Fifteenth special session
Items 10, 11 and 12 of the
provisional agenda*

ASSESSMENT OF THE IMPLEMENTATION OF THE DECISIONS AND
RECOMMENDATIONS ADOPTED BY THE GENERAL ASSEMBLY AT ITS
TENTH AND TWELFTH SPECIAL SESSIONS

CONSIDERATION AND ADOPTION OF THE COMPREHENSIVE
PROGRAMME OF DISARMAMENT

ASSESSMENT OF DEVELOPMENTS AND TRENDS, INCLUDING QUALITATIVE AND
QUANTITATIVE ASPECTS, RELEVANT TO THE DISARMAMENT PROCESS, WITH
A VIEW TO THE ELABORATION OF APPROPRIATE CONCRETE AND PRACTICAL
MEASURES AND, IF NECESSARY, ADDITIONAL PRINCIPLES, TAKING DULY
INTO ACCOUNT THE PRINCIPLES AND PRIORITIES ESTABLISHED IN THE FINAL
DOCUMENT OF THE TENTH SPECIAL SESSION OF THE GENERAL ASSEMBLY, THE
FIRST SPECIAL SESSION DEVOTED TO DISARMAMENT

Letter dated 20 May 1988 from the Permanent Representative of India
to the United Nations addressed to the Secretary-General

I have the honour to request that the following three papers expressing the
views of my Government on several important disarmament issues be circulated as an
official document of the fifteenth special session of the General Assembly, the
third special session devoted to disarmament, under items 10, 11 and 12 of the
provisional agenda:

1. Action plan for ushering in a nuclear-weapon-free and non-violent world
order (annex I).

* A/S-15/10.
2. New technologies and the qualitative arms race (annex II).


(Signed) C. R. GHAREKHAN
Ambassador
Permanent Representative
ANNEX I

Action plan for ushering in a nuclear-weapon-free and non-violent world order

1. Humanity stands at a crossroads of history. The world has lived too long under the sentence of extinction. Nuclear weapons threaten to annihilate human civilization and all that humankind has built through millennia of labour and toil. Nuclear-weapon States and non-nuclear-weapon States alike are threatened by such a holocaust. It is imperative that nuclear weapons be eliminated. The recently signed INF Treaty between the United States and the Soviet Union is a first major step in this direction. This process must be taken to its logical conclusion by ridding the world of nuclear weapons. The time has also come to consider seriously the changes in doctrines, in policies, in attitudes, and in the institutions required to usher in and manage a nuclear-weapon-free and non-violent world. Peace must be predicated on a basis other than the assurance of global destruction. We need a world order based on non-violence and peaceful coexistence. We need international institutions that will nurture such a world order.

2. We call upon the international community to urgently negotiate a binding commitment to an action plan for ushering in a non-violent world free of nuclear weapons. We suggest the following action plan as a basis for such negotiations:

2.1. STAGE I (duration: 6 years, from 1988 to 1994)

2.1.a. Nuclear disarmament:

2.1.a.i. Elimination of all Soviet and United States land-based medium- and shorter-range missiles (500 to 5,500 kilometres) in accordance with the INF Treaty.

2.1.a.ii. Agreement on a 50 per cent cut in Soviet and United States strategic arsenals (with ranges above 5,500 kilometres).

2.1.a.iii. Agreement on a phased elimination by the year 2000 A.D. of United States and Soviet short-range battlefield and air-launched nuclear weapons.

2.1.a.iv. Cessation of the production of nuclear weapons by all nuclear-weapon States.

2.1.a.v. Cessation of production of weapon-grade fissionable material by all nuclear-weapon States.

2.1.a.vi. Moratorium on the testing of nuclear weapons.

2.1.a.vii. Commencement and conclusion of negotiations on a comprehensive test-ban treaty.

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2.1.b. Measures collateral to nuclear disarmament:

2.1.b.i. Conclusion of a convention to outlaw the use and threat of use of nuclear weapons pending their elimination.

2.1.b.ii. Declaration by the United States and the Soviet Union that the fissile material released under the INF Treaty would be utilized for peaceful purposes only and accordingly be subjected to supervision by the International Atomic Energy Agency.

2.1.b.iii. Declaration by all nuclear-weapon States of their stockpiles of nuclear weapons and weapon-grade fissionable material.

