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THE SAFEGUARDS SYSTEM OF THE
INTERNATIONAL ATOMIC ENERGY AGENCY -
A STUDY OF THE INTERNATIONAL POLITICS OF ATOMIC CONTROL

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PREFACE

I have concluded that this thesis requires a short preface to explain certain of the circumstances under which it was written.

The first of these circumstances relates to the sources used. The early period of the International Atomic Energy Agency, from the time of President Eisenhower's speech to the General Assembly of the United Nations in December 1953, through and including the Conference on the Statute in 1956, is poorly documented. In the case of the bilateral negotiations between the United States and the Soviet Union the only comprehensive publication of relevant papers is that undertaken by the United States. These publications are good and indeed, as I studied them, I developed an admiration for the United States system of preserving such material. However, as the material comes from "one side" only, one is left with at least a sense of regret that this is the case. Furthermore, there are no records, even summary records, available for the eight and twelve power negotiations. There are summary records for the Conference on the Statute, but they are very compressed and often raise more questions than they answer. Bernard Bechhoefer who has studied the Agency since its

inception has referred to the "confusion" in the sources and has undertaken helpful work in sorting it out (see; Negotiating the Statute of the International Atomic Energy Agency in International Organisation number 13 (1959)).

Concerning more recent developments, the main events took place in the Board of Governors of the Agency. . In this case summary records are kept but they are not public documents. As a result, it has not been possible to provide the degree of documentary evidence or references for many of the events and attitudes described in this thesis that would be provided under more normal circumstances. In certain ways the fact that I have served for the last two years as Deputy Resident Representative of Australia to IAEA has helped me through the difficulties raised by this restriction. On the other hand I am, for the same reason, bound to respect the restriction on Board records and have done so.

In spite of these difficulties I have tried to work as much as possible with primary sources - the documents themselves. I thought this appropriate given the restrictions on the length of the thesis and because at the time of starting the thesis it seemed

clear that apart from certain journal articles, which were even more limited, no attempt had been made in the English language to collect this basic material together in a form useful to students of international politics. In more recent times and especially since progress has been made with the nuclear non-proliferation treaty, I am glad to see that the number of students of politics studying this field has increased.

Finally I must refer again to the official position I have occupied. The main part of the research for this thesis was undertaken privately during my time in Vienna. The rules governing the conduct of Australian officials are such that I have not been able to comment on Australian policy or use materials the property of the Australian government. I have complied with these rules.

I should now like to acknowledge assistance. On many occasions in the past two years I have needed criticism and direction, Mr. Allan D. McKnight, Inspector-General of IAEA provided me with both unstintingly.

STRUCTURE OF THESIS

1. PREFACE
2. INTRODUCTION
3. CHAPTER 1: The First Steps (1945-1949)
 - (a) First Reaction in the United States
 - (b) First International Reactions
 - (c) The Baruch Plan
 - (d) The First Soviet Response
 - (e) The Safeguards System
 - (f) The Soviet Counter-Proposal
 - (g) First Report of UNAEC
 - (h) Second Soviet Counter-Proposal
 - (i) Second Report of UNAEC
 - (j) Third Report of UNAEC
 - (k) General Assembly 1948
 - (l) The Soviet Bomb
4. CHAPTER 2: "Atoms for Peace" (1953-1956)
 - (a) The New Agency
 - (b) First Period of United States - Soviet Negotiation
 - (c) The Eight Power Negotiations
 - (d) Tenth General Assembly, 1955
 - (e) The Twelve Power Negotiations
5. CHAPTER 3: The Statutory Principles of Safeguards
 - (a) The Statutory Provisions
 - (b) "Military Purpose"
 - (c) Safeguards Agreements
 - (d) The Principles of IAEA Safeguards
6. CHAPTER 4: The Safeguards System
 - (a) The Draft Safeguards System
 - (b) The First System - 1961
 - (c) The Extension of the First System - 1964
 - (d) The Revision of the System - 1965
 - (e) Safeguards Agreements and the Board of Governors
7. CHAPTER 5: The Political Effects of the Safeguards System
 - (a) Nuclear Weapon States
 - (b) Near-Nuclear Weapon States
 - (c) Developing Countries
 - (d) Developed Non-Nuclear Weapon Countries

