain military activities in the region in the short term by stressing the longer-term advantages of a nuclear weapon free zone.

As the USSR has no bases or port facilities in the South Pacific, but will certainly seek to acquire them if the U.S. nuclear presence goes on increasing there, it is reasonable to ask the U.S. to sacrifice the present advantage of access by its nuclear-armed ships to Australian (and NZ) Pacific ports in the interests of increasing the long-term security of the region.¹⁴

16.30 Other submissions pointed to what they saw as a contradiction between the Australian Government's proposal for a nuclear weapon free zone and its policies on the mining and export of uranium, the continued presence of the joint facilities on Australian soil, and visits by nuclear-armed naval vessels. A witness for the NSW Branch of People for Nuclear Disarmament, for example, argued that:

Most peace groups in Australia think that the Australian Government initiative is a good step but that it does not go far enough in that it is all very well to stop nuclear testing at Moruroa, but if you then do not include other nuclear issues such as the warships or the uranium mining in Australia, then...it is just not worthwhile having.¹⁵

PND recommended that 'the Australian Government press for the whole of the Pacific to be a NFZ, and that it prohibit all nuclear activities except those required for medical diagnosis and treatment'.

16.31 A similar view was expressed by the Victorian Branch of PND which also argued that nuclear free zones can be used to secure nuclear non-use guarantees from the nuclear weapon powers and so reduce the possibility of nuclear weapons being used against countries in the region. A spokesman for PND informed the Committee of a general concern that:

So far there has been no mention of securing guarantees from the nuclear weapon powers. Presumably this is because there is so little that is banned in the proposal that it would not be realistic to expect the Soviet Union to guarantee not to target the countries in the region or target American ships armed with strategic weapons visiting ports in the South Pacific region. In other words, the Australian Government is seeking to impose a minimal zone that will do nothing to increase the security of the people in the region from nuclear attack. It may help curb some of the environmental hazards associated with environmental testing and accidental nuclear explosions but it would basically do nothing to secure the region from the threat of nuclear attack and, in fact, would lull people into a false sense of security.¹⁶

The South Pacific Nuclear Free Zone (SPNFZ) Treaty¹⁷

16.32 Under the SPNFZ Treaty, which is open to Members of the South Pacific Forum, each Party undertakes:

- a. not to manufacture or otherwise acquire, possess or have control over any nuclear explosive device anywhere inside or outside the SPNFZ (Article 3);
- b. not to provide source or special fissionable material to:
 - (i) any non-nuclear weapon state unless subject to Article 3.1 of the NPT;
 - (ii) any nuclear weapon state unless subject to 'applicable' IAEA safeguards. (Article 4).
- c. not to permit the stationing of any nuclear explosive device on its territory (Article 5). Stationing was defined in Article 1 as 'implantation, emplacement, transportation on

land or inland waters, stockpiling, storage installation and deployment', and territory as 'internal waters, territorial sea and archipelagic waters, the seabed and subsoil beneath, the land territory and the airspace above them';

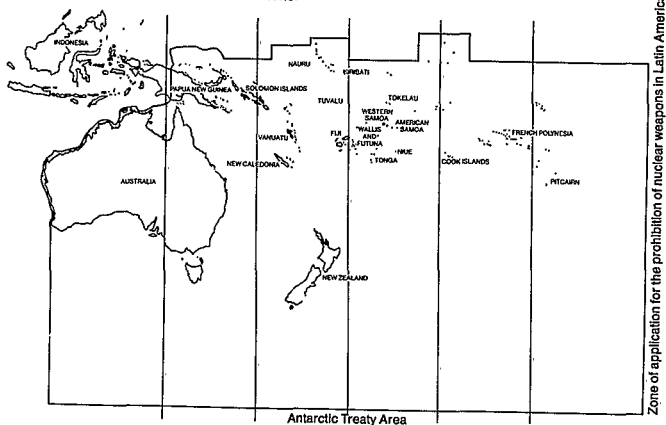
- d. to prevent the testing of any nuclear explosive device in its territory and not to take action to assist or encourage such testing (Article 6);
- e. not to dump radioactive wastes and other radioactive matter at sea anywhere within the SPNFZ; to prevent the dumping of radioactive wastes in its territorial sea; not to assist or encourage others to dump radioactive wastes anywhere in the zone; and to support the conclusion of a regional convention which would preclude dumping at sea of radioactive wastes by anyone anywhere in the region (Article 7).

16.33 Article 5 of the SPNFZ Treaty also allows each Party 'to decide for itself whether to allow visits by foreign ships and aircraft to its ports and airfields, transit of its airspace by foreign aircraft, and navigation by foreign ships in its territorial sea or archipelagic waters'.

16.34 The SPNFZ Treaty contains three Additional Protocols. Protocol 1 is open for signature by France, the United Kingdom and the United States. It requires these parties not to manufacture, station or test nuclear explosive devices on territories in the SPNFZ for which they are internationally responsible. Protocols 2 and 3 are open for signature by the five major nuclear weapons states. Protocol 2 requires each party not to violate the Treaty and not to use or threaten to use any nuclear explosive devices against parties to the Treaty or other territories within the SPNFZ. Protocol 3 requires each party not to test nuclear explosive devices anywhere within the zone.

16.35 The geographical extent of the zone is shown in Figure 16.1. The boundaries of the zone extend from the border of the Latin American nuclear weapon free zone in the east to the west coast of Australia, and from the border of the Antarctic zone in the South to the equator - with some extension into the northern hemisphere to include Kiribati - in the north. This includes a vast area of ocean over which the treaty signatories do not have jurisdiction. It also includes the French testing site in French Polynesia but excludes the U.S. controlled Trust Territory of the Pacific Islands which includes Guam, Palau, Micronesia and the Marshall Islands.

Figure 16.1 Illustrative map showing the boundaries of the South Pacific Nuclear Free Zone.



16.36 The Treaty includes a control system for verification of compliance. This comprises:

- a. the application of IAEA safeguards and procedures to peaceful nuclear activities;
- b. a requirement for Parties to report any significant event affecting the implementation of the Treaty to the Director of the South Pacific Bureau for Economic Cooperation who is also required to report annually to the South Pacific Forum on the status of the SPNFZ Treaty and matters arising under or in relation to it;
- c. a complaints procedure in which complaints by one Party against another are considered;
- d. a consultation and review process which enables issues relating to the Treaty to be considered and, if necessary, Treaty amendments made.

An Assessment of the SPNFZ

16.37 The South Pacific Nuclear Free Zone can be evaluated in a number of ways. First, its effectiveness can be judged in terms of freeing the region of the presence or possible use of nuclear weapons. Secondly, it can be measured against the United Nations guidelines on nuclear weapon free zones, in particular; (1) its contribution to regional security and its recognition and accommodation of existing treaty relationships; (2) its respect for international laws; (3) whether or not its provisions are verifiable; and (4) its degree of international acceptance including support by the nuclear weapon states. Third, the Treaty can be judged in terms of its political and arms control value, in particular whether it serves to limit the competition between the superpowers or advance the cause of disarmament and arms control either now or in the future.

16.38 Elimination of nuclear weapons. The SPNFZ Treaty does not live up to the United Nation definition of a nuclear free or nuclear weapon free zone since it does not establish or even attempt to establish a zone in which all nuclear activities are prohibited. The Treaty bans the possession, control and testing of 'nuclear explosive devices' by zone states, but it allows nuclear-armed vessels to move through or over the region and, at the discretion of the individual Parties to the Treaty, to visit ports and airfields in the area.

16.39 Furthermore, the prohibition is limited to the possession and testing of nuclear warheads since the Treaty's definition of a nuclear explosive device 'does not include the means of transport or delivery of such a weapon or device if separable from and not an indivisible part of it'. The SPNFZ Treaty therefore does not prohibit the testing of delivery vehicles in the region, or the stationing there of facilities that form an integral part of the strategic nuclear weapon systems of either superpower.

16.40 Provided it is ratified by the nuclear weapon states, the SPNFZ Treaty does prohibit the stationing of nuclear explosive devices on the territories of the member states and so represents an important extension of the provisions of the Nuclear Non-Proliferation Treaty. It also provides a so-called 'negative security assurance' to zone states by seeking guarantees from the principal nuclear weapon states to exclude the region from any nuclear confrontation.

16.41 In these respects, the SPNFZ Treaty is very close to the Treaty of Tlatelolco, which is a nuclear weapon free agreement, although it goes beyond that treaty in two important respects. First, the SPNFZ Treaty does not allow the use of nuclear explosive devices for peaceful purposes, and so reduces the possibility of covert testing. Secondly, in recognition of the strongly held views of a number of Pacific nations, it prohibits any dumping of radioactive waste within the zone by Parties to the agreement, and signals an intention to extend this ban to all nations. The inclusion of the anti-dumping provisions required the Treaty to be titled 'nuclear free' rather than 'nuclear weapon free' although both titles are misleading since they tend to suggest that the agreement does more than is the case. The same criticism could be leveled at the Tlatelolco Treaty although it has less import because the Latin American zone largely encompasses land areas.

16.42 In addition, the provisions of the Treaty of Rarotonga were fundamentally constrained by the nature of the zone - largely comprised of international waterways - and the security and other interests of the Pacific Forum states. For example, the principal reasons for not seeking to establish a comprehensive nuclear free or nuclear weapon free zone stemmed from the fact that while all the Pacific Forum states were opposed to certain nuclear activities taking place in the region - especially the continuation of French nuclear testing and Japan's proposals to dump radioactive waste in the Pacific - many were also concerned that an agreement should not seek to limit American involvement there. The experience with the 1975 New Zealand proposal made it clear that the United States would not be prepared to countenance any far-reaching proposal but it was hoped that it might accept a formula that was close to the Tlatelolco agreement (which the United States has ratified).

16.43 It was also recognised that there were certain practical and legal constraints to policing a total ban. As the Report by the Chairman of the Working Group on a SPNFZ to the South Pacific Forum noted:

... any attempt to ban transit through the high seas of the region by ships capable of carrying nuclear weapons would be legally impossible. Moreover, projected Parties to the Treaty do not have and are unlikely in the foreseeable future to have the capability effectively to monitor and verify such a ban, and an attempt to apply one would amount to no more than an exhortation leading to international scepticism about the Treaty as a whole.¹⁸

The same report indicated that these kinds of factors operated in the decisions not to exclude missile tests and not to include the United States Trust Territory of the Pacific Islands from the zone. In the first case, it was argued that Forum members did not have the legal power to ban missile tests in the region since these were usually conducted over and into international waters. Moreover, there would be verification difficulties since some delivery systems are capable of carrying either nuclear or non-nuclear warheads. Finally, it was argued that an attempt to prohibit missile tests could jeopardise acceptance of the Protocols to the Treaty since the nuclear weapon states were likely to regard it as an attempt to restrict their rights under international law. These views did not represent all members of the Working Group; Nauru and PNG requested that their concern about missile testing be recorded.

16.44 In the second case, it was considered that inclusion of the United States Trust Territory in the zone 'could complicate current negotiations on the constitutional future of these territories, especially since nuclear issues were a major element in these negotiations'. The report added that these considerations 'did not appear to apply to the French territories in the South Pacific where the issues facing the movements for independence were different'.¹⁹ It was also noted that the amendment procedure contained in the Treaty gave scope to include signatories who were not members of the Pacific Forum.

16.45 **Existing Security Arrangements.** As noted earlier, a principal concern of some of the South Pacific Forum states was that the SPNFZ should not undermine existing security agreements and so lead to an overall reduction in regional and global security. This concern underlay the guiding principle laid down by the 1984 South Pacific Forum that individual countries be allowed to pursue their own policies on such questions as port access.

16.46 The security dilemmas stem from the fact that only one of the superpowers is currently dominant in the region. Even though the treaty would be aimed at all nuclear weapon states, in practice, any restriction on the deployment of strategic nuclear forces would disadvantage U.S. interests more than those of any other power. Thus, as the New Zealand experience has shown, a ban on the transit of nuclear-armed vessels or aircraft or continued access to existing facilities in the region, would be opposed by the United States since it would be seen to diminish U.S. and Western security arrangements in the region. While not publicly acknowledged, the United States would also be concerned that the establishment of a nuclear weapon free zone in the South Pacific, following on the heels of New Zealand's decision to ban port access for U.S. naval vessels, could encourage further anti-American sentiment within the region or in other regions under American influence. It must also be pointed out that the New Zealand ban similarly affects the United Kingdom's naval vessels.

16.47 Largely because of these concerns the provisions of the SPNFZ Treaty were worded not to threaten U.S. involvement or access in the region. As the Department of Foreign Affairs stated in the 24 October 1985 issue of the Disarmament Newsletter:

The objective of the Treaty is to enhance regional security. U.S. involvement in the region through ANZUS and other less formal arrangements is in the view of the Australian Government to the security benefit of the region. Port access in the region for U.S. naval vessels, and by implication, transit through the region, is essential if the U.S. is to continue to play this role. It is not practicable to ask the U.S. to send only non-nuclear units to the region.²⁰

16.48 Despite the fact that U.S. involvement in the region is not hampered by the SPNFZ Treaty, the United States has not signed the Treaty Protocols and has indicated that it will not do so. Thus, while the Treaty does not prevent a continued American presence in the region it is likely that the Treaty will not provide a guarantee that the region will remain free from any nuclear confrontation. It can be argued that the region would be affected by nuclear war whether or not weapons are located there. While this argument may be valid under certain circumstances, the seriousness and extent of regional consequences would depend on the location and scale of the military conflict.

16.49 Verification and Freedom of the Seas. As described earlier, the SPNFZ Treaty is based on the principle of freedom of navigation and overflight of the zone by external parties. According to the Department of Foreign Affairs, restrictions on such transit would be contrary to international law and impossible to enforce.

... Forum Members do not have the power to legislate beyond their areas of jurisdiction. International Law including the Law of the Sea Convention (of which all Forum Members are beneficiaries) upholds freedom of navigation and overflight of the high seas and rights of innocent passage through territorial seas. A Treaty which purported to legislate away these rights as they relate to nuclear capable ships would not only be rejected by the international community but would also be unenforceable and therefore ineffective.²¹

16.50 Verification and jurisdiction are also the principle reasons why certain provisions of the Treaty - stationing of nuclear weapons for example - are restricted to the territory of the parties rather than the zone as a whole. This is reasonable given the geographic area covered by the zone and the balance between territorial lands and international waterways. But other provisions - such as dumping of radioactive wastes - apply to the zone as a whole and the question has to be asked whether the same verification and jurisdictional problems apply there as well. It is difficult, for example, to see how the control system proposed under Article 8 of the Treaty could be used to verify compliance with the provisions of Article 7 (prevention of dumping).

16.51 Some critics of the Treaty have argued that, as currently worded, it effectively allows the stationing or storage of nuclear explosive devices on ships located in harbours. This issue was addressed by the SPNFZ Working Group which reported that:

In considering the definition of stationing, the Working Group also addressed such issues as whether the definition should include a time element to cover, for example, the duration or pattern of port visits. It was noted that the principles adopted by Forum Heads of Government had explicitly stated that the sovereign right of a country to decide on port access was unqualified. Moreover, the utility of such a time frame was questioned since the circumstances of port visits varied considerably. It was also noted that should any party have doubts or questions concerning the duration or pattern of visits it would be open to it to resort to the consultation provisions of the draft Treaty in order to seek clarification.²²

The Committee accepts that the Treaty enables ships carrying large numbers of nuclear weapons to visit the ports of SPNFZ Treaty Parties for extended periods, and for other such vessels to relieve them from time to time, thereby ensuring a continuous

presence of nuclear weapons at a particular location. The Committee considers that such a possibility is unavoidable given the right of member states to allow ship visits but that the scenario outlined above as proposed by the critics is very unlikely.

16.52 Moreover, the 'stationing' provisions of the SPNFZ would not allow for the transfer of nuclear weapons to ground forces operating on the territory of the Treaty partner. However, it would allow for the restocking of the magazines for nuclear armed fleet from the store ship. Significantly, it would also allow for the nuclear weapons store ship to be an aircraft carrier and to operate nuclear-armed aircraft from its decks.

16.53 **International Recognition.** According to the Department of Foreign Affairs, the SPNFZ Treaty has been widely welcomed internationally.

The Third NPT Review Conference, representing over 130 countries, including 3 nuclear weapon states (U.S.A., UK and USSR), welcomed the Treaty as an achievement in accordance with Article VII of the NPT. Some 30 delegations to the Review Conference, covering all regional groups, referred to the Treaty in statements to the conference.²³

As the only regional arms control treaty since the Tlatelolco Treaty, the SPNFZ is also posited as an important international development that will provide added incentive to those countries promoting similar measures for their own regions.

16.54 A key consideration in the Treaty's international status is the attitudes of the nuclear powers. Formal acceptance by the two superpowers in particular is important because it would accord the SPNFZ Treaty equal status with the other agreements such as the Tlatelolco Treaty. Further, it would serve as a powerful disincentive against members breaking their Treaty obligations.

16.55 The five nuclear powers have all been prepared, at one time or another, to endorse the general value of nuclear weapon free zones, although the attitude of each of the five towards particular zone proposals has varied according to the region in question, the nature of the proposal, and its impact on the regional and global security concerns of each party. In the case of the Treaty of Tlatelolco, all five nuclear weapon states have assessed that it has either advanced their security interests, or at least not damaged them, and all have signed the additional protocols.

16.56 At the time of writing, none of the five nuclear powers had signed the SPNFZ Treaty and prospects of formal recognition appear to vary from state to state. China supported New Zealand's 1975 proposal and it appears to favour approaches

which go much further than either Tlatelolco or Rarotonga. This would seem to suggest that it could be expected to endorse the SPNFZ proposal. The United Kingdom, too, might be expected to pledge observance, particularly as its maritime rights have been assured, although British policy on nuclear weapon free zones has tended to follow that of the United States. Thus its final attitude is likely to be influenced by the position adopted by the United States. The Soviet Union has been a longstanding advocate of nuclear weapon free zones although its support has tended to be strongest for zones that are close to its own territory. It has generally taken the line that zones should not perpetuate an American advantage and so presumably would prefer to see a more comprehensive proposal which banned both ship visits and the location of military support facilities in the region. On the other hand, it stands to gain considerable political kudos by supporting a zone which, in real terms, has little impact on its deployment capabilities.

16.57 As described earlier, the United States has made it clear that it will not accept zone proposals which would restrict the exercise of its high seas freedoms, which are unverifiable, which disturb existing security arrangements, and which deny the right of individual parties to a treaty to grant or deny transit privileges including port calls and overflights to other states. While the SPNFZ Treaty meets these requirements the security concerns remain a major stumbling block. With nuclear proliferation not being an issue in the region and with the Soviet presence hardly visible, the U.S. does not see any of its major security goals being served by such a zone and will need to be convinced otherwise for it to formally recognise the Treaty. The United States may also be reluctant to sign a treaty which prohibits French nuclear testing since it could then be criticised for employing double standards.

16.58 While the American concerns may be legitimate there are some advantages in them signing the three protocols. These include:

- a. the Treaty tends to legitimise U.S. involvement in the region and would act to contain any future attempts to establish a more radical nuclear-free zone;
- b. it would help to retain the support and good faith of the Pacific Island nations;
- c. it would strengthen the non-proliferation regime in the South Pacific and so lessen the risks of horizontal proliferation in the future;
- d. it would demonstrate that the United States is serious about disarmament and arms control; and
- e. it would offset any political advantages that the Soviet Union may gain by unilaterally recognising the Treaty.

16.59 France has indicated that it will continue its nuclear testing program in the Pacific and so is likely not to sign the Treaty. This has always been recognised by Australia. In its October issue of the Disarmament Newsletter, the Department of Foreign Affairs stated that:

We have no delusions about France's position. It has said that it will continue to test at Moruroa as long as it needs to. We see the Treaty as placing additional pressure on France to cease testing in the South Pacific. It means that the countries of the region have given effect to their total opposition to nuclear testing in a document of treaty status. This is a reflection of how seriously the matter is taken by Forum Members and France will need to take account of that.²⁴

While France has a continued interest in nuclear testing, it has no interest in the deployment of nuclear weapons in the region other than for testing purposes.

16.60 Thus it would seem that France, the United States, the United Kingdom and the Soviet Union have their own grounds for not signing at least some of the protocols to the SPNFZ Treaty and so it is likely to be some time before formal recognition will be afforded by even a majority of the nuclear powers. The support of the major nuclear weapon states is important for securing international recognition and increasing pressure on France to stop nuclear testing at Moruroa. It is not critical to the effective operation of the Treaty however - which requires only ratification by eight signatories - nor should it necessarily erode support among the remainder of the international community.

16.61 Value as an arms control mechanism. The basic objectives of the arms control process are to limit and reverse the continued spread of armaments, to reduce the risks and consequences of nuclear war and to reduce expenditure on military weapons and capabilities. A major criticism of the SPNFZ Treaty is that it does not contribute to any of these objectives in a new or significant way. It does not prevent the continued transit through the region of nuclear armed ships or their visits to port facilities. It has no bearing on the policies of South Pacific States concerning location of other military facilities or forces on their territories including those used to support nuclear weapons. It will not reduce the prospect of the region being involved in a nuclear war or its member states being targeted with nuclear weapons.

16.62 Some even argue that the zone will have a counterproductive effect. On the one hand, there are those who consider that the zone will undermine existing security provisions by providing a further incentive to regional and extra-regional states to restrict US access and involvement.

Others consider that the zone legitimises American nuclear involvement in the South Pacific, and constrains attempts to institute more radical restrictions on nuclear involvement. Both groups assert that the Treaty makes no contribution to arms control and that we would be better off without it.

16.63 These criticisms tend to overlook the positive aspects of the Treaty. First, it does make a number of advances, albeit modest ones, to the cause of arms control. The SPNFZ Treaty:

- a. extends the present NPT regime to prohibit present and future stationing of nuclear explosive devices on territories within the zone, and it requires Kiribati and Vanuatu - who are currently not signatories to the NPT - to forfeit the option of acquiring or possessing such devices;
- b. provides a further signal to Indonesia and other Southeast Asian nations that Australia has renounced any future intention to develop or possess nuclear weapons;
- c. would formalise the non-use guarantee and would commit the superpowers not to deploy nuclear weapons into the territories of zone states. While they have shown no indication to do so in the past, such an option could not be ruled out in the future;
- d. introduces a significant initiative to prevent the dumping of radioactive wastes within the South Pacific; and
- e. provides a basis for extending the provisions and scope of the zone at a later date, in particular those relating to nuclear dumping.

16.64 Thus in many respects, the Treaty plays an important preventative role in prohibiting the future acquisition or stationing of nuclear weapons within the South Pacific, either by zone states or by the nuclear powers. It also takes a significant step in establishing a South Pacific Regional Environment Program Convention and Protocols against sea dumping of radioactive waste in the region. In this second regard, however, there may be benefit in pursuing such a convention separately since it could well be easier to persuade the nuclear powers to accept restrictions on their high seas freedoms in relation to dumping than as a subsidiary part of a Treaty dealing with nuclear weapons.

16.65 The SPNFZ also plays an important political role which should not be underestimated.

- a. The SPNFZ will place further pressure on the French Government over its nuclear testing program, particularly if it is signed by the four other nuclear powers. This was a major objective of the proposal and is better served by a formal Treaty which prohibits testing, no matter how restricted the other provisions may be;
- b. it complements and strengthens the existing non-proliferation regime which is centred on the Nuclear Non-Proliferation Treaty;
- c. it extends the areas covered by existing nuclear weapon free zones; and
- d. it provides a further incentive and example for the establishment of nuclear weapon free zones in other regions. Of particular importance to Australia is the possibility that it may foster further progress in the Indian Ocean Zone of Peace proposal and the establishment of a similar zone in Southeast Asia. The introduction of a nuclear weapon-free zone in Southeast Asia could be an important step both in containing future superpower involvement and in constraining proliferation by states in the region.

16.66 A comprehensive nuclear weapon free zone? An issue of some concern is whether the zone created by the Treaty of Rarotonga could, or should, be extended to incorporate more rigorous prohibitions. As described earlier, this certainly represents the view of many in the peace movement and was widely canvassed in submissions to this inquiry. The general feeling among these groups was that the zone should be extended to include most of the Pacific region and that it should ban all nuclear weapons and weapons-related involvement, whether on land or sea, including the mining and export of uranium.

16.67 It is clear that there are a number of significant reasons for not extending the provisions of the current SPNFZ Treaty. They fall into two broad areas. The first set of reasons relate to the fact that most of the nuclear activities which a comprehensive zone treaty would seek to prohibit fall outside the legal jurisdiction of the South Pacific States. Under international law no country has the right (and, in this case, the resources) to enforce more restrictive provisions other than those applying to their own territories. The second reason

relates to the security concerns of the various parties involved. As Greg Fry stated, any attempt to extend the Treaty prohibitions to cover missile testing, port visits, or the continued presence of defence facilities:

... would immediately be seen as a challenge to ANZUS, and more broadly, to the region's security connection with the United States. It would be seen as such in Washington, in most of the Pacific Island countries and by the majority of the electorate in Australia. The opposition such a move would provoke is formidable. This is not only because of the basically pro-ANZUS view of the region; but also because that view is uncompromising. For ANZUS supporters, any move to constrain United States' involvement, and to threaten ANZUS, would be seen as likely to lead to regional insecurity and to make nuclear war more likely by helping to upset the global balance through contributing to a weakening of the West's nuclear alliance. Such a proposal would not, then, gain the support of the Australian electorate or of most South Pacific governments.²⁵

16.68 For the time being, the current provisions are probably the best that can be established. Any move to extend the Treaty would not occur without a prior reappraisal of our national security interests and the role of the United States in the region.

Conclusions and Committee Views

16.69 The Committee supports the concept of nuclear free zones as a means of restricting or preventing the spread of nuclear weapons and of limiting the risks and consequences of nuclear war. The Committee recognises, however, that the application of this concept is not a simple matter, and must take into account a range of technical and political considerations which will vary with time and from region to region.

16.70 The Committee considers that the guidelines described in the 1975 United Nations Comprehensive Study of the Question of Nuclear Weapon Free Zones in All its Aspects adequately describe these considerations and serve as a reasonable basis for defining and evaluating a nuclear weapon free zone. The United Nations guidelines are that:

- a. the proposal should be initiated by countries from within the region and it should have the support of all members states;
- b. the proposed zone should preserve the regional status quo including existing security arrangements;

- c. it should provide for the participation of all states of military importance in the region;
- d. it should have the support of the nuclear weapon states;
- e. its provisions should be capable of verification;
- f. the zone should have clearly defined and recognised boundaries and it should take into account existing international legal provisions;
- g. peaceful nuclear development should be allowed; and
- h. the specific provisions of the zone should be negotiated between the regional member states in the form of a multilateral treaty establishing the zone in perpetuity.

16.71 The Committee has evaluated the South Pacific Nuclear Free Zone Treaty in terms of these criteria as well as:

- a. its effectiveness in freeing the South Pacific region of the presence or possible use of nuclear weapons; and
- b. its contribution to disarmament and arms control.

16.72 The Committee found that overall, the SPNFZ Treaty satisfies or takes into account the criteria laid down in the United Nations study. The zone itself has clearly defined boundaries. The Treaty recognises the rights of other states under international law to free passage through and over the zone. It provides for peaceful nuclear development under internationally recognised safeguards. It includes procedures for verification and control. It has the support of most Members of the Pacific Forum. Most importantly in the Committee's view, the Treaty as currently worded does not undermine existing security arrangements or agreements affecting the region since it does not threaten United States' involvement in the region.

16.73 The Committee is concerned over some specific aspects relating to the Treaty. These are that:

- a. the verification and control procedures may be inadequate for detecting covert dumping of radioactive wastes within the region;
- b. to be fully effective, the Treaty needs to be formally recognised by the nuclear weapon states; and

- c. progress towards establishing an overall Convention against dumping radioactive waste in the Pacific may be hampered by incorporating anti-dumping provisions into what effectively is a nuclear weapon free zone treaty. This could be overcome by establishing the anti-dumping provisions as a separate protocol to the Treaty.

16.74 The Committee found that while the SPNFZ Treaty is consistent with the guidelines laid down by the United Nations, it nonetheless falls short of achieving the basic objective of such UNdefined zones: to ensure freedom from all nuclear weapons. This is because of the nature of the zone itself - comprising predominantly international waterways - and the fact that the Treaty had to take account of the varying security concerns of the Pacific Forum states, especially those supporting the retention of an American presence in the region. The Treaty is thus essentially a consensus document, representing the highest common factor in regional opinion.

16.75 The Committee considers that the SPNFZ Treaty plays a useful role in extending the non-proliferation regime and in preventing the future stationing of nuclear weapons within the South Pacific. Subject to the concurrence of the nuclear weapon states, it also formalises US and Soviet assurances that nuclear weapons would not be used or threatened to be used against zone states. More importantly, the SPNFZ is important politically since it refocuses attention on the role of nuclear weapon free zones, places further pressure on the French to halt nuclear testing in the Pacific, and it could stimulate the development or progress of other zone proposals, especially those affecting the adjoining areas in the Indian Ocean and Southeast Asia.

16.76 The Committee notes that the zone has been widely acclaimed within the international community as the first significant regional arms control proposal since the 1971 Seabed Treaty. The Committee accepts that the Treaty does not require the formal recognition of the nuclear powers for it to be accepted internationally. Nonetheless, it considers that the spirit and provisions of the Treaty would be strengthened if at least the major nuclear powers signed the Treaty Protocols. The Committee considers that the SPNFZ does not undermine the security interests of the superpowers and could increase them in the longer term by limiting superpower competition and thereby ensuring regional stability.

CHAPTER SIXTEEN
ENDNOTES

1. See Department of Foreign Affairs, Backgrounder, 11 June 1986.
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3. See Olafur Ragnar Grimsson, 'Nordic nuclear-free options' Bulletin of the Atomic Scientists, June/July 1985, pp.25-28.
4. See SIPRI Yearbook 1986, pp.561-76.
5. United Nations Conference of the Committee on Disarmament (CCD), Comprehensive Study of the Question of NWFZs in all its aspects, 1975.
6. United Nations General Assembly Resolution 3472B dated 11 December 1975.
7. Final Document of the 1978 Special Session of the United Nations on Disarmament, A/RES/S/S-10/2, 13 July 1978.
8. The Report of the Royal Commission into British Nuclear Tests in Australia, Canberra, Australian Government Publishing Service, 1985.
9. SIPRI Yearbook 1986, p.129.
10. Greg Fry, A nuclear-free zone for The Southwest Pacific: prospects and significance, SDSC Working Paper No.75, Canberra, September 1983.
11. Fry, A nuclear-free zone for the Southwest Pacific: prospects and significance, p.24.
12. Fry, A nuclear-free zone for the Southwest Pacific: prospects and significance, p.26.
13. Dr and Ms Redner, Submission, p.S583.
14. Dr and Ms Redner, Submission, p.S590.
15. Evidence, 16 July 1984, p.125.
16. Evidence, 30 July 1984, p.357.
17. A copy of the complete text of the South Pacific Nuclear Free Zone Treaty is contained in the SIPRI Yearbook 1986, pp.509-19.

18. Report by the Chairman of the Working Group on a SPNFZ to the South Pacific Forum, Rarotonga, 4-6 August 1985, p.8.
19. Report by the Chairman of the Working Group on a SPNFZ to the South Pacific Forum, p.10.
20. Department of Foreign Affairs, Disarmament Newsletter, 24 October 1985, p.4.
21. Department of Foreign Affairs, Disarmament Newsletter, 24 October 1985, p.4.
22. Report by the Chairman of the Working Group on a SPNFZ to the South Pacific Forum, p.16.
23. Department of Foreign Affairs, Disarmament Newsletter, 24 October 1985, p.5.
24. Department of Foreign Affairs, Disarmament Newsletter, 24 October 1985, p.5.
25. Greg Fry, 'Regional Arms Control in the South Pacific', Paper presented to the Conference on The Future of Arms Control 21-23 August 1985, pp.24-5.

CHAPTER 17

URANIUM MINING AND AUSTRALIA'S ROLE
IN THE NUCLEAR FUEL CYCLE

Introduction

17.1 Some submissions to the inquiry, especially from some peace groups, argued that Australia contributes both directly and indirectly to the prospects of horizontal nuclear proliferation, and its attendant risks, by continuing to mine and export uranium. They considered that we should cease to mine and export uranium and withdraw completely from the civilian nuclear fuel cycle. The Australian Government and the Opposition, on the other hand, believe that Australia's refusal to supply uranium would have little impact either on reducing the possibility of continued horizontal proliferation or of encouraging others to act to reduce the threat of proliferation. The Government and the Opposition further argue that any decision to cease uranium mining and export would seriously damage the cause of arms control and disarmament and lead to increased availability of unsafeguarded uranium supplies.

17.2 This Chapter considers the arguments for and against these propositions. It begins with a description of the nuclear fuel cycle, and Australia's current involvement in it, including the Government's justification for its present policies. It then outlines and discusses the criticisms that have been made of Australia's involvement in the nuclear fuel cycle under the following headings:

- a. the connection between nuclear power and nuclear weapons;
- b. safeguarding against diversion from the civilian nuclear fuel cycle; and
- c. the export and use of Australian uranium.

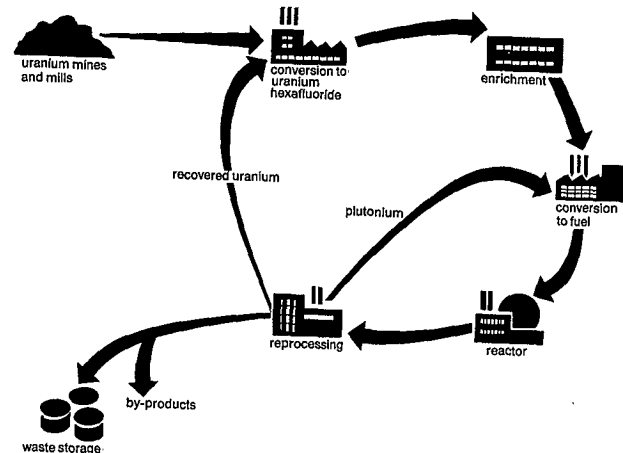
Many of the arguments that have been raised have been considered in detail in the Australian Science and Technology Council's (ASTEC) recent report Australia's Role in the Nuclear Fuel Cycle and the Government's response to that report. The Committee makes considerable use of the ASTEC report in presenting its own findings and conclusions.

The Nuclear Fuel Cycle

17.3 The set of activities involved in the production of nuclear power is shown diagrammatically in Figure 17.1, and involves the following major functions:

- a. Mining and Milling of Uranium. Uranium ore is extracted from the ground, crushed, ground to a powder and leached, usually in sulphuric acid, to dissolve the uranium. The uranium is then

Figure 17.1 The nuclear fuel cycle



Source: Adapted from ASTEC, Australia's Role in the Nuclear Fuel Cycle, Canberra, AGPS, 1984, p.49.

separated and precipitated as a concentrate known as yellowcake. It is stored and transported as a granular solid in steel drums. According to ASTEC's recent report, the security of yellowcake is not as necessary as it is in later stages of the fuel cycle; yellowcake is usually treated just as a valuable, and mildly radioactive product. An alternative fuel source is the mineral manazite which contains thorium which can be converted by exposure to neutrons to the fissile isotope U233.

- b. **Refinement and Conversion.** Yellowcake is first refined to produce uranium oxide (UO₂), and then is converted to uranium hexafluoride (UF₆) which is a white solid at room temperature but a gas above 56° Celcius. UF₆ is stored in special steel pressure vessels and requires no special shielding. ASTEC notes that although UF₆ has 'relatively low proliferation significance, it is safeguarded and given physical protection because it is in a form which is convenient for enrichment'.²
- c. **Enrichment.** Nuclear fission, whether controlled or uncontrolled, requires a higher concentration of the isotope U235 than occurs naturally (uranium is made up of two principal isotopes, U235 and U238 where the latter isotope is slightly heavier than U235). At present, the principal methods of preparing enriched uranium are gaseous diffusion and centrifugation. Other methods are under investigation, including laser separation which would simplify the enrichment process. According to the ASTEC report:

... enrichment plants are potentially sensitive sites for possible diversion of nuclear material from civilian use into weapons production; they are one of the two points most sensitive to diversion in the fuel cycle ... because of their inherent capability to produce weapons usable material.³

- d. **Fuel Fabrication.** Once enriched, the UF₆ is converted into uranium oxide (UO₂) or to uranium carbide or uranium metal. For oxide fuel, the UO₂ powder is compressed into small pellets, and inserted into tubes made of heat resistant steel or zirconium alloy. These

tubes, or fuel rods, are sealed so that the fission products produced during radiation in the nuclear reactor cannot escape. ASTEC notes that:

If the material used in the fuel rods is highly enriched, there is a correspondingly greater need to ensure that diversion of material does not occur. However, most reactors use only slightly enriched (around three to four per cent) uranium (U235 isotope) in their fuel rods (the principal exception is fuel for some research reactors), and the material in these rods would require substantial further enrichment before it could be used in weapons.⁴

- e. **Reprocessing spent fuel.** Irradiated fuel contains a mixture of unused uranium plus plutonium and other activities bred in the reactor, and the fission products. The separation of unused uranium and plutonium is the main reason for reprocessing so that they can be re-used as fuel. The ASTEC report states that it is important to note that this process separates the uranium, plutonium and fission products into different streams.

Since concentrated plutonium, and slightly enriched uranium, are separated in the process, reprocessing plants are regarded as sensitive to diversion risks, in a similar way to uranium enrichment plants.⁵

17.4 In addition to its various fuel components, the nuclear fuel cycle produces a number of waste products which present a range of handling and storage problems. Much of the waste produced is radioactive with lifetimes ranging from less than a minute to many thousands of years. Exposure to radioactive waste can pose significant problems to individuals and, over longer periods, whole populations, and so it needs to be carefully managed. This is particularly so during any transportation phase.

17.5 One important variant in the nuclear fuel cycle is the so-called 'breeder reactor' in which the number of fissile nuclei produced or bred during the fission process is greater than the number of fissile nuclei concurrently destroyed. The type of breeder reactor currently being developed produces plutonium from uranium U238, while consuming plutonium and uranium U235. To date, France is the only country to have begun building a commercial power station utilising a breeder reactor, although Great Britain, West Germany and the Soviet Union have either developed or are in the process of developing prototype reactors.⁶

17.6 As described in Chapter 5, nuclear warheads are made out of highly enriched uranium (approximately 90 per cent U235 concentration compared with only 2 to 5 per cent for use in a nuclear reactor) or plutonium. Weapons-grade fissile material is obtained by enriching uranium ore - using either physical processes such as centrifuging or by using lasers to ionise the U235 for subsequent extraction - or by extracting plutonium from fuel that has been irradiated in a nuclear reactor (by chemical-reprocessing or laser isotope separation). All means are complex and expensive although laser isotope separation offers a number of potential advantages over current gaseous diffusion or centrifuge techniques. These include lower levels of capital investment, a simplified enrichment process, an ability to extract all U235 isotopes from the uranium ore (current methods leave a small percentage in the waste) and a potential to be used in both the enrichment and reprocessing process.⁷

17.7 The possibility that key materials and technologies may be diverted from the civil fuel cycle and used for military purposes is recognised by governments and industry. This has led to the adoption of an extensive system of internationally recognised safeguards which cover all elements of the nuclear fuel cycle and which are administered by the International Atomic Energy Agency (IAEA). In addition a number of countries, including Australia, have their own bilateral safeguards agreements which complement and extend the IAEA procedures and requirements. As evidenced by the recent accident at the Chernobyl nuclear plant in the Soviet Union, an effective and comprehensive system of industry standards and safeguards is also required to protect the civilian population and workers in the field from the highly toxic by-products of the civilian and military nuclear fuel cycles. The Committee notes that nuclear facilities in the West have in place stringent safety measures that would prevent the release of radioactive substances in the event of such accidents.

Australia's Involvement in the Nuclear Fuel Cycle

17.8 Australia's current involvement in the nuclear fuel cycle was described in detail in the ASTEC report referred to above. Australia is involved principally through the mining and export of uranium ore, or yellowcake. Australia has very significant uranium resources (see Table 17.1) but to date has not been a major exporter, supplying only some eight per cent of all the uranium produced by the non-communist bloc countries (see table 17.2). Until recently only two facilities in Australia produced yellowcake: Jabiru (Ranger) and Nabarlek, both of which are in the Northern Territory. In November 1983 the Government agreed that the Roxby Downs uranium mining project in South Australia could go ahead, and that the Ranger and Nabarlek operations could continue.

17.9 Since 1977 Australia has contracted to supply over 55 000 tonnes of uranium with current contracts effective through to 1996 (Table 17.3). Despite the fact that there is at present an oversupply of uranium and that most consuming

Table 17.1: Estimated World Resources of Uranium Tonnes of Uranium 1983 (1)

Country	Cost Range to US\$80/kg U (2) (US\$30/lb U ₃ O ₈)		Cost Range US\$80-130/kgU(2) (US\$30-50/lb U ₃ O ₈)	
	Reasonably Assured Resources(3)	Estimated Additional Resources Category 1(4)	Reasonably Assured Resources(3)	Estimated Additional Resources Category 1(4)
Algeria (5)	23 400	-	-	-
Argentina (5)	16 900	6 300	4 000	-
Australia (6)	474 000	235 000	64 000	128 000
Brazil (7)	130 600	73 900	-	-
Canada (8)	176 000	181 000	9 000	48 000
France	56 200	25 600	11 300	6 000
Gabon	18 700	1 300	4 700	8 300
India	31 700	4 800	10 900	14 600
Namibia	19 000	30 000	16 000	23 000
Niger (5)	144 000	47 700	-	-
South Africa	191 000	59 000	122 000	48 000
Sweden	2 000	300	37 000	43 000
USA	131 300	30 400	275 900	52 200
Other Countries (9)	70 200	14 700	62 200	35 600
TOTAL	1 585 000	751 000	617 000	408 000

- (1) Data for countries other than Australia from Uranium - Resources, Production and Demand, Joint report by the OECD Nuclear Energy Agency and the International Atomic Energy Agency (Paris), 1983. No estimates are available for the USSR, Eastern Europe and China.
- (2) US\$ per kilogram U is the accepted international method of quoting yellowcake costs and prices. These cost categories must not be confused with market prices; previous development costs or profits are not included. US\$80 per kilogram U = US\$30/lb U₃O₈ approximately.
- (3) Reasonably Assured Resources refers to uranium that occurs in known mineral deposits of such size, grade and configuration that it could be recovered within the given production cost ranges, with currently proven mining and processing technology. Estimates of tonnage and grade are based on specific sample data and measurements of the deposits and on knowledge of deposit characteristics. Reasonably Assured Resources have a high assurance of existence and in the cost category below US\$80/kgU (US\$30/lb U₃O₈) are considered as Reserves.
- (4) Estimated Additional Resources - Category 1 refers to uranium in addition to Reasonably Assured Resources that is expected to occur, mostly on the basis of direct geological evidence, in extensions of well explored deposits and in deposits in which geological continuity has been established but where specific data and measurements of the deposits and knowledge of the deposits' characteristics are considered to be inadequate to classify the resources as RAR. Such deposits can be delineated and the uranium subsequently recovered, all within the given cost ranges. Estimates of tonnage and grade are based on such sampling as is available and on knowledge of the deposit characteristics as determined in the best known parts of the deposit or in similar deposits. Less reliance can be placed on the estimates in this category than on those for RAR.
- (5) National total published as mineable resources has been adjusted by BMR for milling losses assumed as 10%.
- (6) Data for Australia compiled by BMR as at 31 December 1983.
- (7) National total published as in situ resources has been adjusted by BMR for mining and milling losses assumed as 20%.
- (8) The resources for Canada are reported as being mineable at prices up to Can\$130 per kilogram U and between Can\$130-200 per kilogram U.
- (9) Austria, Cameroon, Central African Republic, Chile, Denmark (Greenland), Egypt, Finland, Federal Republic of Germany, Greece, Italy, Japan, Republic of Korea, Mexico, Peru, Portugal, Somalia, Spain, Turkey, Zaïre.

Table 17.2: Uranium Production (Non-Communist Countries) Tonnes Uranium

Country	Pre-1977	1977	1978	1979	1980	1981	1982	1983(1)
Argentina	339	98	109	134	187	123	155	200
Australia	8 159	356	516	705	1 561	2 860	4 453	3 700
Belgium(2)	-	-	-	-	20	40	40	40
Brazil	-	-	-	-	-	4	290	300
Canada	112 080(3)	5 790	6 800	6 820	7 150	7 720	8 080	7 500
Finland	30	-	-	-	-	-	-	-
France	23 133	2 097	2 183	2 362	2 634	2 553	2 859	3 200
Gabon	8 464	907	1 022	1 100	1 033	1 022	970	1 042
Germany FR	151(4)	15	35	25	34	36	34	40
Japan	38	3	2	2	5	3	5	7
Namibia	594	2 340	2 697	3 840	4 042	3 971	3 776	3 800(5)
Niger	6 198	1 809	2 060	3 620	4 100	4 360(6)	4 259(6)	n.a.
Portugal	1 932	95	98	114	82	102	113	100
South Africa	75 332	3 360	3 961	4 797	6 146	6 131	5 816	5 800
Spain	476	177	191	190	190	178	150	150
Sweden	200	-	-	-	-	-	-	-
USA	209 800	11 500	14 200	14 408	16 804	14 793	10 331	7 900(7)
Zaire	25 600(3)	-	-	-	-	-	-	-
TOTAL	472 436	28 347	33 874	38 117	43 988	43 892	41 331	38 000

(1) Estimated (2) Uranium from imported phosphates
 (3) Pre-1938 data not available (4) Plus 120 tonnes uranium of foreign origin
 (5) Secretariat Estimate (6) CEA - Rapport Annuel (1981, 1982)
 (7) Production in the US in 1983 is expected to fall between 7,500 and 8,300 tonnes.

Source: Australia's Role in the Nuclear Fuel Cycle, p.91.

Table 17.3 Current Australian Bilateral Safeguards Agreements and Uranium Exports

Country/Institution	Date of Safeguard Agreement	Contracted Quantity (tonnes U308)
IAEA	10.7.1974	
Finland	20.7.1978	816
Philippines	8.8.1978	
Republic of Korea	2.5.1979	2268
United States	5.7.1979	3969 (1)
United Kingdom	24.7.1979	
France	7.1.1981	2359
Canada	9.3.1981	
Sweden	18.3.1981	2858
Euratom (2)	21.9.1981	19082 (3)
		1429 (4)
Japan	5.3.1982	21990

- Notes:**
- The US total does not include material under two sales contracts held by Energy Resources of Australia Ltd (ERA); the parties to those contracts have for commercial reasons decided not to publish full details of the tonnages involved.
 - Covering Belgium, Denmark, Federal Republic of Germany, France, Greece, Ireland, Italy, Luxembourg, Netherlands and UK.
 - FR Germany
 - Belgium

Source: Extracted from Department of Resources and Energy, Submission, pp S1148-50.

countries hold large stockpiles of the ore, it is likely there will continue to be market opportunities for Australian uranium. As the ASTEC report noted:

This is because assurance of energy supply is a basic requirement for national security. Countries without adequate indigenous energy sources seek to diversify their sources of supply. Countries with nuclear power programs therefore wish to obtain their uranium supplies from several sources and from politically stable countries. Australia is such a country, with an established record as a reliable supplier of raw materials to world markets. ...

A large part of the uncommitted demand for uranium will come from the United States' market. This has been supplied to a large extent in the past by domestic mines, but many of these are now uneconomic and some have ceased production. In this situation, United States' utilities will turn increasingly to Canada and Australia for future supplies.⁸

The report also noted that in recent years, 'uranium has become a major export item for Australia' where the annual value of uranium exports 'increased from \$70 million in 1978 to over \$360 million in 1982'. In addition, it was anticipated that the annual value of Australian uranium exports could 'rise to over \$1 000 million by 1993. The total value of exports in the decade 1984 to 1993 could exceed \$6 000 million'.⁹ In its Australian Mineral Industry Annual Review Preliminary Summary 1985, the Bureau of Mineral Resources reported that the value of uranium exports for the three years 1983 to 1985 were \$296 million, \$312 million and \$315 million respectively.