2.1.b.iv. Cessation of direct or indirect transfer to other States of nuclear weapons, delivery systems, and weapon-grade fissionable material.

2.1.b.v. Non-nuclear-weapon Powers to undertake not to cross the threshold into the acquisition of nuclear weapons.

2.1.b.vi. Initiation of multilateral negotiations, to be concluded by 1995, for a new treaty eliminating all nuclear weapons by the year 2010. This treaty would replace the non-proliferation Treaty, which ends in 1995.

2.1.c. Other weapons of mass destruction:

2.1.c.i. Conclusion of a treaty banning chemical weapons.

2.1.c.ii. Conclusion of a treaty banning radiological weapons.

2.1.d. Conventional forces:

2.1.d.i. Substantial reduction of NATO and Warsaw Pact conventional forces, especially offensive forces, and of weapon systems in Europe from the Atlantic to the Urals.

2.1.d.ii. Multilateral discussions in the Conference on Disarmament or in the United Nations on military doctrines with a view to working towards the goal of a purely defensive orientation for the armed forces of the world. The discussions would include measures to prevent surprise attacks.

2.1.e. Space weapon systems:

2.1.e.i. A moratorium on the testing and deployment of all space weapon systems.

2.1.e.ii. Expansion of international co-operation in the peaceful uses of outer space.

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2.1.f. Control and management of the arms race based on new technologies

2.1.f.i. Arrangements for monitoring and assessing new technologies which have military applications as well as forecasting their implications for international security.

2.1.f.ii. For research in frontier areas of technology where there are potential military applications, new technology projects and technological missions should be undertaken under the auspices of the United Nations in order to direct them exclusively to civilian sectors.

2.1.f.iii. Commencement of work, under the aegis of the United Nations, for the formulation of guidelines to be observed by Governments in respect of new technologies with potential military applications.

2.1.f.iv. Commencement of negotiations for banning technological missions designed to develop new weapon systems and means of warfare.

2.1.g. Verification:

2.1.g.i. Acceptance in principle of the need to establish an integrated multilateral verification system under the aegis of the United Nations as an integral part of a strengthened multilateral framework required to ensure peace and security during the process of disarmament as well as in a nuclear-weapon-free world.

2.2. STAGE II (duration: 6 years, from 1995 to 2000)

2.2.a. Nuclear disarmament:

2.2.a.i. Completion of Stage I reductions by the United States and the Soviet Union and the induction of all other nuclear-weapon-States into the process of nuclear disarmament.

2.2.a.ii. Elimination of all medium- and short-range, sea-based, land-based and air-launched nuclear missiles by all nuclear-weapon States.

2.2.a.iii. Elimination of all tactical battlefield nuclear weapons (land, sea and air) by all nuclear-weapon States.

2.2.a.iv. Entry into force of the comprehensive test-ban treaty.

2.2.b. Measures collateral to nuclear disarmament:

2.2.b.i. Negotiations on the withdrawal of strategic nuclear weapons deployed beyond national boundaries.
2.2.b.ii. Completion of the ratification and entry into force of the convention prohibiting the use and threat of use of nuclear weapons.

2.2.b.iii. Conclusion of the new treaty eliminating all nuclear weapons by the year 2010 to replace the non-proliferation Treaty.

2.2.c. Space weapons:

2.2.c.i. Agreement within a multilateral framework on banning the testing, development, deployment and storage of all space weapons.

2.2.d. Conventional forces:

2.2.d.i. Further reduction of NATO and Warsaw Pact conventional forces to minimum defensive levels.

2.2.d.ii. Negotiations under the Conference on Disarmament on global conventional arms reduction.

2.2.d.iii. Removal of all military forces and bases from foreign territories.

2.2.e. New and emerging technologies:

2.2.e.i. Completion of negotiations on banning technological missions aimed at the development of new weapon systems.

2.2.e.ii. Completion of negotiations on guidelines in respect of new technologies with potential military applications.

2.2.f. Comprehensive global security system:

2.2.f.i. Negotiations on and establishment of a comprehensive global security system to sustain a world without nuclear weapons. This would include institutional steps to ensure the effective implementation of the provisions of the Charter of the United Nations relating to the non-use of force, the peaceful settlement of disputes, and the right of every State to pursue its own path of development.