8. CHAPTER 6: IAEA Safeguards and the Nuclear Non-Proliferation Treaty

- (a) The Context and Principles of the Treaty
- (b) The Substance of the Treaty
- (c) The Treaty Safeguards Arrangements
- (d) The Treaty and the IAEA Board of Governors
- (e) The Future of IAEA under the Treaty
- (f) Conclusions

9. BIBLIOGRAPHY

10. ANNEXES

- (a) The IAEA Safeguards System (INFCIRC/66. Rev.2)
- (b) The Inspectors Document (GC(V)/39)
- (c) The Nuclear Non-Proliferation Treaty
- (d) The Statute of IAEA.

INTRODUCTION

This thesis is a study in international politics. Its subject is the system for the control of atomic energy - the safeguards system - established and administered by the International Atomic Energy Agency (IAEA).

I have undertaken a political study of this technical system because the main purpose for which the system was established is a political purpose.

The system can be described in many ways. A functional description shows it to be a set of technical and administrative arrangements designed to ensure that the atomic activities to which these arrangements apply are carried out within definite technical limits. A description in terms of its technical objective shows it to be a set of regulations designed to ensure that these same atomic activities do not "further any military purpose".

Such descriptions are useful and have been considered wherever appropriate. However, the main concern of this thesis is with the negotiations on the development of this system for the international control of atomic energy. These negotiations reflect both the policy attitudes and diplomatic performances of the powers involved in them and

7.

the role it has been agreed the system should play in the wider field of nuclear arms control.

My study of these negotiations and their origins indicates that the source of the proposal to create an international system for the control of atomic energy was the United States. In terms of the will to promote these arrangements and considering their specific structure, the policy of the United States has been dominant.

The first such proposal was the "Baruch Plan", presented to the United Nations by the United States in 1946. Although this Plan was rejected, subsequent developments have indicated that the achievement of a control system has been a central part of United States foreign policy. The IAEA scheme was the next attempt of the United States to achieve its policy objective.

The failure of the Baruch Plan was a failure for United States diplomacy. This Plan was grandiose and very restrictive. Above all it did not take account of what the Soviet Union called the "political realities" of the day. Although the Baruch Plan has been consigned to the "mission failed" section of history it retains the virtue of presenting a clear, perhaps embarrassingly clear, description of basic United States objectives. For this reason and because of its connection with subsequent

proposals it is considered briefly in this thesis.

The proposal to create IAEA also came from the United States. On this occasion the United States registered a victory for its policy and its diplomacy. Its aim was to create an international authority which would control atomic energy. This was done. The source of its diplomatic success was the fact that this proposal was modest in terms of the control powers proposed and it gave considerable positive emphasis to the development of atomic technology. This involved a real shift in American policy. Outright prohibition on a basis which would not damage the United States' nuclear superiority was replaced by a policy of controlled development, also on a basis acceptable to the United States. The precise nature of this success was that the United States demonstrated to the Soviet Union that continued Soviet refusal to participate in the scheme would damage Soviet interests. For the Soviet Union this involved shifting its policy priorities from a position where it had sought the outright prohibition of nuclear weapons as a first step towards control to a position where a "non-use of nuclear weapons" Declaration was pursued concurrently with its acquiescence in the creation of IAEA.

After the creation of IAEA, the United States pushed ahead with the creation of the Agency's safeguards system. The system finally developed was tied to atomic projects involving the extension of assistance from one country to another.

9

Although unilateral submission to the system was deemed acceptable the Agency was given no right to apply its system to member States other than in connection with assistance projects in which it played a part or was asked to play a part.

This limitation on the system reflected the negotiations among many powers. Soviet influence was one of the factors producing this limitation but the attitude of several "atomic have-nots" was also relevant. A clever and effective United States response was to include in its bilateral assistance treaties signed with some forty countries a clause providing for the transfer of these agreements to Agency administration of the safeguards relevant to them. This policy has brought under Agency control the great bulk of the projects covered by these agreements. Another important implication of the connection which was established between the provision of assistance and safeguards control was that it demonstrated that in the United States view the proliferation of atomic weapons is the key problem of atomic control and accordingly, in its view, "safeguards" is a non-proliferation concept.