17.10 All export and subsequent transfer, processing and use of Australian uranium takes place under the provisions of special bilateral safeguards agreements between Australia and its customer countries whether Nuclear Weapon States (NWS) or Non-Nuclear Weapon States (NNWS). According to the Department of Resources and Energy:

the fundamental undertaking Australia requires from all importing countries in their bilateral agreements with Australia ... is that Australian origin nuclear material (AONM) will be used for peaceful purposes only and not be diverted to military or explosive purposes and that AONM will be covered by IAEA safeguards to verify compliance with this.¹⁰

17.11 The basic conditions required to be met by a country wishing to import Australian uranium were also described by the Department as follows:

- a. in case of a country which is a Non-Nuclear Weapon State (NNWS), the country is a party to the NPT and has in force an NPT safeguards agreement with the IAEA whereby IAEA safeguards are applied to that country's entire nuclear industry; and
- b. in the case of a country which is a Nuclear Weapon State (NWS), the country accepts that the uranium Australia supplies be covered by a safeguards agreement with the IAEA, under which the IAEA may apply safeguards to a selection of those facilities offered by the country for the application of safeguards.¹¹

The Department noted that in the latter case, the arrangement covering the supply of AONM:

... is a voluntary agreement providing less than NPT safeguards. In these cases states accept the application of IAEA safeguards only to specific facilities (amongst which the Agency can choose for the purpose) and/or the nuclear material that passes through them, thus excluding some nuclear activities from IAEA safeguards.¹²

17.12 Other basic elements of Australia's bilateral safeguards agreements include 'fall back' safeguards in the event IAEA safeguards lapse (for the case of non-nuclear weapon states) or should the Agency cease to apply safeguards in the case of nuclear weapon states; prior consent rights over sensitive operations such as reprocessing of spent fuel, enrichment of AONM beyond 20 per cent U235; and protection to ensure against possible sabotage or theft of AONM in nuclear facilities or during transport. In addition, current policy and agreements provide administrative arrangements to ensure effective fulfilment of the obligations contained in the agreements and regular consultation to monitor their operations. There are also provisions for arbitration in case of dispute as well as sanctions in the event of non-compliance including, ultimately, the suspension or cancellation of further transfers of AONM.¹³ The safeguards agreements are administered by the Australian Safeguards Office, which is part of the Department of Resources and Energy. Subject to the agreement of the parties involved, each bilateral agreement may be amended either in accordance with international law (in the case of the United Kingdom and the United States) or in line with the provisions contained in the treaty. According to ASTEC:

The approach to revision mechanisms in the agreements, consistent with international law, has been to emphasise the need for mutual acceptability of proposed changes, recognising the need for improvement in non-proliferation controls, while avoiding retrospective application (unless mutually agreed) or interruptions to supply.¹⁴

17.13 Since its safeguards policy was established in 1977, Australia has brought into force eleven nuclear safeguards agreements covering seventeen countries and the IAEA (Table 17.3). ASTEC draws attention to the fact that Australia's efforts in the field have pioneered approaches since taken up by other countries:

In the area of bilateral safeguards agreements Australia has pioneered the development of the application of consent rights to retransfers of nuclear material and to the reprocessing of spent fuel. This has been done in a way which provides stringent controls while respecting the technical and operational requirements of customer countries. These developments have formed the basis of new Canadian and United States' policies and are regarded internationally as a valuable step forward in keeping the balance between assurance of non-proliferation and assurance of supply which underlies the non-proliferation regime. Another Australian initiative has been the development of review mechanisms in nuclear safeguards arrangements and Australia's approach is now the model on which international discussions are taking place. Detailed Administrative Arrangements to ensure the effective fulfilment of the obligations contained in safeguards agreements were also developed first by Australia.¹⁵

17.14 In addition to its involvement as a supplier of uranium, Australia conducts research and development work on nuclear reactors, the uranium enrichment process, and radioactive waste management, including solidifying high-level waste into an artificial mineral (known as synthetic rock or 'synroc'). The former research is done largely through the Australian Atomic Energy Commission, which maintains a small nuclear reactor at Lucas Heights in New South Wales. The reactor is used for research purposes as well as to produce radioactive isotopes for medical, industrial and agricultural use. The synthetic rock was developed by Professor Ringwood at the Australian National University. The Australian Government has allocated over \$4.6 million to research and development of 'synroc'.¹⁶

17.15 By virtue of its long interest and involvement in nuclear technologies and the nuclear fuel cycle, Australia has been on the International Atomic Energy Agency Board of Governors since the Agency's inception in 1957. The role of the IAEA was detailed in Chapter 5 and comprises two basic elements: to foster and advise on the development of peaceful uses of nuclear energy throughout the world, and to apply safeguards to ensure that nuclear materials and equipment intended for peaceful use are not diverted to military purposes or that safeguarded facilities are not used to produce materials for military or explosive purposes. Australia has played an active part in the Agency's committees and working groups such as the International Nuclear Fuel Cycle Evaluation (1977-1980), the IAEA Export Group on International Plutonium Storage (1978-1983) and the IAEA Board of Governor's Committee on Assurances of Supply. Australia has also participated in a range of other associated activities and initiatives and by these means is able to maintain a high profile in international attempts to promote non-proliferation measures.

17.16 In addition, in accordance with Article II of the NPT, Australia has provided nuclear technical assistance directly to other NPT parties through the International Atomic Energy Agency. Australia has also played a significant role in the NPT Review Conferences, chairing one of the two committees formed during the 1980 Conference and promoting an initiative at the 1985 Conference requiring parties not to transfer nuclear material, equipment or technology to non-nuclear weapon states not party to the Treaty unless those states accept IAEA safeguards over all of their nuclear activities. Australia has also circulated papers on Article III (Safeguards) and IV (peaceful nuclear cooperation) to try and influence the direction of debate on these matters. Article IV of the NPT affirms the rights of all countries to use nuclear energy for peaceful purposes. It also requires those countries in a position to do so - such as Australia - to contribute to the further development of nuclear energy in member countries, particularly in non-nuclear weapon states and in developing areas of the world.

17.17 The Government's policies on uranium are outlined and explained in the publication Uranium, the Joint Facilities, Disarmament and Peace. The publication states that there is no single example of any nation using nuclear material under international safeguards to produce nuclear weapons, and that Australian bilateral safeguards go beyond those of the International Atomic Agency to ensure that Australian uranium cannot be diverted for use in a nuclear weapon program. The publication counters the view that Australia should stop mining and exporting uranium:

Cutting off the supply of uranium will not have any effect in reducing the number of nuclear weapons in the world. It will seriously damage arms control and disarmament and it could deal a

serious below to the single most effective arms control and disarmament measure in effect at the moment - the Nuclear Non-Proliferation Treaty (NPT).¹⁷

17.18 The Government claims that if Australia refused to supply uranium, it could be replaced by 'any number of major uranium exporters, such as Gabon, Niger, South Africa and Namibia, which attach minimal or no non-proliferation safeguard conditions to their supplies of uranium'. Furthermore, countries requiring material for nuclear weapons are able to obtain it from indigenous sources, albeit at a higher cost. The document also claims that any announcement by Australia to curtail uranium exports would strengthen the arguments of those supporting the development of fast breeder reactors and so contribute to an increase in the global stocks of plutonium.

17.19 The publication points to Australia's obligations under Article IV of the NPT to provide assistance in peaceful nuclear technologies to other member states.

We cannot deny developing countries the sovereign right to make their own decisions on what sort of energy needs they have and what sort of energy developments they want to pursue. We simply cannot.

In these circumstances, what would be the result if we failed to fulfil our obligations under Article IV of the Nuclear Non-Proliferation Treaty? All those countries which already consider that the safeguards provisions of the Treaty are used to deny them adequate access to the technology and material for the peaceful uses of nuclear energy would be confirmed in their view. They would then be able to argue that a major supplier of world uranium was not prepared to supply uranium even under the strictest of safeguards.¹⁸

It also argues that Australia's seat on the IAEA Board of Governors is becoming 'increasingly dependent' on its role as an exporter of uranium, and that Australia's refusal to supply uranium would 'undoubtedly weaken our capability and credibility in addressing non-proliferation and disarmament issues in the international community'.¹⁹

17.20 The Government's position was generally supported by the findings of the recent ASTEC inquiry. The overall conclusion of the ASTEC report was:

that Australia will be best able to make a significant contribution if it is actively involved in the nuclear fuel cycle. By such involvement we consider that Australia will be able to make a direct contribution to the development of the civil nuclear fuel cycle in ways that will increase global energy security, help to strengthen the elements of the non-proliferation regime and help to reduce the risks of misuse of civil facilities and the diversion of nuclear materials from civil to military uses. Without such involvement we consider that global energy security would be less assured and our ability to strengthen the non-proliferation regime and to influence future developments in the fuel cycle would be reduced. We do not wish to exaggerate Australia's role in matters related to the nuclear fuel cycle but, as in most other human endeavours, it is only by active involvement that Australia can expect to be able to influence the future course of events.²⁰

The report identified a number of potential problem areas associated with the nuclear fuel cycle and horizontal proliferation generally and recommended a number of initiatives to improve and strengthen the present non-proliferation regime. These included the suggestions that Australia:

- a. promote the acceptance by supplier states not to provide nuclear items to non-nuclear weapon states which are not members of the NPT, or a treaty of similar coverage, under which IAEA safeguards are applied to all those states' nuclear facilities at all times;
- b. encourage further development of international guidelines and procedures for the supply of nuclear items with a view to ensuring that countries which are parties to the NPT or a treaty of similar coverage are advantaged; further, that Australia encourage broader participation in forums which are developing lists of times which may form the basis of countries' export control regulations;
- c. continue to encourage the establishment of a scheme to regulate effectively the storage and use of sensitive nuclear material;
- d. actively encourage the concept that sensitive facilities, particularly enrichment and reprocessing plants, should be located in as few countries as possible. At the same time Australia should encourage the concept of joint ownership and supervision of such facilities, both in a global and regional context, and the application to them of the most stringent safeguards;

- e. take steps to ensure that nuclear material extracted for nuclear purposes from Australian ores after export would become subject to a safeguards agreement to which Australia is a party;
- f. enter into discussions with governments of countries with which Australia has no bilateral safeguards agreements and within whose jurisdictions Australian origin nuclear material is trans-shipped with a view to concluding government to government arrangements covering the application of physical protection measures of such material;
- g. seek agreement with its bilateral partners to make public the texts of the Administrative Arrangements, in such a way as to avoid adverse implications for physical protection and commercial confidentiality; and
- h. encourage the development of international guidelines and codes of practice for the storage and disposal of spent fuel and high level waste, including an agreed basis for assessing the adequacy of waste form and repository performance over long periods.

17.21 The report also recommended that Australia make every effort to maintain and enhance its involvement and influence in the IAEA and its activities and continue to research methods of nuclear waste disposal. In the first context, the report noted that through its Board membership, Australia has played an important role in promoting consensus on some of the difficult areas facing the IAEA, such as spent fuel management and plutonium storage. The report warned however that:

It is possible that circumstances could arise in which Australia could lose its designation. That is not to say that Australia then would not, on occasion, be elected to the Board on a fixed term basis; but, should Australia lose its designated seat, an important platform from which we can support the international non-proliferation effort would be denied us. Australia's designated status depends mainly on our position as a supplier of uranium and to some extent on the research and development activities of the Australian Atomic Energy Commission and the Australian scientific and technological community, particularly in relation to those neighbouring countries. It is clearly desirable that Australia should maintain and enhance its credentials for continued membership of the Board.²¹

The Government has accepted all these recommendations.²²

Criticisms of Australia's Involvement in the Nuclear Fuel Cycle

17.22 A number of submissions to this inquiry argued that Australia contributes to the prospect of increased horizontal and vertical proliferation of nuclear weapons and associated technologies through the continued supply of uranium. The arguments used to support this view were based, first, on the belief that the civil and military nuclear fuel cycles and technologies are inextricably linked so the mere availability of civil nuclear technologies can facilitate military developments.

The Campaign Against Nuclear Energy, for example, argued that:

The acquisition of civil nuclear power capacity, whilst not essential for the attainment of a nuclear weapons capability, is usually assumed by military powers as the prelude to the achievement of such a capability. This is illustrated by the Israeli bombing of the Iraqi civil reactor in June 1981. The reactor was perceived by both the Israelis and Iraq as a means of Iraq[i] development [of] nuclear weapons. The international transfer of civil nuclear technology, promoted under the Non-Proliferation Treaty, has directly contributed to the horizontal proliferation of nuclear weapons. India's explosion of a nuclear weapon in 1974, whilst a signatory to the NPT, effectively exploded the myth of the peaceful atom and exposed the inextricable link between the civil and military applications of nuclear energy.²³

17.23 A similar point was made by the Peace Research and Resource Centre in Queensland which submitted that:

One of the central objections to nuclear power has always been the risk of horizontal proliferation. For nations not already members of the 'nuclear weapon club', the temptation to use a civil nuclear power programme to acquire the fissile materials necessary for a credible weapons arsenal has been very strong. Nuclear materials may be diverted from an existing power cycle, reprocessed or enriched, and placed in a weapons cycle. Alternatively, purchase or even lease of civil-standard nuclear materials for a nuclear power programme may replace weapons-grade materials which can then be diverted into a weapons programme. It was the latter route which India took to develop its atomic bomb.²⁴

17.24 People for Nuclear Disarmament in Queensland also maintained that nuclear weapons can be produced from uranium fuel that is used in civil reactors, thus further narrowing the gap between civil and military applications.

Despite the conventional wisdom that bombs 'need' reprocessed plutonium, reactor-grade can be used directly in weapons. In 1977, a spokesperson for the U.S. Energy Research and Development Administration officially confirmed that the U.S. has constructed and exploded a nuclear bomb made from reactor-grade plutonium.²⁵

17.25 Secondly, they were generally sceptical over whether the existing nuclear safeguards regime can prevent diversion of nuclear materials or sensitive technologies from the civil to the military fuel cycles. Both Australian and international safeguard procedures and policies were criticised. In the former case, PND claimed that 'there is no guarantee that Australian uranium, once sold to another country, will not be re-sold as fuel for nuclear-powered ships and submarines carrying nuclear weapons'.²⁶ PND further asserted that Australian safeguards 'have never prevented French, American, German or other reactor vendors who have occasionally sold reactors to non-signatories of the NPT, from importing Australian uranium as a replacement for the uranium that they export to non-signatory countries'.²⁷ Moreover, they claimed that:

Over the last seven years, in almost every case where an Australian 'safeguards' provision has actually stood in the way of a potential sale, it has been the provision which has been dropped. The government has quietly removed the requirement that uranium should remain in Australian hands until placed under IAEA supervision. It has indicated that Australian uranium bound for Finland may be enriched and reprocessed in unsafeguarded Soviet military facilities. In its agreements with members of the European Economic Community it has abandoned its requirement that buyers of Australian uranium must not sell it to other countries without Australian approval. It has heavily qualified its right to withhold uranium supplies, should a purchaser violate the provisions of the agreement, by providing that any dispute will be referred to a tribunal. It has agreed to sell uranium to South Korea, despite the evidence that South Korea is likely to embark on a nuclear weapons program. And it has abandoned its requirement that uranium should not be sold to countries which reprocess their wastes.²⁸

These issues are discussed later on. It is worth noting at this stage, however, that Australian safeguards contain prior consent rights covering the resale or reprocessing of Australian originated nuclear material. ASTEC acknowledged that Australian material sold under the Euratom agreement could be transferred to another member of Euratom which was not subject to a bilateral agreement. It considered that this 'apparent gap is ... addressed within Australia's agreement with Euratom, which provides an assurance with Euratom that there is no obstacle to the conclusion of supplementary arrangements with member countries'.²⁹ The ASTEC report further concluded that the earlier decision to allow negotiation of sales contracts before concluding a safeguards agreement has not resulted in a dilution of Australia's bilateral safeguards policies.³⁰

17.26 Some submissions pointed to perceived weaknesses in the IAEA system of safeguards as well as what they saw as a potential conflict of interest in the Agency's role, which requires it to promote civil nuclear activities and guard against the possibility of misuse of civil facilities. The former criticisms included the lack of inspection staff, the need for advance notification of IAEA inspection visits, inadequate means of monitoring the civil fuel cycle (auditing records provided by national agencies rather than direct monitoring of their activities), and the absence of effective policing powers. In this last context, the Queensland branch of PND argued that 'the IAEA are not police preventing diversion. They are mere auditors'. They went on to note that:

Safeguards do not control the future policies of states but only perform a stocktaking role on nuclear materials. The IAEA cannot physically protect anything but only report if it discovers diversion of nuclear materials. It is even prohibited from publishing details of the quantities and state of dangerous nuclear materials, such as plutonium, held by any country.³¹

17.27 Other submissions argued that Australia's commitment to the cause of non-proliferation and arms control was being compromised by our current policy on the mining and export of uranium. The Queensland Peace Research and Resource Centre maintained that:

it can be argued that the impact of the arms race itself undermines the non-proliferation regime to such a degree that withdrawal of Australia's uranium from the global nuclear fuel cycle is a necessity. This would be a clear signal to the world that Australia is serious in its statements to the effect that the global nuclear arms race

and the escalating threat of nuclear war represents an intolerable situation ... to prevent or minimize the risk of proliferation, measures which limit or even reverse development of the global nuclear industry are desirable. The strengthening of the non-proliferation regime is essential and can be most effectively accomplished in a contracting rather than expanding international nuclear industry context. The Hawke policy, by granting permission to Roxby Downs, thus totally contradicts its stated desire to strengthen the non-proliferation regime.³²

17.28 Concern was also expressed over the effects Australia's exporting of uranium has on extending the number of countries with nuclear capability. These arguments were based on the belief that:

increasing Australian uranium supply by allowing Roxby Downs to proceed will result in further oversupply of the market resulting in both increased availability generally and lower prices for military - destined uranium from less strict suppliers such as Namibia or Niger.³³

The People for Nuclear Disarmament went even further in suggesting that 'competition with Australia may in fact, force such suppliers to seek or maintain contracts with proliferation risk nations'.³⁴ While accepting that Australia's withdrawal from the uranium export market would be unlikely to affect the worldwide supply of uranium (safeguarded or unsafeguarded), PND attached a significant degree of symbolic importance to a decision not to export Australian uranium.

... we would be making a powerful statement to the rest of the world. We would be announcing absolutely unambiguously that we believe that the threat posed by the proliferation of nuclear weapons and the escalation of the nuclear arms race are intolerable. We would be making it absolutely clear that the present international efforts to control these threats are totally inadequate. And we would be making it clear that Australians are not prepared to contribute to the growth and spread of these hazards.³⁵

17.29 Some of the submissions opposed the notion that Australia's influence in non-proliferation forums is enhanced by the continuation of uranium exports. They argued that the threat of selective non-supply is pre-empted because existing participation in multilateral agreements precludes unilateral actions necessary to give effect to such a threat. PND (Q), for

example, stated that 'it appears that Australia's participation in the nuclear fuel cycle puts substantial pressure on Australia to continue supply and little on other countries from the threat of withdrawing supply'. PND (NSW) extended the view, pointing to failure to influence safeguard measures:

The Australian Government argues that by exporting our uranium with strict safeguards we have influenced other countries to improve their safeguards as well as removing poorly safeguarded material (from Niger for example) from the market place. There is no evidence for either of these two arguments, and in fact the export of Australian uranium has reduced the sales from the USA.³⁶

There was, nonetheless, support for Australia's continued involvement in seeking improvements of safeguards and controls, but the groups maintained these should not be dependent upon active participation in the fuel cycle.

It must be acknowledged that Australia's support of safeguards is essential for as long as the industry exists. The real question, then, is this:

Is the increased measure of influence (if any) over safeguards and controls obtained on the basis of our exports of uranium sufficient to justify the support Australia thus renders to an industry with all its accompanying problems?³⁷

Discussion and Committee Views

17.30 Those opposed to Australia's continued involvement in the civilian nuclear fuel cycle argue that the presence of a nuclear power industry lowers the barriers to the acquisition of nuclear weapons and so contributes to horizontal proliferation. They further assert that the present safeguards regime is insufficient for stopping the diversion of sensitive nuclear materials from the civilian into the military fuel cycles. Moreover, the safeguards regime is being confronted by a range of economic, political and technical pressures which threaten to undermine it further. As long as these conditions continue, the critics argue, Australia cannot guarantee that its uranium, or products produced from it, will not be diverted into the manufacture of nuclear weapons. In line with our present non-proliferation policies, the critics argue that we should cease mining and exporting uranium even though this would have little real effect on the world-wide availability of uranium ore. The critics generally support Australia's continuing efforts in the IAEA and elsewhere to improve nuclear safeguards, and they consider that this role should continue whether we remain a supplier or not.

17.31 The Government and the Opposition, on the other hand, argue that the connection between the civil and military fuel cycles are overstated, that the safeguards applying to Australian origin nuclear material are adequate to prevent diversion and that Australia's withdrawal from the mining and export of uranium would not alter the world demand for or availability of uranium. It would also prejudice Australia's position on the Board of Governors of the IAEA thereby reducing our ability to ensure the continued improvement of nuclear safeguards and other components of the non-proliferation regime. The following discussion examines some of these claims and counter-claims.

The Connection between nuclear power and nuclear weapons

17.32 The principal arguments for the proposition that the presence of a nuclear power industry lowers the barriers to the acquisition of nuclear weapons are that: the program assembles a team of people having the same skills as are needed for a weapons program; it provides a potential source of fissionable material, or it can provide the means for converting raw fuel into a weapons-usable form; and it provides a legitimate cover for nuclear activities which would otherwise be unambiguously weapons oriented.

17.33 Those who argue against the proposition that the presence of a nuclear power industry lowers the barriers to the acquisition of nuclear weapons point to the fact that to date, none of the countries known to have acquired nuclear weapons has used the power reactor route. They argue that specialist production reactors and small enrichment and reprocessing facilities are simpler, cheaper and easier to hide than are nuclear power plants. Furthermore, the production of nuclear weapons material requires lower levels of basic materials, technical sophistication and financial commitment than for nuclear power. These factors favour the development of facilities designed specifically for weapons production in those countries that might want them. Some other arguments are that:

- a. There are essentially no technical barriers to nuclear weapons production. The technology is well known and could easily be accommodated by any country with a reasonably advanced engineering and industrial base;
- b. nuclear weapons made by diverting materials from fuel cycle operations, while possible, are inferior to those specifically produced from dedicated facilities; and
- c. nuclear power reduces the motivations for developing nuclear weapons by reducing tension stemming from the uncertainty of energy supplies, and the world's dependence on oil.

17.34 Those in favour of nuclear power recognise the fundamental links between the civil and military fuel cycles and the consequent importance of safeguarding enrichment and reprocessing facilities and technologies. They argue, however, that the existing system of safeguards has worked and is adequate. Those against nuclear power claim that notwithstanding the international safeguards that have been developed, countries such as Israel and Pakistan have been able to develop nuclear warheads or a weapon-producing capacity in part as a result of the existence of an extensive nuclear power industry throughout the world. The case of Pakistan, in particular, is said to provide a clear example of how equipment, materials and expertise in the civil nuclear power industry in a number of countries can be exploited, both openly and by subterfuge, to develop nuclear weapons. They further argue that the system of international safeguards operated under the NPT and IAEA do not apply in military facilities and that the number of unsafeguarded facilities throughout the world remains significant.

17.35 There is undoubtedly a connection between civil and military nuclear technologies. This has facilitated proliferation in the past and could continue to do so, although the risk of diversion from safeguarded facilities is decreasing as safeguards are being developed. The presence of a nuclear power industry can lower the technical and economic barriers to the acquisition of nuclear weapons although the principal risk appears to stem from other facilities, especially small, unsafeguarded research reactors and associated reprocessing plants. The Committee notes that there is already a considerable civil nuclear industry in place throughout the world which performs a range of important functions and services. The possibility of diversion from this industry can never be completely eliminated and the proliferation risks need to be recognised and action taken to minimise them, principally through maintenance of an effective safeguards regime.

17.36 This view was supported by the ASTEC report, which concluded that countries intent on developing nuclear weapons would probably do so using specialised facilities rather than civilian ones, but noted nonetheless that such a possibility does not reduce the need for safeguards. 'They are essential if nuclear energy is to be used widely for peaceful purposes. The "secret" facility argument means that safeguards are not sufficient in themselves to prevent the spread of nuclear weapons'.³⁸

Safeguarding against diversion from the civilian nuclear fuel cycle

17.37 Given that diversion between civilian and military fuel cycles is possible, how effective are existing safeguards? Most nuclear warheads use either enriched uranium or plutonium as their fissile material. The means of obtaining these are:

- a. enrichment of uranium from either natural isotopic concentrations (0.7 per cent U235 and 99.3 per cent U238) or 'reactor-grade' concentrations (less than 5 per cent U235 and over 95 per cent U238) to 'weapons-grade' or 'highly enriched' uranium (approximately 90 per cent U235);
- b. extraction of plutonium from the spent fuel produced in either a 'commercial' or specialist 'research' nuclear reactor. The latter type of reactor is normally preferred since plutonium produced in power reactors contains high levels of the plutonium isotope Pu240 which raises the critical mass of the fissile material and affects the explosive yield.³⁹ Nonetheless it is possible to construct an explosive warhead from plutonium containing high levels of Pu240; and
- c. irradiation of thorium 232 by neutrons to obtain uranium 233.

17.38 Of these, the first two methods are the most likely means of obtaining weapons-grade material. The ASTEC report noted that:

Provided enrichment technology is available, one of the simplest routes to manufacture of weapons usable material is to use a small, dedicated enrichment facility to produce U235. In view of the relative simplicity of this route, considerable emphasis has been placed on controlling the export of enrichment equipment and technology by suppliers. The development of centrifuge technology, for example, has been a matter of some concern from the point of view of weapons proliferation because this technology makes it possible to build a compact plant with low electricity consumption which could produce highly enriched uranium and yet be difficult to detect. Laser technology under development would allow high enrichment in a single step and hence be of greater proliferation concern.⁴⁰

Similar concerns were expressed over reprocessing facilities which were regarded 'as sensitive to diversion risks in a similar way to uranium enrichment plants'.⁴¹

International safeguards

17.39 The present system of international safeguards used to prevent diversion of nuclear material from, or misuse of technologies associated with, the civilian nuclear fuel cycle

has been described in detail in the ASTEC report, Australia's Role in the Nuclear Fuel Cycle. The report states that the technical objective of the IAEA safeguards system is 'timely detection of diversion of significant quantities of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices or for purposes unknown and deterrence of such diversion by the risk of early detection'.⁴²

17.40 The safeguards system focuses on areas within the fuel cycle which pose significant proliferation risks, as well as on pre-empting potential diversion strategies affecting all stages of the fuel cycle. The principal area of concern are the enrichment and reprocessing facilities and techniques, where the report notes that due to their size, 'commercial reprocessing plants separate plutonium in conditions not conducive to easy safeguarding [and so they are] subject to continual and intensive safeguards'.⁴³

17.41 The overall approach taken to safeguarding against diversion is to seek to verify 'the truth of statements regarding the amounts, presence and use of nuclear material or other items subject to safeguards as recorded by the facility operators and as reported by the country to the IAEA'.⁴⁴ The report notes that the verification process consists of three stages:

- The examination of the information provided by the country in:
 - design information describing installations under safeguards;
 - accounting reports, listings of nuclear material inventories, receipts and shipments;
 - documents amplifying and clarifying reports;
 - advance notification of international transfers.
- The collection of information by the IAEA as a result of:
 - inspections for the verification of the design information;
 - inspections to examine records and inspections of nuclear material;
 - the operation of containment and surveillance equipment;
 - special inspections in the case of unusual findings.
- The evaluation of the information provided by the country and of that collected by inspectors, to determine the completeness, accuracy and validity of the information provided by the country.

17.42 Since the 1960s no diversion of safeguarded nuclear material or misuse of any safeguarded facility has been recorded by the IAEA. There has been one case where a retransfer of depleted uranium from a NNWS NPT party to NNWS non-NPT party was detected, and on two occasions in 1982 the Agency reported to the Board of Governors that it was not in a position to perform adequate verification of one facility (believed to be Pakistan). This latter situation was subsequently rectified to the satisfaction of the IAEA Board of Governors.⁴⁵

17.43 In a paper provided to the Committee, Gillian Triggs, Senior Lecturer in Law at the University of Melbourne, noted that safeguards agreements with the IAEA arise in two ways:⁴⁶

- a. Projects involving IAEA assistance and requests by individual states and parties to international agreements. The IAEA Statute specifies the main methods of control covering this case but allows each method to be applied according to the agreement with the relevant state. No member of the Agency is required to submit to safeguards (other than in cases of requests or assistance) and in turn, states are under no obligation to make transfers or provide assistance to third states subject to such controls. The Statute is thus merely a framework for control which a member may choose to submit.
- b. Obligations undertaken by states party to the Non-Proliferation Treaty. The NPT requires all non-nuclear weapons parties to submit to Agency safeguards through agreements to be negotiated with the Agency. The Treaty prohibits parties from supplying non-nuclear weapons states with certain types of nuclear items for peaceful purposes (as distinct from authorised military purposes) except subject to IAEA safeguards. In this way, the NPT obliges parties to submit to safeguards in relation to international transfers of nuclear material or equipment. These safeguards must nonetheless permit peaceful research and development of nuclear energy in non-nuclear weapons states, and they must not retard the economic or technological development of peaceful nuclear activities.

17.44 The NPT requires that safeguards be applied to all 'source' or 'special fissionable material' used in all peaceful nuclear activities in the territory of a state or under its jurisdiction. Source materials is defined as natural or depleted uranium or thorium, and special fissionable material includes enriched uranium or any material containing plutonium 239 or uranium 233. Pursuant to its obligations under the NPT,

Australia negotiated a safeguards agreement with the IAEA in 1974. Since 1978, Australia has negotiated a number of bilateral safeguards agreements with potential customers for its uranium. The number and scope of these agreements were described earlier.

Criticisms of the international nuclear safeguards regime

17.45 Despite the fact that no diversion of safeguarded nuclear material or misuse of safeguarded facilities have been recorded by the IAEA, the international safeguards regime has continued to be criticised on a number of grounds. These were summarised by Triggs⁴⁷ and include the following:

- a. Not all states are party to NPT or IAEA agreements. The effectiveness of the safeguards regime depends on their universal application. The number of countries and nuclear facilities covered by IAEA safeguards has steadily increased. There remain, however, a significant number outside the recognised nuclear weapon states which are not subject to IAEA or bilateral safeguards. These are listed in Table 17.4. In addition, the five recognised nuclear weapon states are not required under the NPT to apply safeguards on their civil facilities, although most have voluntarily entered into safeguards agreements with the IAEA. These agreements are not uniform however. According to Mr D.A. Townsend of the Department of Foreign Affairs:

In the case of the UK, the entire civil nuclear fuel cycle is offered for safeguards. In the case of the USA, safeguards may be applied to designated facilities not of national security significance, amounting essentially to the entire civil nuclear fuel cycle. In the case of France, safeguards may be applied to nuclear material required by bilateral agreements (such as Australia) to be safeguarded. In the case of the USSR, safeguards may be applied to designated power and research reactors.⁴⁸

- b. Peaceful nuclear explosions. The IAEA safeguards prohibit only the diversion of materials for military purposes. Triggs notes that 'the Indian explosion demonstrates the futility of categorizing explosions as peaceful or military in nature'.

- c. The right of withdrawal from safeguards arrangements. Most multilateral and bilateral safeguards arrangements are subject to discretionary withdrawal provisions. Article X(1) of the NPT, for example, allows a party to withdraw from the Treaty on three months notice if it 'decides that extraordinary events ... have jeopardised the supreme interests of its country'. Triggs notes that this weakness can be met by 'fall-back' safeguards whereby supplies are made available 'only to countries willing to accept safeguards on their entire fuel cycles in the event that the state were to withdraw from NPT or IAEA safeguards'. Such fall-back provisions are a feature of Australia's bilateral safeguards although Triggs concludes that 'a state may have extreme difficulty in ensuring that such a bilateral safeguards system is complied with'.
- d. Retransfer of materials. The NPT does not prohibit the further transfer of materials from a receiving state to a third state and the IAEA safeguards applicable to such transfers may not be adequate. Triggs notes that Australia has anticipated these problems by stipulating that retransfers take place only with the consent of the original supplier. There is a potential problem with its agreement with Euratom, however (see para 17.53d).
- e. Accounting procedures and policies. Perceived weaknesses here include charges of inadequate IAEA staffing, periodic rather than continuous inspection with the notice of inspection required to be given in advance, inadequate instrumentation and procedures covering new technologies, and difficulty in measuring and detecting diversion of small amounts of nuclear material. Triggs submitted that the Fox Report noted 'that repeated small diversions might easily be undetected and that states might also distort the figures to hide diversions', concluding that other safeguards measures, such as containment and continuous surveillance, may be necessary.

TABLE 17.4
NUCLEAR PLANTS UNDER CONSTRUCTION OR OPERATING IN THE DEVELOPING COUNTRIES OUTSIDE EUROPE (POWER AND RESEARCH REACTORS AND SIGNIFICANT FUEL FACILITIES)

Unsafeguarded plants are in italics. HWR = heavy water reactor; LWR = light water reactor

Argentina	3 HWR power reactors 6 small research reactors ² 3 fuel fabrication plants 2 heavy water production plants (1 <u>unsafeguarded</u>) 1 pilot reprocessing plant (under safeguards when, as today, reprocessing safeguarded fuel) 1 <u>pilot enrichment plant</u> ³ 1 uranium oxide conversion plant (possibly a second <u>unsafeguarded plant</u>) 1 <u>UF₆ plant</u>
Brazil	3 LWR power reactors 3 small research reactors 1 pilot reprocessing plant (construction status not clear) 1 pilot enrichment plant 1 fuel fabrication plant 1 uranium oxide conversion plant 1 <u>UF₆ plant</u>
Cuba	2 LWR power reactors ⁴ 1 small LWR research reactor ⁴
India	10 power reactors (8 HWRs and 2 LWRs, 6 <u>HWRs unsafeguarded</u>) 6 <u>research reactors</u> (including 1 large HWR) ⁵ 3 <u>reprocessing plants</u> ⁵ (1 under safeguards while reprocessing safeguarded fuel) 2 fuel fabrication plants (1 <u>unsafeguarded</u>) 7 <u>heavy water production plants</u> 3 uranium oxide conversion plants (2 <u>unsafeguarded</u>) 1 <u>thorium oxide fuel fabrication plant</u> 1 <u>fast breeder fuel fabrication plant</u>
Israel	2 research reactors (including 1 large HWR) ⁵ 1 <u>reprocessing plant</u> ² 1 <u>heavy water production plant</u> 1 <u>fuel fabrication plant</u>
Korea, South	9 power reactors (8 LWRs and 1 HWR) 3 small research reactors 2 fuel fabrication plants (1 pilot) 1 uranium oxide conversion plant
Mexico	1 LWR power reactor (construction of second power reactor reportedly suspended) 2 small research reactors
Pakistan	1 HWR power reactor 1 small research reactor 2 <u>reprocessing plants</u> (possibly 3 including 2 <u>pilot reprocessing plants</u>) 1 <u>pilot enrichment plant</u> ⁶ 1 <u>fuel fabrication plant</u> 2 <u>heavy water production plants</u> 1 <u>UF₆ plant</u>

Philippines	1 LWR power reactor 1 small research reactor
South Africa ⁷	2 LWR power reactors 1 large LWR research reactor 2 enrichment plants (1 pilot in operation, ³ 1 commercial plant under construction) 1 fuel fabrication plant 2 uranium oxide conversion plants 1 UEG plant (also extensive uranium mining, milling and processing)
Taiwan	6 LWR power reactors 6 research reactors (including 1 large HWR) 1 fuel fabrication plant 1 uranium oxide conversion plant

The nuclear plant in each of the following developing countries is confined essentially to a single small research reactor, usually an LWR using enriched US or Soviet fuel:

Colombia	Peru (building a second)
Egypt	Thailand
Iran	Uruguay
Iraq ⁸	Venezuela
Libya ⁹	Viet Nam
Malaysia	Zaire

A further four developing countries each have two research reactors:¹⁰

Chile	Korea, North
Indonesia	Turkey

Notes

- Other than uranium mills producing U₃O₈.
- 'Small' indicates less than 5 MW(th). The fuel content of such reactors is normally well below a 'significant quantity', i.e., the amount needed to make a single nuclear explosive.
- Producing unsafeguarded enriched uranium.
- All supplied by the USSR and using Soviet low-enriched fuel.
- Producing unsafeguarded plutonium.
- Believed to be nearing completion.
- Although not usually classified as a developing country, South Africa is included in this list as one of the non-nuclear weapon states that produce unsafeguarded nuclear weapon material.
- The Tamuz 1 reactor was destroyed.
- There are unconfirmed reports that Libya is also obtaining a power reactor (LWR) from the USSR.
- Among the industrial countries, Greece, Portugal and Norway each operate a single small research reactor while Denmark has two (none has or is building a power reactor).

Source: SIPRI Yearbook 1986, pp. 495-97. Note the table does not include facilities located in China. See 'China's nuclear industry comes of age', Nuclear Engineering International, June 1986, pp.23-25.

- f. Absence of an effective system of sanctions. Where a diversion or misuse is detected by the IAEA, the Agency's Board of Governors makes a report to the United Nations Secretary-General and may even direct curtailment or suspension of assistance being provided by the Agency. The principal means of sanctioning the transgressor is via the United Nations Security Council or General Assembly. Triggs argued that 'the United Nations has not been effective in sanctioning wrongful conduct, primarily because of the right of veto. Thus the mechanisms provided by the United Nations Charter are not adequate to ensure compliance with the safeguards system'. She noted however that states will nevertheless tend to abide by international treaties 'because it is in their reciprocal interests to do so'. This view was supported by the findings of the ASTEC report which concluded that:

The real power is the international public attention which would accompany such a report and the consequent undermining of the international standing, credibility, and trustworthiness of the reported country. This may not carry much weight with a country which, through some perceived desperate security situation, has decided to proceed with the manufacture of a nuclear weapon and intends to renounce the NPT. However, if such a country is dependent on supplies from other countries, suspension of cooperation with it would entail serious consequences for its nuclear program. The suspension of cooperation by Canada and the United States with India and Pakistan (neither of which is a member of the NPT) has seriously affected the operation of supplied, if not indigenous, nuclear facilities in both countries.⁴⁹

17.46 These and other criticisms of the IAEA safeguards systems were considered by the ASTEC inquiry.⁵⁰ The report accepted that some of the alleged weaknesses were valid, particularly those relating to the management of the safeguards system, which were said to be under review in the IAEA. It also noted that the effectiveness of the safeguards system depends ultimately on the level of cooperation between the agency and the participants. In most cases this cooperation is readily forthcoming and so the likelihood of diversion was judged to be very low.

... however, some NPT member countries ... have not always cooperated fully with the safeguards inspections ... this has created difficulties and, under these circumstances, we consider that diversion of small amounts of material could take place from safeguarded facilities and there would not be a complete guarantee that such diversions would be detected. ... The safeguards system is therefore not perfect, although it can provide substantial assurance that, in NPT member countries, the diversion of nuclear material from civil facilities is not occurring. In states not party to the NPT, however, the situation is not satisfactory, since even one unsafeguarded facility represents a proliferation risk. Nevertheless, the safeguards system is of central importance to the non-proliferation regime. It provides a continual reminder to those countries with a strong commitment to non-proliferation that diversion must not occur, and acts as a major restraint on countries with less commitment. In the process, the world gains time to improve the system further and to adopt to the changing environment in which it operates.⁵¹

17.47 The ASTEC report further concluded that the safeguards currently being applied are 'the best technical approach to provide the confirmation' that member states are fulfilling the obligations. It noted, however, that:

safeguards must continue to develop and much remains to be done, including development of new techniques to safeguard some future large-scale bulk handling facilities, the further development of techniques and equipment to be applied to facilities already safeguarded, and improved management of the safeguards function.⁵²

The report was particularly concerned that the IAEA 'has not been able fully to achieve its inspection goals' and suggested that this could be overcome by deploying more inspection staff, better instrumentation, or a reorientation of the inspection procedures to concentrate on the most sensitive areas in the fuel cycle. As noted earlier, the report made a number of recommendations aimed at improving the safeguards system, all of which were accepted by the Government.

17.48 The IAEA safeguards and procedures are a crucial part of the non-proliferation regime. More than 95 per cent of nuclear plants in all non-nuclear weapon states are now under Agency safeguards. Of the five nuclear weapon states, the United States and the United Kingdom have opened all their civilian plants to safeguard, France and the Soviet Union have opened some, and

China has indicated that it will also do so. Safeguards have helped create confidence that, at least for the present, horizontal nuclear proliferation has been contained in the industrial world and in most of the Third World (see Chapter 5). In addition, much has been done in recent years to strengthen the safeguards regime. In recognition of some of the procedural and technical weaknesses just described, the IAEA has increased the number of inspectors and inspections and, since 1983, has been carrying out unannounced inspection visits especially on enrichment plants.⁵³

17.49 The effectiveness of the safeguards regime, however, remains constrained by a number of political and technical factors. While the IAEA is probably able to effectively safeguard existing facilities, the continued development of large-scale reprocessing plants and associated technologies such as the laser-based isotope separation process are likely to cause problems. The most significant of these related to the timely detection of any diversion of small amounts (below the so called minimum 'material unaccounted for', or MUF, able to be detected by the IAEA) of plutonium or highly enriched uranium from within reprocessing or enrichment facilities. There must be doubts whether this can be achieved using existing accounting procedures and, as a minimum, some form of continuous inspection process would seem to be warranted.

17.50 The Committee supports the ASTEC inquiry's recommendations that Australia should (1) encourage the establishment of a scheme to regulate effectively the storage and use of sensitive nuclear material; (2) constrain the number and exclusive national ownership of reprocessing and enrichment facilities; and (3) provide continued support and encouragement for research into the disposal of high level waste. It also considers that Australia should use its influence as a member of the IAEA Board of Governors to ensure that adequate safeguards are developed to prevent diversion of plutonium or enriched uranium from reprocessing or enrichment facilities.

17.51 While the Committee acknowledges that safeguards are important in providing a timely warning of plutonium diversion, it considers that a more appropriate approach may be to seek to restrict the civilian nuclear fuel cycle from using weapons-grade fissile material such as highly enriched uranium and plutonium. The civilian reprocessing facilities were developed largely in anticipation of the development of breeder reactors which would effectively extend the life of readily available uranium resources. The breeder reactor program has not advanced to the extent initially expected, however. Furthermore, revised estimates of our future energy requirements suggest that current uranium resources may be sufficient to meet projected needs.⁵⁴ Such a proposal would be particularly attractive from Australia's point of view. It would not only serve to restrict the so called 'plutonium economy' but would provide a greater demand for stable sources of uranium ore. The Committee recommends that the Australian Government give consideration to promoting the acceptance of a civilian nuclear fuel cycle, based on low-enriched uranium only.

17.52 The Committee recognises that IAEA safeguards cannot work completely effectively without the cooperation of the participating nations. Nor can the IAEA monitor or constrain the intentions of governments. If a country decides that it is in its national interest to develop nuclear weapons via the civilian nuclear fuel cycle then neither safeguards nor the ultimate threat of sanctions are likely to deter it. The effectiveness of technical nuclear safeguards therefore depends ultimately on the successful implementation of broader changes which serve to improve the international political climate as well as international and national security, and on the ability of the member states comprising the IAEA and its Board of Governors to apply its policies both rigorously and wisely. The Committee's views on how the overall non-proliferation regime can be improved are given in Chapter 5. On the specific question of Australia's role in the IAEA, the Committee notes the broad consensus that Australia has made important contributions to the development and implementation of IAEA policies. The Committee considers that it is important that Australia continue to pursue initiatives to further improve the efficiency and effectiveness of the Agency's safeguard procedures particularly with respect to enrichment and reprocessing technologies. It supports the recommendations of the ASTEC inquiry that Australia:

- a. provide further resources to the IAEA and encourage other member countries to do the same; and
- b. make every effort to maintain and enhance Australian influence in the Agency.

Criticisms of Australia's bilateral safeguards agreements

17.53 Australia's bilateral agreements and the basic policy covering those agreements have also been subject to criticism. These have been described by the ASTEC report⁵⁵ and comprise the following:

- a. Australian agreements rely on the IAEA safeguards to cover AONM once it is in the bilateral partner's control therefore weaknesses in that system automatically affect Australia's controls;
- b. the current policy enables negotiations of sales contracts before concluding a safeguards agreement. It has been suggested that this weakens Australia's negotiating position by allowing negotiating partners to threaten to withhold agreement and therefore deprive Australia of economic gain. The ASTEC report notes that this appears not to have been the case since all of the bilateral safeguards agreements entered into by Australia satisfy its basic policy requirements, and have provided neither side with a negotiating advantage;

- c. the current policy allows for the reprocessing of Australian fuel which has been irradiated in a nuclear reactor, albeit under strict conditions. It thus could lead to an increase in the amount of separated plutonium in the fuel cycle program of bilateral partners, although the location and use of such plutonium are subject to 'agreed and effective controls';
- d. Australia's bilateral agreements include the requirement for Australia's prior consent to be given before AONM is transferred to a third party. Agreements with Euratom have drawn criticism in particular to this point. Euratom is a separate legal entity and international agreements with it apply equally to all member countries. Problems arise because Euratom agreements only cover nuclear material and because new countries may be added to Euratom when membership of the European Community is extended. Thus a new member may not be a signatory of the NPT as will be the case with Spain. ASTEC notes that the first point is covered by the fact that the Euratom agreements do not preclude supplementary arrangements with individual member countries. On the second point, Australia's agreement with Euratom includes the provision that unless the new member concludes satisfactory safeguard arrangements, AONM will not be transferred to it; and
- e. Australia's bilateral safeguards contain a range of sanctions to be applied in the event that the recipient party failed to comply with the terms of the agreement or with IAEA safeguards arrangements. As a final option, Australia has the right to withhold supply. As in the case of international safeguards, it is difficult to see how such sanctions could be enforced other than suspension of supply. The ASTEC report states that 'the effectiveness of such sanctions cannot be measured directly because no case of non-compliance with either IAEA or Australian safeguards agreements has been detected'. It notes that 'the prospects of the application of sanctions is not taken lightly by Australia's partners' particularly if they were joined by other suppliers.

17.54 Despite acknowledging some of these criticisms, the ASTEC report concluded that overall, Australia's bilateral safeguards agreements meet existing national policy requirements and, moreover, that:

those requirements are sufficiently comprehensive to provide as much control as can be realistically expected and therefore a high degree of reassurance

that Australia's safeguards objectives are being attained. ... We are satisfied that Australian uranium, including nuclear material derived from it is adequately accounted for under the provisions and Administrative Arrangements of the Australian bilateral safeguards agreements; and that such material is being used solely for peaceful purposes in accordance with the agreements.⁵⁶

It did recommend, however that:

- a. Australia take steps to ensure that nuclear material extracted for nuclear purposes from Australian ores after export would become subject to a safeguards agreement to which Australia is a party; and
- b. that Australia enter into discussions with governments of countries with which Australia has no bilateral safeguards agreements and within whose jurisdictions Australian origin nuclear material is trans-shipped with a view to concluding government to government agreements covering the application of physical protection measures to such material.

17.55 The Committee accepts the findings and recommendations of the ASTEC report on Australia's bilateral safeguards agreements. In view of the continued speculation over control of Australian uranium ore after it leaves Australia, the Committee welcomes the Government's decision to formulate government to government arrangements for the physical protection of uranium during transshipment and to ensure that nuclear material extracted for nuclear purposes from Australian ores after export would become subject to a safeguards agreement to which Australia is a party. The Committee is nonetheless aware that Australian uranium supplied to certain nuclear weapons states, or its fission products, could still, in breach of our safeguards agreements, be diverted from the civil fuel cycle or be used to replace indigenous material that is either reallocated to nuclear weapons programs or supplied to other states. The nuclear weapons states are not obliged, under the provisions of the NPT, to subject their civil nuclear facilities to IAEA safeguards.

17.56 The Committee considers that this is an area in our safeguards policy which could be exploited to divert sensitive materials derived from Australian ore from the civilian to the military nuclear fuel cycle. The Committee considers that, as part of its review, the Government should examine the risks of diversion or misuse of AQNM by nuclear weapon states and implement measures to minimize them. Where Australian uranium is suspected of being so used Australia should insist on a full investigation and, if necessary, suspend supply.

The Export and Use of Australian Uranium

17.57 Given that there is a link between the civilian and military nuclear fuel cycles and that safeguards do not provide an absolute guarantee against diversion of sensitive materials, or misuse of civilian nuclear technologies, should Australia withdraw from the nuclear fuel cycle by ceasing to mine and export uranium? Those who answer this question in the affirmative include the following reasons for doing so:

- a. the cessation of mining and exporting of Australian uranium is the only certain way of ensuring that it is not eventually used to produce explosive nuclear devices for military or terrorist purposes;
- b. it would signal Australia's concern over the continued vertical and horizontal proliferation of nuclear weapons throughout the world and provide an example for other nations to follow suit;
- c. it would not contribute to a system of power generation which is considered to be both dangerous and unnecessary, and would force governments to seek alternative means of supplying the world's energy needs; and
- d. it would lessen the long-term pollution of our natural environment.

17.58 The Government, on the other hand, dismisses these arguments as being idealistic. It argues that Australia's refusal to supply uranium will not inhibit the development of nuclear weapons by those states who wish to do so. It further argues that any move to cut off our supply of uranium would threaten to undermine the existing non-proliferation regime and arms control efforts generally. The proponents of continued mining claim that the demand for nuclear energy will continue to grow, the risk of a civilian nuclear accident is very low, and, provided that it is managed properly, nuclear power poses less of a danger to the environment than the continued burning of traditional fossil fuels.