2.2.f.ii. Arrangements for the release of resources through disarmament for development purposes.

2.2.f.iii. Elimination of non-military threats to security by such measures as the establishment of a just and equitable international economic order.

2.2.f.iv. The strengthening of the United Nations system and related multilateral forums.

2.2.f.v. The commencement of negotiations for the establishment of an integrated multilateral verification system under the United Nations.
2.3. STAGE III (duration: 10 years, from 2001 to 2010)

2.3.a. Elimination of all nuclear weapons from the world.

2.3.b. Establishment of a single integrated multilateral comprehensive verification system which, inter alia, ensures that no nuclear weapons are produced.

2.3.c. Reduction of all conventional forces to minimum defensive levels.

2.3.d. Effective implementation of arrangements to preclude the emergence of a new arms race.

2.3.e. Universal adherence to the comprehensive global security system.

3.1. There has been a historically unprecedented militarization of international relations during the last four decades. This has not only enhanced the danger of nuclear war but also militated against the emergence of the structure of peace, progress and stability envisaged in the Charter of the United Nations.

3.2. To end this dangerous militarization of international relations, we must build a structure firmly based on non-violence. It is only in a non-violent democratic world that the sovereignty of nations and the dignity of the individual can be ensured. It is only in a non-violent world that the intellectual and spiritual potential of humankind can be fully realized.

3.3. The prospect of a world free from nuclear weapons should spur us to start building a structure of international security in keeping with the fundamental changes that are taking place in the world political, economic and security environment.

3.4. In a shrinking and interdependent world, such a structure has to be comprehensive, its components supportive of each other, and participation in it universal.

3.5. A world order crafted out of outmoded concepts of the balance of power, of dominance by power blocs, of spheres of influence, and of special rights and privileges for a select group of nations is an unacceptable anachronism. It is out of tune with the democratic temper of our age.

3.6. The new structure of international relations has to be based on scrupulous adherence to the principles of peaceful coexistence and the Charter of the United Nations. It is necessary to evolve stronger and more binding mechanisms for the settlement of disputes, regional and international. The diversity among nations must be recognized and respected. The right of each nation to choose its own socio-economic system must be assured.
3.7. Concomitant changes will be called for in the international economic order. The interdependence of all the economies of the world makes for a symbiotic relationship between development in the South and stability and growth in the North. In a just and equitable order, access to technology and resources, on fair and reasonable terms, will be assured. The gap between the rich and the poor nations will be bridged.
ANNEX II

New technologies and the qualitative arms race: working paper by India

Introduction

1. Paragraph 39 of the Final Document of the Tenth Special Session of the General Assembly, the first special session devoted to disarmament (General Assembly resolution S-10/2), had the following provision:

"Qualitative and quantitative disarmament measures are both important for halting the arms race. Efforts to that end must include negotiations on the limitation and cessation of the qualitative improvement of armaments, especially weapons of mass destruction and the development of new means of warfare so that ultimately scientific and technological achievements may be used solely for peaceful purposes."

2. A decade has passed since the adoption of the Final Document. During this period, efforts for "arms control" in both bilateral and multilateral forums have focused primarily on the quantitative expansion of arsenals. At no stage have the qualitative aspects of the arms race been addressed, even though it has been known for some time now that a very large part of the huge sums currently spent on armament by the major Powers is devoted to making qualitative improvements in the existing weapon systems and to developing new systems. As a matter of fact, most of the nuclear "arms control" agreements provide for the upgrading of the existing weapon systems and specify "permitted" areas for further improvement of weapons. This kind of arms control, which does not address itself to the structural nature of the arms race, has not curbed and cannot curb or reverse this race. Real disarmament cannot be achieved without addressing the problem of the qualitative arms race.

3. The total expenditure on military research and development (R and D) - 90 per cent of it by the five nuclear-weapon States and the Federal Republic of Germany - is estimated to be approximately one tenth of the trillion dollar total global military expenditure. Military R and D today is 25 per cent of the total expenditure on R and D. The scale of expenditure on military R and D and the pace of technical change in the military sector are unprecedented historically. This is the result of the emergence in the post-Second World War period of a large number of industrial and research establishments devoted exclusively to the design, production and refinement of new weapon systems. Development of weaponry is now no longer an undirected, accidental by-product of the advancement of science and technology. Instead, it has become an all-embracing purposive preoccupation, where every new scientific and technological development is examined for its potential military applications and steps are taken to translate that potential into real weapon systems.