Since 1963 the IAEA safeguards system has been developed considerably and has been applied increasingly. These developments were made possible by a major shift in Soviet policy. Before this time Soviet attitudes towards the safeguards system were negative and critical. After the

signing of the Moscow Test-Ban Treaty the Soviet Union began to support the extension and application of the safeguards system. It is now so strongly a supporter of it that its attitude to the existing system is conservative. In direct contrast to the earlier period the Soviet Union now sings the virtues of the system and resists even minor changes in it. It appears that the Soviet Union now sees the system as supporting its interests and indeed the Soviet attitude to the development of the Nuclear Non-Proliferation Treaty confirms this.

The IAEA safeguards system is not concerned with nuclear weapons. The Agency was itself the product of the United States' "Atoms for Peace" proposal and is concerned only with the peaceful uses of atomic energy. The relevance of the Agency and its system to nuclear weapons control is that it is obliged to ensure "so far as it is able" that the peaceful uses with which it is concerned remain peaceful.

The key element of the safeguards system is the provision for the negotiation of safeguards agreements between the IAEA and countries to which its safeguards system is going to apply. Politically speaking these agreements and the negotiation of them is the most significant factor the Agency has introduced into the area of nuclear control. The effectiveness of the safeguards developed in these agreements is an indirect function of the degree of nuclear development of the country

signing an agreement. They are most effective in less developed countries and vice versa. In all cases however they can never have a greater effect than inhibiting to a smaller or larger degree the subject country's ability to develop nuclear weapons.

Finally, the development of the Nuclear Non-Proliferation Treaty with its provisions for the application of IAEA safeguards to non-nuclear weapon states party to the treaty, has the chief effect of obliging the Agency to enter into negotiations with these states on a new kind of safeguards agreement. Under the treaty the purpose of these agreements is to enable IAEA to verify that these signatories are not manufacturing or otherwise acquiring a nuclear weapon or nuclear explosive device.

Although this is a new task for the Agency it has a familiar face on it. The IAEA safeguards system and the Non-Proliferation Treaty taken together look very like the Baruch Plan. Perhaps it is misleading to look for similarities in different historical periods. The temptation is that of finding order in events. It should be said immediately however that a major change that has occurred since 1946 has been in Soviet policy towards nuclear weapons. Its own weapons development has assured this. The growing urgency of the proliferation problem has been a second source of change. On the side of constancy however has been the determination of the United States to stop the spread of nuclear weapons. The IAEA safeguards system has been a major instrument of this policy.

CHAPTER 1The First Steps

"We must constitute ourselves trustees of this new force - to prevent its misuse and to turn it into the channels of service to mankind. It is an awful responsibility which has come to us" - President Harry S. Truman, 9th August, 1945.¹

The Baruch Plan was the first scheme for the international control of the weapon and technology revealed at Hiroshima. Its presentation to the United Nations Organisation was preceded by extensive consideration of the issues raised by atomic energy. Naturally, a large part of this consideration took place within the United States administration,² but it extended to consultation with the Western allies. As the negotiations

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- 1 Cited in State Department Publication 2702, 1945. International Control of Atomic Energy (Growth of a Policy)
 - 2 The detail and intensity of this activity is thoroughly described in "The New World 1939-1946" R.G. Hewlett and O.E. Anderson. Pennsylvania State University Press 1962.

on control proposals proceeded, it became evident that the Soviet Union had also considered the implications of this new American technology for the position of the Soviet Union.

An important fact which emerged from this early activity was the assumption by the United States of responsibility - a "sacred trust" - for the development of effective controls. After seeking the advice and approval of its most immediate allies, the United States attempted to discharge this deeply felt and self imposed responsibility through the Baruch proposals. These proposals were not only the first of their kind but they represent the beginning of a period of United States policy which has not yet ended. Although the gravity of the atomic problem was not then challenged, it proved true that the diplomatic techniques employed by the United States did not succeed in gaining acceptance of its proposals.