17.59 The arguments in favour of Australia continuing to mine and export uranium were generally supported by the report of the ASTEC inquiry, which concluded *inter alia* that:

- a. Australia is best able to make a significant contribution to the cause of non-proliferation if it is actively involved in the nuclear fuel cycle.

Australia is needed in the non-proliferation debate to a greater extent than one would normally expect. This is due in part to the

considerable reserves of uranium within Australia and Australia's record as a reliable supplier under strict controls and in part because Australia has continually sought to provide practical solutions to problems facing the non-proliferation regime. We consider that Australia must continue to maintain its high profile and that there will be additional opportunities for Australia, through active involvement in the nuclear fuel cycle, to further advance the cause of nuclear non-proliferation. With such an involvement we consider that Australia can make a direct contribution to the development of the civil nuclear fuel cycle in ways that will increase global energy security, help to strengthen the elements of the non-proliferation regime, and help to reduce the risks of misuse of civil facilities and the diversion of nuclear material from civil to military uses. Without such involvement we consider that global energy security would be less assured and our ability to strengthen the non-proliferation regime and to influence future developments in the fuel cycle would be reduced. We do not wish to exaggerate Australia's role in matters related to the nuclear fuel cycle but we are convinced that it is only by active involvement that Australia can expect to be able to influence the future course of events.⁵⁷

- b. There will continue to be market opportunities for Australian uranium, and withdrawal of Australian supply would make little difference to the continued nuclear energy industry.

The use of nuclear energy for the generation of electricity is an established fact of life in the majority of developed countries and is becoming so in an increasing number of less-developed ones. The nuclear fuel cycle industry has become a major industry. It now supplies more than ten per cent of all the world's electricity and it will continue to supply at least that much and probably more for the rest of the century. Beyond that it is difficult to make predictions, but the industry has the potential to grow substantially. In practical terms, therefore, the use of nuclear energy will continue with or without Australia's participation as a supplier of uranium.⁵⁸

17.60 The Committee accepts that there is no shortage of uranium in the world to supply fuel to the civil nuclear industry and that the industry can proceed whether or not Australia is a supplier. It therefore supports the view that cutting off the supplies of uranium will not have any effect in reducing the number of nuclear weapons in the world. However,

nor is it likely to damage arms control and disarmament to any great extent. The principal impact of withdrawal of Australian uranium will be felt by Australia; through the loss of existing and potential export earnings and through our diminished influence in the International Atomic Energy Agency and other related bodies.

17.61 The Committee supports the conclusion of the ASTEC report that, on balance, the non-proliferation regime is better served by Australia remaining a supplier of uranium ore. Australian uranium is supplied under very stringent safeguards. As noted by the ASTEC report, there is reasonable evidence that the imposition of these safeguards has not deterred prospective purchasers of Australian uranium. Indeed their acceptance may encourage other suppliers to insist on comparable conditions.

17.62 Australia's role as an exporter has also enabled us to play an important role in establishing and developing the present nuclear non-proliferation regime. The Committee accepts the view of both ASTEC and the Government that withdrawal from the nuclear fuel cycle would reduce our influence in the IAEA which plays a key role in the non-proliferation regime.

17.63 The Committee concludes that the exports of uranium should not be curtailed, provided that the existing safeguards regime remains effective and that stringent conditions of supply are observed. The Committee considers that Australia should continue to seek improvements in both these areas and welcomes the initiatives being carried out by the Government as a result of the ASTEC inquiry. As mentioned earlier, the Committee considers that the prevention of horizontal (and vertical) proliferation could be made much easier if the civilian nuclear fuel cycle was restricted to low-enriched uranium only, and if the nuclear weapon states subjected the whole of their civilian nuclear facilities to international safeguards. The Committee recommends that as part of its approach to non-proliferation Australia should work towards achieving these two basic objectives.

CHAPTER SEVENTEEN
ENDNOTES

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CHAPTER 18

PEACE EDUCATION AND PEACE RESEARCH IN AUSTRALIA

Introduction

18.1 Numerous submissions and witnesses suggested that there was a need to implement a range of activities and programs in Australia which were generally described under the terms 'peace education' and 'peace research'. These included:

- a. increased Government support for, and development of, the Australian Peace Research Institute. Some submissions recommended that the Institute be funded on the basis of a percentage of Australia's defence expenditure;
- b. the development, by the Commonwealth Schools Commission, of a 'peace education program' for use in Australian schools;
- c. financial support to state Education Departments to develop curricula on 'peace education' and 'disarmament, arms control and related matters', or to establish a 'peace development coordinator' to develop peace courses and materials;
- d. establishment of a 'peace information centre' in each capital city;
- e. development of 'peace studies' in tertiary centres of learning;
- f. establishment of an 'anti-war museum' designed to emphasise alternative means of settling disputes; and
- g. Federal Government funding and sponsorships for tours of Australia by 'internationally recognised authorities on various peace and disarmament issues.

18.2 Others argued for the continuation or extension of some of the programs initiated, or expected to be initiated, under the International Year of Peace. These included:

- a. Federal grants to the arts through organisations such as the Australian Film Commission, the Community Arts Board and the Australian Arts Council for the production of works of art and culture with peace themes;
- b. research grants to individuals and organisations to conduct research into disarmament

and arms control or related matters. Some of these to be administered by a council of non-government organisations similar to the National Consultative Committee on Peace and Disarmament; and

c. continued sponsorship of national and regional symposiums on disarmament and arms control related matters.

Peace Education

18.3 A common rationale for the establishment of these activities and programs was that they would improve community awareness of disarmament and arms control issues, as well as the quality of public debate about them. The NSW Branch of People for Nuclear Disarmament submitted, for example, that:

It is important that as many Australians as possible begin to comprehend the insanity that is the arms race ... This information needs to be disseminated in schools and extended through the tertiary education system to those who finished their schooling many years ago. Parents, students and teachers all over Australia have already begun to take action on their own initiative to institute Peace Education in schools, but they need concrete support of the Federal and State Education Departments to carry through their plans.¹

18.4 Others argued that the widespread knowledge of the nuclear arms race and the potential consequences of nuclear war has introduced serious social problems which need to be addressed, in part, by further information and education. A witness for the Quaker Peace Committee in Hobart, for example, stated that:

... insofar as the widespread knowledge is concerned, particularly through television, about the nuclear arms race and the possible consequences if one such holocaust occurred, there are many children who in a sense have lost their childhood. They are traumatised by this ... Many of them ... feel they have no future ... This very important aspect of how children are affected requires us to ask some questions: Can peace studies open up some of these issues so that they can be discussed by children, to educate them to see the complexity of the issues with which we are dealing.²

18.5 Similar findings were reported by members of the Tasmanian Branch of the Medical Association for Prevention of War (M.A.P.W.), who submitted to the Committee that:

... even if a nuclear war does not eventuate, there are a large number of people in the population, particularly the young, who are already being significantly affected by the conflicts occurring between the superpowers ... A lot of children and a lot of adolescents, not so much in Australia - it has not been researched adequately here yet - but in the United States, the United Kingdom and the USSR are showing significant psychological effects already of the likely occurrence of a nuclear war in the future. We think that it is important ... that these people can start to look at life in a slightly more optimistic way than they are at the moment.³

Other members of the medical profession warned that these latent or developmental effects should not be exaggerated, but neither should they be ignored, particularly in the case of children. A member for MAPW in Adelaide stated that:

I think children should be given an opportunity to discuss their knowledge and their fears, or their hopes, and this requires good materials for them to be given a basis of discussion, a vocabulary to use. They need good facilitators who, out of that exchange, can help them to feel that there is positive action; there are things that are happening; there are things they can tune into that are hopeful, trying not to exaggerate the problems of uncertainty and feelings of hopelessness about the world.⁴

18.6 A similar view was expressed in a submission from the Social Responsibility Committee of the Uniting Church in Australia (Queensland Synod), which claimed that there is mounting evidence that the omnipresent threat of nuclear war is having a profound effect on younger generations currently attending Australia's schools.

As these younger Australians are coming towards maturity many of them are expressing their anxiety about nuclear war and also their anger at adults for bringing their world to this position. With no future before them, they are often opting for under or even no achievement lifestyles and living for the moment ... a major contribution peace education is making to help these young people is

to open the issue of nuclear war up to frank discussion in the classroom. By talking about the issue in a balanced and informed manner, teachers and their students are helping to exorcise the nuclear demons.⁵

18.7 These kinds of issues and concerns have stimulated greater interest among professional educators in Australia in examining whether existing curricula satisfy the demands of the nuclear age. In recent years, for example, the principal teacher associations have conducted conferences on peace education and many individual schools have established peace units and courses. Some State educational authorities have implemented formal curriculum reviews. And the Federal Government has expressed interest and support for peace education; notably through the activities of the Curriculum Development Centre - which is presently collecting a range of information on these matters - and the International Year of Peace.

18.8 Despite these efforts, there has been little concerted progress towards the development and implementation of peace education in Australia. This is partly due to the fact that the issue is relatively new and so is still subject to considerable debate among experts and laymen alike. There is no broad consensus, for example, on what is meant by the term 'peace education' and how it should be incorporated into traditional educational processes. Senator Ryan, the Minister for Education, has noted that:

Peace Education is a term which at this stage means different things to different people and organisations. For some, the issue is the nuclear arms race and nuclear disarmament. For others, the concept is much broader and includes disarmament education, development education, human rights, social justice and education for international understanding. Other groups might add Aboriginal studies, multicultural education and environmental studies to the list. Still others want students trained in the techniques of peaceful resolution of conflict. All of these are worthy objectives, but each requires stringent conceptual and curriculum design attention before it can become part of an educational program.⁶

18.9 Accordingly, the Government has advocated a gradual approach to incorporating peace education into the existing curriculum baseline.

In the initial stages, it is to be expected that there will be a number of more specialised courses devoted to Peace Studies within established courses in our schools. Teachers for example,

might introduce their students to a study of the balance of power between West and East, the significance of arms control negotiations, and so forth. In effect many of these concerns might be extensions of what we now call Strategic and Defence Studies.⁷

The Minister stated that the existing curriculum should also be examined with a view to infusing pro-peace values into it in much the same way as non-sexist and non-racist values have been introduced in recent years. She added that it was important that peace education have both educational validity and authority.

The community expects that whatever is taught in our schools has educational validity. It expects, rightly, classrooms are not being used merely to promote political causes. Political issues need to be translated into educationally viable programs. This is the challenge which confronts education authorities with Peace Education.⁸

18.10 The scope for federal initiatives in implementing peace education into Australia is limited, however, because under existing legislation, it is the States rather than the Federal Government which have the responsibility for determining educational policy. Nonetheless, the Government has consulted with State Ministers for Education in order to determine whether there are joint activities that could be carried out under the coordination of the Education Department's Curriculum Development Centre. It has also asked the CDC to gather information about relevant courses currently being run in Australian schools. At the tertiary level, the Government has established the Peace Research Centre at the Australian National University in Canberra (described shortly).

18.11 The NSW Minister for Education has rejected the establishment of peace studies as a separate subject in the NSW curriculum. Mr Cavalier argued that:

War and peace are legitimate aspects of the school curriculum and are of such significance that they should be taught within the context of the recognised academic disciplines ...

My observation is that single issue subjects are often conducted in an academic vacuum divorced from the mainstream of human knowledge ...

What may be appropriate at university level by way of inter-disciplinary study after thorough grounding is not appropriate in a secondary school without that grounding ...

In addition to History and Geography, secondary students can study peace issues in subjects like Economics, Asian Social Studies, English, Science and General Studies.

The Society and Culture course, which emphasises social literacy, has much of a direct bearing on peace and conflict issues.⁹

18.12 The peace movement on the other hand, and a growing number of educators consider that 'peace education' needs to go beyond establishing nuclear literacy to encourage students (and citizens) to develop new ways of thinking about conflict resolution, skills that will induce long term harmonious relationships, both between individuals and within groups, and means of becoming more involved in maintaining peace. One witness appearing on behalf of the Quaker Peace Committee in Hobart suggested, for example, that peace education:

... should not be seen simply as another course or unit in a curriculum put into schools. Rather, we should look at how we are educating the citizens of tomorrow to grow up to be citizens with skills in being peaceable and peace producing, and in being able to solve conflicts in a peaceful and non-violent way.¹⁰

Another witness, from the National Spiritual Assembly of the Baha'is of Australia, argued that peace studies or peace education can be looked at in two ways.

You can look at a special curriculum on peace studies or you can do what the Japanese do and say that education should be education for peace. When they plan their curricula, they take account of the relationship of history or literature or whatever to peace ... instead of asking what is the cause of war, we would ask what is the cause of peace and try to establish the conditions in a country which has made it possible for peace to be sustained and preserved. So one possibility is to re-examine existing curricula, ... and see the relevance of peace. Perhaps it has been seriously underplayed in the construction of curricula.

If we want to look at peace studies directly, as a possible addition, I guess we would have to look at both the current situation in armament and arms control and peace treaties and things like that, and also at conflict resolution and ways of promoting harmony.¹¹

18.13 As evidenced by these quotes, there are differences of opinion within the community over the basic purpose and thrust of peace education, which in turn reflect the different philosophical and political preferences and world views of their advocates. The various approaches taken towards peace education were described by Rachel Sharp of Macquarie University in a recent article entitled 'Varieties of Peace Education'.¹² Her views may be summarised as follows:

a. Peace education as peace through strength. This approach is based on the view that the main threats to international security stem 'from the historically evolved division of the world into two major camps which are recognised as having incompatible interests'. It sees international relations principally in terms of the continuing competition between the superpowers and so emphasises the need for armed deterrence and military preparedness. Under this approach, 'education' should focus on the different facets of the arms race and is dominated by 'expert' opinion. Sharp concludes that such a perspective is a pragmatic one in that it reflects the real world and the problems posed by opposing military forces. It runs into the dangers, however, of stereotyping participants, oversimplifying international relations, and engaging in purely defence propaganda.

b. Peace education as conflict mediation and resolution. This view believes that much of the world's violence and injustice can be avoided through the use of trained specialists in conflict resolution and the exploration of other non-violent judicial or quasi-judicial processes. It assures that international conflict is one aspect of a variety of forms of conflict which manifest themselves at various levels including interpersonal, family and industrial disputes. The same techniques and skills that are used to solve or moderate these lower levels of conflict can, in theory, be applied to international disputes. Sharp notes that such an approach is valid only where a fundamental compatibility exists in the interests and goals of the conflicting parties which override any specific points of contention. Where such compatibility does not exist then the problem may not be amenable to such solutions. She also notes that the approach tends to underestimate structural and institutional factors which either condition certain ways or place constraints on individual actions or effectiveness.

c. Peace education as personal peace. This approach is based on the view that group conflict can only be avoided by first developing in the individual an appreciation of pro-peace values like non-aggression, trust and respect for others. It emphasises 'our interdependence with and dependence on others, of our need to empathise with others, and see their points of view'. It also recognises that the process of education itself can reinforce values that are antithetical to peace and so seeks to change the process of education as well as its content and underlying values. Again Sharp has doubts over whether such concepts could be fully effective at the national or international level. 'A focus on personal peace... must necessarily move beyond the personal and the interpersonal, to a consideration of the structural conditions... in which people live'.

d. Peace education as world order. This approach attempts to identify and deal with the underlying sources of violence and conflict in the world today. It has as its goals the non-violent resolution of conflict, economic well-being, social justice, democratic participation and ecological balance. The approach tends to be critical of much of the existing order, and it deliberately sets out to explore alternative modes of social organisation which more adequately embody the values considered fundamental to the peace process. Sharp notes that even though this approach takes account of the existence of structural constraints, it rests on the view that social change can be realised by changing the individual. It thus runs the danger of being 'utopian and unrealistic' and 'tends to exaggerate the enlightening potential of social science to change people's attitudes and behaviour'.

e. Peace education as the abolition of power relationships. This approach also embodies a commitment to a set of values embodying such principles as social justice and economic well-being. It does not share the world order view that simple enlightenment will guarantee change. It argues that the basic power structure that defines the existing order must also be changed. This approach defines the main concern of peace education 'as the raising of people's awareness of structural violence and the encouragement of activities which ally people clearly with the powerlessness in their struggle to overcome oppressive structures'. Sharp notes that this approach is necessarily critical and challenging

of power at every level and so is likely to be opposed by those who have a vested interest in the maintenance of the status quo, including members of the educational hierarchy. Perhaps significantly, Sharp does not identify any significant shortfalls in the approach.

18.14 The proponents of the perspectives described in paragraphs b. to e. above are interested in exploring, in different ways, the assumptions and values that underpin our present condition in order to promote a critical understanding of conflict and violence at the personal, community, national and global levels. Included in this perspective is the notion of 'structural violence' where it is claimed that social structures and inequalities can generate conflict and hostilities within and between nations. They hope that this kind of understanding will lead to alternative means of resolving conflict and maintaining more peaceful social and interpersonal relationships.

18.15 Another factor is the knowledge that nuclear weapons have revolutionised warfare and our means of resolving conflict at a national level. Following Hiroshima and Nagasaki it became clear that future wars would be likely to involve massive destruction on a scale not previously contemplated. In more recent times, major war between nuclear-armed states has become an even more formidable prospect for two connected reasons. First, the superpowers and the other three nuclear weapon states between them have a very large number of warheads and the means to deliver them effectively. Second, were many of these warheads detonated, it is considered that there would be a significant risk of global damage through nuclear winter and other effects. Thus alternative means of resolving conflict, at least between nuclear-armed states, are required in order to ensure global peace. This in turn, is said to require fundamental values which can only be implemented through the education process.

18.16 Proposals embracing the broader perspectives of 'peace education' have been criticised on a number of grounds. It has been claimed, for example, that they tend to ignore or play down traditional approaches such as 'peace through strength' and so are biased. This criticism has been recognised by some within the peace and education communities.

There is no doubt that some peace studies courses do systematically fail to treat the 'peace through strength' perspective either seriously or fairly - if it is treated at all. This is also true of peace studies reference materials supplied by some educational organisations in Australia. For example, in the bibliographical references in two recent publications - from the Peace Studies Curriculum Group in New South Wales and the Australian Teachers' Federation in Canberra - 'peace through strength' approaches are ignored almost completely.¹³

The same author continued that such omissions are also unfortunate because they deny student^e the opportunity to study and understand the prevailing defence orthodoxy and its underlying assumptions.

The failure to treat 'peace through strength' perspectives seriously would seem to be counterproductive. Understanding opposing points of view is a necessary condition for successfully debating them. Moreover, the pluralist educational values which prescribe 'balance' and presenting 'both sides' of an argument actually constitute a valuable defence for the teaching of peace studies in a world where popular and official attitudes remain deeply imbued with 'peace through strength' assumptions.¹⁴

18.17 The same criticisms can be levelled at courses which exclusively stress the 'peace through strength' perspective. It is inevitable that courses dealing with world events will not be value free and will carry certain assumptions or biases which need to be identified and evaluated. The important point is that all valid perspectives should be made available to students, together with the opportunity and skills to enable them to systematically examine and approach their respective claims to be founded on 'the evidence'.

18.18 It must also be recognised that there is an inevitable link between 'peace education' and politics both at the ideological and practical levels. Certain approaches to 'peace education' are based, either implicitly or explicitly, on certain world views and the education system represents an important vehicle for certain individuals or groups to articulate their particular benefits. There is therefore a danger for 'peace education' to be used to advance the dogma of either the so called right or the left. We should be aware that this is possible.

Discussion and Committee Views

18.19 Interest in Peace Education has been gaining momentum in Australia since about 1980. A number of teachers, parents and schools have initiated peace units and courses and the major teacher unions have organised conferences around the theme. Many in the general community have also been working steadily to develop Peace Education in schools, colleges and universities.

18.20 Despite this increasing interest, Peace Education has generated considerable concern and confusion. There are those who deny that it has either validity as educational practice or justification in regard to the moral development of young people. Peace Education is seen by these critics as indoctrination with views which they do not share. On the other

hand, there are those who have a narrower and more closely defined view of Peace Education. This view is described as Disarmament Education or even Nuclear Disarmament Education, and is concerned only with the nuclear threat.

18.21 Many peace analysts and educators now agree that 'peace education' should be viewed globally and systematically to encompass the issues and emphases found in such related or overlapping concepts as 'disarmament education', 'development education' or even 'human rights education', that is, as education which promotes objective, critical understanding of conflict or violence, of conditions of peaceableness at the global, national, community and personal levels. The Committee agrees that this broader perspective of Peace Education should be encouraged as a legitimate and important element in the curriculum but it is essential that such curricula be developed on a sound basis free of sectional bias and propaganda. An overriding requirement is that the courses should encourage a spirit of critical inquiry. Studies in Australia (and overseas) suggest that a significant proportion of children believe that nuclear war will happen in their lifetime and that there is nothing they can do about it. The needs of these children in dealing with anxiety arising from this belief are not always being met. The community is obliged, and teachers are professionally obliged, to respond to expressions of hopelessness and despair if we are to avoid negative social outcomes likely to result from such an outlook.

18.22 While the Committee supports the concept of Peace Education, it recognizes the difficulties associated with its introduction into the education system. There are many areas which require further examination: what exactly is Peace Education - is it peace studies, education for peace, or something of both; is it appropriate to locate peace education, in whatever form, in schools and/or colleges and universities; what might be the focus of its content; should it be a special subject or should it permeate all subjects; should it be an option or a compulsory subject; who will decide on the syllabus; is there a need for special teacher-education; what resources do teachers need; and what authorities (Federal/State) might be given responsibility for this area of education?

18.23 Until these kinds of questions are answered, the Committee recommends that, in the short term, a less controversial and radical approach be adopted by incorporating 'peace studies' into existing subjects. It is the Committee's view that it would be best to make it part of the curriculum in currently accepted school subjects, e.g. history, geography, general (social) studies and legal institutions. We consider it important that 'peace studies' be treated in a critical non-dogmatic way.

18.24 The Federal Government, through Education Minister Ryan and Foreign Minister Hayden, have publicly expressed support for peace and disarmament education, mainly to be achieved through a monitoring role by the Curriculum Development Centre and some actual funding for peace education

projects by the International Year of Peace Secretariat. It is clear however that what is going on in the education community in relation to Peace Education - preparation of curriculum materials, guidelines, in-service activities and so on - is being done in an uncoordinated fashion. There is need for a further examination of the significance of peace education and research in Australia and the formulation of agreed means by which the education community can respond to this new demand. It is the Committee's view that a satisfactory response will not be gained through another Parliamentary Inquiry or any expert bureaucracy's proliferations. The authors of a satisfactory response are more likely to emerge as practitioners with experience whose work commends their approach to others and from whom useful materials will be sought.

Peace Research

18.25 Peace research has been subject to much the same debate and controversy as peace education. There have been strong differences of opinion over the subject of the research and how it should be carried out. Some have favoured the traditional approaches embodied in the classic academic disciplines, others advocated greater use of the political and social sciences. Still others emphasised the multi-disciplinary nature of peace research and argued that it should be conducted in much the same way as an engineering or medical research project.

18.26 The diverse nature of peace research and the controversy surrounding its history are described by Andrew Mack in his book Peace Research in the 1980s. Mack concludes that it is not possible to derive an all-inclusive definition of peace research and prefers instead to conceive of it as a collection of attributes, or 'syndrome'.

The peace research 'syndrome' is characterised - though not consistently or uniquely - by a commitment to certain values and to policy-oriented research intended to realise those values; by a preference for the methods of the social sciences; by an enthusiasm for interdisciplinary research; by a conception of human nature which is more optimistic than that of the 'realists' and by conceptions of 'peace' and 'violence' which are broader in scope than those of common usage.¹⁵

18.27 Despite continuing debate over terminology and practice, peace research has become institutionalised, with establishments dedicated to carrying out research relating to 'peace' and 'conflict' being established throughout the world. These include the Stockholm International Peace Research Institute (SIPRI), the International Peace Research Institute, Oslo (PRIO), the Armament and Disarmament Information Unit at

Sussex University in the United Kingdom, and dozens more including a number of United Nations bodies. Some, such as the Washington based Arms Control Association, the Center for Defense Information, and the United States Institute for Peace, represent specific interests and so have clear biases. In addition there are also numerous journals and periodicals which publish articles on 'peace' related issues. These include the SIPRI Yearbook, the Journal of Peace Research, the Journal of Conflict Resolution, Arms Control Today and the Defense Monitor.

18.28 In contrast to the situation overseas, very little has been done about pursuing peace research in Australia. According to Andrew Mack, the reasons for this include, first, that the academic and intellectual climate in Australia was not disposed towards the behavioural and social science emphasis which characterised early developments in peace research. Second, the issue of nuclear war was not as prominent in Australia as it has been in Europe or the United States. Third, there has been very little institutional support for the pursuit of peace research in Australia other than that provided by the Government.

18.29 Even this latter form of support has not been forthcoming until quite recently. In March 1984, the Foreign Affairs Minister, Mr Hayden, announced that:

Decisions had been taken to provide funds on a seven year basis to enable a peace research centre to be established at the Australian National University. Its purpose will be to provide a nucleus for serious and scholarly research into the whole field of peace, disarmament and arms control ... The establishment of the Peace Research Centre should result in greater contributions of analysis and ideas from Australian scholars of disarmament, arms control and peace.¹⁶

18.30 The Government allocated \$50 000 to the Institute in 1983-84, \$217 000 in 1984-85 and \$263 000 in 1985-86. It has budgeted a further \$269 000 for the financial year 1986-87 and \$350 000 annually for the remainder of the seven year guarantee period which the Australian National University sought.¹⁷

18.31 The centre forms part of the ANU Research School of Pacific Studies. According to a Memorandum of Arrangements between the Australian National University and the Department of Foreign Affairs, the purpose of the Peace Research Centre will be to carry out high quality research on topics relating to the conditions for establishing and maintaining peace on national, regional and global scales; and to provide training in research in this field.

18.32 Final definition of the major research fields has yet to be made but could include:

- . perspectives on the arms race;
- . alternative approaches to defence and security;
- . means of conflict resolution, including the contribution of legal and institutional settlement procedures;
- . arms limitation and disarmament in all their aspects;
- . cultural, moral and philosophical dimensions of militarism; and
- . the role of justice, equity and human rights in the promotion of peace.¹⁸

18.33 The Committee also feels that other important topics include a critical discussion of various political systems and a review of reasons for conflict in the Third World. The initial expectation was that the Centre would be manned by a director, three research fellows, a research assistant, ancillary staff and a number of visiting fellows who would work at the Centre for five to six week appointments. In July 1985, the interim advisory committee for the Centre appointed Mr Andrew Mack as Senior Research Fellow and the first Head of the PRC. It had earlier appointed the Centre's first visiting fellows: Ms Randall Forsberg, Director of the Institute for Defence and Disarmament Studies, Boston, and Dr Svenne Lodgaard of the Stockholm International Peace Research Institute. By the end of 1986 the Centre will be staffed by the Head, an additional Senior Research Fellow, a Research Fellow, two part-time Research Assistants and one secretarial staff member. A Visiting Fellow from the Department of Foreign Affairs is also located in the Centre.

18.34 The establishment of the Peace Research Centre was generally supported by submissions to this inquiry, although not unreservedly. Some submissions were concerned that the Centre may simply repeat the work and focus of the Strategic and Defence Studies Centre with whom the PRC will be co-located. Dr Jim Falk, for example, submitted that:

The Peace Research Institute should ideally explore and develop a different paradigm to that which underlies the theory developed within strategic studies. It should aim to develop a quite different perspective, with a series of different approaches to the problem of decreasing international tension, the de-escalation to the

nuclear and conventional arms race, and Australia's role in defending Australian objectives and contributing to constructing a more peaceful world. In this sense it should be innovative, energetic and critically creative - challenging preconceived assumptions, and questioning existing ways of thinking of these problems.

From this point of view it was probably a mistake to place the Peace Research Institute 'back to back' to Strategic and Defence Studies at ANU. Whilst there are advantages in resource sharing, the effect may well be to produce institutional pressures to bring the modes of analysis and the appointments of the new Institute into a mould similar to the existing institution ... The danger of this could be greatly alleviated by creating at least one other centre elsewhere in Australia, unassociated with any existing strategic studies institution.¹⁹

18.35 Others hoped that the Centre would go beyond traditional approaches to national security and peace studies to examine alternative views and concepts.

The Peace Research Institute could develop policies and strategies expressly for the promotion of peace. This might range from such things as harmony within, and between, families; through the equitable distribution of resources in our society and the development of mechanisms for accomplishing this; and the creation of trust and building of common security in the Asian and Pacific region; to methods for Australia to exercise leverage, in concert with other non-nuclear weapon states, to halt vertical and horizontal nuclear weapons proliferation.

The emphasis should be on the development of means for the achievement of practical and realisable results, rather than mere theoretical inquiries or formulations.²⁰

Also:

One of the major foci for the Australian ... Peace Research Institute ... should be on transarmament, including the relationship between domestic peace education in formal and informal situations, nonviolence in Australia and the possibilities for developing Alternative Defence for Australia. Necessarily, such a focus ... would require links

between the Institute and the peace movement, something we readily acknowledge would cause difficulties for some members of the Australian scholarly community as well as the wider community.²¹

18.36 Some saw a need to establish similar centres outside Canberra.

We affirm what has occurred at ANU in terms of the Centre for Peace Studies there but we would stress that there need to be equivalent things operating in places other than Canberra. We can instance one - Monash where I come from - where it is possible to develop a centre for peace studies which could do a range of things in terms of community education, seminars and conferences that bring together peace activists and peace researchers, that bring together government officials with people from the universities.²²

18.37 In addressing these criticisms, Andrew Mack stated that while the PRC will be co-located with the SDSC it will remain independent from it, only sharing 'resources' such as library facilities. He further added that the Centre's limited staff resources would preclude it from examining some of the broader issues surrounding peace research such as the debate over the biological basis of human aggression or the social scientific approach to conflict resolution. Mack noted the failure of the traditional approaches to disarmament and arms control and argued that the alternative approaches and concepts needed to be explored.²³

Committee Views

18.38 It would not yet be appropriate at this stage to review critically the activities of the Peace Research Centre or its research program. In principle, the Committee considers that the Centre can perform valuable service in contributing to a high standard of governmental and community understanding on disarmament and arms control issues in Australia. The Committee considers that, in the interests of raising the level of community awareness, public debate and research capacity throughout Australia on issues of disarmament and arms control, the Peace Research Centre's activities should extend beyond, without prejudice to, its formal research functions to activities such as:

- . disseminating its work to the Australian community;
- . assisting the direction and form of the development of peace education;

- . providing a focus, for, and - where possible - facilitating related research efforts at other tertiary institutions.

These associated functions could be followed through activities such as:

- . sponsorship of research and teaching projects at other tertiary institutions;
- . development of a specialist library and data base available to other researchers;
- . sponsorship of resident and visiting lecturing programs, in Canberra and inter-state; and
- . publication of its work.

The important questions of the range of activities appropriate for the Centre, its performance of those functions and activities, and the adequacy of its resources will need to be regularly reviewed, especially in the formative stages of the Centre's development. On the question of continued funding, the Committee considers that there is scope to seek private sources of revenue - through corporate or individual donations - to augment Government support. Whatever the source of its funds the Centre's ability to conduct research in an objective and independent way must be ensured.

CHAPTER EIGHTEEN
ENDNOTES

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3. Evidence, 29 April 1985, pp.842-3.
4. Evidence, 29 April 1985, p.777.
5. The Social Responsibility Committee of the Uniting Church of Australia (Queensland Synod), Submission, p.S301.
6. 'Senator Ryan on Peace Education', Peace Studies, September 1984, p.25.
7. 'Senator Ryan on Peace Education', p.25.
8. 'Senator Ryan on Peace Education', p.25.
9. R. Cavalier, Press Release, 7 November 1985.
10. Evidence, 30 April 1985, p.789.
11. Evidence, 30 July 1984, p.424.
12. Rachel Sharp, 'Varieties of Peace Education', in Rachel Sharp (ed), Apocalypse No: An Australian Guide to the Arms Race and the Peace Movement Pluto Press, Sydney, 1984, pp.248-266.
13. Andrew Mack, Peace Research in the 1980s, The Strategic and Defence Studies Centre, Australian National University, Canberra, 1985, p.79.
14. Mack, Peace Research in the 1980s, p.80.
15. Mack, Peace Research in the 1980s, p.23.
16. Department of Foreign Affairs, Submission, p.S31.
17. Australian Foreign Affairs Record, March 1984, p.265.
18. Department of Foreign Affairs, Disarmament Newsletter, 24 October 1985, p.17.
19. Dr J. Falk, Supplementary Submission.
20. Australian Conservation Foundation, Submission, p.S1270.

21. Peace Research and Resource Centre of Queensland, Submission, p.S460.
22. Clergy for Peace, Evidence, 30 July 1984, p.430. For a similar perspective see also Margaret Bearlin, 'Peace Research for Beginners', Peace Studies, December 1984, p.30.
23. Evidence, 9 August 1984, pp.487-94.

CHAPTER 19

AN OVERVIEW OF WHERE WE ARE AND WHERE WE ARE HEADING

Introduction

19.1 This Report has described the nature and dimensions of the arms-related problems facing the world today and our past and present efforts to deal with them. The treatment has, of necessity, been both wide-ranging and detailed. It has examined the current global situation, Australia's role in disarmament and arms control, and a number of specific issues of relevance and concern to Australia.

19.2 This section of the Report looks beyond our current situation to deal with future options and policies. What can and should be done to minimise the risk of nuclear war and its consequences? In order to address this question, we need to identify the underlying features of our current international environment, whether and how these features are changing and the potential implications of these changes. This Chapter attempts to provide an overview of where we are at present and where we are heading. It brings together the trends and developments that have been identified in the earlier discussions as well as some of the basic constraints that serve to limit what we can do. The Chapter is divided into two broad sections, covering the basic features of our current nuclear world and the search for disarmament and arms control. The following chapter examines some of the possible future approaches that have been suggested to the Committee.

19.3 Chapter 21 provides the Committee's preferred strategies and policies. It covers both global strategies as well as Australia's more immediate concerns, and provides the Committee's views on what we can and should do in both the short and longer terms. The final chapter provides a summary of the Committee's conclusions and recommendations that are contained throughout the Report.

The Basic Features of our Nuclear World

19.4 The period since the end of the Second World War has been marked by both change and continuity in nuclear matters. There has been a steady increase in the number of nuclear weapons in the world, with both superpowers now each possessing well over 20 000 nuclear warheads of various designs and yields. Advances in technology have produced an expanding array of delivery systems with improved range, accuracy, mobility, reliability and destructive potential. The basic command, control and communications systems that are used to support nuclear weapons have also increased considerably in size and complexity. Despite these often quite dramatic changes, many of the basic features and arrangements that characterise our present global nuclear situation have remained remarkably constant, at least over the last two decades or so. This underlying continuity in nuclear affairs has enabled the world to devise ways of coping with the dangers and opportunities presented by nuclear weapons.¹

19.5 The most basic feature of our current international environment is the existence of weapons of unprecedented and collectively almost unimaginable destructive power. There are now tens of thousands of nuclear weapons located throughout the world, most of which are many times more powerful than the bombs which destroyed Hiroshima and Nagasaki. Our knowledge of the potential consequences of nuclear war has also increased. Numerous studies have now been conducted into the direct and indirect effects of nuclear war ranging from the explosion of a single warhead to an all-out nuclear exchange. While the scope of the effects depend on the size of the exchange, the results are depressingly similar: enormous devastation and death in the immediate vicinity of the explosions, followed by widespread casualties, human suffering and social disruption in adjoining areas due to radioactive fall-out and other indirect effects. Of the latter, the most recently discovered, and still fairly controversial effect, is the so called 'nuclear winter' phenomenon. Scientists have hypothesised that the smoke and dust generated in a nuclear war may be sufficient to block out the sun from extensive areas of the earth's surface for protracted periods of time. This would have potentially catastrophic consequences for food production and could lead to wholesale starvation in the affected areas. Some scientists suggest that there is a nuclear threshold above which the whole of the world would be affected. While there is considerable debate over what the threshold for a global 'nuclear winter' is, there appears to be wide agreement that it would be much less than the present size of the nuclear arsenals of the two superpowers. Therefore, the winner of any nuclear war could also be the loser.

19.6 The majority of the world's nuclear weapons are in the hands of the two superpowers, the United States and the Soviet Union. While three other nuclear powers - the United Kingdom, France and China - maintain small and potentially destructive nuclear arsenals, they are very modest compared with those held by the superpowers. The distribution of nuclear weapons may therefore still be described, with reasonable accuracy, as 'bipolar'. The large nuclear stockpiles of the two superpowers is a direct result of a further feature of our present international environment: the continuing competition between the United States and the Soviet Union. The two superpowers are rivals. They lead the most significant politico-military alliances, they champion opposing philosophies on how to organise society, politics and the economy, and they are engaged in intense and continuing efforts to protect and advance their basic beliefs and interests. This competition has reached global proportions and has tended to cause a broad polarisation of our international political system, notwithstanding the claim by many countries to be non-aligned.

19.7 It has also ensured a continuing arms race. Since the 1950s each superpower has been confronted by the existence of nuclear weapons and by the fact that they are in the hands of potential adversary states who may be prepared to use them for military or political gain. Neither superpower has been prepared to rely on the good sense of others not to use nuclear weapons now or in the future. Thus each side feels the need to maintain

and develop its nuclear stockpile and plan for its employment, either to prevent nuclear war from occurring or to satisfy certain military and political goals in the event that conflict did take place. The basic approach taken by the two superpowers to ensure national security in the nuclear age differs, although the overall results, in terms of the quantitative and qualitative development of weapons and armed forces, has tended to be similar. The United States and its Western allies seek to deter the Soviet Union from using its nuclear weapons or military forces by threatening retaliation in kind. For its part, the Soviet Union seeks to avoid war by demonstrating a clear capacity to be able to fight and win a major conflict between East and West should it eventuate.

19.8 In seeking to provide security through military strength, the two superpowers have reached a position where both would suffer utter destruction in the event of a large-scale military conflict between them. Even a 'small' nuclear strike against major population and industrial centres in the United States or the Soviet Union would produce enormous casualties and destroy a significant proportion of the industrial and economic capacity of the targeted country. Both sides realise that each can devastate the other even after absorbing a massive nuclear attack. It is therefore in their mutual interests to avoid circumstances which could lead to direct military confrontation and the risk of nuclear war. The mutual vulnerability of both superpowers to a nuclear attack is described by the term 'mutual assured destruction' or MAD. It stems from a fourth basic feature of our nuclear world; the fact that, at present, there is no defence against nuclear weapons, especially those delivered by ballistic missiles. Thus, neither superpower can guarantee its security through military means alone. While, in the past, nations could use military force to either defend themselves against aggression or conquer adversaries, now the cities of each country can be attacked and destroyed without first defeating the opponent's military forces. National survival ultimately depends upon cooperation between, and restraint by, mutual adversaries rather than the application of military force.

19.9 These basic features of the present global nuclear situation - the destructive potential of nuclear weapons, their concentration in the hands of the governments of two great sovereign states, the primacy of offence over defence, and the competition between the superpowers - have been established for some time and have thus enabled all the nations involved to develop policies to cope with the dangers and opportunities that are presented by nuclear weapons. Despite the continued build-up of large numbers of nuclear weapons by both sides, the superpowers have been able to pursue their individual interests while minimising the risks of military conflict. The absence of even low-level military conflict between the superpowers for over forty years may suggest that the present nuclear equilibrium could continue undisturbed and so the possibility of nuclear war would remain small. Alternatively, should the basic characteristics underlying the current nuclear status quo change,

then existing approaches and policies would also change. This could in turn generate greater uncertainty and fear and increase the possibility of nuclear war occurring at some time in the future. What are the prospects for the continuation of these basic arrangements and the implications of any change in them?

Challenges to the Nuclear Status Quo

19.10 It is unlikely that the first basic feature of our present nuclear situation will change. Nuclear weapons will not disappear. Even if all nuclear arsenals were destroyed, the knowledge of how to rebuild them would remain and could be put to use by any number of countries. Nuclear weapons are an immutable part of our future experience. In light of past arms control experience, history suggests that it is also unlikely that substantive reductions in the superpowers' arsenals could be achieved quickly. SALT I and SALT II, which simply set a limit on the number of certain weapons systems held by the superpowers, took ten years to finalise. Even if the current United States' or Soviet proposals for deep cuts in the strategic arsenals of both sides were accepted tomorrow - and this is highly unlikely - they would still take many years to achieve. Moreover, even at these reduced levels of armaments, the superpowers would still be in the same predicament. Each would remain at the mercy of the other, vulnerable to a crushing attack which could also have serious consequences for other parts of the globe. The size of the world's nuclear arsenals and its relative insensitiveness to change will remain a constant factor for some time to come.

Horizontal proliferation and the declining global influence of the superpowers

19.11 There is no guarantee, however, that the United States and the Soviet Union will continue to monopolize the world's nuclear arsenals. Two other nuclear weapon states, France and China, have also been expanding their nuclear stockpiles and there are now a number of other countries which either possess nuclear weapons or have the capacity to build them. These developments have occurred despite multilateral efforts to prevent or constrain them, and they are likely to continue into the future. The move away from a largely bi-polar nuclear world may not necessarily be a change for the better. Horizontal proliferation increases the chances of nuclear weapons, or substances used to make such weapons, falling into the hands of subnational or terrorist groups. It is likely to exacerbate regional tensions rather than ease them, and it could increase the risk of nuclear weapons being used in a regional conflict, particularly if there is any acceleration in the present rate of proliferation. Horizontal proliferation increases the diversity of contingencies with which the superpowers must deal, and minimises the scope for achieving significant reductions in nuclear arsenals since this may make the United States or the Soviet Union vulnerable to the actions of other states. It is

likely to complicate the continued maintenance of global deterrence or superpower relations generally, especially in a crisis. It makes arms control more difficult. Negotiations concerning U.S. and Soviet nuclear weapons in Europe, for example, are complicated by the existence of British and French nuclear forces. Horizontal proliferation also increases the prospect of direct superpower conflict. It would not be too difficult to conceive of ways in which the use of a small number of nuclear weapons by a small power could provide the catalyst for global catastrophe.

19.12 A further problem stems from the fact that while the competition between the superpowers has become globalised, their capacity to control events in areas outside their primary spheres of influence is diminishing. This is due partly to the increasing interpenetration of the superpowers' respective areas of involvement, but also to the increase in the economic and military power of many Third World countries, accompanied by a corresponding rise in their confidence and assertiveness. One result of these changes is that the superpowers are required to rely more and more on the efforts of their respective allies and supporters. This support has been assured to date by militarizing the East-West conflict - and thereby reducing the options that are available to friendly or dependent governments - but at a cost of increasing world-wide military expenditure and linking the global balance to regional concerns.

19.13 Despite these changes and difficulties, neither superpower has shown any inclination to disengage from competing in these areas. The continued superpower interest in the Third World, together with the erosion of predictability and control, constitutes a growing threat to the prospects of preventing Third World crises from directly involving the superpowers. Where instability in the Third World may once have represented a potential opportunity for each superpower to extend its influence at the expense of its adversary, the risks of direct confrontation are now beginning to outweigh the possible gains. This situation is being recognised but not adequately addressed. Both the United States and the Soviet Union are giving increasing attention to so called crisis prevention and crisis management procedures and responses. Ultimately, however, the risks can only be minimised by reducing the basic causes of regional conflict - poverty, malnutrition, scarcity of resources, political disenfranchisement and human rights abuses - and limiting direct encroachment by the superpowers.

The search for an effective defence against nuclear attack

19.14 The third basic feature of the present nuclear status quo - the dominance of offensive weapons - is under challenge by the current United States Administration. In establishing the Strategic Defense Initiative (SDI) research program, President Reagan has offered the vision of a defensive shield against nuclear attack so effective that it would render nuclear weapons

'impotent and obsolete'. His vision gave official voice to an aspiration to rid the world of nuclear weapons and the dangers that they pose. This aspiration is understandable and highly laudable. A world in which armed forces performed their traditional role of defending the nation by warding off enemy attacks would be far preferable to the present system in which the defence of both superpowers ultimately rests on the threat to annihilate millions in both countries and possibly destroy a substantial part of life on earth in the process. It may also provide the only practical means of achieving total nuclear disarmament (these issues are discussed in some detail in the next chapter).

19.15 While the goal of moving from a nuclear world dominated by offensive weapons to one based on defensive systems appears highly laudable, it is doubtful that SDI is either a viable or satisfactory means of achieving it. The complexity of the task and the inability to test the system under realistic conditions makes the prospect of achieving a perfect or near perfect nation-wide defence against current nuclear arsenals negligibly low. In addition, and more importantly, the continued pursuit of the current SDI program is likely to set in motion a chain of events and reactions that could destabilise the present strategic balance, increase the possibility of nuclear conflict and undermine the limited progress that has been made in arms control to date. Despite these dangers, the indications are that the United States will continue to pursue its present SDI research program and the Soviet Union will do likewise.

19.16 The problems associated with SDI do not necessarily invalidate the concept of non-nuclear defence. What it shows is that a successful transition to a defence-dominated world depends initially on establishing political stability and significant reductions in the current level of nuclear armaments. Such a change would have to be voluntary; neither superpower could force the other side to do it. It would take considerable time to implement and would have to accommodate problems unprecedented in negotiations to date.

Developments in the nature and scope of United States - Soviet Relations

19.17 The practical difficulties associated with SDI highlight the importance of the fourth basic element of the present nuclear status quo: the political and military relationship between the United States and the Soviet Union. There are also changes in prospect here - in particular those resulting from continuing changes in technology - which may not bode well for the future stability of the central balance.

19.18 The political relations between the United States and the Soviet Union remain poor although there have been some signs of improvement in recent times. Since the beginning of 1984, the Reagan Administration has moderated its earlier public criticisms of the Soviet Union and has revived or strengthened the economic,

scientific and cultural contact between the two countries. Following a year in which there were no arms control negotiations between the superpowers, the two sides began a new round of talks in Geneva in March 1985. More significant still was the summit meeting between President Reagan and General Secretary Gorbachev in November 1985 at which the two leaders discussed problems of mutual concern and agreed to further summit meetings in 1986 and 1987 as well as continuing discussions between U.S. Secretary of State Shultz and Soviet Foreign Minister Shevardnadze.

19.19 While there has been a resumption in dialogue between the superpowers, the prospect for any significant improvement in US-Soviet relations, or progress towards achieving substantive arms control agreements appears small and is being undermined by actions on both sides. Both the United States and the Soviet Union are continuing to modernise their strategic forces and are extending the arms competition into new areas. Both Governments have continued to make unflattering and often ill-chosen remarks in public about the activities or intentions of their opponent. The re-establishment of amicable relations between the superpowers over the course of the next several decades is not out of the question. The prospects of a significant political accommodation is fundamentally constrained, however, by the highly divergent security perspectives of the two superpowers which stem from their contrasting ideological, historical, political and geo-strategic circumstances and preferences. It is complicated further by the failure to establish an agreed principle of equality between the superpowers - thought by many to be the only realistic basis for stable regulation of the U.S.-Soviet relationship - and by a tendency for each side to ignore or reject the security perspectives of its adversary and to refuse to compromise over arms control agreements.

Trends in the superpower arms competition

19.20 The most significant, and potentially most dangerous developments in the relationship between the superpowers has occurred in their continuing arms competition. Since the end of the Second World War, the United States and the Soviet Union have steadily built, diversified and improved their military capabilities. The arms competition has been spurred on by a desire on the part of the Soviet Union to achieve at least a clear parity with the United States. Similarly American concerns have been to minimise Soviet advantages and, if possible, confirm the continuation of the advantages in the American strategic arsenal. The arms competition has been marked by an action-reaction process. As soon as one side produced a new weapon or weapons system, the other worked assiduously to produce the same capability, or where this was not feasible, an appropriate counter-capability. A particularly significant and unfortunate instance of this was the introduction of MIRVed ballistic missile systems by the United States in the early 1970s, followed by later Soviet deployment of such systems. There is wide agreement that MIRVing, by substantially raising the

ratio of the number of warheads to counterforce targets, has served to destabilise the strategic balance and to raise the feasibility of a disarming first strike, at least against land-based systems.

19.21 This has led to the deployment of large numbers of nuclear warheads, well beyond any obvious need. Since the end of the Second World War, the number of nuclear warheads in the superpowers' military arsenals has been increased steadily and is now estimated to total over 20 000 warheads each. According to U.S. sources, the Soviet Union is in the process of developing a range of new strategic and intermediate-range nuclear weapons. The United States is itself engaged in a significant strategic modernisation program. While many of the new weapons will replace older versions, the overall consequence may see an increase in warheads.