4. There are certain historical imperatives for the growth of science and technology. These, in turn, influence patterns of production, consumption, distribution, policies of Governments as well as relations among nations. Progress
in science and technology and the changes that it brings about are a part of the historical process and no attempt to halt that process because of the unwelcome nature of some of these changes is likely to succeed. However, dedicated deployment of science and technology for military purposes, irrespective of its consequences for humankind, is another matter. It is the latter that is mainly responsible for the new destructive dimensions acquired by the arms race. It is the duty of the international community to put a restraint on such an orientation.

5. New weapon systems are often developed without reference to the political climate or even the prevailing security doctrines. Quite often this takes place without reference even to the actual weapons developed by the adversary. Each side presses ahead with the development of weapons designed to counter hypothetical weapons, sure in the belief that the other side would be doing the same. Technological possibilities of developing weapon systems often acquire an inexorable character and inevitably get translated into reality. The history of weapons development in the post-Second World War period is replete with examples of such a self-propelled momentum overtaking whatever meagre results "arms control" measures may have achieved.

6. It is thus evident that the prospects for real disarmament will remain bleak so long as this technological arms race is allowed to continue unabated. The pressures of competitive technological armament obstruct further progress in disarmament and even threaten to destroy the limited progress made so far. The current controversy over the 1972 ABM Treaty, because of the pressure of development of new space weapons, is an obvious illustration.

The new arms race

7. Today, the world stands on the threshold of a new arms race. A number of technologies that have the potential of transforming completely the methods of war-fighting and the nature of warfare are in advanced stages of development. The maturity and application of these technologies would have far-reaching implications for international security and would be a major setback to efforts for disarmament. The following are some of the areas in which new and emerging technologies with far-reaching military applications are taking shape:

(a) Nuclear weapons

Intensive research and development work by laboratories has led to a major breakthrough in the design of nuclear weapons. The past few years have seen increased interest in the so-called "third generation" nuclear weapons.

The first generation nuclear weapons are based on fission; the second generation on fusion. The second generation weapon design has increased the sophistication and improved the yield-to-weight ratio of nuclear warheads. The central feature of the third generation nuclear weapons is the ability to pick and choose specific effects of nuclear weapons and enhance them, while suppressing the unwanted ones. The neutron bomb, or the enhanced radiation weapon, is the precursor of the third generation nuclear weapons.
A number of third generation nuclear-weapon designs are being actively explored. These include the X-ray laser, in which the energy of the nuclear explosion is channelled into focused beams of intense X-ray radiation. The gamma ray laser, microwave weapons and nuclear devices that can generate powerful electromagnetic pulses are other third generation concepts that are being explored.

Concurrently, more accurate and precise modes of delivery of nuclear warheads are being explored to avoid the large collateral damage, inevitable in less accurate delivery. The manoeuvrable re-entry vehicle (MARV) is one such technology that is likely to dramatically increase the ability to deliver nuclear weapons with pin-point accuracy. The Earth-penetrating nuclear warhead design is another example of militarily usable nuclear explosions.

New directions in the use of nuclear energy for military purposes are also evident. Plans to deploy compact and powerful nuclear reactors in space are in advanced stages of development. The new military space missions for reactors include the powering of beam weapons, battle stations and supporting satellites. Accidents in already existing nuclear space systems have not been uncommon. Increased use of nuclear power in space could have dangerous ecological consequences.

(b) Defence against nuclear weapons

A variety of new and exotic technologies are being developed under the programmes to build defences against nuclear missiles. These include technologies for weapon systems, surveillance, acquisition and tracking, and battle management.

The weapon systems being developed include kinetic energy weapons. Kinetic energy weapons derive their destructive energy from the momentum of propelled objects. Electromagnetic rail guns, which can propel objects to very high speeds, are another kind of new weapon under development.

In directed energy weapons, consisting either of lasers or of particle beams, energy propagated at the speed of light is used to destroy or disable targets. These weapon systems can be based on Earth or in space. Laser systems powered by both chemical and nuclear sources are being developed.