The question of whether or not this reflected a deficiency in the proposals themselves and or misjudgement of the policy aspirations of other nations is examined below. It is important to mention at the outset, however, that the American sense of the gravity of the problem led to extraordinarily far-reaching proposals

144

the acceptance of which could only have occurred if other nations were prepared to relinquish sovereign control over many basic domestic activities. The diplomacy of the presentation of these proposals also reflected this pervasive sense of gravity. In the end the American proposals were rejected by the Soviet Union and consequently this first atomic control scheme lapsed.

First Reactions in the United States

On 6th August, 1945 President Truman informed the world that the first atomic bomb had been detonated at Hiroshima. In his announcement the President reflected that although "it has never been the habit of scientists of this country or the policy of this Government to withhold from the world scientific knowledge", ³ in the case of atomic technology, he did not intend to release technical details until there had been "further examination of possible methods of protecting us and the rest of the world from the danger of sudden destruction". ⁴

As early as May 1945 the President had requested Secretary of War, Stimson, to appoint a committee

³ 6th August, 1945 State Department Publication 2702
⁴ ibid

to recommend legislation for the control and development of atomic energy. The central contentions of the Stimson Committee were that atomic weapons technology could not remain the exclusive property of the United States, that it would be impossible to protect the atomic secret permanently, and any long run attempt at such protection would result in an arms race. Accordingly, United States security and world peace would depend on both national and international control of atomic energy.

The first Congressional response to the President's request for action ⁵, the Report of the Senate Special Committee on Atomic Energy ⁶, reaffirmed the views of the Stimson Committee. On the question of defence against other potential atomic powers, the Committee concluded that there was no effective defence against atomic attack. Two related problems were identified. Firstly, the peaceful development of atomic science would be inevitably and simultaneously accompanied by the development of military atomic capability and, secondly, and consequently the absence of agreed international controls over atomic development could lead to the beginning of an arms race.

⁵ Message to Congress 3rd October, 1945, *ibid*
⁶ Report of 19th April, 1946. This Committee was created, 29th October, 1945, (S. Res 179) to "make a full, complete and continuing study and investigation with respect to problems relating to the use and control of atomic energy".

As a result, the Committee decided that certain details of weapons fabrication should be kept secret; "at least until effective and reciprocal international safeguards could be devised" ⁷, and that legislation should serve the dual aims of facilitating international agreements on atomic energy and encouraging the rapid development of peaceful atomic science. The McMahon Bill, S.1717, was adopted as a working basis to this end.

During the course of these hearings the President gave support to the idea of centring paramount control in an international organisation. ⁸

These early developments within the United States established what has remained the substantial basis of American policy towards atomic control. The two basic questions were; should a control system be created, and if so, what should be its basic principles. The affirmative answer to the first question was based squarely on United States interests. It was recognised both at the bureaucratic and Congressional levels that the United States monopoly was temporary. The secret could not be kept and its loss

⁷ Senate Report of 19th April, 1946. *ibid*
⁸ Letter of 1st February, 1946 to Senator McMahon. *ibid*

would mean the beginning of an arms race. The consequent decision to establish control followed almost automatically from this given the additional conclusion that "there could be no defence against atomic weapons". The answer to the second question was that an international organisation should undertake this job and its key principle of operation should be to exercise control through the supervision of atomic development. This judgement did not only reflect the desire for thorough control, but just as importantly the recognition of the identity of much civil and military work in the atomic field. This latter proposition has increased in importance as atomic technology has continued to develop.

First International Reactions

As a first step towards international agreement, the President met with the Prime Ministers of the United Kingdom and Canada in Washington on 10th November, 1945. The Agreed Declaration of 15th November was signed by the three heads of government. It also recognised the untenability of an atomic monopoly and the need for effective reciprocal safeguards to be established between states before full details of the technology could be revealed. The Signatories advocated the creation of an atomic energy commission

18

under the aegis of the United Nations Organisation, as a first step towards both control of the military applications of atomic energy and the international development of its peaceful uses.⁹

The Soviet Union accepted this proposal on the understanding that the Commission would be subject and accountable to the Security Council in matters of security. However, it was agreed that the failure of the Security Council to reach a decision would not block the work of the Commission.¹⁰ Membership of the Commission would consist of members of Security Council and Canada, when Canada was not a member of Security Council. The three powers then invited France, China and Canada to join them in submitting the proposal to the United Nations. On 24th January, 1946 the General Assembly approved without dissent the resolution establishing the Commission on Atomic Energy (UNAEC).