19.22 Initially, the competition in nuclear arms was largely restricted to strategic weapons. In recent years the size and nature of the intermediate-range and tactical nuclear arsenals of both superpowers have also begun to be expanded. There is now a wide variety of such warheads with yields ranging from fractions to thousands of kilotons. These weapons have become part of the arsenals assigned to the armed services of the two superpowers and almost every branch of the armed forces has found use for some nuclear weapon. At present, the bulk of these weapons are located in Europe, although as smaller, more mobile versions are being developed, they are beginning to spread to other areas throughout the world. The proliferation of nuclear weapons is likely to continue since nuclear technology in both the United States and the Soviet Union is now mature and warhead development and variety are matters of sound engineering rather than of technological innovation.

19.23 Despite the growth in the overall number of nuclear warheads, the most important changes have been qualitative rather than quantitative. Nuclear weapons and their delivery systems are becoming technically more sophisticated and increasingly accurate. In the 1950s and 1960s the nuclear arms race was characterised by the development of ever more powerful weapons. In the 1970s and 1980s, the trend has been towards smaller but more numerous weapons with single warheads being replaced by several smaller ones of the same total weight located on the same missile and capable of being independently targeted. Over the same time, there have been continued developments in the other components of modern weapons systems, in particular, guidance systems, propulsion technology and communications, command and control systems. The combined use of satellites, ground-following radar, and advanced homing techniques have dramatically increased the accuracy of strategic delivery systems from several kilometres in the 1950s to around 200m today. Some intermediate ballistic missiles, such as the Pershing II, may have an accuracy of about 50m. It is likely that this accuracy will be further improved in the future. Advances in propulsion technology also mean that missiles can be launched promptly and travel more quickly to their targets, giving less reaction time to defenders.

19.24 These trends are exemplified by the development of the cruise missile. Cruise missiles are easily hidden, difficult to detect by radar or other means and can be fired from a broad range of platforms: planes, ships, submarines or literally from the backs of trucks. The problem of detecting and engaging cruise missiles is compounded by their ability to fly at very low altitudes and by the fact that large numbers of cruise missiles could be released from a single aircraft or naval vessel operating close to potential targets. The revolutionary impact of new long-range cruise missiles is made possible by advances in satellite technology, microcircuitry, miniature nuclear weapons and turbofan engines. The accuracy of the new cruise missiles is provided by terrain contour matching (TERCOM) wherein a radar system periodically scans the ground over which the missile is travelling and compares the results with stored terrain maps and makes course changes as necessary. This system enables the cruise missile to arrive within 100 metres of its target after a 2 500 kilometre flight. More precise guidance can be achieved by using a television lens to compare ground features near the target with digitised photographic images stored in the missile's computer. Both the United States and the Soviet Union are developing a range of cruise missiles which are capable of carrying nuclear weapons and which will be difficult to distinguish from non-nuclear cruise missiles.

19.25 The scope of the arms race is also changing with each side developing new kinds of weapons and technologies. New areas of competition include anti-submarine warfare, surveillance and early warning, command and control, ballistic missile defence and anti-satellite warfare. A further trend is that the nuclear weapons have become part of much wider and highly complex communications, command and control (C³) systems which give early warning of an enemy attack and provide for centralised control of military forces prior to and during a conflict. In light of the complex nature of modern warfare, growing sophistication of offensive weapons, shorter warning times of attack and the potential catastrophic consequences of hasty or ill-informed decisions, both the United States and the Soviet Union have, in recent years, built systems of extraordinary complexity to give advance warning of an attack and to control their nuclear forces. These developments have been marked by two underlying trends. First, intelligence and early warning systems have been vertically integrated with military forces to a degree unparalleled in history. Military organisations are now required to design their formal organisational structures around the type of information technology they rely on if they are to successfully prosecute a war. The second trend has been the integration of nuclear weapons of geographically dispersed commands into a single, centralised whole, with corresponding centralised war planning.

19.26 The military competition between the United States and the Soviet Union has not been restricted to nuclear armaments. Both superpowers and their allies continue to devote the major portion of their defence expenditure to upgrading and expanding their conventional forces, and each uses these forces to pursue

its various interests across the globe. An important trend is the integration, by both superpowers, of nuclear and conventional forces. Battlefield nuclear weapons are now extensively deployed by both superpowers in all branches of their armed forces. The introduction of new guidance technologies and the miniaturisation of nuclear warheads allows the deployment of a range of 'dual capable' aircraft, missiles, artillery pieces, depth charges, land mines, and so on. In addition, both superpowers are showing an increasing interest in developing new chemical weapons including so-called binary weapons containing warheads filled with separate and relatively benign substances designed to mix and react with each other on the way to the target and release a toxic gas on impact.

19.27 The causes of the arms race are many and complex, reflecting a combination of international and domestic pressures and considerations. At its most basic level, the arms competition is a manifestation of the broader, pervasive rivalry between the two great powers, although there are a number of other influences at work as well. These include the presence in each country of very strong political and institutional interests which can exert considerable influence on their respective national decision making processes, the overall momentum of technological change, and the role of strategic doctrine. In this last context, the conventional wisdom is that, in contrast to normal expectations, strategic and operational doctrine follow rather than determine the development of new weapons or military technologies. There are a number of reasons for this, including the rate of change of technology, the inherently conservative nature of the military and its tendency to concentrate on the 'lessons of the last war', the nature of the equipment procurement process (in the West at least), and so on. This conventional wisdom no longer holds, and doctrinal imperatives are having a major determining influence on what new weapons or technologies need to be developed in order to satisfy the perceived national security objectives of both sides.

19.28 The United States, for example, no longer seeks to deter Soviet aggression by simply threatening to destroy Soviet cities in a massive retaliatory strike. Its basic aim now is to deny the Soviet Union an advantage from any military adventure it may contemplate by developing and maintaining a military structure which is clearly capable of matching a variety of Soviet challenges with a variety of appropriate responses. This 'counterforce' or 'countervailing' strategy, which is similar in many ways to the current Soviet strategic doctrine, gives greater emphasis to targeting military rather than civilian targets and it includes the provision for intra-war deterrence or bargaining through the demonstration of both 'war-fighting' capabilities and a perceived ability to 'prevail' during a protracted military conflict. It is closer to the classical strategic approaches of the pre-nuclear age.

19.29 American strategists have long been concerned that the United States' continuing vulnerability to a devastating Soviet nuclear attack not only threatens U.S. cities but fundamentally constrains the credibility of its strategic posture. The move

towards a 'countervailing' posture may have improved the credibility of deterrence but it did not remove American vulnerability. United States' leaders remain confronted by the fact that U.S. national security still ultimately depends on the cooperation of its principal adversary. Within the overall calculus of deterrence theory, the only way to escape this basic dilemma, or at least substantially offset it, is to develop effective defences against nuclear attack.

19.30 The continued build-up of the nuclear arsenals of the United States and the Soviet Union, the wide dispersion of nuclear weapons, and their integration into the conventional force structures of each side, increase the risk that any military conflict between the superpowers could lead to nuclear weapons being used. There is wide agreement that once the nuclear threshold is crossed, it would be very difficult to prevent the conflict escalating to an all-out nuclear exchange. The deployment by both superpowers of a range of increasingly more effective 'counterforce' weapons and capabilities together with the adoption of strategic doctrines that emphasise 'warfighting' concepts and postures, also have a number of significant implications for future global stability. First, they are likely to be construed as threatening by an adversary since the weapons and support systems needed to carry out these functions can also be used to achieve a disarming first strike in which the opponent's capacity to retaliate is effectively nullified. The 'countervailing' strategy and its Soviet counterpart is even more threatening when 'counterforce' weapons are combined with defensive systems that are capable of protecting a potential aggressor from an opponent's retaliatory forces that survive a first strike. These fears partly underly current American concerns over Soviet ABM developments and the Soviet Union's opposition to the U.S. SDI program. They lead to an expansion of the arms competition as each side seeks to match its opponent's forces and develops means of maintaining the invulnerability of its retaliatory or second strike forces. They can threaten stability in a crisis by increasing the incentive to strike first - and so minimise the damage likely to be incurred in the event of a nuclear war - or by forcing each side to maintain its nuclear forces at an advanced alert status.

19.31 The question of first strike should not be exaggerated. At present, neither superpower maintains the capability for a disarming first strike and it is unlikely that either side will acquire such a capability in the foreseeable future. Moreover, this situation appears to be recognised by both the United States and the Soviet Union. The problem is, however, that defence planning in both countries is influenced not by what a potential enemy is likely to do but what it is perceived it could do. As the two sides extend the functions and capabilities of their nuclear forces, worst-case planning by both superpowers is likely to dictate that existing policies and rules governing the use and deployment of nuclear forces be reviewed. Under these conditions, policies such as launch-on-warning or first strike may begin to be countenanced.

19.32 Second, the extension of deterrence to incorporate 'warfighting' capabilities and notions of escalation dominance or intrawar bargaining may contribute to an increasing perception that nuclear wars may be able to be fought and endured in much the same manner as conventional armed conflicts: limited, controlled, prolonged and with a 'winner' and a 'loser'. At present, such a possibility is not publicly countenanced by the leaders of either the United States or the Soviet Union.

19.33 Third, continued technological improvements and an expansion in military capabilities enforces existing 'asymmetries' in the respective strategic arsenals and makes the achievement of a strategic balance more difficult to achieve. There appears to be general agreement that the maintenance of overall parity between the strategic nuclear forces of the two superpowers is important for maintaining stable deterrence and peace between them. At present, in the Committee's view, the forces of both sides are essentially equivalent but there are significant differences which stem from divergent historical, technological and geo-strategic circumstances. The problem is that these differences can fuel concerns that the opponent may be able to use them to exploit a perceived advantage for political or military gain. This concern increases the tension in the superpower relationship and adds to the pressure of the arms competition. The problem is exacerbated by the fact that the two sides appear to take different views of how the question of the strategic balance should be addressed. The Soviet Union sees that strategic parity between it and the United States would apply as long as each has broadly similar capabilities including the capability to effectively retaliate in the event of being attacked first with nuclear weapons. The United States, on the other hand, seems to require a more exact matching of capabilities (or counter capabilities) and so is concerned by specific differences or 'windows of vulnerability'. Fourth, the proliferation of weapons systems and types makes control of military forces more difficult and yet more crucial as evidenced by the increased emphasis by both sides on strategic and tactical command, control and communications (C³).

19.34 From the foregoing, it is clear that our current global environment is being subjected to a significant and expanding number of pressures which are threatening to undermine the basic continuity in nuclear affairs which has characterised our experience to date and has enabled the world to devise ways of minimising the dangers and prospects of nuclear war. While the exact implications of these trends are difficult to predict, the broad direction of change is clear. We are entering an era of much greater complexity and uncertainty in international affairs which will make it more difficult to predict or control events and circumstances. Unless we can make compensating adjustments to our means of controlling our political, military and strategic environment, the world may be heading for nuclear disaster. Our principal means of regulating our military and strategic environment in the nuclear age has been the arms control process. How has it fared to date and is it capable of meeting the challenges posed by the trends and pressures just described?

The Search for Disarmament and Arms Control

19.35 Like the arms competition, the arms control process is characterised by a number of features and trends which are important to identify in seeking to determine our future options and policies. The first observation is that the efforts to achieve disarmament and arms control in the nuclear age have been both extensive and consistent. The search has occurred broadly on two fronts: negotiations between the two superpowers and multilateral negotiations largely within the context of the United Nations. They have involved formal and informal discussions and agreements across a range of subjects including arms reductions, arms limitations, force restructuring and stabilising measures such as improved communications between national leaders and crisis management techniques.

19.36 The achievements of negotiated arms control since the end of the Second World War are summarised in Table 19.1. Despite the intense efforts and goodwill of many nations and individuals, there has been little progress towards disarmament and little real progress in bilateral or multilateral arms control. Of the small number of arms control treaties that have been signed since the Second World War, very few have resulted in significant reductions of existing arsenals. The treaties that have been signed have failed to stop the continuing arms race and few have addressed the central issues facing arms control. For example, those multilateral commitments which have banned nuclear weapons did so in areas where no states wanted to deploy them anyway - in Antarctica, Latin America, on the sea-bed and in outer space. The Nuclear Non-Proliferation Treaty was signed by states which did not want to acquire such weapons but not by those that did. The Partial Test Ban Treaty of 1963 stopped atmospheric testing of nuclear weapons, but nuclear testing continued underground and at an accelerated rate.

Table 19.1: Principal achievements in arms control

	Signed
Antarctic Treaty	1959
'Hot Line' (modernized 1971 and 1984)	1963
Limited Nuclear Test Ban Treaty (LTBT)	1963
Outer Space Treaty	1967
Latin America Nuclear Free Zone (Tlatelolco Treaty)	1967
Nuclear Non-Proliferation Treaty (NPT)	1968
Seabed Treaty	1971
Biological Warfare Convention	1972
ABM Treaty	1972
Salt I Interim Agreement	1972
Threshold Test Ban Treaty/Peaceful Nuclear Explosion Treaty (TTBT/PNET)	1974/6
Environmental Modification	1977
SALT II	1979
South Pacific Nuclear Free Zone (Rarotonga)	1986

19.37 The lack of progress in disarmament and arms control has led many to criticise the process, arguing either that more needs to be done to arrest the arms race and reduce the prospect of nuclear war, or arms control is a waste of time and resources and should be abandoned altogether. The proponents of the first view point to the fact that the arms control process has failed to reduce the possibility of nuclear war and the destruction likely to occur in the event of war and that it has failed to limit the build-up of armaments or reduce military spending. They argue that more drastic measures are needed to terminate the arms race and reduce the risk of nuclear conflict. Some even suggest that the arms control process facilitates or 'institutionalises' the arms race. This point was made to the Committee by Professor George Rathjens of the Massachusetts Institute of Technology, and was supported in evidence by Andrew Mack, who argued that:

I think there is very considerable evidence to suggest that the way that multilateral arms control negotiations have taken place in the past - indeed the bilateral ones between the superpowers - has tended to accelerate the arms race for two reasons. First ... the arms control process itself tends to generate a whole series of bargaining chips - new weapons systems - which might not have been generated otherwise. Once those weapons systems go along through research, development and then towards deployment, an increasingly powerful band of vested interests get attached to making sure that they do not get bargained away ... [Secondly,] in order to have one agreement between the superpowers, you really have to have ... [a prior] agreement within the United States and an agreement within the Soviet Union ... time and time again American Presidents have found that in order to get the support they need from the Joint Chiefs for a particular weapons limitation agreement, they have had to agree to a go-ahead on other systems. This happened in SALT I, it happened in SALT II.²

19.38 Those opposed to arms control have variously argued that it provides 'false confidence' in negotiations and so detracts from the national will to provide adequately for national defence; that it unduly interferes with the preparations for national security; and that it provides scope for an unscrupulous opponent to gain either political or military advantage. As a minimum, they require very strict verification and compliance provisions to apply to all arms control agreements. Some suggest that the arms control process be eliminated altogether or that it be replaced, at least in part, by a less formal approach whereby each side would take measures that would enhance strategic stability and reduce nuclear weapons in consultation with each other - but not necessarily in formalised, signed agreements. As the Director of the U.S. Arms Control and Disarmament Agency, Kenneth L. Adelman, argued, adopting this approach of individual, parallel restraint could also:

... help avoid endless problems over what programs to exclude, which to include, and how to verify them. The focus should be on areas or strategic systems of greatest military importance. Arms control without agreements could be easier to discuss with the Soviets and quicker to yield concrete results. Being less formal, such arrangements could be more easily modified if circumstances change than could legally binding treaties.³

19.39 Between these two views are those who support the continuation of the disarmament and arms control process and the potential benefits that it can bring. They argue that arms control is not only about reductions but is also an attempt to bring stability to the arms competition. This is achieved by strengthening deterrence, controlling the spread and build-up of weapons so that the military relationships between countries are more predictable, and creating forces of a type which provide no incentive for either side to launch a first strike in a time of crisis. In addition, arms control agreements such as nuclear weapons free zones or other non-proliferation devices can be used to preserve the existing status of the arms competition and preclude further developments that may be destabilising. Arms control negotiations and agreements can also significantly contribute to confidence-building and the creation of a political environment that is conducive to even greater concessions and agreements.

19.40 Viewed in this way, the arms control process is said to have accomplished more in the past two decades than is sometimes realised by those who point to the absence of deep reductions. As the Harvard Study Group noted in its book Living with Nuclear Weapons:

Certain areas and technologies (for example, anti-ballistic missile systems) have been fenced off from competition ... a system has been set up to slow the spread of nuclear weapons to additional countries. Limits on existing arsenals may have helped to keep weapons and expenditures below what they otherwise might have been. And most important, the beginnings of a process of communication and cooperation have been established between the two major nuclear adversaries and it has weathered very difficult times.⁴

This last point was emphasised to the Committee by Dr Desmond Ball who submitted that:

It seems to me that the most valuable thing which came out of the SALT process was not the limits which were put on missile numbers ... it was the establishment of the Standing Consultative

Commission, where the two sides get together regularly and talk about their missile developments and their radar developments and answer questions about their capabilities and try to alleviate concern in each respective country about the capabilities.⁵

19.41 This central position is the one taken by the Australian Government. The continuing importance of the arms control process was emphasised by Australia's Minister for Foreign Affairs, Mr Hayden, who recently asserted that the arms control agreements and treaties obtained to date:

... are a solid body of effective measures which put real constraints on the behaviour of governments. They are real barriers against a range of horrors which the world would face if these accords did not exist.

Mr Hayden acknowledged, however, that:

... the achievements to date of arms control fall far short, not only of our ideals and objectives but also of what is necessary if the world is to be spared the catastrophe of global conflict with modern weapons ... [and] In looking to the future of arms control, we must first acknowledge what has already been put in place and ensure that it is available as a solid basis on which to build further. We must not allow it to be eroded or put into jeopardy.⁶

Toward an Evaluation of Arms Control

19.42 The principal goal of arms control, as opposed to disarmament, is to manage the competition among nations in order to lessen the dangers and burdens of armaments. This basic purpose breaks down into a number of sub-goals, including: the prevention of war, the minimisation of its consequences should it occur, the maintenance of stable and harmonious relations between states, and the reduction of military expenditures.

19.43 Measured against these kinds of goals, the arms control process has had only mixed success. There has been no military conflict between the superpowers but their competition for global influence has maintained the momentum of the central arms build-up, exacerbated regional tensions and conflicts, and contributed to the continuing increase in global military expenditures. The bilateral agreements between the United States and the Soviet Union have, to date, limited the quantitative growth of strategic weapons, prevented the deployment of extensive ballistic missile defences and introduced crisis management measures aimed at reducing the risk of nuclear war

occurring by accident or miscalculation. They have not prevented technological developments in strategic or tactical weapons, or limited the overall numbers of nuclear warheads (there are currently no limitations on intermediate-range or tactical nuclear warheads or forces) or imposed regulations on delivery vehicles that can be used for conventional (as well as nuclear) warheads. And apart from the 1972 Biological Warfare Convention, no substantial progress has been made in controlling or reducing conventional armaments.

19.44 The lack of progress in preventing the continuing overall increase and spread of armaments should not be automatically portrayed as a complete failure of arms control. While the results could have been much better, the agreements that have been reached are not negligible; they demonstrate that formal agreements are possible among nations whose basic interests are markedly at variance in some areas. It should also be recognised that in the absence of such agreements, things could have been much worse. The Nuclear Non-Proliferation Treaty has obviously played an important role in keeping horizontal proliferation well below originally anticipated levels. Without SALT II and the 1972 ABM Treaty, both superpowers' defensive and offensive nuclear arsenals would probably have been much greater. The development of a series of nuclear weapon-free proposals has at least restricted the deployment of nuclear weapons into certain geographical regions and environments.

19.45 Some of the concern over arms control may be due to unreal expectations. Since armaments are not the sole cause of war, negotiated arms limitations are unlikely to eliminate armed conflict between nations. In addition, arms control does not exist in isolation but forms one component of the national security posture of all nations. The other components include defence preparedness, foreign relations, economic policy, and resources and trade policy, as well as a range of domestic considerations relating to social and economic well-being. Although all these factors target a single objective - national security - they at times will lead to conflicting requirements.

19.46 Arms control is also subject to a range of technical, institutional and political factors which serve to constrain both negotiations and agreements. As Mr R.H. Mathans submitted to the Committee, arms control negotiators face some difficult technical problems, including:

(a) ... the equation of weapon systems that are technically different and operationally dissimilar. Formulae need to be devised, to permit trade-offs between weapon systems that take account of substantial differences in the accuracy, reliability, explosive yield and operational utility of those systems. Counting rules need to be established to take account of different models of similar types i.e. 'light' ICBMs versus 'heavy' ICBMs, conventional bombers versus bombers armed with ALCM.

(b) ... the establishment of mutually agreed 'base line' numbers ... [which] will depend on the ability of national surveillance systems accurately to count deployed weapon systems.

(c) [adequate verification] by national means of surveillance. There can be no reliance on trust in an agreement that deals with the national security of the nations involved. There are no internationally controlled methods of verification; each superpower must depend on its own information-gathering systems. The degree of this dependence will be reflected in the detail of the agreement. In this context, 'adequacy' of verification will vary in definition. In the case of numerical limitation it will depend on the counting accuracy of national means of verification and the total number of weapon systems involved. In the case of operational limitations placed on a particular weapon system, it will depend on the ability of the means of verification to detect and define the operational characteristics of that system during its development.

(d) The language used in drafting an agreement must be definitive and unambiguous, yet sufficiently flexible to take account of inevitable progress in technology.⁷

19.47 Arms control is much more than a technical exercise however. It has as much to do with political relationships and political will as technical and strategic-military factors. While arms control proposals can be technically feasible, they need to be politically acceptable in order to be successful. The politics of arms control operates at several levels. In the first place, a nation's policies on arms control are influenced by its world view and its concern to protect and advance vital interests and beliefs. Arms control policies are not alternatives to defence or foreign policies but are partners to them. Both the United States and the Soviet Union use arms control to help preserve and manage their strategic relationship and to maintain national security. Neither are likely to propose or agree to arms control initiatives that would undermine or threaten these basic concerns. As the Department of Foreign Affairs stated to the Committee:

No country will disarm, nor accept controls on its weapons, unless it is satisfied that in so doing it is making itself no less secure. Indeed it will have to be satisfied that none of its essential interests are jeopardised. This is why disarmament and arms control is necessarily a matter for negotiation and carefully worked out agreements, which take account of all the concerns of all participating governments.⁸

19.48 Second, because arms control policies are part of a broader set of national security policies they can be afforded different priorities by different administrations under different circumstances. Thus in the early 1950s and 1960s, the Soviet Union resisted Western arms control initiatives because they were in a vastly inferior strategic position and substantive agreements at that time would have frozen them into a position of perpetual inferiority. The establishment of a rough strategic parity between the superpowers during the early 1970s coincided with most of the agreements reached to date. In recent years, the United States' concern over the growth of Soviet offensive forces has led it, in the view of a number of commentators, to reduce its arms control priorities in favour of an arms build-up. Dr Des Ball, for example, stated that:

... there is no doubt that much of what the United States has put up is not serious. The proposal for deep cuts which President Reagan put up at Eureka two years ago was put up with the firm knowledge that the Soviets would reject it, would have to reject it, because of the way it was directed. It aimed at cutting the mainstay of the Soviet ICBM force, while leaving American capabilities relatively intact, by saying 'Let us hit those big missiles' which only the Russians have, while leaving bombers for later discussions, whereas it is the bombers that carry the big payloads in the American case.⁹

This view is reinforced by the Reagan Administration's tough stand on the SDI issue, its consistent criticism of the SALT II accords, and its about-face over the need for a comprehensive test ban treaty.

19.49 The Soviet Union has recently advanced a number of arms control proposals, the most significant of which were those proposed by General Secretary Gorbachev in January 1986 (see Chapter 2). Whether the Soviet proposals are serious or are being advanced only for propaganda purposes is difficult to judge. The Soviet Union has, in the past, used the arms control process to seek unilateral advantage over its adversary and to influence public opinion. Moreover, the use of arms control for propaganda purposes tends to favour it more than the United States because Western electorates are more accessible than those in the East and the tendency to resort to propaganda usage increases when relations between the superpowers are poor. Nonetheless, the Soviet Union has recently made some important concessions in arms control - notably on the question of on-site inspections - and while there are a number of difficulties and unresolved questions associated with the latest Soviet proposals, they are not sufficient to reject the proposals out of hand. It should also be remembered that the Soviet Union is currently experiencing significant internal economic and social problems which would be exacerbated by any escalation in the arms competition. It may

well be in the interests of the Soviet leadership to reach agreement on stabilising the global competition so that it can focus its attention on achieving domestic reform.

19.50 In any case, the best way to determine whether the Soviet Union is serious about arms control is to enter into formal negotiations. Neither side has anything to lose strategically by such an action, although the United States could suffer an internal political backlash. One of the problems of politicising the arms control process is that each side - and their domestic audiences - may begin to believe or take seriously what is said. For the United States, this problem is compounded by the open nature of American society, which makes it very difficult to maintain secrecy, and by the role of the electronic and print media who quickly publicise any official or unofficial statements.

19.51 There are a number of other domestic political considerations which can play an important - some would argue predominant - role in arms control. As mentioned earlier, the bargaining positions of the negotiators at Geneva and elsewhere are often the result of prior arrangements or understandings between the executive and other important bodies in the respective polities. These include the military, the party or, in the case of the United States, Congress and industry. These arrangements or understandings can render particular weapons systems or capabilities as 'non-negotiable' and restrict the flexibility of the negotiators. Arms control can also be linked to other domestic or international political factors. It may be no coincidence that the SALT I agreements were completed when President Nixon was at the height of his political power and faced no perceptible opposition for the Republican nomination. The situation was quite different for SALT II. America had suffered the ignominy of the hostage crisis in Iran, both President Carter and the Democratic Party's popularity were on the wane and the President's opponents were able to exploit the Soviet missile build-up, Soviet and Cuban interference in Africa and the Soviet invasion of Afghanistan.

19.52 Political linkages can also work in favour of arms control, particularly within the West. As noted by Mr Hayden, the emergence and actions of popular movements concerned with disarmament and arms control is something that all elected governments must take into account in formulating their policies. More importantly, the exercise of political will may be the necessary and required precondition for arresting the current nuclear spiral and reducing the danger of nuclear war. Former American Secretary of State, Henry Kissinger, has argued that although technical considerations are important in arms control negotiations, they can often obscure real issues and limit the possibility of achieving 'fundamental breakthroughs'.

On each side, positions - and assessments of the adversary's positions - emerge from a process that places a premium on the esoteric advice of experts who have studied the subject for more years than governmental leaders have spent hours on it.

Leaders must find their way through technical gobbledygook upon which their diplomacy depends but which they have no criteria to assess. This is bound to increase the congenial insecurity of high office, whether in Washington or Moscow, and lends itself to bureaucratic power plays incomprehensible to the other side.¹⁰

19.53 Kissinger stated that there is no technological way out of the problem since even large reductions in strategic arms would leave enough warheads in the possession of each side to devastate humanity if political conflicts got out of hand. He believes that the two superpowers should establish a serious political dialogue as a matter of urgency. While accepting that:

... it is unrealistic to seek to ban political competition in an ideologically divided world, it is essential to define its scope. Otherwise crises can too easily be driven out of control by the inability to communicate ... Only a political understanding will enable meaningful instructions to be issued to the technicians of arms control. If such an understanding is not attainable, arms control negotiations will either stalemate or become a propaganda forum.¹¹

19.54 Despite the intense efforts involved, it is difficult to escape the conclusion that the arms control process has been a disappointment. It has not stopped, let alone reversed, the spread and continued development of nuclear and non-nuclear arms, it has not significantly reduced the consequences of a nuclear or major conventional war should they occur, and it has failed to reduce military spending. It seems that in the past at least, arms control efforts have concentrated more on the process of negotiation rather than on its result. This does not mean that the arms control process has not had its successes or that it should be abandoned. Without arms control the vertical and horizontal expansion of nuclear weapons and the risks of nuclear war would probably have proceeded at a significantly faster rate than has been the case. Furthermore, arms control will continue to play an important, perhaps crucial role in improving relations between the superpowers and maintaining a degree of stability in their continuing competition.

19.55 The problem is that it is now seven years since the last significant bilateral agreement was reached and there are events in train which are threatening to undo even those modest advances in arms control that have been made to date. The major challenge facing the arms control process is whether it can close the gap between what has been done and what still needs to be done to reduce the dangers of nuclear war. The task is already an enormous one. It is being made more difficult still by the mounting pressures of the arms competition and changes in the current world order on the one hand, and the growing array of technical, political and institutional constraints which

operate against arms control on the other.

Maintaining a Lasting Peace: Prospects and Future Options

19.56 Despite the large number of nuclear weapons spread throughout the world, we have managed to avoid their use in combat now for over forty years. Moreover, most observers agree that, at present, the possibility of nuclear war, especially all-out war between the superpowers, is relatively small. This is probably due to a combination of good fortune and sound management. The number of nuclear powers has remained small. The vast majority of the global nuclear arsenals have remained under the control of the two superpowers. These two countries have tended to act responsibly at least in regard to any potential, or implied, use of nuclear weapons. And no nuclear power has been in a position where it could hope to use its weapons against another nuclear power without fear of massive retaliation in one form or another. This general situation could well have been otherwise.

19.57 While we have successfully managed to avoid nuclear war to date, there is little room for complacency. On the one hand, changes are in prospect which are threatening to undermine the continuity in nuclear affairs which in the past has enabled the world to devise ways of coping with dangers and opportunities presented by nuclear weapons. These weapons will remain in large numbers but the era of complete nuclear domination by the United States and the Soviet Union may soon be over. Trends in the development, deployment and proliferation of armaments are making the military component of the superpowers' relationship less manageable and more difficult to control, particularly in times of crisis. The current political relationship between the United States and the Soviet Union remains strained and is being complicated by developments in the Third World, by continuing polemics over treaty compliance and by the continued escalation of the arms race.

19.58 These challenges to the nuclear status quo are increasing uncertainty over the continuing stability and efficacy of the present arrangements that govern the world's nuclear weapons. Together with the lack of progress in arms control and an awareness of the growing dangers of both nuclear and large-scale conventional war, they have produced widespread dissatisfaction and concern for 'where we are heading'. Neither the present system of deterrence nor its first cousin, the arms control process, have significantly improved international security or provided very satisfactory choices for the future. At worst, the underlying dynamics and pressures of the arms race may be moving us steadily towards a point where the risk of nuclear conflict could dramatically increase. At best, they may continue to deliver an uneasy and fragile peace at the superpower level but in return for enormous military budgets, unrestrained regional conflict and devastation, and an omnipresent threat of nuclear war. At the same time there has been a continuation of the conventional arms race among other countries, and growing levels of military expenditure which could result in fiscal or social instabilities that may pose no less serious a threat to domestic and international order.

19.59 This situation has led to increasing calls for action from all parts of the political and arms control spectrum. There are those who fear that nuclear deterrence is coming dangerously close to failing and that the risk of nuclear war is increasing. They see that fundamental change is both inevitable and necessary in order to minimise the risks of nuclear conflict between the superpowers. Others argue that the present nuclear status quo remains fundamentally stable. They believe that the uncertainties and conflict generated by the superpower competition and by the dynamics of the arms race will continue to be offset by the revolutionary nature of nuclear weapons. According to this view, both superpowers realise that they would be destroyed in the event of a nuclear conflict and this fact continues to enforce a degree of prudence upon their actions and policies. They acknowledge the problems that are confronting the present nuclear situation but propose solutions that would reassert the status quo rather than change it.

19.60 These different options are discussed in the following chapter. For its part, the Committee is very concerned over continuing trends in the development, deployment and proliferation of nuclear and non-nuclear armaments throughout the world, the disappointing progress to date in arms control, and the continuing poor relations between the superpowers. These trends raise doubts about the legitimacy of the prevailing nuclear policies of the two superpowers and, if allowed to continue unchecked, may eventually lead to nuclear conflict. Given the nature and extent of the changes facing us and the constraints and competing interests which permeate international relations, it is doubtful whether the mere continuation of past practices and policies will be sufficient. It is time for more urgent action and a re-evaluation of the basic assumptions which underly our current political circumstances.

CHAPTER NINETEEN
ENDNOTES

1. The basic approach used in the first half of this Chapter is from Michael Mandelbaum, 'Uncertainty of the status quo', Bulletin of the Atomic Scientists, August 1985, pp.131-35.
2. Evidence, 9 August 1984, p.495.
3. Kenneth L. Adelman, 'Arms Control with and without agreements', Foreign Affairs, Winter 1984/85, p.259.
4. Living with Nuclear Weapons, The Harvard Nuclear Study Group, Cambridge, Massachusetts, Harvard University Press, 1983, p.213.
5. Evidence, 9 August 1984, p.584.
6. Bill Hayden MP, Opening address to the Conference on The Future of Arms Control 21-23 August 1985, p.2.
7. Mr R.H. Mathams, Submission, pp.S5651-52.
8. Department of Foreign Affairs Submission, p.S55.
9. Evidence, 9 August 1984, p.585.
10. Henry Kissinger, 'Defining the content of peace', Australian, 30 July 1984.
11. Kissinger, 'Defining the content of peace' Australian, 30 July 1984.

CHAPTER 20
POSSIBLE FUTURE OPTIONS

Introduction

20.1 Before describing the Committee's views on what should be done to minimise the risk of nuclear war, it is instructive to examine some of the approaches that have been suggested. The Committee has had presented to it a range of possible options for avoiding or reducing the risk of nuclear war in the future. These involve both radical and incremental prescriptions involving long and short-term strategies and policies. They include unilateral disarmament; non-violent resistance; the maintenance of deterrence - either in its present form or at a much reduced level of armaments; the substitution of non-nuclear for nuclear weapons and capabilities; an unconstrained competition in nuclear and conventional armaments and technologies; and a shift in emphasis from offensive to defensive weaponry, including SDI.

20.2 This Chapter examines some of these alternative concepts and the major policy options and issues associated with them. It should be noted from the outset that other options may exist and that the options that are discussed are not necessarily mutually exclusive. The most feasible future course of action could involve a combination of these or other approaches, and certain policies or actions prescribed by them may have a much wider application. It is also possible that the pursuit of an alternative future concept is a delusion; that it would be safer to avoid radical change and stay with our existing concepts for another forty years. Like all questions relating to nuclear weapons or nuclear war, there is no 'correct' answer to this question. All courses of action are plagued by uncertainty and all involve certain risks and potential consequences. Our principal purpose is to understand as best we can the facts and issues involved and to weigh the risks of each course, as accurately as possible.

Some Possible Future Options - Total Nuclear Disarmament

20.3 One proposed solution to the predicament posed by nuclear weapons would be to do away with the weapons themselves. The potential consequences of nuclear war would seem to provide sufficient justification for such an action, and the view that we would be better off without nuclear weapons has wide support, as evidenced by the succession of world statesmen advocating disarmament in the United Nations and other forums. Despite this consensus, the number and types of nuclear weapons throughout the world has continued to increase and total disarmament as a policy (rather than an objective) no longer seems to have much support. Why is this so?

20.4 The fundamental reason for the failure of total nuclear disarmament as a feasible policy option, at least in the short term, lies in the fact that nuclear and other weapons are an intrinsic part of an international political system based on

independent sovereign states; and a belief in the ultimate use of military force to maintain national security. Whilst nations believe in the utilisation of force to protect or enhance their basic interests they will not disarm for fear of undermining these interests. In particular, they will not unilaterally disarm since that would leave them open to attack or coercion by other major powers.

20.5 In addition to this, the process of nuclear disarmament has become more complicated as the number of nuclear weapons has increased, both vertically and horizontally, and they have been integrated into the military structures of the nuclear weapon states. The achievement of total nuclear disarmament today would be a highly complex exercise requiring an unprecedented degree of political accommodation and trust. It would need to include all declared and suspected nuclear-armed states since the superpowers would not be prepared to leave themselves open to nuclear attack or coercion by other nuclear weapon states. Even if bilateral or multilateral disarmament were possible, it does not remove the problems posed by nuclear weapons since the knowledge of how to build nuclear weapons remains and nations could begin to assemble such weapons as soon as some unresolved dispute erupted. Worse still, in anticipation of such a dispute, some nations could secretly stockpile a number of nuclear weapons or produce them clandestinely in order to gain an advantage over potential adversaries or avoid being similarly disadvantaged if another party cheats. There is the further concern that total nuclear disarmament may increase the risk of conventional conflict between the major industrialised nations. If such a conventional war lasted over some time, there is no doubt that nuclear weapons would reappear. Finally a totally disarmed world is not necessarily a stable one since the slightest disturbance of the status quo is liable to disturb the equilibrium and lead to a new arms race.

World Government and the Concept of Common Security

20.6 The discussion over the feasibility of total nuclear disarmament tends to centre on the political changes thought necessary to facilitate the abolition of nuclear weapons, where a number of basic approaches have been suggested. One such concept involves the formation of some form of world government. This was first suggested, by some of the U.S. scientists involved in the development of the atomic bomb, as the only logical and complete means of addressing the political and human dilemmas posed by the existence of nuclear weapons. It formed the basis of the U.S. sponsored Baruch Plan of 1946 which called for the creation of an international nuclear authority and a suitable system of safeguards to oversee the control of nuclear energy.

20.7 The establishment of a world government poses a number of problems. It is unlikely that either the United States or the Soviet Union would willingly accept a system of world government which they did not dominate. Nor would it be acceptable to most other nations unless they felt certain that it could not operate against their interests. The problem here is that this requirement can never be satisfied since any governing body

capable of preventing world conflict could also become a world dictatorship. The prospect for a world government seems impractical and unduly idealistic.

20.8 If world government is impractical, is there nevertheless a possible expanded security role for the United Nations? This notion has been canvassed in a number of submissions to this inquiry and it forms an important part of the recommendations made by the Palme Commission. In its report, Common Security: A Programme for Disarmament, the Commission argued that the UN's present security role bears little relation to the original concept enshrined in the UN Charter. It recommended strengthening the security role of the United Nations, in particular the capacity of the Security Council to pre-empt military conflicts in the Third World. This would involve three levels of UN intervention: fact-finding teams, military observer teams and UN military forces; as well as an improved capability for peacekeeping. In recognition of the political realities confronting such a proposal, the Commission acknowledged that a collective security role for the UN can be revived only in circumstances where political consensus is possible among the great powers, on the one hand, and between them and the rest of the international community on the other. It considered that such consensus could flow from a basic doctrine of common security which stressed the advantages to be gained in a nuclear and increasingly interdependent world from collective rather than individual actions and interests.

... if the world is to approach even the possibility of achieving true security - ending the danger of nuclear war, reducing the frequency and destructiveness of conventional conflicts, easing the social and economic burdens of armaments - important changes are necessary in the way that nations look at questions of armaments and security. Most important, countries must recognise that in the nuclear age, nations cannot achieve security at each other's expense. Only through cooperative efforts and policies of interlocking national restraint will all the world's citizens be able to live without fear of war and devastation, and with the hope of a secure and prosperous future for their children and later generations.¹

20.9 The Committee is sympathetic to the concept of common security and its underlying principles but is uncertain whether and how such a concept would be put into practice. To begin with, the Palme Commission assumed that all nations would be prepared to forego a degree of use of military force to ensure greater international peace and security. The problem is that the political leadership of a considerable number of nations are prepared to use military force as the only or major means of resolving conflicts of interest. This is shown by the large number of conflicts that have taken place since the end of the

Second World War. As long as relations between states remain dominated by these attitudes to the use of force, it is difficult to create the preconditions that would make the approach of the Palme Commission viable. Moreover, there is no guarantee that the United Nations could achieve agreement on what constitutes an equitable system of collective security. Collective security, like full disarmament, is thus difficult to achieve since it requires significant political changes (both climate and structural). It is thus a long term objective in the quest to eliminate or reduce the risk of nuclear war.

20.10 In spite of these problems, there is a potential role for the United Nations as a vehicle for improving relations between the superpowers. In addition to existing multilateral and bilateral fora, the United Nations could also be used as the vehicle for joint research into new areas of science and technology, including defences against nuclear attack; for developing independent and internationally controlled means of verifying of arms control agreements such as a Seismic Monitoring Agency; and discussion of military strategies and weapons programs.

Non-Nuclear Deterrence and Defence

20.11 Another concept could involve the replacement of nuclear forces with conventional weapons systems and capabilities. This might at least reduce the consequences of warfare should deterrence fail. It is seen to be particularly important in Europe where the existence of tactical and intermediate-range nuclear weapons is considered by many to be a destabilising factor in the global and European balance of power. In an article published in the journal *Foreign Affairs*, Professor Michael Howard of Oxford University argued that the Soviet 'threat' in Europe cannot be realistically deterred by threatening to engage in nuclear war since, if carried out, such a threat would incur costs 'grotesquely out of proportion of any conceivable benefits to be derived'. Howard argued that there is a need to 'deter the Soviet Union from using military force to solve its political differences with the West', but 'in a way that will be credible to their leaders and acceptable - reassuring - to our own peoples'. Howard concluded that:

What is needed is a reversal of that process whereby European governments have sought greater security by demanding an ever greater intensification of the American nuclear commitment; demands that are as divisive within their own countries as they are irritating for the people of the United States. Instead we should be doing all that we can to reduce our dependence on American nuclear weapons by enhancing, so far as is militarily, socially and economically possible, our capacity to defend ourselves.

By 'defend ourselves', I mean defend ourselves in the conventional sense with conventional weapons ... [this] would mean a change of emphasis from nuclear deterrence to conventional, or even unconventional, defence. It would mean a shifting of primary responsibility to the Europeans for the defense of our own continent; and it might involve a greater degree of popular participation in defensive preparations, participation the more likely to be forthcoming if it is clear that such preparation were predominantly non-nuclear.²

20.12 The principal advantage of a strategy of conventional deterrence is that it eliminates the risks and consequences of nuclear war without requiring a fundamental change in our political structures. Conventional deterrence poses a number of problems however. First, some modern conventional weapons also have devastating capabilities. There is a greater capacity in the 1980s to perform conventional destruction like the fire bombing of Dresden in World War II. Second, non-nuclear weapons can still be used to threaten an adversary and so conventional deterrence does not necessarily reduce the risks of military conflict. Indeed by getting rid of nuclear weapons we could make war, including World Wars, more likely. One advantage of nuclear weapons is that they may serve to prevent certain non-nuclear as well as nuclear wars from taking place. Third, conventional deterrence would be likely to contribute to higher levels of military expenditure and a considerable build-up of conventional forces and capabilities by the NATO countries. This would be a costly exercise and so would be unpopular with governments that are concerned with economic and social development. A fourth reason why NATO, in particular, is unlikely to move the burden of deterrence from nuclear to conventional forces is resistance from the European and American national security establishments. These have long held that the best way of preventing a war in Europe is to ensure that Soviet decision makers recognise the strong likelihood that a European conflict would escalate into general nuclear warfare. The removal of tactical and intermediate-range nuclear weapons from European soil would be portrayed as weakening deterrence because it would be seen to 'decouple' the U.S. strategic nuclear deterrent from the defence of Europe, notwithstanding the fact that any significant strengthening of NATO's conventional military forces would offset Europe's perceived inability to withstand a Soviet conventional attack.

20.13 Some have suggested that these problems could be offset by restricting the functions of the military forces of all nations to those solely concerned with defence. This would mean disbanding those forces and capabilities used for offensive purposes and transforming other functions so that they can be fulfilled by non-military institutions. In a purely defensive world, all countries would employ military forces solely for the purpose of defending their national territory and so would require only short-range conventional forces that provided for air, coastal and border defence. The idea that we may be able to

escape from the nuclear predicament by moving to large-scale deployment of defensive systems has begun to gain additional currency in all parts of the political spectrum. It underlies President Reagan's Strategic Defense Initiative (SDI), which is described in detail in Chapter 12, and has been advanced by a number of other commentators who are otherwise not favourably inclined toward the Reagan Administration's policies.³

20.14 An important advantage of this latter approach is that it could facilitate a move towards total nuclear disarmament since reasonably effective defences would provide a hedge against one side cheating. As described in Chapter 12, the establishment of effective defences against today's nuclear arsenals is a difficult, perhaps even an impossible task. But they may be able to be developed against the kind of force that could be put together in violation of an abolition agreement. Defences required to counter this level of threat are not beyond the realm of technical possibility as they would probably comprise a combination of space-based surveillance and early warning systems and ground-based terminal defences, either ground or air-launched. Moreover, as the years passed, the superiority of the defence could be improved, because they would be openly developed, deployed and tested, whereas offensive weapons could not be. The deployment of non-nuclear defences would thus enable all sides to disarm their nuclear forces with reasonable confidence that they would not be disadvantaged should one side secretly retain a small stockpile of such weapons.

Non-Violent Resistance

20.15 A concept favoured by many in the peace movement is non-violent resistance or social defence. Social defence is a non-violent alternative to military defence. It is based on widespread political, economic and social non-cooperation in order to oppose military aggression or political repression. It uses methods such as boycotts, refusals to obey, strikes, demonstrations, and the formation of alternative government.

20.16 Social defence is based on the principle that no regime can survive without the passive support or non-resistance of a large fraction of the population. It is essentially a strategy for combating the effects of aggression after initial occupation has taken place although social defence could have some deterrent value particularly within the European context where the problems of holding down and controlling a very large and populous area are already understood.

20.17 It is difficult to imagine the concept of social or civilian-based defence being acceptable to the majority of today's nation states, particularly those who are directly confronted by potentially aggressive neighbours. The few examples of the successful use of non-violent resistance⁴ have

been local, short-lived and precarious and do not inspire confidence that the strategy could be maintained at a national level for very long. For these reasons it cannot be considered as a serious or realistic replacement for our current international or national institutional arrangements at this stage. It should be kept in mind that social defence is highly unlikely to work with a ruthless authoritarian regime. In the past it has only worked in the context of independence movements opposing imperialist governments.

Unilateral Disarmament Initiatives and Tacit Agreements

20.18 While there is general acknowledgement that total nuclear disarmament can only realistically be seen as a long-term goal, many submissions to this inquiry have argued that both sides should undertake immediate unilateral initiatives to facilitate either arms control or the conditions for eventual disarmament. The present size of the superpowers' arsenals allows each side to undertake, of its own volition, certain actions that could satisfy certain internal objectives - such as budget constraints or the enhancement of crisis stability - without seriously altering the overall balance of power. Unilateral actions could also be used to elicit a response from the other party as part of a tacit arrangement or understanding.

20.19 Since the Second World War, both the United States and the Soviet Union have undertaken a variety of unilateral initiatives, some in response to internal concerns and others as an aspect of bilateral or multilateral negotiations and for propaganda purposes. U.S. initiatives in the past have included the 1957 moratorium on nuclear weapons testing, which formed part of an attempt to negotiate a comprehensive test ban with the Soviet Union; the elimination of the B-47 strategic bomber; and President Nixon's 1969 announcement that the United States unilaterally renounced first use of lethal or incapacitating chemical agents as weapons, and unconditionally renounced all methods of biological warfare. The Soviet Union also announced a moratorium on nuclear testing in 1958, which continued in operation until 1963 when it unilaterally recommenced testing (see Chapter 14), and another in 1985. In 1982, it formally pledged the general obligation not to be the first to use nuclear weapons. Both superpowers have continued to observe lapsed or as yet unratified treaties such as SALT I, SALT II and the Threshold Test Ban. Some typical initiatives and categories of initiatives open to both superpowers are shown in Table 20.1.

20.20 Unilateral initiatives or tacit agreements can present a valid alternative to traditional approaches to arms control. Non-binding and unilateral initiatives can provide the basis for more formal reciprocal restraints and establish grounds for traditional arms control agreements. Such initiatives could also expedite the achievement of formal agreements in that they could be designed to bypass contentious or very complex issues. A major difficulty with the concept, however, is that unilateral

initiatives are most unlikely to be forthcoming during periods of considerable ill-will between the parties concerned. Unless a high level of confidence has been engendered or is in prospect, neither side is likely to make conciliatory gestures; to do so could give the impression of capitulation or weakness. During periods of mutual suspicion and distrust, initiatives are more likely to be advanced for political and propaganda purposes.

Table 20.1: Categories of national unilateral initiatives

- Troop withdrawal
 - . decrease in numbers
 - . remove from advanced positions
- Weapons withdrawal
 - . elimination or cuts in numbers
 - . remove from advanced positions
 - . weapon-free zones
- Moratoriums (freezes)
 - . stop military programs, for example, weapons testing
- Policies of no-first-use of weapons
 - . nuclear weapons
 - . other weapons, for example, chemical or biological warfare
- Other restraints in military programs
 - . advance notice of weapons tests, war games and so forth
 - . minimizing accidental or unauthorized weapons use
 - . banning development of or deployment of specific weapons
 - . cuts in military budget
- Phased unilateral arms control initiatives
 - . arms control by mutual example
 - . arms control by graduated reciprocal actions

Source: Franklin A. Long 'Unilateral Initiatives', *Bulletin of the Atomic Scientists*, May 1985, p. 51.