Although these new technologies and weapons are being projected as "defensive", they also have offensive possibilities. They could be particularly useful as anti-satellite weapons. Some of them could also be used against Earth-based objects.

(c) Chemical and biological weapons

In the past, the problems and costs of effectively integrating chemical and biological weapons into military doctrine and organization have acted as barriers against widespread military enthusiasm for chemical and biological warfare. But new technological developments could remove these barriers and facilitate greater use of chemical and biological weapons. One such technological innovation is the "binary" munition for nerve gases.
The past few years have seen the enormous explosion in mankind's knowledge of the molecular and cellular processes of life. There is also the emerging ability to manipulate these processes through genetic engineering and biotechnology. If these abilities are tapped for military purposes, there could be a new race to develop hideous weapons for chemical and biological warfare.

(d) Electronics, computers and artificial intelligence

The impact of the revolutionary developments in electronics and computers on military technology and strategy is already pervasive. The impact is seen in the transformation of weapons into "smart" systems, such as precision-guided weapons systems and cruise missiles. There is also the existing large-scale use of high performance computers in command, control and communication and intelligence functions.

The ongoing revolution in electronics and computers is further transforming the nature of warfare. Weapon systems are moving from the "smart" to the "intelligence" phase. Unprecedented capabilities for command, control and intelligence (C^3) systems required for enhanced war-fighting capabilities are under development. A whole range of surveillance and target acquisition systems, sophisticated sensors and high-speed automated data handling systems are being built.

Of particular importance is the development of fifth generation computers and artificial intelligence. Artificial intelligence techniques are likely to be used initially in aiding soldiers in handling enormous information in a very short time in a complicated environment. Artificial intelligence techniques are also being considered for the development of autonomous vehicles and automated battle management systems. The impact of the new developments in computer hardware and software extend from conventional warfare to nuclear war-fighting and strategic defence.

(e) Conventional weapons

The words "conventional weapons" could already be a misnomer with the increasing accuracy, lethality and range of "conventional" weapon systems. There is an increased versatility in both launch platforms and warheads. The advances in weapon technology have already led to the conceptualization of strategic warfare without nuclear weapons. The use of ICBMs is being contemplated with conventional weapons. New types of delivery systems, such as transatmospheric vehicles and space planes capable of speeds ranging from 5 to 30 times the speed of sound and large payload capabilities, are being developed. These vehicles can operate in both atmosphere and space and can negotiate intercontinental distances in 10 to 15 minutes. The space planes, capable of horizontal take-off from and landing at normal airfields, lend themselves to greater use and flexibility in utilizing near-Earth space for military purposes and in carrying out a variety of offensive missions in a short span of time on Earth.
Implications of the new arms race

8. These developments have far-reaching implications for international security and peace. If allowed to proceed unchecked, they would bring about radical changes in the means of war-fighting and in security doctrines. They point to a highly complex strategic environment fraught with risks of staggering proportions. One consequence that can be predicted confidently is a fresh spiralling of the arms race at a qualitatively different, if not higher, level.

9. It is also evident that they carry a much greater risk of outbreak of war, particularly nuclear war. Many weapons already operate in a semi-automated or fully automated mode. Automation of entire weapon systems, however, would result in a quantum jump in the dangers. Improvements in C³I facilities and the deployment of surgical weapons may create an illusion of stability. However, in reality, control would become increasingly decentralized and real time for decision-making drastically would be reduced to durations too short to permit human beings to play any interactive role. The risk of war as a result of an accident or misjudgement would be much greater.

10. Furthermore, most of the new weapons systems are offence-dominated. And even the defensive ones have the effect of making offensive strikes possible with greater impunity. Together with the immensely increased accuracy and lethality of these weapons, this is likely to increase the incentive for pre-emptive strikes. There is, therefore, going to be greater likelihood of early use of such weapons. These new developments could lead towards a renewed arms race in both offensive nuclear weapons and building defences. Further, these developments threaten to introduce these weapons into outer space, which has so far remained free from them.

11. Moreover, a reasonably accurate assessment of the capabilities of new weapon systems, force levels, force targets and force postures and deployment is going to be extremely difficult in a period of rapid technological change. There would, therefore, be a tendency to proceed on the basis of "worst-case" scenarios, which would result in an increase in the instability of the security environment.