The Baruch Plan

As preparation for the meetings of UNAEC, Secretary of State, Byrnes, had appointed a committee to study the safeguards problems.^{11a} The scheme which resulted

⁹ See Agreed Declaration, 15th November, 1945; *ibid*
¹⁰ Meeting of the Council of Foreign Ministers, Moscow
16-26th December, 1945. See *ibid*

^{11a} The meaning of the word "safeguards" has fluctuated slightly over the long period of its use. In principle, however, it has always meant a set of institutional and physical procedures designed to indicate that peaceful nuclear activities are not contributing to military nuclear activities.

19

from these studies ¹¹ was based on the proposition that a distinction could be drawn between "safe" and "dangerous" atomic activities. This distinction would reduce the problem to a manageable size. Safe activities were defined (circularly) as those where there would be no express need for international organization. Dangerous activities were defined as activities which could contribute to a solution to one of the three problems of weapons manufacture -

- (1) the provision of raw materials,
- (2) the production in suitable quality and quantity of the fissionable materials plutonium and U235, and
- (3) the use of these materials for the making of atomic weapons".

The Committee recommended the creation of an International Atomic Development Agency (ADA) to exercise this safeguards scheme. This Agency would have such total control over atomic activities that any operation outside its scope would be illegal by definition, independent of motive; and because of its monopoly position, evasion of Agency safeguards would have to be on such a vast or obvious scale that detection would be automatic.

Specifically, the proposed Agency would retain exclusive power to conduct all intrinsically "dangerous"

¹¹ "Report on the International Control of Atomic Energy" (Acheson-Lilienthal Report) 28th March, 1946 - See ibid

operations in the atomic field. Activities which could not be classed as "dangerous" would remain in national hands, but the Agency would still exercise a general supervisory control over them through such means as licencing rules and the regulation of designs. It would also conduct periodic inspections to assure that no illicit operations were occurring. It would reserve the right to define "dangerous" and "safe" activities. It would be established under the United Nations but with its own charter and it would give considerable positive emphasis to atomic development. On 14th June 1946 these proposals were presented to UNAEC as the Baruch Plan. ¹²

The essential feature of the Baruch Plan was that it proposed the creation of an international body which would assume either direct conduct or at the very least effective control of all atomic activity in the world. Although certain activities would remain in national hands, the fact that the organisation would itself operate all facilities of any importance (through the definition of "dangerous" activities) meant effective international domination of atomic energy. Subsequent United States clarification indicated that it was proposed that such ADA control would even extend to mines. The comprehensiveness of the control arrange-

¹² See *ibid* Parts V and VI

ments described in the Baruch Plan, supported as they were by the tenuous distinction between "safe" and "dangerous" activities, would have necessitated the relinquishment of basic elements of sovereignty by states.

A second important feature of the Plan was the proposed relationship between the Authority and the political organs of the United Nations. The United States explained that in matters under the Authority's jurisdiction any "threat to the peace, breach of the peace or act of aggression" would be reported by the Authority to the Security Council. The treaty establishing the Authority would define the conditions under which such reports would be made. It was recognised that the veto power would need to be viewed differently in the context of the Atomic Authority. This context required such special conditions that it was argued that;

"Voluntary relinquishment of the veto on questions relating to a specific weapon previously outlawed by unanimous agreement because of its uniquely destructive character, in no wise involves any compromise of the principle of unanimity of action as applied to general problems or to particular situations not foreseeable and therefore not susceptible of advance unanimous agreement". 13

13 Third United States memorandum to UNAEC, 2nd July, 1946 - See *ibid*

From this brief description it can be seen that the two main elements of the Plan were unlikely to be attractive to the Soviet Union. Physically, control was to be complete, extending from mining operations upwards. Politically, even the Security Council veto power was to be made subordinate to the special problem of atomic energy. All that can be said of this latter proposal was that it reflected the American conclusion that the atomic problem was an extraordinary and grave one.