20.21 The successful implementation of reciprocated unilateral initiatives or any system of tacit arrangements also depends on the ability of both sides to verify measures announced by the other party, either through their own National Technical Means or via independent and reliable monitoring facilities. Unilateral arms control initiatives are more likely to generate a positive response from the other side if there has been prior discussion and some mutual understanding and agreement over the mutual benefits of such a course of action. They thus should form a part of concerted efforts by the superpowers to establish a political and strategic climate for the reduction of tensions generally. Informal negotiations or

arrangements should not be seen as a replacement for formal arms control negotiations, however, since they do not give either party the same levels of assurance and predictability as an agreed and formally ratified treaty. Nor do they provide the machinery to maintain this assurance in the event of changes in circumstances or the advent of new technologies.

Some Possible Future Options - Stable Deterrence and Arms Control

20.22 Despite reservations, in some cases, over the way in which deterrence is presently carried out, many military and arms control experts consider that the basic concept - using the threat of the consequences of nuclear war to prevent such an event from taking place - provides the only safe means of satisfying the predicaments posed by the existence of weapons of mass destruction. They argue that deterrence exists in fact as well as theory, and properly managed, provides a means of avoiding war between nuclear armed states without upsetting the current political status quo. Nuclear deterrence has the added advantage that it can be instrumental in preventing conventional wars between nuclear armed states since the possibility of escalation to an all-out exchange cannot be discounted. Moreover, deterrence has a proven track record, something which alternative concepts cannot claim.

20.23 But deterrence has not solved the problems presented by nuclear weapons, only placed them in abeyance. Modern deterrence theory has led the superpowers to expand and diversify their nuclear arsenals, thereby increasing the potential consequences should deterrence fail. Faced with this unpleasant side-effect the advocates of the maintenance of deterrence stress the importance of stability in the superpower relationship. This is achieved through the arms control process which has as its principal objectives the need to:

- a. regulate and reduce uncertainty in the arms competition between the United States and the Soviet Union and prevent changes from taking place that would upset or 'destabilise' the strategic balance (so called 'arms race stability');
- b. prevent the introduction of weapons systems or capabilities which would be seen as threatening by the other side and so could increase the risk of military conflict and use of nuclear weapons, particularly in periods of crisis ('crisis stability'); and
- c. minimise spending on defence.

20.24 While there is general support for these broad objectives, there is considerable disagreement among experts over the appropriate size and shape of the superpowers'

arsenals, what constitutes stabilizing or destabilizing weapons and whether new technologies should be developed. Arising from these various considerations, a number of broad approaches to arms control in the future can be discerned.

Continuation of the SALT II Regime

20.25 This approach was favoured by the Soviet Union prior to Mr Gorbachev entering office. It would permit the two superpowers to retain strategic nuclear forces similar to those they have now although it would place some constraints on the build-up of strategic nuclear forces of both sides, achieve some modest reductions, and deny certain kinds of modernisation, especially in destabilising weapons (see Chapter 2). The advantages of this approach are that it would not require either side to restructure its nuclear arsenals; it would allow both superpowers to continue to modernise their forces; and it would introduce some degree of predictability into the calculations of future capabilities. The disadvantages are that the size of the superpowers' nuclear arsenals would remain high; it would do little to compensate for instabilities or vulnerabilities that might occur in the future as a result of modernisation; and it does not address intermediate-range or tactical nuclear weapons.

Nuclear Freeze

20.26 The concept of a nuclear freeze has been widely advanced as a means of arresting the current arms race and providing time to decide when and how more fundamental changes aimed at reducing the risks and consequences of nuclear war can be achieved. The freeze movement was very strong in the United States in the early 1980s but lost momentum after 1983 and failed to be supported by the Democrats in the 1984 Presidential election campaign. Support for a nuclear freeze was contained in many submissions to this inquiry. The Australian Government is attracted to the concept, provided it does not give an advantage to one side and it can be adequately verified. Australia voted in favour of a freeze resolution in the United Nations in November 1984, noting at the same time its reservations over the question of verification and stability (see Chapter 10).

20.27 Proponents of a nuclear freeze argue that the arms race is itself an important source of international tension and discord and that freezing it would be a first step towards reducing the possibility of confrontations leading to the use of nuclear weapons. It is claimed that it does this in at least two ways:

- a. by preventing the deployment of new nuclear weapons which give rise to reciprocal fears of pre-emptive attack in a crisis; and
- b. by providing a model of international cooperation which could lead to further agreements aimed at reversing the arms race and establishing alternative means of resolving international disputes.

20.28 The principal arguments advanced against a nuclear freeze are that it represents an enormous and highly complex undertaking which would be difficult to verify in some areas; it could result in a central balance which may not be acceptable to either side; and it could prevent developments in technology that may provide for greater stability in the future. While valid, these arguments tend to misrepresent the role and purpose of a nuclear freeze. A freeze is not a solution to the problems posed by nuclear weapons, it is simply an action designed to provide a respite against the pressures of the arms race and time to reflect on where we should go in the future. It therefore needs to be considered in concert with overall objectives and related issues such as modernisation and verification. In other words, the freeze concept may be used as a starting point for achieving nuclear weapons reductions, not as a solution in itself.

20.29 One example of a freeze proposal which could help to arrest the arms competition is to prohibit any further production of the fissile materials that are necessary for the construction of nuclear weapons. Every nuclear weapon contains an amount of chain-reacting fissile material, either uranium 235 or plutonium 239. Limiting the amount of fissile material would thus place an overall limit on the number of weapons that could be produced. Proposals to limit the production of fissile material have been advanced at different⁵ times by both the superpowers and in the United Nations but have been unsuccessful either because they would have confirmed an advantage for one side or because they were difficult to verify.

20.30 Frank von Hippel and his co-authors⁶ have recently suggested that it may now be appropriate to re-consider a freeze on the production of fissile material for nuclear weapons. They claim that the United States and the Soviet Union have roughly comparable stockpiles of fissile material - around 500 tonnes of weapon-grade uranium and 100 tonnes of plutonium - although they note that 'the current rate of plutonium production of the U.S.S.R. appears to be considerably higher than that in the U.S.'.

20.31 The authors noted that the verification procedures would need to ensure against diversion from the civilian nuclear fuel cycle as well as the maintenance of significant clandestine production facilities. They considered that current IAEA procedures combined with existing satellite-based surveillance systems and a provision for on-site inspections would be sufficient to detect any significant violations of a prohibition agreement. The authors conceded that an enrichment plant based on laser isotope separation would be smaller than a centrifuge plant and would therefore be more difficult to identify from satellite photographs. They nonetheless argued that 'a laser enrichment plant capable of producing five tonnes of weapon-grade uranium per year would still cost the equivalent of hundreds of millions of dollars to construct and would incorporate unusual, high-powered, rapidly pulsed lasers. These features and others would facilitate the detection of such a plant by the larger intelligence effort'.

Mutual and Verifiable Reductions

20.32 A third approach is to seek mutual and verifiable reductions of nuclear arsenals in order to establish a stable deterrent relationship at lower levels of offensive forces. This approach underlies the various proposals for mutual arms reductions that have been advanced by the United States and the Soviet Union in Geneva. It is different from the two earlier approaches in that it normally requires some restructuring of the present or planned strategic nuclear postures of one or both sides. As such it is more difficult to achieve since it deals with existing assets and must take into account the various and often conflicting interests of the two superpowers.

20.33 Some of the difficulties and constraints associated with this approach can be seen by analysing the recent United States' and Soviet proposals for strategic arms reductions. These were described in Chapter 2 and are summarised in Table 20.2. The United States' proposal called for a number of ballistic missile warheads deployed by each side to be limited to a total of 4 500 with further limits on the overall number of long-range bombers, strategic ballistic missiles and the number of warheads that could be deployed by land-based ICBMs. The means of achieving these reductions would be through a 'build-down' mechanism which would require the two superpowers to eliminate an agreed number of nuclear warheads from their strategic arsenal for each new warhead they deployed.

20.34 The United States' proposal seeks to reduce the present disparities between the strategic forces of the two sides - particularly in land-based launchers and missile throw-weights - without affecting its own modernisation program. The proposal requires the United States to reduce its total number of ballistic missiles by some 30 to 40 per cent and its current launchers by up to one quarter. This could be achieved by retiring its Minuteman II missiles and a number of Minuteman III and Poseidon forces. Significantly, the proposal would not substantially affect the balance of U.S. strategic forces and it would enable the deployment of the MX missile, Trident II and the B-1 bomber in accordance with current plans.

20.35 On the other hand, the U.S. proposal requires the Soviet Union to make greater reductions and, as a result, to face fairly difficult choices. In order to meet the proposed ceilings, the Soviet Union would probably have to reduce its present ICBM missile forces by something like 1 000 launchers and dismantle a significant proportion of its SLBM forces. It would be able to increase its bomber fleet although this would depend on whether the Backfire bomber was included, in which case they would have to retire Backfires in order to deploy new bombers such as the Blackjack. The U.S. proposal would thus have a disproportionate effect on the Soviet ICBM leg of its strategic triad and would require the Soviet Union to restructure its strategic nuclear forces and modify its strategic force planning and procurement programs. The proposal has been rejected by the Soviet Union and they have made a counter offer using the SALT agreements as a basis.

Table 20.2: United States and Soviet Proposals for Mutual Reductions in Strategic Nuclear Arsenals

Category	Current Strategic Arsenals (1)		Soviet Union		US Proposal November 1985		Soviet Proposal January 1986	
	United States	Soviet Union	Launchers	Warheads	Launchers	Warheads	Launchers	Warheads
ICBM	1026	2126	1398	6420		3000		
SLBM	616	5536	979	2787+				
Subtotal	1642	7662	2377	9407+		4500		
Bombers (ALCM Carriers)	241 (90)	2520 (1800)	170 (125)	680 (250)		No limit 1500		No limit 6000(2)
Total	1883	10174	2547	9987+		6000+		
Estimated Equivalent Megatonnage		4155		~5837		3000		No Limit

- Notes 1. Figures extracted from IISS, The Military Balance 1985-86 (See Chapter 3 for more details).
2. The Soviet Union subsequently modified this ceiling to 8000 warheads.

20.36 The Soviet counter proposal seeks to restrict the number of strategic warheads deployed by each side to 6 000. It does not seek to impose limits on individual categories of warheads or launchers, although, in earlier proposals, the Soviet Union sought to prohibit the deployment of long-range air and sea-launched cruise missiles. The proposal would permit the Soviet Union to pursue its proposed modernisation program with emphasis on its ICBM forces. It could also allow it to introduce a modern bomber force.

20.37 Even though the 6 000 limit on strategic warheads is the same as that proposed by the United States, the Soviet proposal presents a number of problems for its adversary. It would enable the Soviet Union to retain its lead in ICBM missile warheads and throw-weights and so continue to maintain a capacity to destroy U.S. land-based missile forces in a single pre-emptive strike. A further major problem is the Soviet insistence on defining 'strategic' weapons as all those capable of striking the territory of the other side. According to this definition, the strategic forces of the U.S. would include all of its INF missiles in Europe, dual-capable tactical aircraft in Europe and Asia, and carrier-based aircraft worldwide in addition to ICBMs, SLBMs and intercontinental bombers. In part this would mean that 340 medium range dual-capable American aircraft in Europe and Asia and 540 attack aircraft on all 14 American carriers would be covered although 2 000 to 3 000 comparable Soviet nuclear delivery vehicles including about 300 Backfire bombers would not be counted. To adopt the Soviet proposal would mean therefore that the U.S. would face the dilemma of either accepting central strategic inferiority by a meaningful number of its remaining nuclear weapons to alliance-oriented deterrence, or cutting its European-based dual-capable deterrent without corresponding reductions in comparable Soviet systems.

20.38 As evidenced by the lack of progress to date, the achievement of mutual force reductions is a complex and difficult exercise which is constrained by differing perceptions, interests and objectives of the negotiating parties. On the basis of the experience to date, and assuming that both superpowers are serious about reducing their strategic forces, it would seem that any future successful proposal would need to:

- a. allow both superpowers to continue to modernise their strategic forces at least within agreed limits;
- b. provide sufficient flexibility to enable each side to design and structure its nuclear forces to meet its own strategic and national security requirements;
- c. provide an agreed definition of what constitutes 'essential equivalence' and a means of balancing the continuing 'asymmetries' in the force structures of the two sides; and

d. take into account all categories and types of forces which have a bearing on the strategic balance as well as other specific issues of concern such as allied forces and missile throw-weights.

20.39 The Committee is not in a position to develop a detailed proposal which would satisfy these criteria, although it considers that the Australian Government, perhaps in concert with other nations, should seek to develop such a proposal. The Committee notes that the 'build-down' approach encompassed in the United States' START proposals would satisfy some of these requirements, particularly if it was extended to incorporate intermediate-range forces. The 'build-down' mechanism allows modernisation to occur and provides a degree of flexibility in deciding what type of balance of forces should be maintained. It also provides an incentive to develop and deploy systems that are more survivable than the ones being replaced and so can contribute to increased stability at lower force levels. (An example would be the replacement of multiple-warhead (MIRV) ballistic missiles with single-warhead ones).

20.40 In theory, the concept of build-down could be extended to achieve more fundamental, structural changes. For example, a reduction schedule could be devised that combines deployment of defensive weapons with a reduction of offensive weapons.⁷ Such a proposal was presented to the United Nations, in 1962 and 1963, by Soviet Foreign Minister Andrei Gromyko. Some of the theoretical advantages of a defence-protected build-down are that each superpower can make build-down decisions independently of the other, that it can be implemented on an incremental basis consistent with the development of defensive technologies, and that it is not necessarily inimical to the strategic interests of either superpower. It would be difficult to implement, however, since it would involve calculating the relative effectiveness of offensive and defensive capabilities where neither would be able to be fully tested. Any build-up of defensive systems, whether accompanied by compensating reductions in offensive weaponry or not, may also be seen as a provocative act by the other side, leading it to expand rather than decrease its own offensive capabilities.

20.41 Build-down is not without its problems. First, the versions suggested to date would take considerable time to affect significant reductions. More importantly, they would require the Soviet Union to make significant changes to its current and projected force structures while requiring little change by the United States. Second, there is no agreement on whether current forces are 'essentially equivalent', much less what should constitute an agreed balance at reduced levels. A fourth potential problem is that care would need to be taken to ensure that there was a constraining range of modernisations possible under the build-down so that each side could readily predict the arsenal development moves of the other. This would assist both predictability and stability, and reduce the likelihood that significant asymmetries were not exacerbated.

Minimum Deterrence

20.42 A concept favoured by many in the peace movement, as well as a number of arms control experts, is the notion of minimum deterrence. Minimum or finite deterrence accepts as a matter of policy the mutual vulnerability of each superpower to an all-out nuclear attack by its rival. It seeks to base strategic doctrine - both operational and declared - solely on this premise by restricting the nuclear forces of the two sides to strategic retaliatory forces only. In so doing, it would reduce the balance of nuclear forces to a much lower level than that required by the proponents of mutual and verifiable reductions.

20.43 The actual size and scope of the minimum deterrent is a matter of some debate. The transition to such a system would probably require, as a minimum:

- . a significant reduction in strategic warheads largely by replacing multiple-warhead with single-warhead missiles. The level would still need to be sufficient to ensure that any credible level of undetected cheating would not significantly affect the mutual hostage relationship;
- . the elimination of tactical and most intermediate-range nuclear weapons;
- . restriction of individual warhead yields to provide a finite overall yield; and
- . verifiable bans on the testing and deployment of additional anti-ballistic missile defences and restrictions on other technologies - such as those used in anti-submarine warfare - which could threaten the future viability of the deterrent forces.

20.44 The perceived advantages of a system of minimum deterrence include its relative simplicity and robustness; a smaller number of possible paths to nuclear war; a reduction in potential destructiveness in the event of deterrence failing; and an end to the arms race. Minimum deterrence could also provide a realistic initial stage in any move towards either total disarmament or a system of deterrence based on defensive rather than offensive forces. The arguments proposed by some people against minimum deterrence are the same as those against mutual assured destruction. It provides little scope for decision-makers in the event that deterrence fails, it is not accepted by the Soviet Union, and would return each side to variations of the earlier 'massive retaliation' doctrine. It is not at all clear that it would be desirable to return to that situation even if it were possible.

20.45 An additional problem for minimum deterrence rests on the fact that there is a marked strategic asymmetry between the superpowers. By virtue of its geography, the Soviet Union is vulnerable to nuclear attack from theatre forces based in Western Europe. The U.S. is not similarly vulnerable to theatre forces based in Eastern Europe. By the same token, Western Europe is vulnerable to Soviet and Warsaw Pact land forces because it shares land borders with the East. Because of the distance across sea from the U.S. to Europe, the U.S. would have very significant military difficulties in assisting NATO countries against Warsaw Pact aggression. On the other hand, Warsaw Pact land forces would have similar difficulties in attacking the U.S. These asymmetries would become more acute were the superpowers to reduce their strategic nuclear arsenals significantly. Were the U.S. to possess a strategic nuclear arsenal capable only of deterring Soviet attacks against the U.S. as minimum deterrence suggests, the Soviet and Warsaw Pact conventional dominance in Europe would entail the likely defeat of NATO in any conflict. Minimum nuclear deterrence, then, could raise the risk of conventional war in Europe and result in the defeat of NATO in Europe.

Crisis Stability

20.46 Within the overall objective of minimising the risks and consequences of nuclear war, an important intermediate objective of all the proposed options is to minimise the risk of military conflict occurring. As long as nuclear weapons continue to be maintained in relatively large numbers, there is always the chance that they may be used. A major concern is that a political crisis could run out of control because one or both sides fear the political consequences of backing down. One side may even take military initiatives designed to demonstrate its resolve and thus unintentionally provoke a military response. Once a conventional conflict between the superpowers starts, the chance of the nuclear threshold being crossed increases considerably.

20.47 Crisis stability can be achieved in a number of ways. These include preventative measures such as a general improvement in relations between the superpowers; less encouragement of a secretive approach by the Soviet Union to military and political affairs; enhancement of economic and social conditions throughout the world and especially in areas of potential conflict; reduction in regional tension; and implementation of measures specifically designed to prevent political crises between the superpowers. Crisis stability can also be achieved by developing means of safely managing superpower relations in the event that a crisis arises, and limiting or terminating military actions that may have been initiated during the crisis (usually described as 'war-termination' rather than 'crisis-management').

20.48 Prevention of crises is preferable to trying to control a crisis situation. The principal purposes of crisis prevention and crisis management are to reduce the incentive for either side to launch a pre-emptive nuclear attack, to minimise

uncertainty in the minds of potential adversaries over actions and intentions and to minimise the possibility of war occurring through either error or miscalculation. A range of specific strategies and measures to enhance crisis stability have been raised in submissions to this inquiry. They include:

- a. reducing the vulnerability of nuclear forces to an initial attack by either nuclear or conventional weapons, in particular those forces required to maintain basic deterrence;
- b. provision of sophisticated, reliable and invulnerable early warning and command communications and control (C³) systems which enable civilian leaders to maintain tight control over their nuclear forces;
- c. removal of time-urgent weapons or targets such as MIRVed ICBMs and Soviet off-shore submarine patrols with depressed trajectory missiles for intermediate-range ballistic missiles in Europe, both of which can strike the opponent's headquarters or forces in minutes;
- d. minimising predelegation of authority to military commanders, particularly decisions that have an escalation potential;
- e. advance notice of military manoeuvres or exercises;
- f. prior agreement on explicit rules of engagement or ground rules for controlling the possibility of escalation once the superpowers have entered into competition in a given area. Where such competition already exists, escalation control could be facilitated through the establishment of nuclear free or disengagement zones;
- g. maintenance of instant and highly reliable communications between the leaders of both superpowers; and
- h. regular discussions between the superpowers on measures to reduce crisis instability.

20.49 Many of these measures have already been adopted by the superpowers. The 1963 Hotline Agreement is a case in point; the facilities involved were recently upgraded under the Reagan Administration. Further steps have been taken over the past two decades to enhance both strategic and crisis stability. For instance, the SALT negotiating process has necessarily included the education of each superpower in the strategic philosophy and understanding of the other. This has been reinforced with extensive discussions by the superpowers in the Standing

Consultative Commission where interpretations and apparent breaches of the SALT accords are discussed. This understanding has been strengthened over the years through the participation of the superpowers in the multilateral negotiating forums of the UN and through diplomacy (including the Reagan-Gorbachev summit in November 1985).

20.50 While some progress has been made, there is considerable scope for improvement. One suggestion is the establishment of national or joint consultation or crisis centres. This has been proposed by a number of arms control advocates in the United States, notably the Nunn-Warner Working Group on Nuclear Risk Reduction.⁸ This group argues that the United States and the Soviet Union should initially establish separate national nuclear risk reduction centres in their respective capitals. The centres would be manned on a 24-hour basis and should be directly linked to relevant political and military authorities. An alternative arrangement would be the creation of a single centre, staffed by military and civilian representatives of both nations, at a neutral site. Recognising that some of the following initiatives have already been adopted in other forums, the potential roles of the centres would include:

- a. discussion of the procedures to be followed in the event of possible incidents involving the use of nuclear weapons;
- b. maintenance of close contact during incidents precipitated by nuclear terrorists;
- c. exchange of information on a voluntary basis concerning events that might lead to nuclear proliferation or to the acquisition of nuclear weapons, or the materials and equipment necessary to build weapons by subnational groups;
- d. exchange of information about military activities which might be misunderstood by the other party during periods of mounting tensions; and
- e. establishment of a dialogue about nuclear doctrines, forces and activities.

Discussion and Committee Views

20.51 The suggested approaches to eliminating the risks and consequences of nuclear war can be divided into two broad categories:

- a. continuation of deterrence with substantial reductions but in a form that minimises the risks and consequences of nuclear war; and

b. implementation of international political changes that would lead to the complete elimination of nuclear weapons.

20.52 The basic rationale behind the first approach is that nuclear weapons and deterrence are facts of life that cannot be easily changed, if at all. According to this view, the complete elimination of nuclear weapons is not possible without recourse to radical changes that are untested, difficult to implement, and would be certain to introduce additional - and perhaps unforeseen - uncertainties and tensions that may make matters worse. Changes of this kind would be very difficult anyway in view of the considerable interests that inhabit the current international political system. Under these conditions, the best that can be hoped for is to reconcile nuclear and political realities and rely on the potential consequences of nuclear war to reduce the prospect of military conflict between nuclear-armed states.

20.53 The principal advantage of deterrence is that it provides a model for doing precisely that. Deterrence has the added advantage that it has already been tested in the real world and has, to date anyway, stood the test of time. United States' weapons deployments have been guided for forty years by the basic tenets of deterrence theory and practice. During this time, the world has gone through a succession of international crises, and bitter wars have been fought in many countries, but there has been no armed conflict between the superpowers and none of the local wars has ushered in a Third World War. Much of the credit for this can be attributed to the policy of deterrence.

20.54 The proponents of the second broad approach argue that the reasoning advanced in favour of the continuation of deterrence underestimates its costs. In their view, deterrence has directly contributed to the steady build-up of the superpowers' nuclear arsenals which in turn has produced a heightened sense of vulnerability and insecurity among all nations. Furthermore, it does not remove the scale or immediacy of the threat posed by nuclear weapons. While the risk of nuclear war may be able to be minimised by carefully managing deterrence, the possibility of a catastrophe cannot be ruled out, and it remains only minutes away even during periods of international calm. The proponents of radical change argue that there is no option other than to seek international political or military changes which would facilitate the complete elimination of nuclear weapons. In their view, deterrence has never been anything more than a stop-gap used to buy time to discover a solution to the problems imposed by the discovery of nuclear weapons. Deterrence may have been successful so far in avoiding military conflict between the superpowers, but it is intolerable, and foolish, to choose to live under such a system indefinitely.

20.55 The Committee considers that the arguments presented in favour of both approaches are valid. Furthermore, the approaches are not necessarily contradictory if we take into account the different timescales involved and the alternative perspectives that they reflect. By and large, the proponents of a continuation

of the concept of deterrence are those in government or those who advise governments. Because they are concerned with managing relations between or within states on a day-to-day basis, they must also take full account of issues of immediate concern and on existing obstacles or restraints to policy-making. Their point of reference is the current international political system and they seek to determine how it could be improved, taking into account the political and technical difficulties involved. Such a starting point is entirely valid and necessary. However in view of the complexity of the nuclear problem, the solutions are usually incremental or gradualist. The danger is that an over-preoccupation with short-term issues, or with the intractability of the political process, can lead to the overall objective - eliminating the risk of nuclear war - being downgraded or even lost sight of.

20.56 The proponents of more radical solutions, on the other hand, are usually not directly involved in governing. Because they are divorced from, or unaware of the processes of government, they tend to focus exclusively on the threat posed by nuclear weapons. In contrast to the advocates of deterrence, they start from a position where they think we should be rather than where we are and they tend to demand that we get to that position as quickly as possible. Such a view is understandable because it arises from the predicament that nuclear weapons have placed us in. The danger is that many of the solutions that are proposed do not take sufficient account of the political realities involved. Ignoring these realities can lead to proposals which are impractical or even counterproductive. It can also provide a false expectation that radical change can be implemented quickly. In reality, the fundamental changes being suggested are likely to take decades or even centuries to realize.

20.57 The Committee considers that the ultimate approach taken to eliminating the risks and consequences of nuclear war must incorporate both perspectives. In the short term, we have no alternative than to continue with the concept of deterrence provided it is combined with substantial mutual force reductions. The principal advantage of deterrence is that, properly managed, it can provide us with the time to find a more lasting and less dangerous solution to our nuclear predicament. The question at issue is what form deterrence should take; but we must also recognise that it must eventually be replaced with an alternative approach which will lead to the complete elimination of nuclear weapons and a reduction in the risk of a war generally. These issues are taken up in the following chapter which provides the Committee's views on what needs to be done to avoid the risk of nuclear war in both the immediate future and over the longer term.

CHAPTER TWENTY
ENDNOTES

1. Common Security: A Programme for Disarmament, The Report of the Independent Commission on Disarmament and Security Issues, London, Pan Books, 1982, p.6.
2. Michael Howard, 'Reassurance and deterrence: Western defense in the 1980s', Foreign Affairs, Volume 61, Number 2, 1983 (incorporated as Submission, pp.S166-173), p.322.
3. See for example Jonathan Schell, The Abolition, Picador, 1984; and Freeman Dyson, Weapons and Hope; New York, Harper and Row, 1984.
4. Jerry D. Smith, Submission, pp.S1082-1091.
5. William Epstein, The Prevention of Nuclear War: A United Nations Perspective, Cambridge, Massachusetts, Oelgeschlager, Gunn and Hain, 1984, p.60.
6. Frank von Hippel, et. al., 'Stopping the Production of Fissile Material for Weapons', Scientific American, September 1985, pp.40-47; and 'Breaking the Fuel/Weapons Connection', Bulletin of the Atomic Scientists, March 1986, pp.26-31.
7. See Jack N. Barkenbus and Alvin M. Weinberger, 'Defense-protected build-down', Bulletin of the Atomic Scientists, October 1984, pp.18-23.
8. See Nunn-Warner Working Group on Nuclear Risk Reduction, 'A risk reduction center', Bulletin of the Atomic Scientists, June/July 1984, pp.28-9.

CHAPTER 21

RECOMMENDED STRATEGIES AND POLICIES

Introduction

21.1 This Chapter provides the Committee's views on what needs to be done to ensure international peace and security in the nuclear age. The greatest danger facing humanity today is the threat of nuclear war. We will only be safe from this threat when nuclear weapons have been abolished. Our overall objective therefore should be to eliminate all existing nuclear weapons and set in place a means of preventing their reappearance at some time in the future. The Committee acknowledges that the complete abolition of present-day nuclear arsenals would take considerable time. While nuclear weapons remain in existence, we must also pursue measures which minimise the risk of them being used.

21.2 The Committee's views and recommendations cover strategies, organising principles and policies for satisfying these two basic objectives in both the short and longer term. In the Committee's view, our immediate goal should be to consolidate and stabilise our current nuclear circumstances, and begin moving toward a position of mutual deterrence at much lower levels of nuclear armaments than currently exists. This would involve pursuing policies which seek to:

- a. arrest the spread and continuing competition in nuclear arms;
- b. minimise the risk of nuclear war occurring by accident or miscalculation;
- c. establish a condition of mutual deterrence at reduced levels of nuclear armaments; and
- d. improve United States-Soviet relations, and encourage the political liberalisation of Soviet society.

21.3 These short-term changes focus primarily on the superpowers, and represent an essential first step towards achieving total nuclear disarmament. While all are important, priority should be given to arresting the arms competition. The Committee recognises that the changes are not easy. They would need to be achieved largely through formal negotiations although there would be some scope for unilateral initiatives by both sides. The basic motivation for change would be mutual self-interest; in the Committee's view a continuing and expanding arms competition does not serve the interests of either superpower. The basic strategy allows some replacement of nuclear forces and capabilities with non-nuclear ones, where this is considered necessary, although we must keep in mind the potential dangers and destructive power of modern conventional weapons and

be careful not to increase the risk of conventional war between the superpowers. It also seeks to establish a base for facilitating eventual total nuclear disarmament by reducing the number, categories and characteristics of nuclear weapons and forces, and move towards a situation where nuclear weapons are maintained only to deter a nuclear attack by another nuclear power.

21.4 The continuation of mutual deterrence, even at reduced levels of armaments, will not eliminate the risk of nuclear war and so does not provide an adequate basis for global peace and security in the longer term. To achieve this, we need to develop a universal commitment to, and an effective means of achieving, total nuclear disarmament, as well as the renunciation of war as an instrument for settling international disputes (any prolonged large-scale war would eventually lead to the reappearance of nuclear weapons). The Committee considers that our long-term goals should be to eliminate all remaining nuclear weapons and to replace deterrence with a doctrine of collective or common security. Given the nature of the task, action to achieve these goals should be pursued concurrently with our attempts to arrest the present arms competition and re-establish mutual deterrence at a reduced level of nuclear armaments.

Short-Term Strategies and Policies

21.5 As noted in the previous chapter, the Committee considers that in the short-term we have little alternative other than to continue with the concept of deterrence. Although the concept represents the only feasible short-term solution to the problem of avoiding nuclear war between the superpowers, there remain the questions of what form it should take and how long we might expect nuclear deterrence to work? The answers to these questions in turn require an assessment of the risks associated with the different ways in which nuclear deterrence can be achieved.

21.6 In Chapter 4 we noted that deterrence aims to convince a potential adversary that he has nothing to gain by using force, or threatening to use it, and that he runs the risk of having to accept serious setbacks in the event of a conflict, setbacks that would decisively weaken his position of power. Confronted by the high costs involved, the adversary is deterred from carrying out his actions. We also saw that nuclear deterrence can be carried out in two ways:

a. Basic Deterrence which seeks to deter an adversary from launching a nuclear attack by threatening to destroy his cities and major urban-industrial centres in a retaliatory strike. This form of deterrence requires only relatively modest nuclear forces which are capable of surviving an initial attack by the other side. When both sides possess this capability - a

condition known as Mutual Assured Destruction or MAD - then each is deterred from using nuclear weapons against the other. Basic deterrence is directed solely at preventing the use of nuclear weapons. It currently forms the basis of the strategic nuclear policies of the United Kingdom and France, and it is central to the strategy of minimum deterrence, which has been proposed by some for the United States and the Soviet Union.

b. Extended Deterrence which seeks to deter an adversary from attempting to achieve a range of foreign policy or military objectives by threatening to deny him an advantage at whatever level of action he chooses. This form of deterrence incorporates the strategy of basic deterrence but also seeks to deter a range of other potential nuclear and non-nuclear threats through the threatened use of nuclear force. It requires extensive military forces and capabilities and underlies the current strategic nuclear policies of the United States - the so-called 'countervailing' theory of deterrence - and the Soviet Union (even though the latter's policies are not described in terms of deterrence). A full discussion of these policies is contained in Chapter 4.

21.7 Chapter 4 also showed that neither of these forms of nuclear deterrence is totally satisfactory since the weapons remain in place and there is no guarantee that they will not be used in some future military conflict between the superpowers. Furthermore, both forms of deterrence pose certain problems and risks which need to be addressed. Basic deterrence is relatively simple to carry out and does not necessarily entail an arms race. But it may not prevent military conflict from occurring below the level of strategic nuclear arsenals. It also provides little flexibility for decision-makers in the event that deterrence fails. Nor does it provide any scope to terminate a nuclear conflict once it has begun. Extended deterrence overcomes some of these problems, but it is a highly complex means of preventing a full scale military exchange. Its credibility crucially depends on being able to limit a nuclear conflict to something well short of a strategic exchange.

21.8 Much of the deterrence debate is over the relative risks of these two basic approaches. Those who favour extended deterrence argue that it is more credible than basic deterrence, and therefore more likely to be successful in preventing military conflict between the superpowers. They consider that extended deterrence has been instrumental in preventing such conflict to date and that the possibility of deterrence failing in the future is very remote. They acknowledge that there are developments in hand which could 'destabilise' the present

system of deterrence (see for example, paragraph 21.35), but consider the impact of those developments can be satisfactorily managed without altering the underlying approach. Some, the advocates of the so called 'prevailing' theory of deterrence, would like to see the current system of deterrence extended to include the capability to 'fight and win' a nuclear war.

21.9 Critics of extended deterrence, on the other hand, consider that its intrinsic problems outweigh any benefits that may have been obtained by seeking to move away from basic deterrence. They argue that the search for more credible options has led to a proliferation of nuclear weapons and capabilities which are increasing rather than decreasing the risks and consequences of military conflict between the superpowers. In their view, the continued development of counterforce weapons and associated doctrines by both sides are extremely destabilising and need to be either eliminated or strictly controlled. Some critics argue for a return to a system of basic deterrence - in which nuclear weapons are used only to deter a nuclear attack by the other side - and other non-nuclear means are devised to satisfy the remaining foreign and defence policy objectives. Others seek to reduce the size and scope of the existing nuclear arsenals and ensure the overall survivability of nuclear forces of both sides through arms control agreements.

21.10 The Committee accepts that there are advantages and disadvantages to each approach. On balance, however, it considers that the continuing development and increase in nuclear weapons is serving to decrease rather than enhance international security and the world would be far safer if the nuclear weapon states were to reduce and ultimately remove their reliance on nuclear weapons as instruments of national policy. This belief is based on the following underlying features of our nuclear world:

a. nuclear war is unlikely to be limited. Nuclear weapons are not war-fighting weapons. Their destructive power and the size of current nuclear arsenals make nuclear weapons almost impossible to control. Once the nuclear threshold is crossed, we could move towards an all-out (and final) exchange;

b. there would be no winners in a nuclear war. Nuclear war of any kind would amount to an unprecedented catastrophe for humanity and could even result in the extinction of life on earth. While the nuclear threshold for global extinction cannot be calculated, it is probably well below the explosive power of the current nuclear arsenals. The potential consequences of nuclear war including the 'nuclear winter' effect, make it sharply distinguishable from conventional or non-nuclear conflict; and

c. there is currently no defence against nuclear attack. There is no prospect for at least the foreseeable future of either side developing effective defences against current nuclear arsenals although the SDI program is researching the feasibility of such a defence. At present, both superpowers remain vulnerable to a crushing attack by the other and it is in their mutual interests to cooperate to prevent nuclear war occurring. Neither superpower can hope to gain a significant and abiding military advantage over the other. Any attempt to establish overall superiority in military forces or capabilities is both impractical and dangerous.

21.11 The Committee further considers that while nuclear weapons remain deployed, we must pursue policies which minimise the chance of nuclear war while still preserving security and freedom, and facilitate progress towards nuclear disarmament. With this in mind, the Committee considers that our first objective should be to stabilise our present circumstances rather than introduce changes which may exacerbate existing trends and pressures. This would involve implementing a range of measures aimed at arresting the current arms competition and ensuring stability in the strategic balance.

21.12 Our second broad objective should be to begin moving to a position of mutual deterrence at much lower levels of armaments than currently exist. Deterrence at this level should be based on the notion of 'essential equivalence' in which there is an overall balance of forces and capabilities between the superpowers. Planned reductions in nuclear arsenals should be based on a principle of undiminished security for all parties, and enable each side to design and structure its forces to meet its own strategic and national security requirements. They should also seek to raise the nuclear threshold and reduce reliance on nuclear weapons and forces as a means of pursuing political and foreign policy objectives. In the Committee's view we need to return toward a situation where nuclear weapons are maintained only to deter nuclear attack by another nuclear weapon state. This can be achieved in the first instance by using conventional forces and doctrines to replace nuclear ones although we must recognise the potential dangers and destructive power of many modern conventional weapons and so seek to establish conventional deterrence at a balance of forces which is lower and less threatening than currently exists.

21.13 The Committee recognises that the achievement of these basic objectives over a relatively short time frame will not be an easy matter, particularly in view of the continuing poor relations between the superpowers. Nonetheless, the Committee considers that these objectives are possible given sufficient political will and that there are very sound reasons to seek to make these changes sooner rather than later. In the initial

stages, an appropriate organising principle for change, at least as far as the superpowers are concerned, can be mutual self-interest. While United States-Soviet relations will continue to be marked by intense defence competition as long as their government systems remain so different, it is however in their mutual interest to ease this burden or at least transfer it into less dangerous pursuits. To be effective in the long term, any significant agreements to reduce armaments must be grounded in a structure of vastly improved and stable East-West relations and understanding. Thus, concurrent with any progress in arms control must be a gradual normalisation of political relations between the two states. This is probably dependent on some liberalisation of the Soviet system of government.

A. Arresting the spread and continuing competition in nuclear arms

21.14 The period since the end of the Second World War has witnessed a steady growth in the number of nuclear weapons deployed throughout the world. While the SALT accords have halted the growth in the size of the strategic arsenals of the two superpowers, there has been no progress in limiting nuclear warheads that can be delivered by shorter-range systems such as cruise missiles, aircraft and artillery. The number of intermediate and tactical nuclear weapons on both sides has continued to increase and be integrated into the military structures of both sides. There is also a possibility that the superpowers may expand their strategic arsenals. The Reagan Administration has given notice that it may no longer abide by the unratified provisions of the SALT II Treaty. Should the United States decide to break out of the SALT accords, the Soviet Union is certain to follow suit and is more able to do so by virtue of its higher-payload rocket forces. In addition, both superpowers are continuing to investigate new, 'third generation' weapons such as x-ray lasers which are powered by nuclear explosions; low yield, enhanced radiation warheads; and warheads which provide very high levels of electromagnetic pulse (EMP) which could be used to burn out enemy communications.

21.15 Concurrent with the expansion of the nuclear arsenals of the superpowers, there has been a gradual spread of nuclear weapons to other states. There are now five recognised nuclear weapon states - the United States, the Soviet Union, Great Britain, France and the People's Republic of China - and a sixth nation, India, detonated what it called a 'peaceful nuclear explosion' in May 1974. There is also a significant number of countries suspected of either possessing nuclear weapons or being very close to possessing them. These so called 'threshold states' have been alleged to include Israel, South Africa, Pakistan, Brazil, Argentina and Iraq.

21.16 The Committee considers that there is an urgent need for agreements which limit the number and continued development of nuclear weapons. Such agreements would contribute to

arresting the continuing and upward momentum of the arms race and so provide a basis for stabilising our present nuclear circumstances and seeking major reductions in armaments. In the Committee's view, the present arms race could be arrested by pursuing the following basic strategies:

1. reaffirming existing arms control agreements;
2. freezing the production of fissile material;
3. concluding a comprehensive test ban treaty;
4. prohibiting certain destabilising technologies:
 - I prohibiting the further development and deployment of anti-satellite (ASAT) weapons;
 - II prohibiting the unilateral deployment of space-based missile defences;
 - III limiting the deployment of the cruise missile; and
5. strengthening the nuclear non-proliferation regime.

1. Reaffirming existing arms control agreements

21.17 The arms control agreements made to date, while few in number, have nonetheless made some contribution to controlling the nature and scope of the central arms competition as well as slowing the spread of nuclear weapons beyond the superpowers. The most important of these are the SALT treaties, including the anti-ballistic missile (ABM) agreement, and the nuclear non-proliferation treaty (NPT). All these agreements are threatened by continuing advances in technology and the actions of the two superpowers. Continued research and development by both the United States and the Soviet Union into anti-ballistic missile defences and related technologies, together with recent advances in anti-tactical ballistic missiles and large phased-array radars are threatening to circumvent the provisions of the 1972 ABM Treaty. The Reagan Administration has given notice that its future adherence to the SALT II accords will be determined by the Soviet Union's compliance record. And international confidence in the NPT is being eroded by the failure of the superpowers to negotiate arms reductions.

21.18 Until new agreements can be negotiated limiting the spread and further development of the nuclear arsenals of the two superpowers, the Committee considers that it is vitally important that each continues to abide by the provisions of existing agreements and not pursue actions which would undermine confidence in the present arms control regime.

2. Freezing the production of fissile material

21.19 The Committee considers that a first step in arresting the arms race would be to freeze the further production of fissile material for use in nuclear weapons. Such a move would place an overall limit on the size of the nuclear arsenals of the nuclear weapon states without constraining their ability to take advantage of new technologies or restructure their nuclear forces. It would also provide a relatively simple basis for effecting mutual reductions; the two sides would simply agree to further reduce their stockpiles of fissile material.

21.20 Such a proposal should be acceptable to both superpowers since each has adequate (estimated to be more than 600 tons of weapons-grade material) and approximately equal stockpiles of fissile material, and both are currently in favour of deep reductions in nuclear forces. Moreover, both the Soviet Union and the United States have, at different times, expressed support for freezing the production of fissile material.

21.21 A major problem would be in determining an agreed means of verifying compliance with the agreement as well as ensuring that fissile material was not being diverted from the civilian fuel cycle. This could be initially overcome by each side unilaterally agreeing to phase out production over a number of years while negotiating acceptable means of verifying a cut-off agreement. The Committee considers that adequate verification procedures could be achieved by utilising the expertise and resources of the International Atomic Energy Agency, although these may have to be supplemented by other means in order to ensure that there were no significant clandestine production facilities. The verification process would be strengthened if the nuclear powers agreed to place all their civilian nuclear facilities under IAEA safeguards.

3. A comprehensive test ban treaty

21.22 The Committee considers that a treaty banning nuclear tests by all nations in all environments for all time would also serve to limit the number and continued development of nuclear warheads and so place a further overall constraint on the nuclear arms race. A comprehensive test ban treaty would make it more difficult for existing nuclear weapon states to develop nuclear warheads of new designs or weapons utilizing new physical principles. It would make it hard for other nations to acquire a credible nuclear weapons capability or to build up sizeable stocks of nuclear warheads and it would serve to bring pressure upon those countries contemplating entry into the nuclear weapons technology.

21.23 In addition, the signing of a comprehensive test ban treaty is now generally accepted as the best way the superpowers can demonstrate to the world that they take seriously the pledges they made in the 1963 Partial Test Ban Treaty to achieve

a comprehensive test ban, and in the 1968 Nuclear Non-Proliferation Treaty to move towards nuclear disarmament. A CTB would also enhance the acceptability and credibility of the NPT, which is the most important component of the existing non-proliferation regime.

21.24 The Committee considers that these advantages outweigh any potential benefits likely to accrue from continued testing (such as improved safety or smaller - yield weapons). The Committee also considers that a comprehensive test ban treaty would not undermine deterrence or threaten the security interest of either superpower. The Committee is of the view that it is possible to adequately verify such an agreement using existing technologies provided they can be supplemented by agreed procedures for consultation and on-site inspections. The Committee considers that prior to ratifying a test ban treaty, the superpowers should participate in a voluntary moratorium on all nuclear tests, and they should immediately ratify the Partial Test Ban Treaty and the Peaceful Nuclear Explosions Treaty.

4. Prohibiting certain destabilising technologies

21.25 Banning the production of fissile material and the testing of nuclear warheads would not prevent continuing qualitative changes in the arms competition since most advances relate to delivery systems rather than warheads. The Committee accepts that technological change could have a beneficial effect on the strategic balance and so in some circumstances should proceed. Largely for this reason, and doubts over whether it could be effected or verified, the Committee does not favour a complete freeze on the development, production and deployment of all new weapons systems or associated technologies. It is also the case, however, that it is far easier to prevent the extension of the arms race in some new direction than attempt to reverse changes that are allowed to take place. As a general principle, the Committee considers that unless there are clear and unequivocal advantages in adopting new technologies or weapons systems, the arms competition should be constrained within its current boundaries.

21.26 In line with this principle, the Committee considers that every effort should be made to prevent the extension of the arms race into outer space. The continued development by both superpowers of anti-satellite (ASAT) weapons and the pursuit of space-based defences against strategic ballistic missiles could precipitate an unrestrained competition in offensive and defensive weapons on Earth and in space and undermine the limited progress that has been made in arms control to date. There should also be constraints placed on those technical developments which will reduce the capacity for early warning, the collection of strategic intelligence and the verification of arms control agreements. These technologies include 'dual purpose' weapons such as cruise missiles, the various 'stealth' technologies, and certain mobile ICBMs.

21.27 Specific initiatives favoured by the Committee are:

I. Prohibiting the further development and deployment of anti-satellite (ASAT) weapons. At present, the United States and the Soviet Union have only limited ASAT capabilities which do not pose a significant threat to their adversary's satellite systems. Both sides are pursuing research into ASAT related technologies and weapons, however, and in the absence of negotiated constraint, are likely to develop a much more sophisticated and extensive capacity for engaging in anti-satellite warfare. The Committee considers that such a development would not serve the interests of either superpower. The Soviet Union, and especially the United States, are heavily reliant on satellite-based surveillance and command, control and intelligence systems and the presence of weapons in space is likely to reduce rather than enhance the security of the two nations.

II. Prohibiting the unilateral deployment of space-based missile defences. Both the United States and the Soviet Union are engaging in research into weapons systems and associated technologies which could be used to deploy space-based defences against ballistic missile attack. The Committee considers that achievement of effective space-based defences against current arsenals is unlikely. More importantly, the unilateral pursuit of space-based defences by either side is likely to set in motion a chain of events and reactions that would make reductions in nuclear forces very difficult, destabilise the current strategic balance, and undermine the limited progress that has been made in arms control to date. The Committee considers that the two superpowers should negotiate an agreement prohibiting the testing and deployment of space-based missile defences.

The Committee considers that the present system of deterrence could be replaced by one based on the deployment of ground-based defensive systems. But the essential prerequisites of a defence-dominated future are dramatically improved superpower relations and major reductions in current offensive nuclear forces, followed by parallel, or preferably, joint development of defensive systems.

III. Limiting the deployment of the cruise missile. The cruise missile represents a revolutionary departure from existing nuclear-armed missiles in that it is capable of performing similar missions (including the provision of a second-strike capability and various counterforce options at the tactical, theatre and strategic levels) but because of its small size and the fact that it is indistinguishable from conventionally-armed missiles, is very difficult to detect or identify. This makes the verification of any agreement involving cruise missiles very difficult and adds to the risk of nuclear escalation in war since the defending side would not know whether incoming missiles are armed with nuclear or conventional warheads.

Both the United States and the Soviet Union have developed and tested cruise missiles but neither has yet deployed them in large numbers. By the early 1990s, the United States will have converted the whole of its strategic bombers to carry ALCMs and will have produced nearly 4 000 Tomahawk cruise missiles for use on surface ships and submarines. Without some form of negotiated constraint, the Soviet Union will almost certainly follow the American lead.

The Committee considers that there should be a verifiable freeze on the production and further deployment of cruise missiles. At present, this could be achieved by negotiating a ban on flight-testing - which would prevent the Soviet Union from deploying large numbers of cruise missiles - and incorporating current U.S. and the more limited Soviet stocks into a mutual arms reduction agreement.

5. Strengthening the non-proliferation regime

21.28 Preventing the spread of nuclear weapons to non-nuclear weapon states is a critical element in any international effort to arrest the nuclear arms race. The existence of independently controlled nuclear arsenals in the hands of minor nuclear powers and the expanding nuclear capabilities of the so-called 'threshold states' will reduce rather than enhance international security and so ensure a continuing arms build-up throughout the world. A strong international non-proliferation regime will also maintain pressure on the nuclear weapons states to seek significant reductions in their nuclear arsenals.

21.29 Current efforts to restrain the spread of nuclear weapons are based on a loose combination of treaty commitments not to acquire nuclear weapons; informal and voluntary

understandings of nuclear supplier states to limit certain nuclear cooperation with other states; bilateral agreements between some nuclear supplier states and their clients; and a general predisposition against nuclear weapons. The most important element in the non-proliferation regime is the Nuclear Non-Proliferation Treaty (NPT) which commits non-nuclear weapon states to refrain from acquiring nuclear weapons in return for assistance in civil nuclear matters and progress by the existing nuclear powers towards quantitative and qualitative nuclear disarmament. The NPT is widely accepted (it currently has 132 signatories) but has not been signed by a number of countries including France, China, India and most of the 'threshold' states.