12. Discreet and selective deployment of tailored nuclear weapons with little collateral effect may tend to increase their perceived utility and hence their usability.

13. The increasing lethality and accuracy of non-nuclear weaponry has brought such weapons closer to small nuclear weapons. But the non-nuclear nature of the powerful new weaponry may tend to make it more acceptable morally and politically, and hence more usable as compared to nuclear weapons.

14. The distinctions between tactical and strategic weapons, and conventional and non-conventional weapons would become blurred leading to erosion of thresholds.

15. The existing barriers against chemical and biological warfare could be eroded as a result of the new technological developments. The unleashing of chemical and biological warfare technologies is fraught with grave consequences for the security of mankind.

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16. These new trends have complicated the problem of the monitoring and verification of emerging weapon systems. Many of these systems will be smaller in size, more mobile and more flexible in terms of carrying out a variety of missions. The most threatening in this regard are the cruise missiles. Other examples are the anti-satellite weapons, which can be fired from a variety of mobile platforms and dual-purpose delivery vehicles. In fact, we may have already come to the point of no return in this regard.

17. The new weapon capabilities are likely to be available only to the two super-Powers and their allies for a long time to come. It would, therefore, provide them with hegemonistic capabilities, increasing their predisposition to engage in coercive diplomacy.

18. The new technologies pose a serious threat to the existing arms control and disarmament agreements by offering technological and strategic incentives to nations for breaking out of the current restrictions. They would also introduce new complexities for disarmament agreements under negotiation, making new agreements difficult.

**Need for action**

19. The real challenge in the field of disarmament is to devise arrangements for controlling the new arms race, which has already started on the basis of new and emerging technologies. The time for doing so is now. For, otherwise, it will be too late. The third special session devoted to disarmament is the most suitable occasion for discussing this problem and for taking timely action for managing it.

20. The problems posed are far from simple. It is neither possible nor desirable to put a stop on the growth of science and technology. To distinguish technology as constructive or destructive is a complex task. Nor is it easy to sharply categorize research from development or from testing for development. However, we have no choice but to act. Faced with the growing threat of the largest and the most elaborate military R and D programme ever undertaken, namely that relating to ballistic missile defence systems, it is critical that we face the issues of the qualitative arms race directly and squarely.

21. If pursued in the context of a comprehensive disarmament programme seeking to eliminate weapons of mass destruction and reducing conventional armaments to the minimum needed for defence, the efforts to control the qualitative arms race would be of great significance and indeed necessary.

**Suggestions for action**

(a) **Increased transparency**

22. Reliable information on what is happening on the other side can remove a major reason for persisting with the qualitative refinement of arsenals on a unilateral basis - namely, the fear of being caught by surprise by technological breakthroughs by the adversary. Conversely, lack of such knowledge frequently leads to exaggerated projections based on "worst case" assumptions and creates pressure for undertaking whatever the adversary might be presumed, at worst, to be doing.

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23. Moreover, it is the right of the public to have access to information at the
global level on issues of life and death. And the Member States owe it to their
peoples to provide access to such information. Further, increased public awareness
of the implications of technological developments with military applications is the
most effective way of putting a measure of restraint on these developments. It is
also the duty of the world scientific community to be alert in this regard, to
anticipate developments and to make the world aware of their implications.

24. The following suggestions are, therefore, put forward for achieving greater
transparency and understanding in this critical and sensitive area:

(i) Technology assessment and forecasting panel: The Secretary-General
should have at his disposal a technology assessment and forecasting panel
consisting of a small group of eminent scientists and strategists. The
task of the panel will be to identify and monitor those developments in
the field of new and emerging technologies which have military
applications, assess their likely impact on international security, and
make projections based on such monitoring and assessment. The
Secretary-General should consult this group from time to time. On the
basis of such consultations and periodic reports to be submitted by the
group, the Secretary-General should disseminate their assessment and
forecasting on a wider basis, including through reports to the General
Assembly, the Security Council and the Conference on Disarmament.