The problem was no less grave for the Soviet Union but as ^{it was} a power then aspiring to the acquisition of the weapons already in United States hands, the main impact of the control proposal would have been to prevent this acquisition. Under these circumstances the Soviet Union was hardly prepared to agree either with the control proposal in its general applications or with its particular political effect of weakening a major source of the protection of Soviet interests - the veto power.

The First Soviet Response

In response, the Soviet Union proposed as a primary measure;

"that consideration be given to the question of concluding an international convention prohibiting the production and employment of weapons based on the use of atomic energy for the purpose of mass destruction." 14

This convention would include provisions for the destruction of existing stocks of atomic weapons within three months of the conclusion of the treaty, followed by the development of measures, including sanctions and inspection to ensure compliance. In the Soviet view the existing situation also precluded normal scientific cooperation between the states of the world. The absence of a limitation on the production of atomic weapons

"can only increase the suspicion of some countries in regard to others and give rise to political instability. It is clear that the continuation of such a situation is likely to bring only negative results in regard to peace." 15

Scientific exchanges to promote the peaceful uses of atomic energy were a second Soviet priority.

This initial Soviet response revealed the two elements of what would remain the Soviet position throughout the meetings of UNAEC. First, prohibition should precede control. This position reflected the fact that throughout this period the basic concern of the Soviet Union was that it did not possess atomic weapons and

14 18th June, 1946, Official Record UNAEC pp 23-30
15 ibid

24

the United States did. Accordingly, the prohibition of the fabrication of weapons and the destruction of existing stocks would have eliminated the source of American superiority. Control would then be "considered". Second, the Soviet Union was interested in scientific cooperation but it was suspicious of the prospect of cooperation being offered as a "reward" for compliance with control measures.

The Safeguards System

At the end of December 1946 the Commission reported that a single International Agency should have sole and unlimited responsibility for the exercise of safeguards. These safeguards should take five forms; ¹⁶

(a) Accounting. These procedures were seen as a comprehensive audit check to ensure conformity between the materials accounts and the facts. The right to obtain an explanation of discrepancies was implied in these arrangements.

(b) Inspection. This was to be extremely thorough and - "may require that the operations be carried on in a specified manner in order to facilitate the inspection. In this event, inspection verges on supervision."

¹⁶ Part V, First Report UNAEC to the Security Council 15th October, 1946. See International Control of Atomic Energy (Policy at the Crossroads) State Department Publication 3161 June 1948

(c) Supervision. This may require the overall design and management of an atomic plant to be such "as to facilitate the execution of measures of control ... The more extensive the intervention of the supervisors into such matters, the closer it approaches management itself".

(d) Management. This was described as direct management of the operations of plants, such management being established by and responsible to the international agency.

(e) Licencing, "is a type of safeguard in which the degree of control is determined by the licencing agreement". This system could provide for management by parties outside the International Agency, but only under the strict terms of the licence or contract.

With the benefit of over twenty years hindsight it is tempting to ask why it was even wildly imagined the Soviet Union would accept any, let alone all, of these five types of safeguards control. This would not be a balanced question, however, because it would not account for the fact that all the countries participating in UNAEC, other than the Soviet group, were prepared in principle to accept these controls. Soviet rejection of them was, understandably, not such a foregone conclusion. This point aside, these safeguards proposals do reflect again the United States and western view

that the atomic problem was a grave one requiring radical solutions.

The Soviet Counter-Proposal

Concurrently with these discussions the General Assembly was considering a Soviet "Proposal Concerning the General Reduction of Armaments". In the Assembly the Soviet Union attacked the Baruch Plan as narrow and serving only the American interest in preserving its atomic monopoly. A Soviet resolution called for a general armaments reduction which "should include as the primary object the prohibition of atomic energy for military purposes".

As far as international control of atomic energy was concerned the Soviet Union insisted this should only be undertaken within the framework of the Security Council - a reference to Soviet insistence on the right to exercise the veto on any issue.

The Soviet Union proposed the establishment of two commissions, one to supervise conventional disarmament and the other to supervise the prohibition of atomic weapons. All states would also be asked to submit information regarding "all their armed forces and armaments". These proposals reflected the basic Soviet concerns of gaining prohibition before control

and for treating atomic weapons as part of the general problem of armaments.