21.30 The Committee doubts whether the current proliferation status could be reversed, at least in the short term. It considers, however, that it is important for horizontal proliferation to be contained so that its potentially destabilising effects can be managed with minimum danger. The Committee considers that this requires:

I. strengthening the existing political, economic and technical barriers to acquiring a nuclear weapons-producing capacity or, in the case of the threshold states, to moving up the proliferation ladder;

II. monitoring and controlling the development and introduction of new technologies, such as the breeder reactor and the laser-enrichment process, which could increase the risk and pace of proliferation; and

III. fostering an international strategic and political environment in which individual nations feel more secure and have less incentive to develop and maintain nuclear weapons, or proliferation-prone nuclear technologies.

21.31 The principal means of achieving these objectives is already in place in the form of the present non-proliferation regime. In the Committee's view, the extension of this regime, and its underlying presumptions against further proliferation will depend on:

I. progress in nuclear disarmament by the nuclear powers;

II. stronger and more concerted measures by the nuclear weapons states, and supplier states, to prevent the transfer of nuclear materials and technologies to countries that are not parties to the NPT;

III. adherence by all states to the NPT;

IV. development and promotion of civilian fuel cycles that are restricted to using low-enriched uranium;

V. identification and strengthening of control over reprocessing and enrichment technologies and 'dual-use' items that have application in nuclear and non-nuclear industries;

VI. encouragement of multilateral actions to restrict access to proliferation prone technologies and to punish proliferative action by withholding assistance and considering other economic and political sanctions; and

VII. 'threshold' states adopting IAEA safeguards for their civilian nuclear facilities (whether or not they join the NPT).

21.32 The Committee also considers that the Nuclear Non-Proliferation Treaty could be expanded and strengthened by:

I. requiring the nuclear weapons states to adopt 'full-scale' IAEA safeguards for their civil nuclear industry; and

II. increasing nuclear assistance and options to member states of the NPT which have a need to adopt nuclear energy for peaceful purposes, for example, by multi-nation participation in the operation of sensitive facilities, such as reprocessing plants, provision of turn-key reactors, and return of spent fuel to supplier states.

21.33 Nuclear weapon free zones. The Committee considers that the concept of nuclear free or nuclear weapon free zones constitutes an important means of preventing the spread of nuclear weapons. Such zones normally require states in the region not to manufacture or otherwise acquire nuclear weapons for their own use, and extra-regional states not to deploy such weapons into the zone or use or threaten to use nuclear weapons against zone states. Nuclear weapon free zones are already in place in Latin America and the South Pacific and have been proposed for regions in Africa, Europe, South Asia and the Middle East.

21.34 In seeking to implement this concept, it is important that the initiative comes from, and be supported by, the countries in the proposed zone; that the zone should preserve the regional status quo including existing security arrangements; it should be supported by the nuclear weapon

states; and that its provisions should be capable of verification. (However, it is probably true that nuclear weapon free zones have a symbolic value). This should not prevent individual states from prohibiting the development or housing of nuclear weapons in its territory, or from seeking no-use guarantees from the nuclear powers.

B. Minimising the risk of nuclear war occurring by accident or miscalculation

21.35 As long as nuclear weapons continue to exist there is a chance that they may be used in combat. The greatest danger is that a future international crisis ultimately involving the two superpowers may get out of control and lead to military confrontation and conflict. So far the superpowers have been able to ride out even serious crises without great pressure to use nuclear weapons. There has always been time to find out what was happening and to engage in diplomacy to reduce tensions and avoid potential flashpoints. But a number of trends and developments are taking place which threaten to undermine future crisis stability:

- I. the miniaturisation of nuclear warheads and the deployment of increasing numbers of tactical nuclear weapons by both superpowers;
- II. the continuing development of increasingly accurate intermediate and long-range nuclear weapons which are targeted on, and deployed ever closer to, both sides' retaliatory forces and command centres thus raising fears of a possible first strike and steadily shrinking the warning and response times associated with such a possibility from hours to minutes; and
- III. the vulnerability of the strategic communications, command and control (C³) systems of both superpowers to attack and disruption especially with the projected developments in anti-satellite weapons and technologies.

21.36 If war seems imminent, even a partially successful strike against the command and control systems of an opponent may seem an attractive option since it would complicate his ability to coordinate a retaliation. In addition, neither superpower wants to risk being paralysed by riding out an attack and losing communications with its forces. More importantly, they are increasing the chances of an accidental, inadvertent or unauthorised launch of nuclear weapons. The continued deployment of strategic weapons with short flight times is also likely to lead both sides to consider various 'launch on warning' options, in order to ensure reliable retaliation, or to remove certain safety measures during an alert. The vulnerability of national command and control systems has also resulted in both sides

delegating the authority for ordering the use of nuclear weapons to subordinate authorities and certain commanders in the field.

21.37 The Committee would encourage the two superpowers to institute a range of measures which would prevent an international crisis involving the two superpowers from escalating out of control, and in the event of direct military conflict between the armed forces of the United States and the Soviet Union, minimise the likely use of nuclear weapons. In seeking to achieve these objectives, emphasis needs to be given to improving direct communications between the two sides, minimising the vulnerability of nuclear forces to a surprise attack, maximising the time available for consideration and consultation, and improving the survivability and reliability of the means of controlling nuclear forces. In addition to a ban on the further development and deployment of ASAT systems - which would lessen the threat against satellite-based command and control systems - other specific initiatives favoured by the Committee are:

- I. Establishment of a tactical nuclear weapon free zone in Europe and Asia and the ultimate elimination of all tactical nuclear weapons. The forward deployment of tactical and short-range nuclear weapons in Europe and along the Sino-Soviet border increases the risk of such weapons being overrun at the beginning of an armed conflict which in turn increases the chance that they may be used rather than lost to the enemy. Such weapons are also likely to be subject to predelegation of authority for use in combat and would be difficult to control once hostilities began. They lower the nuclear threshold and increase the prospect of escalation to an all-out exchange. The majority of battlefield nuclear weapons are presently concentrated in Europe although increasing numbers are beginning to be deployed into other regions. In addition, surface ships of both navies are now being equipped with a range of nuclear and nuclear-capable weapons including cruise missiles, anti-submarine weapons, surface-to-air missiles, and nuclear-armed aircraft.

The Committee recommends the establishment of a tactical nuclear weapon free zone as part of an agreement on mutual and balanced force reductions (MBFR) in Europe and similar negotiations between China and the Soviet Union. Ultimately the Committee would prefer to see all tactical nuclear weapons eliminated from the military arsenals of the nuclear weapon states since these add to the prospect of the escalation of nuclear warfighting. The Committee recognises that in the current political climate, the complete elimination of tactical nuclear weapons could only be achieved slowly. Initially, some

compensating changes in the conventional forces of both sides would probably have to take place concurrently in order to ensure that neither side could exploit a perceived advantage in conventional weapons. It would also have to be done through formal negotiations, and would probably take place in phases. The Committee considers that the current negotiations on Mutual and Balanced Forces Reductions (MBFR) could be extended to include the question of tactical nuclear weapons, although in view of its lack of results to date, it may be better to hold separate, bilateral negotiations perhaps as part of the 'umbrella' talks at Geneva.

II. Pursuit of confidence-building and crisis control measures. The Committee considers that the superpowers could reduce uncertainty in the minds of their adversaries over actions and intentions by facilitating a greater exchange of information on nuclear forces and activities, providing continuous consultation during periods of hostility, and developing explicit rules of engagement for various crisis or conflict scenarios involving the military forces of the two nations. It considers that the present facilities established under the 1963 Hotline and subsequent modernisation Agreements (see Chapter 2) should be maintained but are inadequate. The existing facilities are normally only used in times of emergency and involve communications across a 10 000 km gap. The Committee encourages specific measures such as appropriate meetings between officials on each side; an air incidents agreement similar to the 1972 Incidents at Sea Agreement; an exchange of information about strategic assets or capabilities; advance warning of military activities and observation of exercises by independent observers; and maintenance of contact between the political leadership of each side.

The Committee notes that progress in establishing some of these measures is being made in the multilateral Conference on Confidence and Security Building Measures and Disarmament in Europe (CDE) talks taking place in Stockholm. It supports the continuation of this process and the establishment of similar forums covering other regions where opposing forces directly confront each other.

III. Removal or phasing-out of time-urgent weapons and targets which reduce warning and response times available to decision-makers and provide an incentive for launching a first strike. These include:

1. MIRVed land and sea-based missiles such as the U.S. MX and Soviet SS-18 ICBMs. These could initially be replaced with single-warhead missiles, which would lessen the ability for either side to destroy all of the other's ICBMs in a pre-emptive attack;
2. the U.S. Pershing II and the majority of Soviet SS-20 intermediate range ballistic missiles; and
3. Soviet offshore SSBNs with depressed trajectory missiles that can destroy U.S. military and other targets in a matter of minutes after launch.

C. Establishing mutual deterrence at a reduced level of armaments

21.38 The continuing arms competition between the superpowers and the dictates of their respective counterforce strategies have resulted in the deployment by both sides of tens of thousands of nuclear warheads, and the increasing integration of nuclear and conventional weapons. The two superpowers now have large numbers of nuclear weapons which can be used in strategic, theatre and tactical roles, and they have expanded their operational concepts and doctrines to cover nuclear warfare at the two lower levels. This is in spite of the fact that the leaders of the two superpowers have publicly acknowledged that a nuclear war 'cannot be won and so must never be fought'.

21.39 The Committee considers that the only function of nuclear weapons which cannot be achieved with conventional military forces or by other, non-military means is to discourage other nations which possess such weapons from using them to attack or threaten to attack the basic interests of the state. The Committee further considers that both the United States and the Soviet Union have far more nuclear weapons than they need for achieving nuclear deterrence. Accordingly, it considers that both superpowers should reduce their current nuclear arsenals to much lower levels, and that they should reverse the growing trend towards the 'conventionalisation' of nuclear armaments.

21.40 These changes may require, in the first instance, a closer approximation of the relative strengths in conventional weapons of NATO and the Warsaw Pact, and the development of new doctrines for conventional deterrence in order to offset reductions in, or changes to, existing or projected nuclear capabilities. Ultimately, however, the Committee considers that a balance of conventional forces should also be sought at much lower levels than currently exists.

1. Mutual reductions in strategic nuclear arsenals

21.41 In the Committee's view, any reductions in current force levels need to satisfy a number of broad objectives:

- I. they need to be verifiable;
- II. they should be significant enough to represent a real change, but without threatening to upset the strategic balance or undermining the security of either superpower. The Committee considers that an overall reduction of 50 per cent of existing forces would be a reasonable initial target;
- III. they should maintain parity between the strategic forces of the two sides. Here, the Committee considers that parity should be defined as an overall balance, or a balanced combination of asymmetries, rather than an exact matching of forces;
- IV. they need to facilitate progress towards significant nuclear disarmament. This can be best achieved by aiming to simplify the roles, categories and characteristics of the residual nuclear forces; and
- V. they should be feasible and achievable over the short and middle term. This is likely to require that the reductions be fair, verifiable and avoid as far as possible arguments over technical detail.

21.42 As noted earlier, the Committee recognises, in terms of *realpolitik*, a successful arms reduction proposal should also allow for a degree of modernisation, enable each side to structure its own forces in accordance with its particular national security requirements and perceptions, and take into account all categories or types of forces which have a bearing on the strategic balance as well as specific issues of concern to the negotiating parties. The later steps in the reduction process may also need to incorporate the nuclear forces of the minor nuclear powers as well as provide protection against the rapid expansion of the nuclear capabilities of a so called 'threshold-state'.

21.43 The Committee has found that none of the proposals for mutual force reductions suggested by the superpowers to date (or indeed many of the alternatives suggested by independent observers or peace groups) satisfy sufficient of these requirements to ensure an agreement. Nonetheless, there are in

the Committee's view, some concepts and elements contained in the different proposals which are worthy of further consideration as part of any future proposal or negotiations. These are:

- I. the concept of 'build-down' which provides for concurrent reductions in armaments and some modernisation of the superpowers' arsenals, however this should be within agreed limits;
- II. the simultaneous consideration of strategic and intermediate-range nuclear forces, including allied forces;
- III. phased reductions rather than a single move since this enables both sides to adjust to each new level and minimises the risk of political or military fall-out;
- IV. percentage reductions rather than decreases in absolute numbers of weapons since they have a greater impact on the arms of the side with the larger arsenal and so progressively reduce the more obvious differences between the two sides; and
- V. the use of fissile material as a possible currency of reduction. This approach would not depend on problems associated with categorising weapons systems and may be easier to verify and control.

2. Avoiding large-scale conventional war

21.44 While reducing reliance on nuclear weapons and creating a 'firebreak' between conventional and nuclear war will reduce the risk of nuclear conflict, we should also ensure that the prospect of conventional war is not simultaneously increased. A large-scale conventional war may be considerably, less destructive than even a 'limited' nuclear war - and therefore can be considered to be the lesser of the two evils - but if it becomes protracted then it could well see the introduction of nuclear weapons.

21.45 The Committee considers that negotiations for reducing the nuclear arsenals of the two superpowers must proceed in parallel with, or be preceded by, a negotiated agreement for establishing approximate parity in conventional forces between the two alliances and at reduced levels. In view of the complexity of such negotiations, the initial talks should focus on the current Mutual Balanced Force Reduction (MBFR)

negotiations taking place in Vienna. The Committee acknowledges that there has been little progress made in these talks to date, but considers that formal linkage of mutual reductions in nuclear forces to the establishment of a conventional balance in Europe could provide an added incentive to reach agreement.

3. Prohibiting the development, possession and use of chemical weapons

21.46 The present chemical and biological warfare (CBW) disarmament and arms control regime and efforts to extend it are being subjected to pressures which could undermine the regime and lead to the vertical and horizontal proliferation of chemical and biological weapons. These pressures include the modernisation and upgrading of United States' chemical weapons capabilities (including binary weapons) in response to a perceived Soviet build-up; the increasing emphasis of both sides on improving CW protective measures for their armed forces; persistent accusations over alleged usage and transfer of chemical weapons to third parties; and the linking of CBW violations with alleged infractions of other arms control treaties. The principal rationale for the build-up of chemical weapons is to deter the possible use or threatened use of such weapons by another state.

21.47 The Committee considers that, like nuclear weapons, chemical and biological weapons pose a serious and unnecessary threat to the civilian populations of states likely to be involved in this kind of warfare. Unlike the case of nuclear weapons, however, the Committee sees no reason why existing stocks of chemical weapons could not be rapidly disposed of and the current CBW arms control regime be strengthened by an agreement banning all further development, possession and use of such weapons or related products.

21.48 The Committee notes that there has been little progress in the Conference on Disarmament towards establishing a general convention prohibiting the possession and use of chemical weapons. It considers that these negotiations should continue but that, as a matter of urgency, the United States and the Soviet Union should recommence bilateral talks on banning all such weapons.

21.49 The Committee is also concerned over the growing incidence of biological and related research which could give rise to the development of biological weapons. This latter development is currently outlawed by the 1975 Biological Weapons Convention. Modern biological weapons pose a threat to humanity which is probably only second to that posed by nuclear weapons. The Committee considers that an international convention should be established which would prevent research and development aimed at the production of biological weapons.

D. Improving United States-Soviet relations

21.50 Many of the policies and changes that have been proposed will not be possible without a significant improvement in the relations between the superpowers. Such a change will not be easy. The two societies are quite different and cannot be treated on equal grounds or in equal ways. Moreover, the respective national leaderships of the United States and the Soviet Union are subject to a range of domestic and international pressures which serve to limit their freedom of action in determining and announcing public policies. The pressures on the United States leadership are well known. Those influencing Soviet policy are less obvious and they differ in many respects from the kinds of pressures which characterise the 'open', democratic societies of the West. Nonetheless they exist, reflecting the bureaucratic nature of the Soviet system and the range of preferences of its various elites. These encompass differing views on how Soviet objectives are best achieved and embrace both foreign and domestic policies.

21.51 The official relationship between the United States and the Soviet Union has been characterised by a high degree of mutual suspicion and distrust. The two countries have become locked into a confrontationist stance which is being reinforced by the continued development of powerful and threatening strategic arsenals, an increasing emphasis on military force as an instrument of national policy, and an uncompromising political dialogue which has tended to portray the superpower competition in terms appropriate to a new 'cold war'. The prevailing political climate has reduced the arms control process to little more than a propaganda exercise. Alleged violations of arms control agreements are being stressed, and concessions or unilateral measures of constraint are being interpreted as signs of weakness.

21.52 The continuing strained relationship between the United States and the Soviet Union makes it difficult for the two sides to consider measures to ease tensions and reduce armaments. Moreover, the respective governments have tended to become trapped by their rhetoric. Any dramatic attempt to improve relations could now prove unpopular, even costly, in national political terms. Nonetheless, the Committee considers that it is imperative that the current confrontationist and uncompromising stance be ameliorated. In the Committee's view, the establishment of a stable and more harmonious relationship between the superpowers is an essential prerequisite for stopping and reversing the arms race and reducing the risk of nuclear war. As long as relations between the superpowers remain dominated by suspicion, fear and mistrust, neither side will be prepared to countenance significant changes to their armed forces or alternative means of maintaining national and international security in the nuclear age. Moreover, in a steadily worsening political climate, even past achievements in controlling the spread of armaments are in danger of being revoked.

21.53 The Committee notes that relations between the United States and the Soviet Union have improved marginally over the last year or so. Despite this progress, the relationship remains strained and is entirely susceptible to internal political pressures, or the international behaviour of either side, or even statements by the two leaders or their representatives. Given the fragile nature of the current relationship, it is clear that any significant normalisation of relations between the United States and the Soviet Union could not be achieved overnight or in a single step. Rather a broad range of policies and actions are required including:

I. understanding between the superpowers on a political framework for continued global competition. Such an understanding could cover such issues as the principle of strategic equality, respective spheres of influence, rules governing superpower involvement in the Third World, and areas of mutual interest and cooperation (non-proliferation, space exploration, etc);

II. further normalisation of trade relations between the two nations;

III. increased exchange of persons and meetings between political leaders, servicemen, scientists, government officials, educators and others;

IV. expansion of the current range of bilateral scientific, technical and cultural exchange programs; and

V. maintenance and improvement of existing channels of communication such as summit meetings between the political leaders of the two superpowers and the Standing Consultative Committee established as part of the SALT accords.

This broad pattern of activities and contacts would seek to gradually reduce tensions and facilitate greater emphasis on cooperation rather than confrontation.

21.54 With the European experience in mind, another way of improving the international political climate and simultaneously facilitating progress in arms control, would be for an independent nation or group of nations to investigate possible areas of negotiation, consult with appropriate government officials from each superpower and develop proposals which would be satisfactory to both sides.

21.55 As part of any re-evaluation of East-West relations, the Committee considers that the basic strategies that are employed by both the United States and the Soviet Union to

maintain peace and security should also be examined. Nuclear weapons are only the means of threatening the peace; the real danger lies in the policy that drives them. The strategic nuclear policies of both superpowers are detailed in Chapter 4 and are generally described by the term deterrence. Deterrence is based on the notion that each side is kept in check by the other's armaments until through negotiations they agree on disarmament measures which both find satisfactory. Today there is approximate nuclear parity between the superpowers and so in theory they should be able to begin mutual reductions in armaments. What is happening though is that in order to deter its major adversary, each side is pursuing a policy of making its nuclear threat more credible, largely through the development of more 'counterforce' and 'war-fighting' options. This in turn threatens to undermine the strategic balance and leads both superpowers to continue their stockpiling of weapons.

21.56 The concept of deterrence then, as it is currently practised, is based on the premise that the more likely nuclear war seems, the less likely is the risk that it will break out. It is a prescription for the continuing arms race and it incorporates a number of assumptions which serve to emphasise certain patterns of thought and action which may restrict us in dealing with the basic problems presented by the existence of nuclear weapons; in short, deterrence tends as much to contribute to the problem as solve it. Deterrence gives primacy to a situation of confrontation between the United States and the Soviet Union. It ignores the potential impact of other nuclear-weapon states and it seeks to use military force to deter or 'contain' aggression as much as to avoid war. The focus on the threat posed by each side, whether justified or not, serves to narrow the policy's focus and unnecessarily limits the number of options that can be pursued. At the strategic level, for example, the emphasis on containment can result in a tendency to concentrate on the adversary's capabilities, while ignoring or playing down his intentions or interests. Strategic planning thus becomes entirely susceptible to 'worst-case' analysis which finds its expression in the continuing arms race.

21.57 In the longer term, any political accommodation between East and West will depend on a mutual understanding and appreciation of the nature of the adversary's society and its security perspectives. Reaching such an awareness is relatively straightforward in the case of the West but less easy for the Soviet Union and its allies because of the closed nature of their societies. Until much more information is made available by the Soviet Union, and its decision-making processes are subject to much greater public scrutiny, the West will continue to have difficulty understanding Soviet actions and perceptions. The promotion of gradual political change within the Soviet Union itself, especially greater access to information, a measure of real public debate and a more humane attitude towards its populace, could also provide the Soviet leadership with the necessary support to institute the broader political changes needed to address the wide-ranging economic and social problems currently facing the nation.

Multilateral disarmament as a long-term goal

21.58 Nuclear deterrence may reduce the prospect of nuclear war, but it does not eliminate it or the consequences of nuclear war should deterrence fail. The threat posed by nuclear weapons can only be effectively eliminated to the extent that the weapons themselves can be effectively eliminated.

21.59 While total nuclear disarmament is a worthy goal, it is also very difficult to achieve. Disarmament can only take place if individual countries are satisfied that their national security and national sovereignty are not jeopardised. Particular prior conditions include:

I. that no single state or group of states would obtain an advantage over others at any stage either during the disarmament process or following disarmament by, for instance, illicitly stockpiling nuclear weapons or being able to build them quickly; and

II. the elimination of nuclear weapons does not increase the prospect of conventional warfare.

These requirements in turn suggest that the disarmament process would need to provide for the participation of all states in negotiations, and that at least the major weapon states would need to be confident that compliance with the resulting agreements could be verified. The disarmament process would also need to cover non-nuclear weapons and capabilities and it would have to put in place alternative and acceptable measures which would guarantee both national sovereignty and international peace and security, during and after disarmament.

21.60 The Committee considers that there are no such measures currently in prospect. Concepts of world government are generally unacceptable as they would effectively amount to a world dictatorship. The role of the United Nations as an international peace-keeper is currently undermined by the veto powers of the major weapons states. Concepts of common interest or common security, while fine as philosophical ideals, are not easily translated into modes of action. A reliance on a system of non-nuclear deterrence could lead to a further expansion of the arms competition and the development of new generation conventional armaments which may be no less destructive than low-yield tactical nuclear weapons.

21.61 These problems and difficulties do not negate the importance of seeking alternative means of facilitating disarmament. What they suggest is that there is no simple or quick solution to the problem of eliminating the threat of nuclear war. A measure of nuclear disarmament can be achieved through negotiations between the superpowers. Total nuclear disarmament, however, is a vastly more complex undertaking which would require no less than altering our present international political institutions and value structures. Such changes may take many decades to achieve, if they are possible.

21.62 Even though total nuclear disarmament cannot be realised in the near future, it is necessary to make a start towards this objective now. It is better to move towards significant mutual reductions than allow the present escalation in arms to continue. This requires in the first instance that our short-term programs and policies lead toward the goal of eliminating nuclear weapons, not away from it. This means reducing the number, categories and potential uses of nuclear weapons held by both the superpowers and other nuclear weapons states. The Committee considers that the proposals described earlier in this Chapter, if implemented, could fulfil this requirement.

21.63 Equally important is the need to reduce the prospect of major conventional war. In the past, the presence of nuclear weapons has served as a restraint against conventional conflict between nuclear weapon states. The removal of, or a significant reduction in, nuclear weapons could lead to an erosion of this restraint leading ultimately to World War II-type aggression, or to World War I-type unplanned escalation from a small conflict to a big-power conventional war. In the Committee's view, the prospect of conventional war can be reduced by:

I. reducing the size of conventional forces held by all states and eliminating long-range offensive weapons that can be used to threaten other states;

II. halting big-power military involvement in the Third World. This includes both direct military intervention in regional disputes and the supply of arms, especially advanced weapons systems, to developing countries;

III. working to reduce the basic political, economic and social causes of tension and conflict throughout the world. This involves the support for the expansion of democracy and associated civil rights and liberties in all countries;

IV. working to improve and strengthen the United Nations and other international institutions that safeguard the rights of individual nations; and

V. working to advance international understanding and cooperation through increased trade, study and exchange of people.

However, it is the Committee's view that the existence of dictatorships of the so-called left and right, largely non-responsive to their own populations, is the most likely cause of major wars.

21.64 The Committee sees the need to limit trade in conventional weapons as particularly important, especially between advanced industrialised nations and those of the developing world. As detailed in Chapter 7 the transfer of conventional weapons to the Third World has continued to expand both in quantitative and qualitative terms. While the United States and the Soviet Union remain the largest exporters of arms, the number of arms suppliers is increasing. The major arms exporting countries are France, the United Kingdom, Italy, West Germany, China, Czechoslovakia, Spain, Sweden, Switzerland, Israel, North Korea, Singapore, East Germany, Holland, Belgium, India and South Africa. In addition, many Third World countries are slowly increasing their share of total arms exports and now collectively account for nearly four per cent of Third World imports.

21.65 The continued proliferation of conventional weapons and weapons-producing capabilities increases global and regional tensions and undermines stability as nations arm to defend themselves against potential aggressors. They thus contribute to an increasing risk of superpower conflict as well as causing enormous destruction and suffering through continued low-level military conflicts, and the diversion of a disproportionate amount of resources away from other areas of economic and social need. The Committee recommends that the United States and the Soviet Union should resume their Conventional Arms Transfer (CAT) talks and that the talks should be broadened to include other supplier states. It also supports the recommendation of the Palme Commission that 'supplier states should open talks aimed at establishing criteria by which they could regulate arms transfers on an equitable basis'. These criteria should include the principles that there should be no significant increase in the quantity of weapons transferred into a region and no first introduction of advanced weapon systems which would create new or significantly higher levels of combat capability within the region.

21.66 A third important area of activity is to develop in all countries and among all peoples a belief in the need for disarmament and a commitment by all nations to achieve it. Belief and trust are crucial, for without confidence in the outcome of the disarmament process, some nations will insist on keeping their own clandestine weapons in order to prevent being blackmailed. Fear of this possibility will lead others to do the same and very soon the world will experience a new arms race.

21.67 A crucial element in developing a consensus for disarmament is really to understand the nature and scope of the threat posed by the existence of nuclear weapons and by modern war generally. The topic is complex and information about it is often contradictory, fragmented, misleading or one-sided. Another step is to convert in each nuclear-armed country an aroused public consciousness into political action, although this is almost impossible in closed societies such as the Soviet Union. It is the political leaders in office who may decide whether the possibility of nuclear war will become a likelihood, and it is

they who have the authority to arrest and change our developing circumstances. As the Committee stated above, public opinion has less impact on the Soviet leadership than it does on the United States and its allies. Nonetheless, the Soviet Union is not completely immune from the force of international opinion. Moreover, the current Soviet leadership has given some indications that it would be prepared to enter into a more constructive political and arms control dialogue with the United States. In the Committee's own view, such an opportunity should not be wasted.

21.68 Over recent years, there has been growing awareness of the need for increased public participation in the disarmament debate and of the important role of public opinion in generating the necessary political will to recognise and move towards the goal of total nuclear disarmament. This broad recognition was reflected in the Final Document of the United Nations 1978 Special Session on Disarmament which stated in part that:

It is essential that not only Governments but also the peoples of the world recognise and understand the dangers in the present situation. In order that an international conscience may develop and that world public opinion may exercise a positive influence, the United Nations should increase the dissemination of information on the armaments race and disarmament with the full cooperation of Member States.

21.69 The Final Document also listed a number of specific measures to help 'mobilize public opinion on behalf of disarmament'. These measures are worth repeating here. They include:

I. the preparation and distribution by governmental and non-governmental information organs of printed and audio-visual material on disarmament efforts and the dangers of the arms race;

II. the proclaiming of a Disarmament Week each year starting on October 24 to foster the objectives of disarmament;

III. intensification of the activities of the UN Center for Disarmament (now the Department of Disarmament Affairs) and of UNESCO, to facilitate research and publications on disarmament, and of UNESCO's program aimed at the development of disarmament education as a distinct field of study;

IV. increased participation of non-governmental organizations in disseminating information, and closer liaison between them and the United Nations;

V. the ensuring by Member States of a better flow of accurate information on disarmament and the dangers of the arms race;

VI. the development by governments and non-governmental organizations of programs of education for disarmament and peace studies at all levels;

VII. the establishment by the United Nations of a program of disarmament fellowships; and

VIII. increased cooperation by the Center for Disarmament with non-governmental organizations and research institutes, and also with UN specialized agencies and other institutions to promote studies and information on disarmament.

The Committee sees value in these initiatives being continued, but notes that the number of states which could be called democratic amounts to a minority of UN members.

21.70 One of the most difficult obstacles to achieving consensus on, or progress towards disarmament, is the contradiction between 'national security' and the long-range benefits of a world free of military conflict. States have for a long time sought to maintain national security through the possession of armed forces. In view of the lessons of history, they will not readily abandon the right to arm themselves to protect their interests. Moreover, many national leaders or aspiring leaders continue to view military forces as a legitimate means of pursuing their interests or national objectives.

21.71 One approach that could do this is to replace the present system of deterrence by one based solely on the deployment of defensive weapon systems, including defences against ballistic missile attack. Unlike President Reagan's SDI proposal, the ballistic missile defences would be restricted to ground-based systems which would be put in place only after the superpowers (and other nuclear weapon states) had abolished their nuclear stockpiles (the specific transition period and process would need to be determined by negotiation between the nuclear weapon states). Research into missile defences could occur at the same time as reductions in nuclear weapons but should remain within the current or suitably amended provisions of the 1972 ABM Agreement. In an endeavour to lessen the chances of misunderstanding or the misuse of defensive technologies, the Committee considers that the two superpowers should cooperate in the ongoing research, perhaps under the auspices of a United Nations' organisation established for that purpose.

21.72 The deployment of non-nuclear defences in this way would reduce the potential consequences of one side cheating on a total abolition agreement, or of a nation using a small number of hidden weapons to blackmail or coerce an opponent. Defences

capable of this kind of task are not beyond the realm of technical possibility and would be able to be improved over time. They would thus reduce the immediacy of the nuclear threat as well as provide an important base on which to build a doctrine of common security.

CHAPTER 22

SUMMARY OF COMMITTEE CONCLUSIONS
AND RECOMMENDATIONS

Introduction (Chapter 1)

22.1 The Committee wishes to make two preliminary observations which must be kept in mind when reading the Report. First, the information described has been derived from submissions and public sources. As a result, there tends to be more detail on, and scrutiny of the United States and its policies than of the Soviet Union. The Committee would prefer otherwise but has been constrained by the closed nature of Soviet society and its penchant for secrecy. Democracies are relatively open societies and especially in the U.S. the Executive has to justify all military expenditure to Congress and the public. In the closed society of the Soviet Union no such public scrutiny or discussion takes place. Thus the question of verification becomes important and Soviet propaganda and disinformation is much more effective in Western societies where public opinion can actually change government policies [para. 1.15].

22.2 The Committee has found that little is known about the defence policies of the Soviet Union beyond the information released by various Western intelligence agencies or published in specialised academic journals. The Committee suggests that a future reference of this Committee should be to examine Soviet foreign policy and defence capabilities, particularly with respect to Australia's own region of interest [para. 1.16].

22.3 A second, and related point is that the Report attempts to take, as far as possible, an objective approach towards the problem of how to ensure peace and security in the nuclear age. The Committee recognises that it can be argued that it is not possible to discuss the threat of nuclear war and the methods of preventing it, without pointing out the vast difference between the member countries of the Warsaw Pact and Western societies. The objective approach taken in this Report is justified on the grounds that the need to reduce or eliminate the risk of nuclear war, particularly war between the superpowers, transcends ideological or political preference or predispositions. The Committee recognises that Australia is part of a community of nations that shares certain values and ideals and that we should be prepared to defend those values. Security against nuclear destruction, however, cannot be obtained unilaterally. It requires instead cooperation to eliminate nuclear weapons or at least to institute measures that minimise their possible use [para. 1.17].

What Should Be Done (Chapter 21)

22.4 The Committee considers that the continuing development and increase in nuclear weapons is serving to decrease rather than enhance international security and the world would be far safer if the nuclear weapon states were to reduce and ultimately remove their reliance on nuclear weapons as instruments of national policy. This belief is based on the following underlying features of our nuclear world.

- I. Nuclear war is unlikely to be limited. Nuclear weapons are not war-fighting weapons. Their destructive power and the size of current nuclear arsenals make nuclear weapons almost impossible to control. Once the nuclear threshold is crossed, we could move towards an all-out (and final) exchange;
- II. there would be no winners in a nuclear war. Nuclear war of any kind would amount to an unprecedented catastrophe for humanity and could even result in the extinction of life on earth. While the nuclear threshold for global extinction cannot be calculated, it is probably well below the explosive power of the current nuclear arsenals. The potential consequences of nuclear war including the 'nuclear winter' effect make it sharply distinguishable from conventional or non-nuclear conflict; and
- III. there is currently no defence against nuclear attack. There is no prospect for at least the foreseeable future of either side developing effective defences against current nuclear arsenals. Both superpowers therefore remain vulnerable to a crushing attack by the other and it is in their mutual interests to cooperate to prevent nuclear war occurring. Neither superpower can hope to gain a significant and abiding military advantage over the other. Any attempt to establish overall superiority in military forces or capabilities is both impractical and dangerous [para. 21.10].

Short-Term Strategies and Policies

22.5 The Committee considers that in the short-term, we have little alternative other than to continue with the concept of deterrence as the basic means of avoiding nuclear war.

22.6 In the Committee's view, our immediate goal should be to stabilise our current nuclear circumstance and begin moving towards a position of mutual deterrence at much lower levels of nuclear armaments than currently exists. This would involve pursuing policies which seek to:

- a. arrest the spread and continuing competition in nuclear arms by:

Recommendations

- R1. reaffirming existing arms control agreements [paras. 21.17-18];

- R2. freezing the further production of fissile material for use in nuclear weapons [paras. 21.19-21];
- R3. concluding a comprehensive test ban treaty [paras. 21.22-24];
- R4. prohibiting certain destabilising technologies including [paras. 21.25-27]:
- I. the further development and deployment of anti-satellite (ASAT) weapons;
 - II. the unilateral deployment of space-based missile defences;
 - III. the deployment of the cruise missile; and
- R5. strengthening the nuclear non-proliferation regime [paras. 21.28-34].
- b. Minimise the risk of nuclear war occurring by accident or miscalculation. The Committee would encourage the superpowers to institute a range of measures which would seek to prevent an international crisis involving the two superpowers from escalating out of control, and in the event of direct military conflict between the armed forces of the United States and the Soviet Union, minimise the likely use of nuclear weapons. Specific initiatives favoured by the Committee are:
- R6. a ban on the further development and deployment of anti-satellite (ASAT) systems [para. 21.37];
- R7. establishment of a tactical nuclear weapon free zone in Europe and Asia and the ultimate elimination of all tactical nuclear weapons [para. 21.37];
- R8. agreement on a range of specific confidence-building and crisis control measures [para. 21.37];
- R9. removal or phasing-out of time-urgent weapons and targets [para. 21.37];
- c. Establish mutual deterrence at a reduced level of armaments. The Committee considers that the only function of nuclear weapons which cannot be achieved with conventional forces or by other, non-military means is to discourage other nations which possess such weapons from using them to attack or threaten to attack the basic interests of

the state. The Committee further considers that both the United States and the Soviet Union have far more nuclear weapons than they need for achieving nuclear deterrence.

- R10. The Committee considers that both superpowers should reduce their current nuclear arsenals to much lower levels, and that they should reverse the growing trend towards the 'conventionalisation' of nuclear armaments [para. 21.39].

These changes may require, in the first instance, a closer approximation of the relative strengths in conventional weapons between NATO and Warsaw Pact forces, and the development of new doctrines for conventional deterrence in order to offset reductions in, or changes to, existing or projected nuclear capabilities. Ultimately, however, the Committee considers that a balance of conventional forces should also be sought at much lower levels than currently exists [para. 21.40].

In the Committee's view any reductions in current force levels need to satisfy the following:

- . they must be verifiable;
- . they should be significant enough to represent a real change;
- . they should maintain overall parity between the strategic forces of the two sides;
- . they need to facilitate progress towards significant nuclear disarmament; and
- . they should be feasible and achievable over the short and middle term [para. 21.41].

A successful arms reduction proposal should also allow for a degree of modernisation, enable each side to structure its own forces in accordance with its particular national security requirements and perceptions, and take into account all categories or types of forces which have a bearing on the strategic balance as well as specific issues of concern to the negotiating parties [para. 21.42].

The Committee has found that none of the proposals for mutual force reductions suggested to date satisfy sufficient of these requirements to ensure an agreement.

Nonetheless, there are in the Committee's view, some concepts and elements contained in the different proposals which are worthy of further consideration as part of any future proposal or negotiations. These are (1) the concept of 'build-down' which provides for concurrent reductions in armaments and some modernisation of the superpowers' arsenals; (2) the simultaneous consideration of strategic and intermediate-range nuclear forces including allied forces; (3) phased reductions; (4) percentage reductions; and (5) the use of fissile material as a possible currency of reduction [para. 21.43].

d. Improve United States - Soviet relations. The Committee considers that many of the policies and changes described above will not be possible without a significant improvement in relations between the superpowers. The continuing arms competition is placing an ever-increasing burden on the economies of the two sides and exacerbating regional inequalities and tensions which could ultimately involve the superpowers. In the Committee's view it is important to continue to highlight the differences between the two societies and to resist or condemn in unequivocal terms acts of aggression or the violation of human rights by either side. It is important, however, not to make negotiations seeking to limit or reduce nuclear arms contingent on an opponent's general international behaviour [paras. 21.50-51].

The Committee considers that any significant normalisation of relations between the United States and the Soviet Union could not be achieved overnight or in a single step. Rather a broad range of policies and actions are required including:

- understanding between the superpowers on a political framework for continued global competition;
- further normalisation of trade relations between the two nations;
- increased exchange of persons and meetings between political leaders, servicemen, scientists, government officials, educators and others;
- expansion of the current range of bilateral scientific, technical and cultural exchange programs; and
- maintenance and improvement of existing channels of communication [para. 21.52].

Multilateral Disarmament as a Long-Term Goal

22.7 The greatest danger facing mankind today is the threat of nuclear war. We will only be safe from this threat when nuclear weapons have been abolished. Our overall objective therefore should be to eliminate all existing nuclear weapons, set in place a means of preventing their reappearance at some time in the future, and replace deterrence with a doctrine of collective or common security.

22.8 The Committee notes that while total nuclear disarmament is a worthy goal, it is also very difficult to achieve. The problems and difficulties of achieving total nuclear disarmament do not negate the importance of seeking a means of achieving it. Even though total nuclear disarmament cannot be realised in the near future, it is necessary to make a start towards this objective now.

22.9 In the Committee's view, actions to facilitate progress towards total nuclear disarmament should involve:

- a. completion of the short term objectives as recommended above;
- b. establishing a mechanism for facilitating total nuclear disarmament. Initially this would mean seeking significant reductions in nuclear arsenals and reducing the different types of nuclear weapons and forces. Ultimately, we should aim to:

R11. replace the present system of deterrence by one based solely on the deployment of defensive weapons systems, including defences against ballistic missile attack. Unlike President Reagan's SDI proposal, the ballistic missile defences would be restricted to ground-based systems which would be put in place only after the superpowers (and other nuclear weapon states) had abolished their nuclear stockpiles [Para. 21.70].

c. Developing in all countries and among all peoples a belief in the need for disarmament and a commitment by all nations to achieve it. A crucial element in developing such a consensus is really to understand the nature and scope of the threat posed by the existence of nuclear weapons and by modern war generally; and

d. transforming the focus of international relations from military confrontation to cooperation and non-military competition. This involves improving both the existing superpower relations and the social and economic condition of all nations.

22.10 Equally important is the need to reduce the prospect of major conventional war. In the past, the presence of nuclear weapons has served as a restraint against conventional conflict between nuclear weapons states. The removal of, or a significant reduction in, nuclear weapons could lead to an erosion of this restraint leading ultimately to World War II-type aggression, or to World War I-type unplanned escalation from a small conflict to a big power conventional war. In the Committee's view, this prospect can be reduced by:

- R12. reducing the size of conventional forces held by all states and eliminating long-range offensive weapons that can be used to threaten other states;
- R13. halting big-power military involvement in the Third World. This includes both direct military intervention in regional disputes and the supply of arms, especially advanced weapons systems, to developing countries;
- R14. working to reduce the basic political, economic and social causes of tension and conflict. This involves the support for the expansion of democracy and associated civil rights and liberties in all countries;
- R15. working to improve and strengthen the United Nations and other international institutions; and
- R16. working to advance international understanding and cooperation. This should be done through increased trade, study and exchange of people [para. 21.62].

22.11 The Committee sees the need to limit trade in conventional weapons as particularly important, especially between advanced industrialised nations and those of the developing world. The continued proliferation of conventional weapons and weapons-producing capabilities increases global and regional tensions and undermines stability as nations arm to defend themselves against potential aggressors. They thus contribute to an increasing risk of superpower conflict as well as causing enormous destruction and suffering through continued low-level military conflicts, and the diversion of a disproportionate amount of resources away from other areas of economic and social need.

- R17. The Committee recommends that the United States and the Soviet Union should resume their Conventional Arms Transfer (CAT) talks and that the talks should be broadened to include other supplier states [para. 21.64].

It also supports the recommendation of the Palme Commission that 'supplier states should open talks aimed at establishing criteria by which they could regulate arms transfers on an equitable basis'. These criteria should include the principles that there should be no significant increase in the quantity of weapons transferred into a region and no first introduction of advanced weapon systems which would create new or significantly higher levels of combat capability within the region.

Australia's Role in Disarmament and Arms Control (Chapters 9 and 10)

22.12 Australia's approach to disarmament and arms control and the maintenance of international security and peace is characterised by a number of factors:

- . its broad scope. Australia has policies on a broad range of arms-related issues, covering both international and regional concerns, and is actively pursuing these within different forums;

- . its basic orientation. Australia's policies are largely aligned with those of other Western and pro-Western nations, in particular the United States. The most fundamental alignment is through the continuing support for, and contributions to the notion of deterrence;

- . its emphasis on diplomacy. While Australia makes a number of practical contributions to the maintenance of deterrence or the provision of arms control, its principal emphasis is on multilateral and bilateral negotiations; and

- . its emphasis on arms control. While Australia describes its policies in terms of disarmament and arms control, the primary thrust of its policies is on regulating the arms competition in order to maintain stable deterrence and so minimise the risk of nuclear conflict [para. 9.45].

22.13 The submissions to the inquiry were appreciative of the Government's efforts to achieve disarmament and arms control at both the international and regional level. They were supportive of many of the policies of successive Australian governments, particularly those relating to nuclear testing, chemical weapons control and limiting the extension of the arms race into outer space, all of which are being pursued in the Conference on Disarmament in Geneva. It was generally recognised that Australia could only exert a small amount of influence on the superpowers but that we are probably doing more than most equivalent nations in seeking to enhance global peace and security. The criticisms of, and comments on, Australia's role in disarmament and arms control covered (1) the efficacy of the current system of deterrence and Australia's role in that

system; (2) whether Australia should place more emphasis on achieving disarmament rather than arms control; (3) whether Australia should pursue a more independent stand on disarmament and arms control; and (4) whether the Australian community is sufficiently informed or aware of nuclear issues generally and of their specific consequences for Australia [paras. 10.2-3].

Australia and Deterrence

22.14 The Committee notes that opinion is divided over whether deterrence, especially the way it is currently practised, is the best way of preventing nuclear war at least in the short term. Significantly, there appears to be broad agreement that deterrence, particularly a system of deterrence which is based on the deployment of thousands of nuclear warheads, does not provide a satisfactory basis for continued stability and peace in the longer term. There is also broad agreement that the number of weapons currently in existence has to be reduced and that our ultimate objective must be the complete elimination of all nuclear weapons [paras. 10.23; 10.26].

22.15 The Committee further notes that there appears to be some disagreement within the Government over how deterrence is and should be carried out. The Minister for Foreign Affairs and his Department seem to favour a system of deterrence based on assured destruction, whereas evidence presented to the Committee by the Department of Defence suggested that they support a system of deterrence which is close to the present United States' 'countervailing theory' of deterrence, which includes 'counterforce' capabilities and doctrines.

22.16 Given the importance that is officially attached to deterrence in Australia and its use to support a range of defence and foreign policies, the Committee considers that Australia should have a single and consistent approach towards deterrence and how it should be practised.

R18. The Committee recommends that the Government conduct a review into the present system of nuclear deterrence with particular emphasis on:

- a. its continued stability in light of evolving doctrinal and technological changes;
- b. whether it is serving to increase or decrease the risk of military conflict between the superpowers; and
- c. whether it provides a suitable basis for eventually achieving total nuclear disarmament, or at least at much lower levels of nuclear arms.

The review and its findings should be made public and should recommend any necessary changes in Australia's own policies and practices [para. 10.32].

22.17 The Committee considers however that the concept of deterrence is probably the only viable means of minimising the risk of military conflict between nuclear-armed states under present circumstances. Any attempt to do away with deterrence in the short term - either through unilateral nuclear disarmament or unimpeded competition - is likely to increase the risk of nuclear war between the superpowers. The Committee has some reservations about the continued stability of the present system based on the 'countervailing' or extended theory of deterrence, and its suitability in eventually providing for total nuclear disarmament, particularly if the progress in arms control continues to be limited. As a minimum, it is considered that stable deterrence has to be established at a much lower level of nuclear armaments than exists today and in a way which does not make possible a successful first strike against either superpower [para. 10.33].

Disarmament or Arms Control?

22.18 The Committee notes that the Government, and many in the peace movement, tend to list all current or proposed policies and initiatives under the general title of 'arms control and disarmament' even though a number of these - such as the comprehensive test ban - do not specifically seek to reduce armaments. While the Committee accepts that there is an overlap between the meanings of disarmament and arms control, and that the two terms are used rather loosely in both official and private writings (including this report), it is also the case that there are significant differences between the technical meanings of the terms which may be obscured by grouping them together. It may be helpful to keep in mind the following technical definitions of nuclear disarmament and arms control:

a. nuclear disarmament is concerned with reducing or completely eliminating nuclear weapons and the political and strategic conditions that would facilitate their removal; and

b. arms control comprises a wide range of measures aimed at regulating, halting or reversing the spread of nuclear arms and seeking to prevent their use in a military conflict [para. 10.34].

22.19 The Committee found that Australia's past and current contributions to disarmament as opposed to arms control have been limited largely to support for United Nations' initiatives such as the UN study group into concepts of security - of which Australia is a member - the World Disarmament Campaign and taking a leading role in the 1978 UN Special Session on Disarmament. There appears to be only minimal awareness within the community of these initiatives.

R19. The Committee recommends that greater publicity be given to Australia's present efforts to achieve global nuclear disarmament [para. 10.50].

22.20 The Committee acknowledges the importance of continuing arms control efforts and Australia's significant contributions in this area. It considers, however, that Australia should give greater emphasis than it appears to do at present to examining questions and issues relating to disarmament. It should do this because of the clear failure of the arms control process to significantly arrest let alone reverse the arms race, or to reduce the destruction likely to occur in the event of war between the superpowers. It would also seem reasonable to expect that, given the importance it attaches to disarmament, the Government should have a broad set of principles and a program of action for achieving disarmament which would, in part, determine Australia's policies and priorities on deterrence and arms control [para. 10.52].

- R20. The Committee whilst supporting verifiable bilateral or multilateral disarmament, can see benefits in the use of verifiable unilateral initiatives to improve relations between the superpowers [para. 10.56].

This could provide a means of breaking the current impasse in arms control negotiations. The Committee considers that there is scope for both superpowers to implement verifiable unilateral initiatives in areas of current concern to Australia: nuclear testing, anti-satellite warfare, chemical weapons and on-site inspections.

- R21. The Committee recommends that the Government identify appropriate unilateral moves that could be made by each superpower and exert political pressure on them to undertake such moves [para. 10.57].

22.21 In this context, the Committee notes the Government's decision to support the recent freeze resolution in the United Nations General Assembly.

- R22. The Committee supports the concept of a verifiable nuclear freeze as a means of curbing the development and potentially destabilising effects of new weapons systems and technologies [para. 10.58].

The eventual proposal must take into account the objections that have been raised against a freeze proposal by the superpowers, such as problems associated with verification and the potential benefits of continued modernisation of some weapons systems, and subject to the freeze not entailing a continuing advantage for one side. This may be best achieved by implementing a phased approach or a series of partial freezes rather than an across-the-board package. It is also important to keep in mind that the freeze needs to be considered in concert with other initiatives or proposals which would seek to provide for stable deterrence at much lower levels of armaments.

Is there a need for a more independent stand on disarmament and arms control?