(ii) National panel of experts: Each member Government should make more or
less similar arrangements at the national level. It should constitute a
panel of scientists which should report periodically to the Government
and should be available for consultations from time to time. It should
widely disseminate the information and assessment provided by the panel.
The Governments, in turn, should submit an annual report to the
Secretary-General. The Conference on Disarmament should also impress
upon all member Governments that, whenever an emerging technology appears
to have the potentiality of leading to the development of new weapons and
new means of waging war, the details of such technologies should be given
wide publicity.

(iii) Unit in the Department for Disarmament Affairs: A unit should be
established in the Department for Disarmament Affairs to monitor and
study the implications of new technologies with potential military
applications. The Secretary-General's panel should be able to draw upon
the information and study compiled by the unit.

(b) New technology projects and technological missions

25. There should be greater international co-operation in the field of research in
new and emerging technologies with a view to deploying them for peaceful purposes.
For this purpose, new technology projects and new technological missions should be
undertaken under the aegis of the United Nations. This will result in avoiding
duplication of efforts in this high-cost area, fostering trust and promoting global
progress and stability.
(c) **Banning of technological missions clearly designed for developing new weapons**

26. Negotiations should also start for banning those technological missions which are clearly designed for the development of new weapons and means of warfare. For example, there should be a ban on the development of ballistic missile defence systems.

(d) **Guidelines in respect of new technologies with potential military applications**

27. Guidelines should be drawn up under the aegis of the United Nations in respect of new technologies with potential military applications. To begin with, the guidelines could be voluntary in nature. They should be observed by Governments, where they are directly responsible for carrying out military R and D, and also recommended for observance by private laboratories and research institutions. Emphasis in the guidelines should be on transparency, the widest possible dissemination of information nationally and internationally, consultations with and reports to national authorities and the United Nations. They should also include such regulatory measures as may be found feasible. The Secretary-General should set up a group of experts for evolving a set of guidelines.
ANNEX III

Disposal of the warheads on the nuclear missiles covered by the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles (INF Treaty)

Working paper by India

Summary

The INF Treaty left open the question of disposal of the nuclear warheads on the missiles that are to be destroyed. Both the United States and the Soviet Union are free to decide what to do with the fissile material contained in the warheads, including the option of recycling it into new warheads for use on other missiles not covered by the Treaty. Such a course of action would be against the spirit of the Treaty and would considerably diminish its value as a nuclear disarmament measure. This is a matter of concern for all nations. The question of the disposal of these warheads, therefore, assumes crucial importance.

It is proposed that the United States and the Soviet Union be urged not to recycle their fissile material into other nuclear weapons and to place it under the supervision of the International Atomic Energy Agency (IAEA), while keeping it in their custody. They should be urged also to make the accumulated fissile material available for energy production, to the maximum extent feasible. At the same time, there should be a freeze on further production of nuclear weapons and simultaneous cut-off in the production of fissile material for weapon purposes.

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I. The problem

1. The INF Treaty left open the question of the disposal of the nuclear warheads on the missiles that are to be destroyed in accordance with the provisions of the Treaty. Both sides are free to decide what to do with the warheads, particularly the fissile material contained therein. They have the choice of recycling this material into new warheads for use on other missiles not covered by the INF Treaty.

2. The Treaty has been rightly acclaimed as the first nuclear disarmament measure ever taken by the nuclear-weapon States. If the parties to the Treaty are free to utilize the fissile material contained in the nuclear warheads covered by the Treaty for producing new warheads, the value of the Treaty as a nuclear disarmament measure would be diminished considerably.

3. It can be argued that the fissile material belongs to those two countries and that they are, therefore, free to dispose of it as they please. However, just as nuclear disarmament is the concern of all nations, so is the question of what happens to this fissile material. The world has the right to expect that the INF
Treaty will be observed not only in letter but also in spirit. The question of the disposal of the warheads, therefore, assumes crucial importance for all nations in the world.

II. Magnitude of the fissile material involved

4. The minimum amount of fissile material that the 2,000 warheads released under the INF Treaty would contain would be 10 to 20 tons, in case they are plutonium devices, and about 2 to 3 times that amount, in case they are enriched uranium devices. This is a very rough estimate because the exact amount can be estimated only on the basis of information about the yield of each warhead.

5. The obvious way of utilizing plutonium or enriched uranium for peaceful purposes is to feed it into a fast breeder or power reactor for generating energy. The above amounts of plutonium or enriched uranium could provide fuel for generation of about 1,000 megawatts of power for some years.