The debate which followed was of a predictable pattern with an exchange of amendments and counter proposals. The Soviet disenchantment with the Atomic Energy Commission was made manifestly clear, as was its insistence on the centrality of the Security Council's rôle. At the end of this phase, however, the Soviet Union accepted a United States resolution to consider the first report of the Atomic Energy Commission before proceeding to develop an alternative means of control. The price of this acceptance was the agreement; to give consideration to a draft convention for the prohibition of nuclear weapons; to maintain the control agency within the framework of the Security Council; and to establish the two commissions. On the question of the veto the Soviet Union conceded that this power should not be employed in a way which would prevent an inspection and would thus violate a prior and basic Security Council decision to establish such inspection arrangements.

A resolution based on these negotiations was adopted subsequently by the General Assembly.¹⁷ In respect of atomic control, it recommended expeditious con-

¹⁷ Res. 41 (I) *United Nations* Doc. A/267 14th December 1946 - "Principles concerning the general regulation and reduction of armaments".

sideration of the reports of the UNAEC, but also that the Security Council should consider a draft convention or conventions for the creation of an international system of control and inspection, which would include provisions for the prohibition of atomic weapons. The latter part of this objective was designated "urgent" but was to be subject to the development of a control system "within the framework of the Security Council". On the other hand the operation of the control system would be through special organs, which would derive their powers from special conventions.

The west had conceded on the proposed convention to prohibit the military use of atomic weapons and had agreed that the use of sanctions would be subject to Security Council procedures. For its part the Soviet Union had agreed to persevere with the UNAEC and accept the establishment of a control organ on the basis of a convention or conventions, the main elements of which would give the organ an operating independence from the Security Council. This resolution was an amalgam of two disparate views forged in a classical bargain. It created little but it did enable the discussion to continue.

First Report of UNAEC

When the Security Council met the discussion centred initially on whether or not the first report of UNAEC should be given priority over the 14th December resolution of the General Assembly. This argument reflected the Soviet's determination to minimise and delay the UNAEC report in favour of the discussion of atomic and conventional weapons control. The United States' insistence that the report of the UNAEC be given priority was, in reality, an insistence that the establishment of international atomic control independently from arrangements in any other fields be given first attention. The debate also focussed on the ability of the proposed commission for conventional armaments to consider atomic questions. Although this debate also had an overtly jurisdictional nature, it reflected the basic tension between the substantial positions of the United States and the Soviet Union. Its resolution in favour of the United States position left atomic questions exclusively with the UNAEC. A consequence of this, however, was the Soviet rejection of the first Report of UNAEC.

The Soviet attack on the United States proposals 18 revealed fundamental Soviet suspicion of them. United

18 UN/SCOR/No. 22 5th March, 1947, p.443-61

States dominance of the organisation as a result of its technical superiority was a key source of Soviet hostility; "who would be in a position to command a majority in these organs"? Certainly not "a majority on whose benevolent attitude the Soviet Union and the Soviet people can rely ... only people who have lost the sense of reality can seriously believe in the possibility", of creating arrangements where a control organ of the kind envisaged, possessing establishments in different countries, could retain the exclusive right to carry out research in the atomic field. Furthermore, it was clear to the Soviet Union that the United States was attempting to create for itself a world monopoly in the atomic field. Indeed, the Baruch Plan proceeded from the vicious premise that the interests of other states (other than the United States)

"should be relegated to the background during the exercise by the control organ of its functions of control and inspection... A proposal of this sort shows that the authors of the Baruch Plan completely ignore the national interests of other countries and proceed from the necessity of subordinating the interests of these countries to the interests actually of one country - that is, the United States of America". 19

In the months that followed the Soviet position hardened as it saw the rejection of all of its amendments

to the Commission's report. It took recourse increasingly to techniques of propaganda against the United States and to an extent succeeded in characterising the United States as being unwilling to "destroy" atomic weapons and thus rid the world of demonic devices. ²⁰