22.22 Many submissions to the inquiry pointed to what they saw as a basic and growing contradiction between Australia's efforts to advance the cause of disarmament and arms control and its continued support for evolving U.S. strategic nuclear doctrines and policies. A number of means of overcoming this perceived weakness were suggested ranging from increased diplomatic activity to withdrawal from our current alliance commitments.

22.23 Some of the specific criticisms raised are discussed in the section on Regional Issues. The Committee considers that a number of the proposals are unrealistic in both political and strategic terms. Unilateral disarmament by Australia, for example, is unlikely to be accepted by the majority of the Australian population and would serve to harm rather than improve our national security interests.

22.24 The Committee is concerned that there is a tendency within some sections of the peace movement in particular to ignore the Soviet Union's role in the arms competition. While most submissions were critical of the nuclear arsenals and strategies of both superpowers there was a tendency to focus on how Australia could influence the United States to do more to facilitate disarmament and arms control. The Committee considers that it is important that Australia seek to develop ways and means of inducing both superpowers to reverse the arms race and reduce the risks of nuclear conflict.

- R23. The Committee confirms the view held by successive Australian governments and the general findings and conclusions of earlier Committee reports that it is in Australia's interests to continue its alliance relationship with the United States [para. 10.83].

Clearly, withdrawal would weaken the Western Alliance. Further, it would not be accepted by the majority of the Australian electorate and would have a significant destabilising effect on our region with potentially serious consequences for Australia's own security.

22.25 The Committee acknowledges that Australia's security, and that of our region, is crucially dependent on developments in the global balance of power.

22.26 The Committee considers that as a longstanding ally of the United States, Australia should stress the superpowers' common interests in: (1) achieving disarmament and arms control; (2) reducing political and economic tensions throughout the world; and (3) moving away from the notion of stability based on armaments.

- R24. The Committee considers that Australia should join with other like-minded states to present a concerted view on issues of common concern and to develop means of improving the relationships between the superpowers [para. 10.86].

Community Liaison and the Provision of Information

22.27 The Committee considers that in spite of some recent improvements, liaison between the Government and the community and the exchange of information and views on disarmament and arms control in Australia are insufficient and warrant considerable improvement in light of the seriousness of the basic issues and the widespread concern over them.

22.28 The Committee considers that the Government needs to do more to inform the public at large of disarmament and arms control issues and of the rationale for the Government's current policies and approaches. In this regard, it recommends that, as a minimum, the Government:

- R25. provide a more widespread dissemination of significant and factual reports and papers on disarmament and arms control;
- R26. develop detailed position papers on its own policies covering their background, the views of other governments and Australia's own position and rationale, and update these documents on a regular basis; and
- R27. publish an annual assessment of the global situation covering the range of topics and issues addressed in this report, with particular emphasis on regional developments and Australia's role [para. 10.97].

A Ministry for Disarmament?

22.29 While some submissions suggested the establishment of a separate Ministry for Disarmament, the Committee rejects this proposal as the matters involved are an integral part of the responsibilities of the Minister for Foreign Affairs. The Committee acknowledges the significant upgrading of facilities and resources made available by the Government to pursue Australia's disarmament and arms control policies. Nevertheless, the Committee still considers that the resources for the tasks involved and envisaged could be enhanced.

- R28. The Committee recommends that the Government establish either a separate body similar to ONA or an office within the Department of Foreign Affairs similar to ADAB which would be responsible to the Minister for Foreign Affairs

and which would be required to develop and oversee Australia's disarmament and arms control policies, provide specialist advice to the Government on issues relating to disarmament and arms control, and provide liaison with the Australian community [para. 10.103].

Strategic Defences and the ABM Treaty (Chapter 11)

The Committee considers that:

- a. The continued observance of the provisions of the 1972 ABM Treaty is important for the maintenance of a system of stable deterrence based on mutual vulnerability of the two superpowers to a retaliatory nuclear attack;
- b. Despite United States' concerns to the contrary the evidence available to the Committee does not support the view that the Soviet Union is actively seeking to abandon the ABM Treaty. Given current deficiencies in Soviet ABM defences, U.S. technical capabilities and the likely cost of a defensive arms race the Soviet Union stands to lose more by such an action than it would gain;
- c. the Soviet Union is nonetheless improving its ABM capabilities and it has specifically violated some of the provisions of the ABM Treaty. Further development of these capabilities will critically depend on United States' actions, particularly those relating to SDI;
- d. the 1972 ABM Treaty is under threat from a range of Soviet and U.S. weapons development activities which circumvent, or threaten to circumvent the Treaty over the longer term. These include: antisatellite weapons, anti-tactical ballistic missiles and large phased-array radars;
- e. the threats to the current ABM regime need to be rectified. The most appropriate way to avoid further erosion of the ABM Treaty is through negotiation at the Standing Consultative Commission (SCC) which was established under the terms of the Treaty to resolve compliance and implementation issues; and
- f. Should both superpowers develop the capacity to simultaneously deploy extensive and effective defences against ballistic missile attack then the underlying strategic assumptions of the ABM Treaty would no longer apply [para. 11.35].

The Strategic Defense Initiative (SDI) (Chapter 12)

22.30 Current descriptions of SDI research objectives now encompass two separate goals which need to be clearly and carefully distinguished. The first is the original aim of replacing the threat of retaliation as the basis of the U.S. nuclear deterrence strategy with a new strategy based on defence. The second is the more limited deployment of strategic defences in support of the current system of deterrence [para. 12.29].

Non-Nuclear Defence

22.31 A defence dominated world is likely to be as complex as an offence oriented one. It would be subjected to similar pressures and constraints which, under certain circumstances, could add to the risk of military conflict, and so will continue to require cooperation between the superpowers. Despite these problems, the concept of a system of international security based on non-nuclear defences has much to commend it. A world in which competing adversaries have only defensive weapons in place would be far preferable to the present system in which the security of both superpowers rests on the threat to annihilate millions of people throughout the world. It may also provide the only practicable means of achieving total nuclear disarmament. Given that non-nuclear defence is a worthy objective, is the current SDI proposal a viable and satisfactory means of achieving it?[para. 12.32].

22.32 The Committee considers that the technical limitations associated with the SDI program make the prospect of a perfect or near perfect defence against current arsenals very unlikely. It is accepted that, in the future, new technologies could be developed which could render ballistic missiles 'impotent and obsolete'. But the major, and probably insurmountable, problem will still be to fashion this range of diverse technologies into a workable, deployable and survivable defensive system. While the prospect of developing effective defences against current arsenals is remote, it could be improved if the numbers and variety of nuclear weapons and delivery systems possessed by the United States and the Soviet Union were substantially reduced [para. 12.34].

22.33 In the absence of negotiated restraints the continuation of the SDI program will stimulate a renewed arms race between the two superpowers which will involve both defensive and offensive systems and will extend into outer space. The extension of the arms competition in this way is likely given the nature and intensity of the political rivalry between the two nations, which will dictate that any significant change in the strategic forces of one side will lead to a corresponding change by the other [para. 12.36].

22.34 The Committee is also concerned that the SDI research program may impede achievement in arms control. While it recognises the Reagan Administration's statement that SDI research will be carried out within the provisions of the 1972 ABM Treaty, it is clear that planned demonstrations of some of the technologies will move the United States into areas of contention with the provisions of the Treaty [para. 12.38].

22.35 The pursuit of space-based missile defences under the SDI program is also likely to prevent the establishment of an anti-satellite regime, and could lead to a widespread loss of confidence in the U.S. Administration's commitment to future arms control negotiations. This may, in turn, lead other parties to abrogate their responsibilities under various multilateral agreements, in particular the Nuclear Non-Proliferation Treaty. Similar arguments of course apply to the Soviet Union. The Committee is concerned over continuing Soviet developments in ballistic missile and air defences and their potential impact on the 1972 ABM Treaty and American perceptions of the strategic balance. Therefore, it would seem prudent for the United States to continue basic research into ballistic missile defence and related technologies as a hedge against a possible Soviet abandonment at some time in the future. It should also examine ways of overcoming such defences. In contrast to SDI, this research should simply aim to allow the United States to deploy appropriate defences or counter-measures soon after a clear Soviet abandonment. Such research can be conducted at a fraction of the cost of SDI and without the atmosphere of crisis commitment that characterises the present program and which contributes to the mutual suspicion between the two nations [para. 12.39].

SDI and the Maintenance of Deterrence

22.36 The Committee considers that the limited deployment of space-based defences under the SDI program would tend to emphasise the principal destabilising trends that characterise extended deterrence. The Committee accepts that the current system of deterrence is under pressure from developments in technologies from both sides but considers that it would be wiser to try and constrain them - initially through the strengthening of the ABM Treaty - than move to a position of unimpeded competition.

22.37 In conclusion, the Committee acknowledges that the present system of deterrence, as it is evolving, poses a number of practical and moral dilemmas to national command authorities as well as severe dangers to world survival should deterrence fail. There is an urgent need to redress these dangers but the Committee has serious doubts whether the results of the current SDI program will provide a solution.

R29. In the Committee's view, the continued pursuit of SDI will not lead to a more stable system of deterrence nor would it result in the abolition, or significant reductions in, nuclear weapons. Rather, SDI (or any similar Soviet program) is likely to set in motion a chain of events and reactions that would destabilise the current strategic balance and undermine the limited progress that has been made in arms control to date [para. 12.44].

22.38 The foregoing does not necessarily invalidate the concept of non-nuclear defence as originally articulated by President Reagan. What it shows is that such a system cannot easily be achieved while both sides possess large numbers of offensive weapons which continue to be improved and updated. The essential prerequisite of a defence-dominated future is political stability and major reductions in current nuclear arsenals. Any future transition to defensive deterrence will not be achieved by technical means alone. It requires the implementation of legal and political constraints to the continued existence and proliferation of nuclear weapons strengthened by the active intervention of science and technology. If the Reagan Administration wishes to establish a new international regime based on missile defences it should seek to address these two fundamental issues ~~before~~ rather than after or during the development of a system of ballistic missile defences.

- R30. The Committee believes that the United States should be prepared to defer further progress in the SDI program in return for similar assurances by the Soviet Union and progress in negotiations in Geneva on mutual reductions in offensive forces [para. 12.45].

Should Australia Contribute to SDI research?

22.39 The Committee considers that:

- a. Australia's support for, and participation in the SDI research program should be determined on the basis of the impact of the program on favourable arms control outcomes;
- b. the economic and technological benefits and spin-offs accruing to Australia from any participation in SDI research are likely to be small;
- c. Australia's official position on SDI research should be consistent with its position on SDI generally. Any Australian Government participation in SDI research would effectively constitute support for the program and the eventual outcomes of such research.

- R31. The Committee therefore recommends that Australia should decline to participate in the SDI program; and
- d. Australia should emphasise the required preconditions for any safe transition from an offence-dominated world to a defence-dominated one. These should be implemented before contributing to the development of the systems

themselves. If these conditions were accepted and formally agreed by both superpowers then Australian participation in subsequent defence-related research could be justified [para. 12.52].

Verification Technologies and Anti-Satellite (ASAT) Warfare (Chapter 13)

Verification

22.40 The Committee notes that the United States and the Soviet Union currently have different views on what constitutes an acceptable level of compliance with arms control agreements, and on what means should be employed to verify this level of compliance. The different positions taken by the superpowers is likely to make it very difficult to find a verification formula that would be acceptable to both sides. Failure to agree on verification could increase political tensions between the superpowers, and limit the prospect and scope for arms control agreements in the future. Such an eventuality would be extremely unfortunate. In the absence of further, substantial agreements, the arms competition between the superpowers would escalate and lead to the further development of potentially destabilising capabilities and technologies [para. 13.35].

22.41 The Committee considers that the United States and the Soviet Union should show similar moderation in their approach to verification and seek to improve the present climate for achieving arms control agreements by expressing public confidence in the existing arms control regime and avoiding actions that clearly violate current agreements. Further:

- R32. The United States should immediately ratify the SALT II Treaty as well as the Threshold Test Ban Treaty and the Treaty on Peaceful Nuclear Explosions. The Soviet Union should cease encrypting data on its ballistic missile tests and dismantle, or relocate, the Krasnoyarsk radar [para. 13.36];
- R33. The superpowers should make greater use of the Standing Consultative Committee (SCC) to raise non-compliance issues, consider questions involving interference with technical means of verification, and develop additional means of increasing the viability of existing agreements [para. 12.38]; and
- R34. The superpowers should avoid stipulating unnecessary verification requirements which automatically foreclose any opportunities for the negotiation of agreements and develop additional cooperative measures to overcome or lessen the importance of genuine verification difficulties [para. 12.36].

22.42 The Committee considers that verification standards should be sufficient, or adequate, to prevent violations that would vitiate the basic purposes of an agreement, or threaten the strategic balance. It further considers that the prospect of future arms control agreements is hindered by the growing nexus between verification and the politics of the superpower competition. This nexus needs to be broken. This is best achieved by developing independent means of verification which can be used to separate real and genuine compliance concerns from those being used to support political positions or arguments [para. 12.36].

To facilitate this process, the Committee recommends that:

- R35. the SCC (Standing Consultative Committee) be maintained as a channel of discussion on verification and related matters between the superpowers [para. 13.38]; and
- R36. independent means of monitoring compliance with existing or prospective agreements be developed, along with a bipartisan, non-government agency established to monitor and report on United States and Soviet compliance with arms control agreements [para. 13.38].

Australia's Role

22.43 The Australian Government has argued that verification is crucially important to successful arms control. The Committee supports this but is concerned by the lack of detailed public information on Australia's policy towards verification. The Government has stated that it is in favour of both 'adequate' and 'effective' means of verification without defining what it means by these terms. In view of the importance officially attached to verification:

- R37. the Committee recommends that the Government release a detailed statement on Australia's verification policy including:
 - a. the basic aim of verification and its relation to arms control (whether monitoring standards should be 'adequate' or 'effective');
 - b. the minimum satisfactory, from Australia's point of view, for technical verification and compliance standards that apply for existing arms control agreements and those additional agreements favoured by Australia;

- c. the current means of monitoring compliance and how these can be improved; and
- d. details of Australia's present contributions to verifying compliance with existing arms control agreements [para. 13.43].

22.44 The Committee considers that Australia should continue to contribute to the development of independent means of monitoring compliance with both bilateral and multilateral arms control treaties. It also should develop alternative means of overcoming or reducing the effects of compliance difficulties that arise from technical or other limitations [para. 13.34].

Anti-Satellite (ASAT) Warfare

22.45 The Committee shares the United Nations' and the Australian Government's concern over the prospects and potential consequences of continued and unrestrained development and deployment of ASAT weapons and capabilities. It concludes that the security of both the United States and the Soviet Union would be enhanced far more by the ensured survival of their satellite systems than by an ability to destroy satellites.

- R38. The Committee considers that it is important to begin negotiations on an agreement banning the further testing and deployment of all ASAT weapons as soon as possible. (Refer R6).

The initial treaty negotiations could be restricted to prohibiting the testing and development of future ASAT systems. Once agreed, the question of destruction of existing superpower ASATs should be considered and the treaty extended to all nations [paras. 13.55-56].

- R39. The Committee recommends that, Australia call for a ban on deployment of all existing ASAT systems and an immediate moratorium on the further testing, development and deployment of new ASAT systems [para. 13.56].

22.46 The Committee accepts that there may be some verification problems, particularly with respect to the destruction of ASATs and the overlapping functions of some civilian and military satellites. These may require special verification techniques to be developed. The Committee considers that on balance, the risks associated with potential non-compliance of the treaty are less than those of an unfettered competition in ASAT weapons and capabilities. In any case agreements to prevent further testing and deployment of ASAT weapons should not prevent either side from making its space assets robust against violations of such agreements [para. 13.57].

Nuclear Testing and the Comprehensive Test Ban (Chapter 14)

- R40. The Committee considers that there is an urgent need for a Comprehensive Test Ban (CTB) Treaty banning nuclear tests by all nations in all environments for all time [para. 14.77]. (Refer R3).

A CTB Treaty would inhibit the development of the weapons of the present nuclear weapons states, and would make it hard for other nations to acquire a credible nuclear weapons capability. It would demonstrate that the nuclear weapons states took seriously the pledge they made in the 1963 Partial Test Ban Treaty to achieve a comprehensive test ban, and in the 1968 Nuclear Non-Proliferation Treaty to move towards nuclear disarmament [para. 14.78].

22.47 The Committee notes that there is some further work required on matters of technical detail with respect to verification before all parties are satisfied that a CTB could be effective. It considers that these technical issues, while important, are not crucial to the commencement of negotiations on a comprehensive test ban treaty [paras. 14.80-82].

22.48 The Committee recognises and supports the actions of successive Australian governments in seeking to promote a comprehensive test ban. It considers that Australia should retain the establishment of such a treaty as a primary arms control objective and should continue its efforts in the United Nations General Assembly and the Conference on Disarmament to achieve it. In line with this view, the Committee considers that Australia should attempt to influence the United States into affording the CTB a higher priority than is presently the case. It considers that such a treaty could be signed without undermining deterrence or preventing modernisation of America's current strategic arsenals. It is also important that the Soviet Union's apparent support for a CTB be tested. This is best achieved by commencing formal negotiations into a comprehensive test ban treaty [para. 14.83].

22.49 The Committee considers that the current impasse in the Conference on Disarmament over the CTB requires a political solution, in addition to further technical negotiations favoured by the Minister for Foreign Affairs and his Department. One possible approach would be to seek to renegotiate the Threshold Test Ban Treaty and have it ratified by the United States Congress. At present the TTBT prohibits any underground nuclear weapon test having a yield exceeding 150 kilotons. This current threshold could be lowered to a level that effectively precludes the development of strategic nuclear weapons (say five kilotons). The revised treaty would be signed immediately but may allow the agreed threshold to be reached in a number of steps or over a period of time in order for detection and verification technologies to be perfected and inspection or challenge procedures to be agreed [para. 14.84].

- R41. The Committee considers that Australia should continue its work on the establishment of the National Seismological Monitoring Centre and the development of a National Monitoring Service as part of the UN-sponsored international seismic data exchange network [para 14.87].

The Committee considers the network should be established regardless of whether or not there is progress towards a CTB. To facilitate this development,

- R42. The Committee recommends that Australia sponsor further research into the existing problem areas associated with seismic monitoring and data exchange, and seek the release by all nuclear weapon states of information on past nuclear tests which could be used to calibrate the monitoring instruments.

Regardless of whether or not a CTB is established, the Committee considers that it is important that the United States ratify the 1974 Threshold Test Ban Treaty and the 1976 Peaceful Nuclear Explosions Treaty [paras. 14.77-78].

The Joint United States Australian Defence Facilities (Chapter 15)

22.50 The Committee acknowledges that over recent years an increasing amount of information on the facilities has been made publicly available, but it is aware that because of intelligence restrictions the information provided is still insufficient for members of this Committee, or the general public, to derive a fully informed and authoritative view on their role or contribution to global security [para.15.86].

- R43. The Committee considers that the Australian public should be told as much as possible about the purposes and functions of the joint facilities as is compatible with genuine considerations of Australian security requirements [para. 15.86].

The information provided should be sufficient to justify the Government's case for the retention of the facilities in Australia and it should, as a minimum, cover what is available on the public record in the United States. The information should address the following aspects:

- a. the technical characteristics and general functions and purposes of the individual facilities. What are they made up of and what do they do?
- b. the way in which the individual facilities fit into the overall strategic systems that are maintained by the United States. What are the

facilities connected to, how important are they to the continued operational survivability of the system and what alternatives exist; and

- c. the broader strategic and defence-policy context within which the facilities and their parent systems operate [para. 15.86].

Technical Considerations

22.51 On the basis of information drawn from the public record, a number of observations and conclusions can be made with respect to the functions and purposes of each of the facilities.

- a. North West Cape. The facility at North West Cape plays no role in the verification of arms control agreements and so should be judged solely in terms of its contribution to maintaining deterrence. It is clear that it supports extended deterrence by providing communications to submarines and surface ships of the United States and allied navies including U.S. attack submarines on patrol in the Indian and Pacific Oceans. North West Cape also appears to play a role in maintaining basic deterrence through the provision of communications to SLBM submarines. The importance of these roles seems to be decreasing with the introduction of alternative means of communication between U.S. command authorities and its SSBN fleet.

Given that the joint facility at North West Cape is a communications relay station, and the allegedly restricted access to the U.S. cypher office located at the facility, it seems unlikely that Australian personnel located at North West Cape could directly monitor orders being relayed through it.

- b. Nurrungar. The Joint Defence Space Communications Station at Nurrungar forms part of the U.S. satellite-based Defense Support Program (DSP). The DSP satellites and associated ground control stations provide early warning to the United States of Soviet ballistic missile launches as part of an initial attack on the United States, thus contributing to basic deterrence. The DSP satellites also carry nuclear detection (NUDETS) equipment which can be used to monitor above-ground nuclear explosions. This function could be used to verify arms control agreements although the DSP satellites are not essential for this purpose.

The importance of Nurrungar's contribution to America's early warning and assessment capabilities is decreasing with the deployment by the United States of new technologies and systems designed to improve the survivability and redundancy of its strategic C³ systems. If these developments continue on schedule, it would seem that over the coming decade, the Nurrungar ground station will no longer be required except perhaps as a back-up facility.

- c. Pine Gap. The Joint Defence Space Research Facility at Pine Gap is part of the United States' satellite intelligence monitoring network which collects a range of information on the military activities and forces of the Soviet Union or other targeted nations. The information can be used for a variety of purposes: to monitor compliance with arms control treaties; to provide early warning of a potential adversary's actions or intentions; for operational planning purposes; or to monitor existing operations - either conventional or nuclear. The actual use of the information gathered and the relative importance of these uses is very difficult to determine without access to official U.S. doctrines and policy.
- d. Other Facilities. There are a number of other facilities located throughout Australia which make some contribution to the United States' strategic posture. These include the Omega navigation station in Victoria (which is by its nature useful to any and all shipping and aircraft in the area), the Tranet satellite earth station in South Australia and the satellite ground station at Watsonia which is part of the U.S. DSCS network and links the Australian Defence Signals Directorate in Melbourne to the National Security Agency, the CIA and the Naval Ocean Surveillance Information Centre (NOSIC) in the United States. Very little is known about the functions of this last station except that it probably relays information on ship and aircraft movement which is collected by DSD high frequency-direction finding (HF-DF) stations located in Australia and its surrounding region. Such information would be used by the U.S. Command Authorities for operational intelligence purposes [para. 15.88].

22.52 Overall, it appears that the defence facilities in Australia are concerned primarily with supporting global deterrence and that verification of arms control agreements is a secondary, albeit important role which has arisen because the

technologies used to satisfy both functions are the same. It would also seem that, from a technical point of view, some of the defence facilities are more important than others. The most important facility is the space research centre at Pine Gap. The functions carried out here relate to intelligence collection in Australia's own area of interest, they are highly complex and they require very powerful computer processing facilities. It is unlikely that the functions performed by Pine Gap could be easily transferred to another ground station or location, nor are they likely to be duplicated by on-board processors being placed on new generation satellites. The naval communications relay station at North West Cape plays an important role in maintaining deterrence and the space communications station at Nurrungar and the Tranet facility at Smithfield have both provided important contributions in the past, however, within the coming decade each may become redundant as a result of developments in satellite technology and improvements in and diversification of the United States' strategic C³ system [paras. 15.89-90].

Strategic and Political Considerations

22.53 The arguments used by the Government to support its case for the continued retention of the joint facilities in Australia, tend to emphasise the contribution that the joint facilities make to enhancing basic deterrence, crisis stability and verification of arms control agreements over other U.S. nuclear policy objectives. There is clear evidence that the joint facilities contribute to both basic and extended deterrence with the emphasis gradually shifting to the latter. Under this approach, emphasis is given to the development of counterforce capabilities, and the United States' threatened response to Soviet actions is thought to be made more credible by preparing targeting and contingency plans for a variety of possible military conflicts between the superpowers; plans which are designed to deny the Soviet Union the possibility of victory at whatever level of aggression it chooses to initiate and to minimise or preclude unwanted collateral damage in the event of war. These changes are in turn reflected in the changing role and functions of the joint facilities [para. 15.93].

22.54 While the facilities may be making an increasing contribution to extended deterrence, it remains the case that Pine Gap and Nurrungar in particular continue to operate in support of basic deterrence - primarily through their intelligence collection and early warning functions - and that Pine Gap provides the United States with an important National Technical Means of verifying Soviet compliance with existing or projected arms control agreements. Many of the facilities also provide a number of functions - navigation and radio relay for example - which are used by Australia's own defence forces to support our national security posture [para. 15.95].

Future Options

R44. The Committee does not support the closure or conversion of the joint facilities, or their removal from Australia [para. 15.97].

Closure would only detract from the United States and have no impact at all on Soviet capabilities and doctrines. It would mean the end of ANZUS and halt the benefits that we currently derive from our present alliance relationship. It would also have a detrimental effect on the coherence of the Western alliance to the benefit of the Soviet Union providing both a potential military advantage and propaganda opportunities as well as an invitation to increase its presence in the Pacific and Indian Oceans. It could thus have a significant destabilising effect on our region, with potentially serious consequences for Australia's own security, as well as reduce the regional influence that Australia currently enjoys through its close security ties with the United States. A decision to close down the facilities would not be supported by the Australian population at large. Closure of the facilities at Pine Gap and Nurrungar would also reduce the United States' overall ability to monitor arms control agreements or receive early warning of Soviet actions that may threaten Western security [paras. 15.98-99].

22.55 The Committee notes that some of the facilities, notably the space communications station at Nurrungar, are slowly becoming redundant as a result of technological change and as the United States deploys additional C³I assets. It is thus possible that at some time in the future some of these facilities could be either closed down or converted to another role without any detriment to the United States' deterrent posture. The Committee also recognises that the use of the facilities are determined by broader strategic considerations which are beyond Australia's control [para. 15.101].

22.56 The Committee considers that the Australian Government should be fully apprised of the operational details of each of the facilities and the technical and strategic developments that would affect their role and functions. As a matter of principle, the Committee considers that Australia should have sufficient control over all military facilities located on its soil to ensure Australia knows about and can prevent any use of the facilities that are inimical to Australia's own interests. Such control should involve as a minimum:

- a. participation in management decisions affecting the structure and operation of the facilities;
- b. access for Australian personnel to all areas within the facilities; and
- c. availability of all information passing through the facilities, or collected by them, to appropriately cleared Australian personnel located in Australia [para. 15.105].

22.57 The Committee notes that the role of the Joint Defence Space Communications Station at Nurrungar may decrease significantly in the next decade as the United States deploys alternative means of providing early warning of Soviet missile

launches. Consideration should be given to an alternative use from that time for the facility which directly assists Australia's defence posture. Conversion to this use could be negotiated in return for the continued presence of the other joint facilities. There may be value, for example, in converting the ground station for use in an Australian satellite-based system which would be used in conjunction with over-the-horizon radar and airborne early warning aircraft (AWACS) to provide surveillance of Australia's area of interest.

- R45. The Committee recommends that a feasibility study be conducted on this or similar eventual Australian use of the Nurrungar facility [para. 15.105].

Should the Joint Defence Facilities Be Used As Bargaining Chips to Achieve Australian Political or Economic Objectives?

22.58 The Committee does not support the use of the joint defence facilities as bargaining chips to advance trade or other economic interests. Such an approach may be seen to be politically expedient, but would be counterproductive since it would threaten Australia's current relationship with the United States and place in jeopardy the defence and national security benefits that we currently derive from them. A nation's national security interests cannot be equated with relatively short-term trade problems. The Committee further considers that the United States should not be required to pay an 'economic rent' for locating the facilities in Australia. The facilities operate under the joint control of the two governments and therefore provide benefits to both sides as well as the Western alliance generally [para. 15.112].

The South Pacific Nuclear Free Zone (Chapter 16)

- R46. The Committee supports the concept of nuclear free zones as a means of restricting or preventing the spread of nuclear weapons and of limiting the risks and consequences of nuclear war [para. 16.69].

The Committee recognises, however, that the application of this concept is not a simple matter, and must take into account a range of technical and political considerations which will vary with time and from region to region.

22.59 The Committee considers that the guidelines described in the 1975 United Nations Comprehensive Study of the Question of the Nuclear Weapon Free Zones in All its Aspects adequately describe these considerations and serve as a reasonable basis for defining and evaluating a nuclear weapon free zone [para. 16.70].

22.60 The Committee found that overall, the SPNFZ Treaty satisfies or takes into account the criteria laid down in the United Nations' study. The Zone itself has clearly defined boundaries. The Treaty recognises the rights of other states under international law to free passage through and over the

Zone. It provides for peaceful nuclear development under internationally recognised safeguards. It includes procedures for verification and control. It has the support of most Members of the Pacific Forum. Most importantly in the Committee's view, the Treaty as currently worded does not undermine existing security arrangements or agreements affecting the region since it does not threaten United States' involvement in the region [para. 16.72].

22.61 The Committee is concerned over some specific aspects relating to the Treaty. These are that:

- a. the verification and control procedures may be inadequate for detecting covert dumping of radioactive wastes within the region;
- b. to be fully effective, the Treaty needs to be formally recognised by the nuclear weapon states; and
- c. progress towards establishing an overall Convention against dumping radioactive waste in the Pacific may be hampered by incorporating anti-dumping provisions into what effectively is a nuclear weapon free zone treaty.

- R47. The Committee recommends that the anti-dumping provisions in the SPNFZ be established as a separate protocol to the Treaty [para. 16.73].

22.62 The Committee found that while the SPNFZ Treaty is consistent with the guidelines laid down by the United Nations, it nonetheless falls short of achieving the basic objective of such UN defined zones: to ensure freedom from all nuclear weapons. This is because of the nature of the Zone itself - comprising predominantly international waterways - and the fact that the Treaty had to take account of the varying security concerns of the Pacific Forum states, especially those supporting the retention of an American presence in the region. The Treaty is thus essentially a consensus document, representing the highest common factor in regional opinion [para. 16.74].

22.63 The Committee considers that the SPNFZ Treaty plays a useful role in extending the non-proliferation regime and in preventing the future stationing of nuclear weapons within the South Pacific. Subject to the concurrence of the nuclear weapon states, it also formalises U.S. and Soviet assurances that nuclear weapons would not be used or threatened to be used against Zone states. More importantly, the SPNFZ is important politically since it re-focuses attention on the role of nuclear weapon free zones, places further pressure on the French to halt nuclear testing in the Pacific, and it could stimulate the development or progress of other zone proposals, especially those affecting the adjoining areas in the Indian Ocean and Southeast Asia [para. 16.75].

22.64 The Committee notes that the Zone has been widely acclaimed within the international community as the first significant regional arms control proposal since the 1971 Seabed Treaty. The Committee accepts that the Treaty does not require the formal recognition of the nuclear powers for it to be accepted internationally. Nonetheless, it considers that the spirit and provisions of the Treaty would be strengthened if at least the major nuclear powers signed the Treaty Protocols. The Committee considers that the SPNFZ does not undermine the security interests of the superpowers and could increase them in the longer term by limiting superpower competition and thereby ensuring regional stability [para. 16.76].

Uranium Mining and Australia's Role in the Nuclear Fuel Cycle (Chapter 17)

22.65 Those opposed to Australia's continued involvement in the civilian nuclear fuel cycle argue that the presence of a nuclear power industry lowers the barriers to the acquisition of nuclear weapons, and so contributes to horizontal proliferation, and that the present safeguards regime is insufficient for stopping the diversion of sensitive nuclear materials from the civilian into the military fuel cycles. As long as these conditions continue Australia cannot guarantee that its uranium, or products produced from it, will not be diverted into the manufacture of nuclear weapons. In line with our present non-proliferation policies, the critics argue that we should cease mining and exporting uranium. The critics generally support Australia's continuing efforts in the IAEA and elsewhere to improve nuclear safeguards, and they consider that this role should continue whether we remain a supplier or not [para. 17.30].

22.66 The Government and the Opposition, on the other hand, argue that the connection between the civil and military fuel cycles are overstated, that the safeguards applying to Australian origin nuclear material are adequate to prevent diversion and that Australia's withdrawal from the mining and export of uranium would not alter the world demand for or availability of uranium. It would also prejudice Australia's position on the Board of Governors of the IAEA thereby reducing our ability to ensure the continued improvement of nuclear safeguards and other components of the non-proliferation regime [para. 17.31].

The Connection between nuclear power and nuclear weapons

22.67 The Committee accepts that the basic connection between civil and military nuclear technologies has facilitated proliferation in the past and could continue to do so, although the risk of diversion from safeguarded civilian facilities is decreasing as safeguards are being extended and strengthened. The presence of a nuclear power industry can lower the technical and economic barriers to the acquisition of nuclear weapons although the principal risk appears to stem from other facilities, especially small, unsafeguarded research reactors and associated reprocessing plants. The Committee notes that

there is already a considerable civil nuclear industry in place throughout the world which performs a range of important functions and services. The possibility of diversion of sensitive nuclear materials from the civilian nuclear fuel cycle can never be completely eliminated. The proliferation risks associated with the industry need to be recognised and action taken to minimise them, principally through an effective safeguards regime [para. 17.35].

Safeguarding against diversion from the civilian nuclear fuel cycle

22.68 The IAEA nuclear safeguards and procedures are a crucial part of the non-proliferation regime. While much has been done in recent years to strengthen international safeguards, the effectiveness of the regime remains constrained by both technical and political factors, in particular:

- a. by the continued development of large-scale reprocessing plants and associated technologies such as the laser-based isotope separation process; and
 - b. by the fact that the IAEA cannot monitor or constrain the intentions of governments and that the effectiveness of IAEA safeguards depends ultimately on the cooperation of participating nations.
- R48. The Committee supports the ASTEC inquiry's recommendations that Australia should (1) encourage the establishment of a scheme to regulate effectively the storage and use of sensitive nuclear material; (2) constrain the number and exclusive national ownership of reprocessing and enrichment facilities; and (3) provide continued support and encouragement for research into the disposal of high level waste [para. 17.50].

It also considers that Australia should use its influence as a member of the IAEA Board of Governors to ensure that adequate safeguards are developed to prevent diversion of plutonium or enriched uranium from reprocessing or enrichment facilities [para. 17.50].

22.69 While the Committee acknowledges that safeguards are important in providing a timely warning of plutonium diversion it considers that a more appropriate approach may be to seek to restrict the civilian nuclear fuel cycle from using weapons-grade fissile material such as highly enriched uranium and plutonium. The Committee recommends that:

R49. the Australian Government should give consideration to promoting the acceptance of a civilian nuclear fuel cycle based on low-enriched uranium only [para. 17.51].

22.70 The Committee notes that Australia has made important contributions to the development and implementation of IAEA safeguards and policies. It considers that it is important that Australia continue to pursue initiatives to further improve the efficiency and effectiveness of the Agency's safeguard procedures particularly with respect to enrichment and reprocessing technologies. It supports the recommendations of the ASTEC inquiry that:

R50. a. Australia should provide further resources to the IAEA and encourage other member countries to do the same; and

R51. b. Australia make every effort to maintain and enhance its influence in the Agency [para. 17.52].

22.71 In view of the continued speculation over control of Australian uranium ore after it leaves Australia, the Committee welcomes the Government's decision to formulate government to government arrangements for the physical protection of uranium during transshipment and to ensure that nuclear material extracted for nuclear purposes from Australian ores after export would become subject to a safeguards agreement to which Australia is a party. The Committee is nonetheless aware that Australian uranium supplied to certain nuclear weapons states, or its fission products, could still, in breach of our safeguards agreements, be diverted from the civil fuel cycle or be used to replace indigenous material that is either re-allocated to nuclear weapons programs or supplied to other states [para. 17.55].

22.72 The Committee considers that this is an area in our safeguards policy which could be exploited to divert sensitive materials derived from Australian ore from the civilian to the military nuclear fuel cycle.

R52. The Committee considers that, as part of its review, the Government should examine the risks of diversion or misuse of AONM by nuclear weapon states and implement measures to minimise them. Where Australian uranium is suspected of being so used Australia should insist on a full investigation and, if necessary, suspend supply [para. 17.56].

The Export and Use of Australian Uranium

22.73 The Committee accepts that there is no shortage of uranium in the world to supply fuel to the civil nuclear industry and that the industry can proceed whether or not

Australia is a supplier. It therefore supports the view that cutting off the supplies of uranium will not have any effect in reducing the number of nuclear weapons in the world. However nor is it likely to damage arms control and disarmament to any great extent. The principal impact of withdrawal of Australian uranium will be felt by Australia; through the loss of existing and potential export earnings and through our diminished influence in the International Atomic Energy Agency and other related bodies [para. 17.60].

R53. The Committee believes that the non-proliferation regime is better served by Australia remaining a supplier of uranium ore [para. 17.61].

Australian uranium is supplied under very stringent safeguards. As noted by the ASTEC report, there is reasonable evidence that the imposition of these safeguards has not deterred prospective purchasers of Australian uranium. Indeed their acceptance may encourage other suppliers to insist on comparable conditions. Australia's role as an exporter has also enabled us to play an important role in establishing and developing the present nuclear non-proliferation regime. The Committee accepts the view of both ASTEC and the Government that withdrawal from the nuclear fuel cycle would reduce our influence in the IAEA which plays a key role in the non-proliferation regime [paras. 17.61-62].

Peace Education and Peace Research in Australia (Chapter 18)

Peace Education

22.74 The Committee found that there are differences of opinion within the community over the basic purpose and thrust of peace education, which in turn reflect the different philosophical and political preferences and world view of their advocates. The Committee considers that all valid perspectives should be made available to students, together with the opportunity and skills to enable them to systematically examine and approach their respective claims to be founded on 'the evidence' [paras. 18.13-17].

22.75 It must also be recognised that there is an inevitable link between 'peace education' and politics both at the ideological and practical levels. Certain approaches to 'peace education' are based, either implicitly or explicitly, on certain world views and the education system represents an important vehicle for certain individuals or groups to articulate their particular benefits. There is therefore a danger for 'peace education' to be used to advance the dogma of either the so-called right or the left. We should be aware that this is possible [para. 18.18].

22.76 Many peace analysts and educators agree that 'peace education' should be viewed globally and systematically to encompass the issues and emphases found in such related or overlapping concepts as 'disarmament education', 'development education', or even 'human rights education', that is, as

education which promotes objective, critical understanding of conflict or violence, of conditions of peaceableness, at the global, national, community and personal levels. The Committee agrees that this broader perspective of Peace Education should be encouraged as a legitimate and important element in the curriculum, but it is essential that such curricula be developed on a sound basis, free of sectional bias and propaganda. An overriding requirement is that the courses should encourage a spirit of critical inquiry [para. 18.21].

22.77 While the Committee supports the concept of Peace Education, it recognizes the difficulties associated with its introduction into the education system. There are many areas which require further examination. Until such examination is carried out:

- R54. the Committee recommends that, in the short term, a less controversial and radical approach be adopted by incorporating 'peace studies' into existing subjects [paras. 18.22-23].

It is also clear that what is going on in the education community in relation to Peace Education - preparation of curriculum materials, guidelines, in-service activities and so on - is being done in an uncoordinated fashion. There is need for further examination of the significance of peace education and research in Australia and the formulation of agreed means by which the education community can respond to this new demand [para. 18.24].

22.78 It is the Committee's view that a satisfactory response will not be gained through another Parliamentary Inquiry or any expert bureaucracy's proliferations. The authors of a satisfactory response are more likely to emerge as practitioners with experience whose work commends their approach to others and from whom useful materials will be sought [para. 18.24].

Peace Research

22.79 The Committee considers that the Peace Research Centre can perform valuable service in contributing to a high standard of governmental and community understanding on disarmament and arms control issues in Australia. The Committee considers that, in the interests of raising the level of community awareness, public debate and research capacity throughout Australia on issues of disarmament and arms control, the Peace Research Centre's activities should extend beyond, without prejudice to, its formal research functions to activities such as:

- . disseminating its work to the Australian community;
- . assisting the direction and form of the development of peace education; and
- . providing a focus for, and where possible facilitating related research efforts at other tertiary institutions.

These associated functions could be followed through activities such as:

- . sponsorship of research and teaching projects at other tertiary institutions;
- . development of a specialist library and data base available to other researchers;
- . sponsorship of resident and visiting lecturing programs, in Canberra and inter-state; and
- . publication of its work [para. 18.38].

The important questions of the range of activities appropriate for the Centre, its performance of those functions and activities, and the adequacy of its resources will need to be regularly reviewed, especially in the formative stages of the Centre's development. On the question of continued funding, the Committee considers that there is scope to seek private sources of revenue - through corporate or individual donations - to augment Government support whatever the source of its funds the Centre's ability to conduct research in an objective and independent way must be ensured [para. 18.38].

Chemical and Biological Weapons (Chapter 7)

- R55. The Committee supports the Government in its view that it is vitally important for all nations to continue to observe the Biological Warfare Convention and to establish a Convention prohibiting the possession and use of all chemical weapons as quickly as possible [para. 7.72].

Modern chemical and biological weapons pose an unprecedented threat to humanity, second only to the risks of nuclear war.

22.80 The Committee considers that the Conference on Disarmament (CD) should continue its work on drafting a Convention on Chemical Weapons using the United States' draft and the Soviet Union's Basic Views as a basis for negotiations and discussions. Australia should continue to encourage both parties to seek agreement on the vital areas of verification and compliance. The Committee believes that the consideration of chemical and biological weapons needs to be separated from the politics of nuclear and conventional armaments and considers that Australia should work to remove this linkage. In order to facilitate progress in the CD, it is also necessary to address concurrently the political and technical obstacles confronting the CW problem. Noting that the U.S., the only other major holder of chemical weapons, has declared its stocks, the Committee therefore recommends that:

- R56. a. Australia should encourage the Soviet Union and France to declare their existing stockpiles of chemical weapons, possibly allowing a neutral body to inspect and confirm their present holdings;

- R61. b. Australia should encourage both the United States and the Soviet Union to declare a moratorium on the further development and deployment of chemical weapons for a fixed period which could be extended in the event of progress on agreement of a Chemical Weapons Convention in the CD; and
- R62. c. propose the establishment, under the aegis of the United Nations, of a consultative body to hear allegations of CBW treaty violations, examine such allegations where necessary and report its findings [para. 7.73].

The same body could also review and report its findings, review developments in technology or science which could upset the CBW regime and consider appropriate changes to the regime. The body would gain formal recognition when the proposed Convention entered into force but should be established as soon as possible and independently of the status of the Convention [para. 7.73].

Senator K. W. Sibraa
Chairman
September 1986

Dissents by Dr Klugman, M.P.

General Approach

It is relevant to remember that there has not been a war between democracies since World War I, whilst there have been hundreds of major and minor wars, sometimes between democracies and authoritarian regimes, but most often between the latter.

One important, long term objective at least, of all opponents of war must therefore be the spread of democracy with its associated civil rights and liberties.

It is not possible to discuss the threat of nuclear war and the methods of preventing it, without pointing out the vast differences between the member countries of the Warsaw Pact and Western societies.

The democracies are relatively open societies and especially in the U.S.A. the executive has to justify all military expenditure in some detail to Congress and the public. Everybody can therefore be aware of the proposals for new weapons and the arguments for and against them.

In the closed society of the Soviet Union no such public discussion takes place and in many cases the existence of new weapon systems or the extent of existing ones can only be obtained by traditional intelligence gathering or the use of highly sophisticated surveillance by the U.S.A.

The question of verification therefore becomes more important. Additionally Soviet propaganda and disinformation is much more effective in Western societies where public opinion can actually change government policies.

On SDI

Whilst far from convinced that SDI will work and accepting that there is a significant risk of destabilisation of the current position, it is my view that agreement between the U.S.A. and the Soviet Union to share the results of any successful research and its installation by all nuclear powers, would be the only path likely to lead to complete nuclear disarmament.

I accept that this is not very likely, but the alternative of continuing to live permanently 'protected' only by the use of 'mutually assured destruction' is not one that can be faced with equanimity.

10.27 - Chapter 10

It is my view that there is no significant disagreement between the Departments of Foreign Affairs and Defence in their attitude to 'mutually assured destruction' (MAD) and a limited nuclear war.

I believe that the Australian Government and all other governments wishing to prevent nuclear war must adopt a posture

of believing that deterrence is currently the only viable means of minimising the risk of military conflict between the superpowers.

On the other hand, should such a conflict occur one would hope that in fact neither the Soviet Union nor the United States would immediately proceed to 'mutually assured destruction'.

Therefore all defence planning must include the possibility of a limited nuclear war, which terrible though its effects would be, would surely be preferable to actual mutual destruction.

R. Klugman

JOINT FOREIGN AFFAIRS AND DEFENCE COMMITTEE

DISARMAMENT AND ARMS CONTROL IN THE NUCLEAR AGE

MINORITY REPORT -- SEPTEMBER 1986

We have significant reservations about some of the conclusions and discussion in this report. These are detailed in the following sections, which deal with our concerns chapter by chapter.

As a general observation, we note that this report is flawed as a result of attempting at times to accommodate mutually incompatible viewpoints, reflecting the varying ideological perspectives of members of the Sub-committee. Hence we see repeated reference to the need to affirm and defend 'Western' values, and condemnations of the 'closed' nature of Soviet society. Yet the introductory chapter also talks of the need to adopt an 'objective' approach to disarmament issues on the ground that '...the risk of nuclear war, particularly war between the superpowers, transcends ideological or political preferences or predispositions'. (Paragraph 1.17).

We would argue that at a number of points the Committee majority has indeed allowed its pro-western ideological and political preferences to distort its judgement of arms control issues, as with the quite spurious reference in the first chapter to the 'closed' nature of Soviet society being a major impediment to arms control verification (see our dissent to Chapter 1). For our part, we strongly favour moves to increase the severely limited political freedoms in the Soviet bloc, but do not believe that this should be regarded as a precondition of significant arms control agreements. We believe that the need to avoid nuclear annihilation and the enormous economic costs to both sides of the arms race create a common interest in reaching such agreements, despite political differences in other areas.

P. BALDWIN

A. THEOPHANOUS

L. KENT

CHAPTER 1: INTRODUCTION

We believe this chapter, as it stands, to be flawed in terms of overall emphasis and on a number of specific points. We are particularly concerned with the final three paragraphs of the chapter.

Paragraph 1.15 makes two observations which, it says, must be kept in mind when reading the report. First, reference is made to the 'closed' nature of Soviet society and the difficulties this presented to the Committee in terms of obtaining reliable information. A contrast is then drawn with the 'relatively open' societies of the West.

While it is true that the Soviet Union undoubtedly is a 'closed' society in the sense that it does not permit significant scrutiny or questioning of government policies by the general public, it is important to clarify what is being inferred from this. Apart from lamenting the lack of reliable published information emanating from the Soviet side, with which we have no difficulty, the chapter goes on to imply that this presents a difficulty for verification. This reflects a view expressed repeatedly by one member of the sub-committee that arms control agreements with the Soviet Union are valueless because its 'closed' society prevents adequate verification.

We reject this line of argument. First, we do not go along with the absurdly sanguine assessment of the availability of reliable information in the United States. In the United States, as in the Soviet Union, a vast amount of military data crucial to making an assessment of the relative capabilities of the forces of the two superpowers is unavailable to the general public. In terms of the characteristics of both its own weapons systems and those of the Soviet Union, the United States' public is forced to rely on sources in the military/intelligence establishment, who have shown a preparedness, when the occasion demands, to manipulate and distort information for ulterior motives.

It may take years or even decades for the truth to emerge. One of the most significant examples of this was the so-called 'missile gap' of the late fifties and early sixties. A greatly exaggerated accounting of Soviet ICBM capabilities was used to build public support for U.S. weapons programs well after the 'gap' was known to those in the intelligence community to be a fiction. More recently, major concern has been expressed by some U.S. Congressmen about the extreme secrecy surrounding development of the 'stealth' bomber, alleged by some to have a first strike potential. Congressman Mike Synar of the Committee on Government Operations has complained of being intimidated by the Pentagon because of his persistent probing on this issue.

As to verification, both sides are susceptible to the other's 'national technical' methods and the effectiveness of these and other means, rather than the presence or otherwise of general political freedoms, is what matters. In this regard, the United States probably retains a significant advantage as a result of the greater technical advancement of its satellite and other

surveillance systems. Soviet activities are anything but 'closed' to the U.S. military/intelligence community with its access to huge volumes of Soviet communications intercepts, detailed photographic reconnaissance and other data, and the computerised techniques to minutely analyse such data. Our own lack of definite knowledge about what goes on at Pine Gap, North-West Cape and Nurrungar renders absurd the Committee majority's implication that the Western democracies present an 'open book' in this regard.

In paragraph 1.16 the Committee talks of the difficulty of finding anything out about Soviet defence policies except what is made available by Western intelligence agencies or 'specialised academic journals'. Again, from the absence of any reference to the United States or other Western states, one could infer that their defence policies are an open book. While it is undoubtedly true that Western policies are subject to much more independent scrutiny domestically than Soviet policies, large areas, such as the Single Integrated Operational Plan for fighting a nuclear war, remain highly classified. Discussion of these matters is unlikely to be found other than in 'specialised academic journals'. It is rather surprising, moreover, given the alleged absence of any significant Soviet sources on its defence policies, to see Soviet military journals being quoted extensively in Chapter 3 of the report.