6. These appear to be rather trivial amounts. However the entire question has to be considered on the basis of the assumption that the INF Treaty would be a true disarmament measure and that what is involved is not only the release of 10 to 20 tons of plutonium contained in the warheads covered under the INF Treaty, but a much bigger amount that will be available in the event of total nuclear disarmament. Even the agreement on the implementation of 50 per cent reduction in the strategic arsenals of the United States and the Soviet Union would yield fissile materials many times higher than 10 to 20 tons.

III. Options for disposal

(a) For military purposes

7. The chemical explosives used to bring the sub-critical masses of fissile material together are of small explosive power and can be easily exploded away.

8. In view of the fact that most missiles are designed to carry specific payloads, there may not be much scope for reusing the warheads on the missiles covered by the Treaty on other delivery vehicles. Redesigning the delivery vehicles suitably in order to use these warheads may be a cumbersome process. Therefore, the most likely military use for the fissile material would be to recycle it into new warheads.

(b) For peaceful purposes

9. As already stated, the fissile material can be used in fast breeder or power reactors for generating energy. Weapon-grade uranium would need to be diluted considerably as it is 93 per cent U-235, whereas the enriched uranium required for currently established power reactors is only 3 to 5 per cent U-235.
10. Using the fissile material as an input for generating energy would release some capacity in existing reprocessing/enrichment plants and thus help in bringing down the cost of internationally traded plutonium and enriched uranium. It can also help in conserving world uranium reserves. Moreover, considering the global scarcity of energy, any move for supplementing the existing energy resources will be beneficial for the world as a whole.

11. The option of diluting the weapon-grade uranium might be regarded as wasteful after the prohibitive cost incurred in reaching such a high level of enrichment. However, this is not a valid consideration because, if the objective of nuclear disarmament is universally accepted, then the costs incurred in acquiring any nuclear weapons are themselves wasteful. They are in the nature of "sunk costs". What is pertinent to the utilization decision between the alternative options is only the additional cost that would have to be incurred to enable utilization of the fissile material.

12. Enriched uranium can also be used after suitable dilution for nuclear-propelled submarines and high temperature gas-cooled reactors. However, given the limited requirement of such facilities, this may not be a viable option but only a supplementary use.

13. Another option is to use the fissile material for peaceful nuclear explosions. The full potential of peaceful nuclear explosions is yet to be explored and there is a strong case for doing so, particularly when surplus fissile material might become available.

14. Three options are available for the purpose of exercising control over the fissile material:

First, the material remains in the custody of the owner country, free from controls except those imposed by the country itself.

Second, the material is physically handed over to an international agency, i.e., IAEA. It may be recalled that at one stage a proposal for the creation of an international nuclear fuel authority under IAEA was considered. However, no agreement could be reached on it. Most of the arguments given at that time against this idea, i.e., problems relating to transport, efficiency of reprocessing in a centralized place, guarantee of safety, etc., still remain valid.

There is a third alternative, according to which the material remains in the physical control of the owner country, but is placed under IAEA safeguards. The involvement of IAEA in this question could be regarded as a part of the verification system of the INF Treaty.

IV. Suggestions for action

15. The United States and the Soviet Union should be urged not to recycle their fissile material into other nuclear weapons and to place it under the supervision of IAEA, while keeping it in their physical custody. They should also be urged to
make this accumulated fissile material available for energy production, to the
maximum extent feasible. The usual procedure for verification, such as a
declaration of initial inventory and on-site inspection for accounting for its use,
should be followed. The owner country would have the option to withdraw the
fissile material for use for peaceful purposes, under intimation to IAEA.

16. Any such measure would be meaningful only if it is accompanied by a halt to
the further production of weapon-grade fissile material. Therefore, along with the
disposal of the fissile material as suggested above, there should be a freeze on
further production of nuclear weapons and a simultaneous cut-off in the production
of fissile material for weapon purposes.

17. Both the United States and the Soviet Union have accepted, in principle, IAEA
safeguards on selected civilian facilities. There should, therefore, be no
difficulty in their agreeing to place the fissile material released under the INF
Treaty also under IAEA safeguards, once it is agreed that this material is not to
be utilized for military purposes.