The final paragraph is somewhat schizoid. In it, the Committee is said to take, as far as possible, an 'objective' approach toward problems of disarmament and arms control. It is unclear what this term is intended to mean in this context, apart from the generally laudable goal of looking at issues in an unbiased manner without rigid preconceptions. Other than this totally uncontroversial interpretation, we can only suppose that the Committee means to say that it believes that, in considering these issues, we should avoid being judgemental about the respective political systems in west and east and focus on their common interest in survival. We agree with this assessment. It is, however, difficult to reconcile this sort of perspective with the second sentence, which stresses the importance of the 'vast differences' between the Warsaw Pact states and Western societies.

CHAPTER 5: THE SPREAD OF NUCLEAR WEAPONS

Part of the discussion in this chapter relates to the link between the civil and military uses of nuclear energy and the impact on proliferation of Australian uranium exports. Our views on these matters differ from those of the Committee majority and are set out in more detail in our dissent to Chapter 17. However it is worth noting the Committee's observation in paragraph 5.71 that:

'The pressures toward proliferation have also been diminished by the present declining demand for nuclear power and allied technologies. The international economic recession has slowed the introduction of the fast breeder reactor and restricted the diffusion of peaceful nuclear technologies and materials'. (emphasis ours)

This sentence effectively acknowledges the link between the diffusion of peaceful nuclear technologies and proliferation. The objection that Australian uranium is subject both to multilateral and bilateral safeguards needs to confront the deficiencies in the safeguards regime set out in this chapter (5.52) and in more detail in chapter 17 (17.45 and 17.54). No effective rebuttal is offered anywhere in this report to the deficiencies described in these sections.

Paragraph 5.71 further observes that, because of the economic recession and the fall in demand for nuclear fuels:

'Governments may be under pressure to facilitate the export of nuclear materials, including into regions where the proliferation risks are high'.

It is hard to reconcile this with the conclusion set out in Chapter 17 that cutting off Australian uranium '...will not have any effect in reducing the number of nuclear weapons in the world...' (17.60). The addition of Australian uranium stocks can only exacerbate the oversupply situation, the proliferation consequences of which are spelt out in the underlined part of the above quotation.

More generally, the chapter as it stands is far too sanguine in its assessment of the impact of the Non-Proliferation Treaty and its main operational body, the International Atomic Energy Agency. In our opinion, the NPT has had, on balance, a beneficial impact on proliferation. However we believe that the NPT's role in slowing proliferation over the past twenty years is probably exaggerated. It is acknowledged in the report (5.77) that most of the 'problem' countries - Argentina, Brazil, India, Israel, Pakistan and South Africa - are outside the NPT and further that '...the NPT has tended more to reflect the evolving nuclear proliferation situation than shape it...'

We believe a balanced evaluation of the Treaty should give more emphasis to the inherent contradiction involved in requiring signatories to help the dissemination of 'peaceful' nuclear technology in exchange for their pledge not to develop nuclear weapons. As described above and in our dissent to Chapter 17, we take a much less optimistic view than the Committee majority of the possibility of isolating the civil from the military uses of nuclear energy. Apart from anything else, parties are entitled to withdraw from the NPT on three months notice.

We also believe that the effectiveness of the International Atomic Energy Agency is undermined by it having the dual goals of promoting the peaceful uses of atomic energy and preventing proliferation, as well as its broad secrecy provisions. These contradictory goals can lead to pressures on IAEA employees that jeopardise the safeguards regime, as evidenced by testimony to a U.S. Congressional sub-committee by Roger Richter, a former IAEA inspector.

CHAPTER 10: CRITICISMS OF AUSTRALIA'S ROLE IN DISARMAMENT AND ARMS CONTROL

In the key paragraph setting out its view on deterrence the Committee comes down in favour of the concept of deterrence as an unavoidable necessity in the short term. The same paragraph then goes on to express some 'reservations' about the current 'countervailing' version of deterrence based on counterforce targeting and nuclear war fighting.

This is a remarkably mild conclusion in light of the views expressed by the Committee in Chapter 4, in which it is said that:

- The countervailing theory of deterrence is particularly dependent on an artificial model of U.S.-Soviet behaviour (4.63).
- There is little reason to believe that the Soviet Union would abide by the 'rules' governing escalation control and intra-war bargaining which are integral to the new doctrines, and there is no guarantee that either side would continue to act calmly or rationally once a nuclear conflict began (4.63).
- The countervailing doctrine can be construed by an adversary as threatening since the weapons and support systems needed to carry out a flexible counterforce strategy are indistinguishable from those needed for a disarming first strike (4.64).
- The 'countervailing' form of deterrence is based on the 'highly dubious' notion that nuclear war can be limited (4.68).
- Even a 'limited' nuclear war could trigger nuclear winter (4.69).
- Even a limited war based on counterforce targeting would produce very high civilian casualties (4.70).
- Taken literally, the objectives of 'countervailing' strategies would require forces and capabilities well in excess of current levels (4.71).
- The development of 'war-fighting' doctrines may be contributing to an increasing perception that nuclear wars may be able to be fought and endured in much the same manner as conventional conflicts and that this may induce some future leader to contemplate starting a war (4.78).
- The 'countervailing' form of deterrence could lead to the countenancing of launch-on-warning or a first strike (4.79).

In our view, the above list warrants something stronger than mere 'reservations'.

Furthermore, in Chapter 15, the Committee has endorsed extensive material showing that the 'joint' facilities are integral to the war-fighting capability inherent in the 'countervailing' form of deterrence (see our dissent to this chapter for a summary). Therefore an objective assessment of Australia's role would need to weigh this against any contribution to strategic stability arising from support for 'basic' deterrence. We do not believe that these aspects have been sufficiently taken into account by the Committee in reaching its generally pro-alliance, pro-joint facilities conclusions in this chapter.

CHAPTER 12: THE STRATEGIC DEFENCE INITIATIVE

We wish to record our objection to the following words, which appear after the first sentence in paragraph 12.33:

'The Committee does obviously not have the expertise to comment on the feasibility of SDI. It notes that many prominent scientists claim it is impossible to achieve, whilst other scientists, some close to their respective governments, believe it has possibilities'.

The first point to make is that this paragraph is clearly inconsistent with the argument in the rest of the chapter. The very next paragraph (12.34) affirms the Committee view that: 'the prospect of a perfect or near perfect defence against current arsenals is very unlikely.' The same paragraph goes on to say '...While the prospect of developing effective defences against current arsenals is remote...'. Presumably if the prospect of developing defences against current arsenals is remote then the prospect of developing defences against the sort of upgraded, more survivable, arsenals the Soviet Union would undoubtedly develop in response to SDI would be even more remote.

It is clearly absurd for the Committee to assert the impossibility of non-experts making a sound judgement about SDI in one paragraph, and then to make a firm finding on the matter in the next. The Committee can't have it both ways.

In any case, given that the key decisions about Australian participation or otherwise in SDI are made by politicians and not experts, it would be utterly irresponsible for the Committee not to form a view. Moreover, it would be equally possible to argue that only 'experts' can properly comment on virtually every other major issue discussed in this report.

We are also dissatisfied by the discussion in the section headed 'Should Australia Contribute to SDI Research' (12.47). While the report opposes official Australian involvement, it is remarkably weak and ambiguous in its comments on non-official involvement. Paragraph 12.49 talks of how 'complete and public rejection of Australian involvement - both on a government-to-government basis or through private enterprise - could affect relations between the two countries'.

In earlier sections, the Committee endorsed a number of propositions about SDI. Specifically, SDI:

- Is highly unlikely to provide perfect or near perfect defence against current arsenals (12.34). (We would note that if this is true of current arsenals then, a fortiori, there would be negligible prospect of defeating the enlarged, more survivable arsenals the Soviets could be expected to develop in response to SDI);

- . May well be destabilising even if it is, temporarily, technically successful (12.31);
- . Would provide distant and hypothetical benefits but obvious and acute dangers (12.35);
- . In combination with continuing U.S. deployment of weapons with a counterforce capability, will engender Soviet fears of a U.S. first strike; and that the most obvious Soviet response to this is to increase its ballistic missile forces (12.35);
- . In the absence of 'negotiated restraint', would stimulate a renewed arms race (12.36);
- . May impede progress in arms control, and seriously threatens the ABM treaty (12.38);
- . Is likely to prevent the establishment of an anti-satellite regime (12.39);
- . May undermine the Non-Proliferation Treaty (12.39), and
- . Would destabilise the strategic balance (12.43).

If these assessments are correct, then something stronger than a declared laissez faire attitude to non-governmental involvement is warranted. There may well be some practical difficulties in enforcing a ban extending to the private sector. Not least would be the problem of technologies that also have non-SDI applications. However it is not too much to expect a strong and unambiguous government policy of discouraging involvement by the private sector, particularly if such involvement could, over time create pressures for a change in government policy itself (as the Committee agreed in 12.51).

CHAPTER 15: THE JOINT UNITED STATES AUSTRALIAN DEFENCE FACILITIES

We have significant reservations about the treatment of the subject matter of this chapter from the heading 'Discussion and Committee Views' to the end of the chapter. It is in this part of the chapter that the Committee's main conclusions and policy prescriptions in regard to the 'joint facilities' are to be found. We believe that the very term 'joint facilities' is a misnomer in that we believe the scope for genuine Australian control over what goes on in them is extremely limited.

We do not believe that sufficient attention is given in this part of the chapter to potential conflicts and dilemmas arising from the increasing emphasis by the U.S. on strategic doctrines that involve counterforce targeting and nuclear war-fighting. The government has repeatedly expressed its opposition to such strategies, and the Committee itself expresses serious concerns about the potentially destabilising effects of such doctrines (see 4.63 thru 4.80, and 21.9 thru 21.21). In 21.10(a) the Committee emphasises that 'Nuclear weapons are not war-fighting weapons' and in 21.12 the Committee affirms that 'we need to return to a situation where nuclear weapons are maintained only to deter nuclear attack by another nuclear weapons state'. Therefore it is relevant to ask what the role of the facilities is, or potentially could be, in implementing these new and destabilising strategic doctrines.

The earlier sections of this chapter contain ample evidence that the 'joint' facilities do have such a role. Specifically:

- . The North-West Cape communications facility could well transmit a firing order in the event of a nuclear war. It has been argued that this unambiguously contributes to stable deterrence, because nuclear submarines provide an invulnerable second strike capability, but lack the accuracy for a first strike on hardened targets. However the report acknowledges that the introduction of Trident I and Trident II systems will give the U.S. SLBM force a significant hard-target kill capability (15.44). Furthermore, the recently published U.S. 'Maritime Strategy' envisages attempting to destroy Soviet submarine launched ballistic missiles at the stage when a war between the U.S. and the USSR is still conventional (15.49). Paragraph 15.51 goes on '...the principal purpose of the facility has been extended from supporting basic deterrence to also encompassing extended deterrence. If this current form of deterrence is considered to be dangerous and destabilising, as its opponents claim, then so are the installations that support it...'.
 - . Fine Gap also has a war fighting role. The Rhyolite satellites which communicate through Pine Gap allow 'the U.S. to map the location of and hence target their (Soviet and Chinese) early warning (EW) stations, air-defence systems, anti-ballistic missile

(ABM) systems, airfields, air bases, satellite tracking and control stations and ships at sea. The information collected by the Rhyolite satellites would also allow the U.S. to jam Soviet radar and radio transmitters in the event of war and enable U.S. bombers to evade the air defence systems en route to their primary targets'. (15.56). Furthermore, in addition to its early warning function, Pine Gap can collect information '...invaluable for developing military options and plans and for engaging in a prolonged nuclear exchange where damage needs to be constantly monitored and assessed and new targets located and destroyed. This again illustrates that military capabilities can be used for both offensive and defensive purposes'. (15.62)

The Defence Support Program satellites which communicate through the ground station at Nurrungar play only a supplementary role in arms control verification (15.69). They would play a more important role in monitoring explosions to provide U.S. National Command Authorities with ongoing damage assessment and targeting options in a nuclear war (15.70). The report also quotes Andrew Mack in support of the view that the primary reason for installing nuclear explosion detectors on DSP satellites is their utility in nuclear war-fighting, rather than in verification.

Having expressed in other chapters its concern about these new strategic doctrines, one might have expected that the Committee would be compelled to take an unfavourable view of bases and facilities that are integral to them. This would need to be weighed against the benign functions performed by the facilities in question. However the Committee seems content to reach its overall conclusion in support of the facilities simply by referring to their contribution to 'basic deterrence' and verification, without any explicit attempt to strike a balance between these functions, on the one hand, and their potential contribution to destabilising new strategic doctrines on the other.

Such an evaluation would require a case by case judgement of the facilities, rather than evaluating them en bloc, as is done in the concluding parts of this chapter. There is a considerable difference between North-West Cape for example, which has no verification or early warning function and Pine Gap and Nurrungar, which do (though the earlier sections of the report point out that the significance of these functions tends to be overstated - 15.65, 15.68, 15.71). Such a case-by-case assessment would also need to take account of possible future developments, such as the possibility that some of their functions may be rendered redundant by technical developments, such as laser satellite cross-links.

A further aspect is the role these facilities might play in developing and implementing ballistic missile defences. In Chapter 12 the Committee reaches a negative conclusion about the

prospect of the 'SDI' program successfully developing comprehensive defences against ballistic missiles (12.40). Rather, the Committee believes that the 'SDI' program will undermine arms control negotiations and destabilise the strategic balance (12.44). The present government is also strongly opposed to 'SDI'.

Having reached these conclusions, the Committee could be expected to regard any contribution to 'SDI' from the 'joint' facilities in a negative light. It is a deficiency of this chapter that such a possibility is not examined, despite evidence from some witnesses that this is a real concern, particularly in respect of the Nurrungar facility. According to Andrew Mack:

'USAF Space Command has taken over control of the Defence Support Program early warning system - including the U.S. personnel at Nurrungar - and one of its main missions, according to its Commander, General James V. Hartinger, is to respond to the needs of the President's Strategic Defence Initiative.' (A. Mack Arms Control and the Joint Facilities: The Case of Nurrungar p.23).

Mack then goes on to discuss the possibility that Nurrungar could already be involved in an 'SDI' program known as the Boost Surveillance and Tracking System. This is designed to track and target Soviet ICBMs in the first phase of their flight, before they leave the earth's atmosphere. It seems that data already collected at Nurrungar could have been used in the SDI program, and that Nurrungar could be involved in communicating with the new generation satellites needed for such a system (although technical developments may render this function redundant). Given the Committee's and government's view of 'SDI', a role in SDI development should count against any of the facilities involved. Yet no attempt has been made to add this into the balance.

Finally, we are deeply sceptical about the feasibility of the Committee's recommendations that 'Australia should have sufficient control over all military facilities located on its soil to ensure Australia knows about and can prevent any use of the facilities that are inimical to Australia's own interest' (15.106). The Committee's suggestions as to how this could be achieved fail to address a number of fundamental problems, such as how Australian personnel could, even in principle, exercise control over an encrypted nuclear firing order passing through North-West Cape; or how they could prevent data collected through Nurrungar being utilised in the 'SDI' program.

CHAPTER 16: THE SOUTH PACIFIC NUCLEAR FREE ZONE

The Committee notes (16.74) that the proposed South Pacific Nuclear Zone falls short of the basic objective of UN defined nuclear free zones - to ensure freedom from all nuclear weapons. It goes on to state that this is an inevitable consequence of the fact that the Treaty largely comprises international waterways and the need to take account of the varying security concerns (i.e. alliance commitments) of the Pacific Forum states.

We would like to place on record our preference for a treaty that more closely approximates the UN ideal, while recognising that this would require a fundamental re-evaluation of our alliance commitments and also recognising that the present Treaty is probably the best that can be obtained in current political circumstances. While it is clearly not possible, in any legally enforceable sense, to prevent the movement of nuclear armed ships in international waterways or 'innocent passage' through territorial waters it clearly is within the power of states in the region to exclude from their territories components of a nuclear war-fighting apparatus (such as our 'joint' facilities) and to prevent port visits by nuclear-powered or armed warships.

As things stand, the Treaty and its proposed Protocols pose some interesting dilemmas. One obvious one arises from Protocol 2, which is open for signature from the nuclear weapon states. Protocol 2 '...requires each party not to violate the Treaty and not to use or threaten to use any nuclear explosive devices against parties to the Treaty or other territories within the SPNFZ' (16.34). This protocol is something of a joke, so far as Australia is concerned, while we continue to maintain on our territory facilities such as Pine Gap, North-West Cape and Nurrungar which must inevitably be on the Soviet Union's nuclear target list, and naval facilities which also may well be targeted.

It is also worth emphasising the largely symbolic significance of this Treaty. Clearly there is no prospect of the Treaty compelling the French to stop testing in the South Pacific, nor to legally prevent dumping of waste on the high seas. The decision to draw the Treaty boundaries around a vast area, large parts of which are not in the territorial waters of any state and which therefore cannot be subject to any legal enforcement of the Treaty provisions, underlines this symbolic aspect. Clearly those responsible for drafting the Treaty see value in this sort of political statement. We wish to place on record our view that the force of the 'political statement' implicit in the Treaty is severely undermined by the government's recent decision to resume exports of uranium to France without that country ceasing its nuclear testing within the Treaty area.

CHAPTER 17: URANIUM MINING AND AUSTRALIA'S ROLE IN THE NUCLEAR FUEL CYCLE

We wish to take issue with a number of propositions in the concluding part of this chapter.

Paragraph 17.60 reads: 'The Committee accepts that there is no shortage of uranium in the world to supply fuel to the civil nuclear industry and that the industry can proceed whether or not Australia is a supplier. It therefore supports the view that cutting off the supplies of uranium will not have any effect in reducing the number of nuclear weapons in the world...'

We observe that the second sentence of the above quote does not follow logically from the first. Indeed, it is a rather surprising inference given the Committee's assertion in an earlier chapter (5.71) that, because of the economic oversupply and the fall in demand for nuclear fuels (creating an oversupply situation):

'Governments may be under pressure to facilitate the export of nuclear materials, including into regions where the proliferation risks are high.' (our emphasis)

If the Committee view expressed above is correct, our continuing to mine and export uranium will add to this oversupply, and therefore add to the pressure of other suppliers to look at high-proiferation-risk areas for markets. Conversely, ending uranium exports would reduce such pressures, and would therefore materially help to reduce proliferation risks.

The mining and export of Australian uranium is also defended on the basis of the marginality of the effect cessation would have on the world supply of uranium, and hence on proliferation risks. If we don't supply it, so the argument goes, then someone else will. So why bother with what would be perceived as a quixotic gesture that will deprive Australia of badly needed foreign exchange?

It is worth noting at this point that most of the things Australia seeks to do in the arms control and disarmament area can be said to be fairly marginal in their impact. Yet the stakes are sufficiently great to warrant 'marginal' measures. Australia's continuing to supply uranium to the world market increases the overall volume available, as well as the diversity of source. Hence it is reasonable to infer that our remaining in the nuclear fuel cycle will lead to uranium being a somewhat cheaper and more secure energy source than it would otherwise be, thereby leading to some decisions, at the margin, to opt for nuclear power rather than alternative energy sources.

This in turn has the consequence of a more extensive nuclear power generation industry than would otherwise exist, with some increase in the danger of nuclear materials, equipment and personnel being surreptitiously applied to weapons production. In

the case Israel, Pakistan and India, it can be argued that the existence of a widespread civil nuclear industry increased the feasibility of weapons production by those countries.

A more significant point relates to the global political impact of Australia clearly and unambiguously dissociating itself from the nuclear fuel cycle. That the 'demonstration effect' of actions from relatively small countries can be significant is confirmed by the response of the U.S. to New Zealand's action in banning nuclear ships, a response largely motivated by fear that the 'New Zealand disease' might prove contagious.

A proper evaluation of the impact of Australia disassociating itself from the nuclear fuel cycle would need to balance the above considerations against the arguments cited by the Committee majority in support of the view that Australia's continued mining and export of uranium allows it to play a more substantial and constructive role in working against nuclear weapons proliferation.

Great stress is placed on the need to preserve the existing non-proliferation regime based on the nuclear Non-Proliferation Treaty, and with the International Atomic Energy Agency as the main body for enforcing safeguards. Two major aspects recur in defences of uranium mining, and crop up in this report (17.19). Firstly, Article IV of the NPT requires signatory states to 'facilitate... the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy'. It is argued that Australian failure to mine and export uranium would contravene our obligations under this article of the treaty. This, would weaken the credibility of the treaty generally and would provide waverers with a convenient excuse to withdraw from the treaty altogether.

The precise nature of our obligations under this article have never been clearly spelt out. Are we obligated to bring onstream mines other than the ones that the government has decided to permit? As things stand the government has made the political decision to restrict mining to Ranger, Nabalek and Roxby Downs. If we are not required to permit mining in other areas, on what basis can we be said to be obligated to permit mining and export from the above three?

Justice Fox dealt with this question in the First Report of the Ranger Uranium Environmental Inquiry and concluded that:

'We have been advised, and we accept, that this Article does not create a binding legal obligation, and in particular does not bind Australia to mine its uranium and sell it to any particular country, or at all.'

The concern about providing an excuse for waverers to drop out of the NPT founders on the fact that the nuclear weapons states have flouted their obligation under Article VI to take good faith

steps to halt the arms race. This provides more than ample ammunition for any state wanting to drop out.

A second recurring argument (17.19,17.20) stresses the need for Australia to retain its status as a 'designated' member of the International Atomic Energy Agency Board of Governors. This, it is argued, gives us considerable scope to strengthen the non-proliferation regime, particularly in regard to safeguards. Our 'designated' status rests on our being the member in our region (South East Asia and the Pacific) '...most advanced in the technology of atomic energy, including the production of source materials'. One has to pose the question of what we may need to do to retain this status in future. We would need, presumably, to keep ahead of other states in our region, such as Indonesia, that are substantially increasing their effort by installing new reactors. Has there been any serious attempt to look at alternative ways of maintaining our 'designated' status by advancing our efforts in other, more benign, areas of nuclear research?

In paragraph 17.63 the Committee makes reference to the 'stringent safeguards' under which Australian uranium is supplied, implying that these should be regarded as sufficient. Yet paragraph 17.45 contains an extensive list of deficiencies in the international nuclear safeguards regime, provided by one of the witnesses to the inquiry, to which no plausible responses are offered. In 17.46 the Committee concludes that '...some of the alleged weaknesses were valid, particularly those relating to the management of the safeguards system, which were said to be under review in the IAEA'. The report also lists (17.53) a number of significant deficiencies in Australia's bilateral safeguards arrangements. Again, no plausible answers are offered to these criticisms. The report simply concludes by favourably quoting the ASTEC inquiry's conclusion that the requirements under these bilateral arrangements '...provide as much control as can be realistically expected...' (17.54).

The Committee majority is apparently content to recommend continued mining and export of uranium on the strength of this. An alternative view is that if the seriously flawed safeguards regime is the best that can be 'realistically expected' then the mining and export of uranium should be regarded as inherently unsafe.

CHAPTER 18: PEACE EDUCATION AND PEACE RESEARCH IN AUSTRALIA

We disagree with the Committee recommendation that 'peace studies' be incorporated into existing courses, rather than being introduced as separate courses (18.23). The Committee argues that this is the safest way to go in the short term, at least, pending resolution of a long list of problems set out in the preceding paragraph relating to course content, emphasis and structure.

It is difficult to see the logic of this approach. If a serious effort is to be made to incorporate 'peace studies' into existing subjects, then many of the questions contained in paragraph 18.22 would need to be addressed anyway. Some (such as the 'focus' of courses) will inevitably generate controversy, and it is unreasonable to await some definite resolution before proceeding. Other issues relate to practical aspects of course organisation and are best addressed by building on experience gained after a period of actually running the courses.

We strongly disagree with the view of the NSW Education Minister (quoted in 18.11) that '...students can study peace issues in subjects like Economics, Asian Social Studies, English, Science and General Studies'. While it may well be true that these subjects can provide insights relevant to problems of world peace, this is no argument against having separate courses dealing with a number of specific areas relevant to peace and disarmament. One could equally say that Economics can be studied in a course on Asian Social Studies (or vice versa); or that English can be studied in a course on General Studies (or vice versa). A course in 'peace studies' would draw on insights from a number of disciplines, as well as incorporating material (such as the history of the arms race) not found in any other course.

Our support for separate courses dealing with peace studies rests simply on our view that the subject matter is of sufficient importance to warrant such treatment.

CHAPTER 21: RECOMMENDED STRATEGIES AND POLICIES

In paragraph 21.10 the Committee comes out, 'on balance' against the 'countervailing' theory of deterrence that now underpins U.S. nuclear strategy. We agree with this conclusion, but believe that the way it is expressed grossly understates the weight of argument against this doctrine. Our reasons for this view are set out in our dissent to Chapter 10. We also broadly agree with the Committee objective of moving to a position of 'mutual deterrence at a much lower level of armaments than currently exist' (21.12). We would stress, however, that this can be no more than a short term solution. The aim should be to move to a world where superpower relations are improved to the point where all forms of deterrence (including the much less dangerous 'basic' and 'minimal' variants) can be dispensed with. We wholeheartedly concur with the Committee conclusion that 'our long-term goals should be to eliminate all remaining nuclear weapons and to replace deterrence with a doctrine of collective or common security'. (21.4)

We disagree with the Committee view that the Non-Proliferation Treaty could be strengthened by increasing nuclear assistance to member states of the NPT. We believe the safeguards regime enforced by the International Atomic Energy Agency to be inadequate, and in any case member states can withdraw on three months notice. We are not convinced that there can be a hermetic separation between the civil and military applications of nuclear energy. These arguments are set out in detail in our dissent to Chapter 17.

We regret the Committee decision to delete the paragraph supporting the adoption of a no-first-use of nuclear weapons doctrine by NATO (this would have been 21.37 d.). We see great merit in maintaining a clear 'firebreak' between conventional and nuclear weapons, particularly in the European theatre. We find this decision particularly surprising given that, in an earlier chapter, the Committee notes that:

'The Soviet doctrine of massive counterforce response, together with NATO doctrine of first use of tactical nuclear weapons in a local conflict, ensures that any use of nuclear weapons - whether accidental or contrived - may quickly escalate to an all-out exchange' (4.80).

In paragraph 21.13 the Committee links progress on arms control and disarmament to liberalisation of the Soviet system of government. While we regard expansion of political freedoms in the Soviet bloc states as a laudable goal in itself, we are opposed to making this a precondition of significant arms control agreements. We agree with the view expressed in the Palme Commission report that deliberate 'linkages' of this sort should be avoided.

DISSENTING REPORT

The Coalition categorically rejects one of the primary assumptions on which this Report is based, namely the equation of the two superpowers on the same moral level. The adoption of such a spurious 'even-handedness' defies history, morality and our basic national security interests.

Furthermore, meaningful arms control cannot be achieved without compliance, and compliance is impossible to determine in a closed society like the USSR without verification. Soviet violations of arms control commitments are numerous and cannot, indeed, must not, be minimized by the West.

The fact is that disarmament proposals must be developed against the background of the USSR's massive and sustained build-up over many years. The international arms control agenda cannot ignore either Soviet military build-up or their violations of existing Treaty commitments. It is only when States are able to feel secure, and have confidence about the intention of other States, will reliance on arms and their use, be most effectively reduced.

We, therefore, are unable to accept some of the recommendations and underlying assumptions contained in the Report. The four key areas of differences are:

1. The South Pacific Nuclear Free Zone Treaty;
2. The Strategic Defence Initiative (SDI) and Australia's participation in its research;
3. Deterrence - the inadequate recognition of the defence capabilities in the Western alliance required for flexible response to ensure effective deterrence, and the hesitancy to see deterrence as a necessary and complementary concept to disarmament;
4. Verification - the insufficient emphasis on the massive barriers to progress in disarmament and arms control which arise from the closed nature of Soviet society and the consequent impossibility of assessing arms control compliance when in the USSR the means of verification are withheld.

This dissenting report confines itself to these basic differences in approach to disarmament issues. Questions of emphasis and balance are to be found in some other parts of the Report.

1. THE SOUTH PACIFIC NUCLEAR FREE ZONE TREATY

A nuclear war, wherever it occurred, would have catastrophic consequences for Australia. There is no escape in nuclear-free zones and in simply wishing we could opt out. We reject the over-optimistic views of the Report on the benefits of the Zone to Australia.

The Report discloses a contradiction between Australia's membership of ANZUS (including the associated obligations for sustaining strategically the inter-locking security system in the Pacific) and the Government's sponsorship of a Treaty, which:

- (a) creates the conditions for eroding the capacity of the U.S. to match growing Soviet power in the Pacific;
- (b) rejects the maintenance support role for U.S. deployment of nuclear-armed ships and aircraft;
- (c) creates the precedent for crucial regional partners to do the same. A recent recommendation of the Philippines Constitutional Committee to incorporate the exclusion of foreign military bases in the new Constitution is a case in point. It is an indication of policy encouraged by the isolationist trend implicit in the Nuclear Free Zone Treaty.

Such spin-offs damage confidence in the West's interlocking system of security designed to restrict Soviet power. The neutralist pressures which the South Pacific Nuclear Free Zone Treaty strengthens are not confined to the Pacific. They are also exhibited in Nordic politics. Lord Carrington, the Secretary-General of NATO, has recently warned that, if Denmark yielded to these pressures and denuclearised, that would practically mean the end of NATO;

- (d) among the principles espoused by a UN study for nuclear free zones were the principles (16.14)
 - '(c) the proposed zone should preserve the regional status quo including existing security arrangements;' and
 - '(e) it should have the support of nuclear weapons states'.

The failure of the Treaty to attract the confidence of the U.S. (16.48) is surely premised on the concern that the treaty is generating political trends which disturb the existing security arrangements. The protocol which the U.S.

is invited to sign requires the U.S. to agree, inter alia, not to station nuclear test devices in the zone. If the U.S. accepts that commitment to a zone for one part of the Pacific, it will be poorly placed to resist a trend for the Marianas, Tinian, Saipan and Palau (16.21(b)) to be included in the zone.

Generally, Australia in supporting this Treaty places itself apart from the responsibility to maintain an integrated resistance to the expansion of Soviet power in the South Pacific, an area of front-line strategic significance to Australia.

It must be appreciated that a principal Soviet aim throughout the post-war period has been to divide the Western alliance. Instead of pursuing arms negotiations actively in the serious quest for an equal and stable strategic balance, the Soviets have tried to develop and exploit differences among the Western alliance, leaving us to negotiate among ourselves, while they sit back and wait for unilateral concessions that they need not reciprocate.

The Soviet Union must understand that efforts to divide the alliance will not work, for unity is essential to the success of East-West negotiations. That is why New Zealand's break from ANZUS has been so unfortunate and why the South Pacific Nuclear Free Zone Treaty is unsatisfactory.

Australian and regional interests are better served by our principled support of deterrence regionally and globally. We do not accept the Report's recommendation that the zone enhances our security.

It is demonstrable that a proliferation of the ideology of zonal denuclearisation in the Western sphere of interest is not paralleled by a reciprocal process in the Soviet sphere. Thus it helps to upset the global balance through contributing to a weakening of the West's nuclear alliance. It undermines existing security arrangements - particularly ANZUS - and thereby leads to an overall reduction in regional security. It implicitly denies the likelihood of a deteriorating international/regional environment (and the consequences for Australia) and quite unnecessarily legislatively fetters our ability to respond to what might possibly be a radically altered strategic environment.

In rejecting the SPNFZ Treaty for this reason, we stress our opposition to both the dumping of nuclear waste in the South Pacific and to nuclear testing in the region. These can be negotiated by separate Treaties.

2. THE STRATEGIC DEFENCE INITIATIVE

We completely reject the Report's negative assessments of the SDI research programs (eg see 12.44 p361 and 19.15 p576) and recommendation for Australia not to participate in SDI research (R31 p662).

We believe that the Strategic Defence Initiative is not only visionary, but also highly prudent. It is a vital response to an active Soviet research effort which, if not pursued, would leave the USSR with a unilateral advantage in strategic defence, in addition to its already awesome first strike offensive capability. To do so would jeopardize the very foundations of deterrence.

The report fails to sufficiently emphasize Soviet research conducted since the 1960s in advanced technologies for strategic defence, including high energy lasers, particle beam weapons, radio frequency and kinetic energy weapons. These are the same types of technologies that SDI is now looking into. It is research and research only into a non-nuclear defence system.

It is a moral quest which seeks to replace offensive nuclear weapons with defensive non-nuclear weapons. As repeatedly stated, the SDI Research program will be consistent with all U.S. Treaty obligations.

By refusing to take part we cut ourselves off from vital high technology frontiers in both civilian and military technology. We deny ourselves a part of the SDI research programme and we encourage our scientists qualified in this area to leave Australia. At another level, we deny ourselves any influence on the objectives and eventual outcome of the research.

History is littered with examples of sceptics of progress. The Report's conclusions on SDI propagate such negativism and ignores the vital question of whether a more stable and defensively-based deterrent is possible - a deterrent based on mutual assured safety, not mutual assured destruction. SDI research offers such an opportunity.

3. DETERRENCE

At the present time nuclear war is avoided and international stability maintained by effective deterrence, and not simply arms control. The Report, however, lacks coherence in its analysis of what is necessary to ensure that deterrence is effective and in the implications of this for Australia's defence arrangements.

We agree that the stress must be on the importance of avoiding nuclear war. But the disarmament process is only one part of the answer. The other is the continuing role of a viable deterrence policy. Deterrence serves as the essential regulating principle for arms control. There then follows from deterrence the ideal of disarmament; that is, a symmetrical diminution of nuclear stockpiles so that they may continue to deter each other as they are reduced.

Australia's own security is intimately bound up with the security of the Western alliance and the viability of deterrence. The most menacing threat to Western security is weakness. Any scheme for dealing with the nuclear balance that would disarm, even in part, only one side, or upset the balance between the two sides, would leave us more, not less, exposed. Deterrence, at this time, remains the only effective and viable restraint to nuclear conflict.

We must pursue every responsible path leading to reduced world tension and disarmament. In pursuing a more stable world, however, we remain consistent in our belief that Australia's relationship within the Western alliance is fundamental to our position in international relations. The alliance is not just the ultimate guarantee of our security, it is a dynamic relationship between partners that have the same basic and deep-rooted values.

The Report gives inadequate recognition to the defence capabilities required in the Western alliance for deterrence to be realistic and effective. This inadequacy is illustrated by the confusion and contradictions concerning 'basic' and 'extended' deterrence that are currently expressed by the Labor Government through the Department of Foreign Affairs on the one hand and the Department of Defence on the other. The contradictory approaches to deterrence by these Departments is referred to in the Report.

We criticize the Government's confusion and the Report's failure to recognise, in a coherent way, the necessity of flexible response capabilities in the Western alliance to ensure that deterrence works.

4. VERIFICATION

We reject the Report's insufficient emphasis on the massive barriers to progress in disarmament and arms control which arise from the nature of Soviet society and the consequent impossibility of assessing arms control compliance when, in the USSR, the means of verification are withheld.

Verification involves the means to observe and detect an opponent's adherence, and compliance involves the adherence itself, whether detected or not. Both are critical. In such a closed society as the Soviet Union, compliance is impossible without verification.

Disarmament then is not something which can be achieved by words or posture. Proposals have to build confidence. They need, in the jargon of the disarmament professionals, to be transparent. They have to be devised in such a way that the participants can be confident that the agreement that they have entered into will be honoured by Treaty partners.

If agreements do not contain proper verification and compliance measures, and thus build-up confidence, they are doomed to be ineffective.

Our aim is to seek agreements involving mutual substantial and militarily significant reductions of nuclear and conventional arms, with effective verification and compliance. Any approach to arms limitation which ignores the need of verification and continuing stability is ineffective, undesirable and dangerous.

Hon. A.S. Peacock, MP

Senator B.C. Teague

Mr R.F. Shipton, MP

Hon. R.C. Katter, MP

Hon. M.J.R. MacKellar, MP

Senator R. Hill

Mr D.F. Jull, MP

Mr W.P. Coleman, MP

Mr N.J. Hicks, MP

Hon. I.L. Robinson, MP

Senator N.A. Crichton-Browne

Senator D.J. MacGibbon

APPENDIX 1

PERSONS PARTICIPATING IN DISCUSSIONS WITH THE COMMITTEE

Australian Conservation Foundation
Mr R.E. Phelps, Project Officer

Australian Quaker Peace Committee (Victoria)
Mr G.D. Hess, Convenor
Mr P.D. Jones, Field Worker
Mr B. Pittock, Member

Dr D. Ball, Head, Strategic and Defence Studies Centre,
Australian National University, Canberra.

Dr H. Blix, Executive Director, International Atomic Energy
Agency, Vienna.

H.E. Mr Richard Butler, Australian Ambassador for Disarmament.

Ms H. Clark, MP, Chairperson, Sub-Committee on Disarmament and
Arms Control, New Zealand Parliament.

Commonwealth Scientific and Industrial Research Organisation,
Division of Atmosphere Physics, Mordialloc, Victoria
Mr Z. Galbally, Principal Research Scientist
Mr B. Hunt, Senior Principal Research Scientist
Dr G. Tucker, Chief of Division

Dr J. Dahlitz, Research Fellow in International Law and
International Relations School of Peace Studies, University of
Bradford.

Department of Defence officials, Canberra.

Department of Foreign Affairs officials, Canberra.

Mr A. Eida, Executive Director, International Peace Research
Institute, Oslo.

Mr J. Goldblat, Senior Member, and Dr S. Lodgaard, Member,
Stockholm International Peace Research Institute, Stockholm.

Greenpeace Australia
Ms M. Shanahan, National Disarmament Co-ordinator

Mr J. Martensen, United Nations Under Secretary-General for
Disarmament.

People for Nuclear Disarmament, New South Wales
Ms A. Horsler, Member
Mr D.J. Worth, Organiser

People for Nuclear Disarmament, Victoria
Mr R. Bolt, Convenor
Mr N.J. Maclellan, Member

Scientists Against Nuclear Arms, New South Wales
Mr M. Beard, Secretary

Mr H. Shapar, Director General, Nuclear Energy Agency,
Organisation for Economic Co-operation and Development.

Ms I. Thorsson, Former Swedish Under Secretary of State for
Disarmament.

Union of Soviet Socialist Republic's arms control delegation led
by Dr V. Petrovskii, Head, International Organisation Division,
Ministry of Foreign Affairs, Moscow.

United States Government arms control delegation led by Dr K.
Adelman, Director, Disarmament and Arms Control Agency,
Washington.

United States Government Strategic Defense Initiative
Consultation Team led by Mr Robert Linhard, Acting Senior
Director for Defense and Arms Control Issues, National Security
Council.

Women's International League for Peace and Freedom
Ms E. Mattick, President, Australian Section

World Conference on Religion and Peace (Australia)
Reverend P. Huggins, Melbourne

APPENDIX 2

WITNESSES WHO APPEARED AT PUBLIC HEARINGS

Australian Conservation Foundation

Mr D.G. Hill, Deputy Director, Hawthorn, Victoria.

Australian Council of Churches

(Churches Commission on International Affairs)

Ms M.L. Bearlin, Member, Canberra, Australian Capital Territory.

Bishop D.A. Garnsey, Chairman, Canberra, Australian Capital Territory.

Mr D.L. Purnell, Honorary Secretary, Canberra, Australian Capital Territory.

Clergy for Peace

Reverend W.N. Campbell, Secretary-Elect, Melbourne, Victoria.

Reverend P.J. Huggins, Secretary, Melbourne, Victoria.

Department of Defence

Mr W. Connick, Director, Materials Research Laboratories, Canberra, Australian Capital Territory.

Mr R.K. Thomas, Assistant Secretary, ANZUS and United Nations Branch, Canberra, Australian Capital Territory.

Air Commodore M.A. Turnbull, Director-General, Military Staff, Strategic and International Policy Division, Canberra, Australian Capital Territory.

Department of Foreign Affairs

His Excellency Mr R. Butler, Australian Ambassador for Disarmament, Canberra, Australian Capital Territory.

Mr A.D. Campbell, Acting Deputy Secretary, Canberra, Australian Capital Territory.

Mr T.C. Findlay, Acting Head, Disarmament and Multilateral Section, Canberra, Australian Capital Territory.

Dr R.J.D. Gee, Acting Head, Arms Control Section, Canberra, Australian Capital Territory.

Mr J.W. Sullivan, Acting Assistant Secretary, Peace and Disarmament Branch, Canberra, Australian Capital Territory.

Mr J.A. Tilemann, Acting Assistant Secretary, Nuclear Policy Branch, Canberra, Australian Capital Territory.

Mr D.A. Townsend, Assistant Secretary, Nuclear Policy Branch, Canberra, Australian Capital Territory.

Mr R.A. Walker, Acting Special Disarmament Adviser, Canberra, Australian Capital Territory.

Friends of the Earth (Manly) Queensland

Mr L.R. Drake, Secretary, Manly, Queensland.
Mr K. MacDonald, President, Manly, Queensland.

International Atomic Energy Agency

Dr H. Blix, Director General.

Medical Association for Prevention of War

Australian Branch

Dr G. Mann, Member, IAW Organising Committee, Camperdown, New South Wales.

Dr J.A. Ward, Secretary, Camperdown, New South Wales.

South Australian Branch

Dr P.F. Furze, Committee Member, North Adelaide.

Dr I. Maddocks, National President and South Australian State Co-ordinator, North Adelaide.

Tasmanian Branch

Dr T.G. Donald, Member, Hobart.

Dr R.J. Von Witt, Member, Hobart.

National Spiritual Assembly of the Baha'is of Australia

Dr J.A. Davidson, Member, Mona Vale, New South Wales.

Nuclear Disarmament Party

Dr M.A. Denborough, National Chairman, Canberra, Australian Capital Territory.

People for Nuclear Disarmament - New South Wales

Miss A.E. Horsler, Member, Sydney, New South Wales.

Mr D.J. Worth, Organiser, Sydney, New South Wales.

People for Nuclear Disarmament - Queensland

Mrs T.M. Brunton, Member, West End, Queensland.

Mr G.R. Clarke, Member, West End, Queensland.

Mr M.D. Hayes, Adviser, Toowong, Queensland.

Dr N.W. Preston, Chairperson, West End, Queensland.

People for Nuclear Disarmament - Victoria

Mr M.E. Hamel-Green, Member, Carlton South, Victoria.

People for Nuclear Disarmament (Camberwell) - Victoria

Mr M.D. Browning, Contact Person, Camberwell, Victoria.
 Miss J.C. Crawford, Member and Member of Executive Council
 of the Central Organisation of People for Nuclear
 Disarmament, Camberwell, Victoria.
 Mr R.O. Desailly, Convenor, Camberwell, Victoria.

Peace Research and Resource Centre of Queensland

Mr R.J. Foote, Member, Toowong, Queensland.
 Mr M.D. Hayes, Member, Toowong, Queensland.
 Ms A.T. Ingamells, Member, Toowong, Queensland.

Religious Society of Friends

(Quaker Peace Committee of the Hobart Regional Meeting)

Dr M.A. Bailey, Member, Newtown, Tasmania.
 Dr D.H. Coward, Corresponding Secretary, Newtown, Tasmania.

Returned Services League of Australia

Commodore K.D. Gray, DFC, RAN (Retired), Member, National
 Defence Committee, Canberra, Australian Capital Territory.
 Major-General D. Vincent, CB, OBE (Retired), Chairman,
 Defence Committee, Canberra, Australian Capital Territory.

Scientists Against Nuclear Arms**National Branch**

Mr M. Beard, Secretary, Lane Cove, New South Wales.

South Australian Branch

Dr A. Grisogono, State Co-ordinator, Clarence Gardens.
 Professor W. Moran, Member, Clarence Gardens.
 Dr J.W. Rice, Member, Clarence Gardens.

Tasmanian Branch

Dr M.L. Duldig, Secretary, Hobart.
 Dr I.A. Newman, Convenor, Hobart.

United Nations Association of Australia**South Australian Division**

Mr C.J. Hoskyns, Chairman, Disarmament Committee, Adelaide.

Tasmanian Branch

Mr N.J. Heyward, Immediate Past President, Hobart.
 Mr C.H. McI. Hazlewood, Executive Director, Hobart.
 Dr D.D. McLean, Committee Member, Hobart.

Uniting Church in Australia - Queensland Synod

Dr F.E. Guard, Member, Social Responsibility Committee and
 Member, National Assembly Committee, Spring Hill.
 Mr M.D. Hayes, Consultant on Peace and Disarmament Issues,
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 The Reverend J. Woodley, Consultant for Social Responsibility
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Wildlife Preservation Society of Queensland

Mr D. Henry, Director, Petrie Terrace.
 Mr J. Sinclair, President, Petrie Terrace.

Women's International League for Peace and Freedom

Ms V.G. Abraham, Honorary Secretary, Australian Section,
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 Mrs M.J. Holmes, Past President, Australian Section, Sydney,
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APPENDIX 3

SUBMISSIONS PRESENTED TO THE INQUIRY

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Mr G. Pamount, PO Box 485, Noarlunga, South Australia	S 771
H. Haub, Queensland Branch, Union of Australian Women, Brisbane, Queensland	S 772
D. Hess, 3 The Avenue Hampton, Victoria	S 773
Ms S. Jackson, C/- Post Office Gin Gin, Queensland	S 782
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Mr G. Shenman, 2 Tower Road, Hobart, Tasmania	S 793
Mr J. Lomax, 'Hopgrove', Lachlan, Tasmania	S 795
Mr G. Pamount, PO Box 485 Noarlunga, South Australia	S 800
Dr E. Colin, 4 Trevor Street Upway, Victoria	S 802
Mrs I. Colin, 4 Trevor Street Upway, Victoria	S 803
Mr N. Godfrey, 8 Menzies Court, Moranbah, Queensland	S 804
Mr T.B. Millar, Department of International Relations, Australian National University, Canberra, Australian Capital Territory	S 817
L.C. and W.F. Teakle, Mail Service 497, Jondaryan, Queensland	S 841
Mrs B. Chandler, Bridge Creek Road, Maleny, Queensland	S 847

Mr K. Taylor, PO Box 87, Maleny, Queensland	S 848
K.M. Kemshead, 21 Newton Street, The Grange, Queensland	S 849
H.M. Gill, G. Garrad L. Carruthers, Sunshine Coast Hospitals Board, Hospital Road, Nambour, Queensland	S 855
J. Jordan, PO Box 87, Maleny, Queensland	S 857
S.M. Smith, Bellthorpe West via Woodford, Queensland	S 858
P. Bear, Queensland	S 860
Anon	S 865
The South Australian Committee of Support for the United Nations Special Session on Disarmament	S 870
R. Holden, New-Clear Awareness Group, PO Box 152, Bellingen, New South Wales	S 875
People for Peace and a Nuclear Free World, PO Box 5918 CMC, Cairns, Queensland	S 880
Christians for Peace, 27 Bibby Street, Hamilton, New South Wales	S 882
The Environment Centre (Northern Territory) PO Box 2120, Darwin, Northern Territory	S 884
Socialist Party of Australia, South Australian Branch, 185 Sturt Street, Adelaide, South Australia	S 886
Australian Peace Committee, (S.A. Branch) 11-16 South Terrace, Adelaide, South Australia	S 888
Conservation Council of South Australia Inc.	S 890
Senator the Hon. D.L. Chipp, Leader of the Australian Democrats, Parliament House, Canberra, Australian Capital Territory	S 896
Maple Street, Co-operative Soc. Ltd., 37 Maple Street, Maleny, Queensland	S 926
Nambucca Anti-Nuclear Association, PO Taylors Arm, New South Wales	S 927

714.

G. Loftus-Hills, Symes Street, Lower Plenty, Victoria S 939

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M. Paine, Beacon Hill, New South Wales S 981

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Mid-North Coast Peace Group S 1019

Nuclear Disarmament Association, c/- History Department, Wollongong University, PO Box 1144, Wollongong, New South Wales S 1021

Campaign Against Nuclear Energy, 291a Morphett Street, Adelaide, South Australia S 1024

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Campaign Against Nuclear Power, PO Box 238, North Quay, Queensland S 1125

Australian Peace Committee, Box 32, Trades Hall, Goulburn Street, Sydney, New South Wales S 1142

Department of Resources and Energy, Canberra, Australian Capital Territory S 1148

The Structure and Content of Agreement Between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons S 1156

Collingwood People for Nuclear Disarmament, Melbourne, Victoria S 1188

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Knox People for Nuclear Disarmament S 1196

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H.G. Gelber, University of Tasmania, Hobart, Tasmania S 1214

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Australian Conservation Foundation, 672B Glenferrie Road, Hawthorn, Victoria S 1269

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Friends of the Earth, PO Box 20, Manly Queensland S 1275

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CSIRO Atmospheric Research, Private Bag 1, Mordialloc, Victoria S 1286