Second Soviet Counter-Proposal

On 11th June, 1947 the Soviet Union submitted to a full meeting of the Commission a comprehensive plan for international control. ²¹ It preserved the basic Soviet points on prohibition, Security Council authority, and outlined in the most general terms the principles of control and the powers of the "International Control Commission". Western reaction was based mainly on its lack of specificity and the fact that the proposals were so well known as to be almost retrograde. Furthermore, after having spent a year in study and debate of these same proposals, it was hardly realistic for the Commission to comply with what was effectively a Soviet demand that all discussion be started again from the beginning. In fact, the Second Committee of the Commission which was given the responsibility of treating these proposals, gave only four days to con-

²⁰ Noguee, pp. 91-98

²¹ UNAEC OR second year No. 2. 12 meeting 11th June, 1949. Also document AEC/24

sideration of them. All members rejected them, except Poland. On 15th August, 1947 the second Committee agreed that the Soviet proposals "do not provide an adequate basis for the development by the Committee of specific proposals for an effective system of international control of atomic energy", and this saw the end of the last significant Soviet initiative for over two years.

Second Report of UNAEC

The second report of UNAEC ²² was essentially an amplification of the First Report, however, it proposed three important advances in the structure of control arrangements. First, it developed a plan designed to support the security of international control. National control of atomic energy was deemed incompatible with secure international control, and secure international control itself would require a restriction on the development of the peaceful applications of atomic energy. As one consequence, nuclear fuel production was to be limited to quantities actually required for peaceful uses at the time of the signing of the control agreement.

22 AEC/36

Second, all facilities producing dangerous nuclear fuels and source materials would be subject to international control. The materials so held by the Agency would be held "in trust" for signatory states, and the Agency would be bound by the terms of the international convention in respect of the disposition of the materials.

Third, the Agency would not be;

"authorised to define the policy to be pursued in the production and use of atomic energy ... the principles governing this policy should be established by international agreement, ... it should be the duty and the responsibility of the Agency to implement such an agreement". 23

The basis of this recommendation was the recognition of the extreme difficulty of international determination of the rate of production of nuclear fuel. This rate, it was recommended, would be more appropriately determined by the establishment of a quota system as an integral part of the convention establishing the international organisation. The Soviet Union accepted this quota system as it seemed to meet one of its objections to the control agency - that it would establish a "supertrust" which would favour the source of the monopoly - the United States.

23 AEC Second Report, Part II, Ch. 1, pp. 75-76

With the exception of the quota system, Soviet opposition to the proposals of the Second Report was assured because of the far-reaching ground and aerial inspection procedures and compulsory jurisdiction by an international court proposed in it.²⁴

While the Second Report marked a comprehensive technical development of the control system, it provided clear evidence of the increasing divergence between Soviet and Western policies on control which had begun with Mr. Molotov's scorching rejection of both the substance and motives of the United States' proposal. In finally rejecting the proposal the Soviet Delegate conceded that the work on atomic control was at impasse, because it had proceeded exclusively on technical grounds at the expense of the political realities involved.²⁵ Most notable of such "realities" in 1947-48 were the increasing tension between the Soviet Union and the Western powers over the settlement of the post-war European questions. The conferences in 1947 over German reunification had failed. Allied response to the Communist assumption of power in Czechoslovakia and the blockade of Berlin in February and June of 1948 confirmed Moscow's view that the Western powers were seeking to establish an anti-

²⁴ *ibid.*, Part II, Ch. VI

²⁵ See AEC/C.1/PV.42

Soviet entente in Europe. It seems clear that the Soviet Union viewed the West's atomic energy control plan with the same suspicion with which they treated the Western programme of economic aid to Europe. In fact, the Baruch Plan and the Marshall Plan were envisaged "as twin instruments of American expansion".²⁶ Soviet attitudes towards the atomic control proposals were an extension of these basic Soviet apprehensions.

In March 1948, the Commission accepted a four power resolution (Canada, China, France, United Kingdom) that the Soviet proposals would not permit the development of an efficient system of control. The Soviet Union's response was to lay the blame for deadlock on American militarism, and to affirm its insistence on the development of a convention for prohibition before control, followed by a system of only loose and periodic international inspection. However, the Soviet Union was not able to undertake that this latter system would be agreed after the convention on prohibition was concluded.²⁷

26 Noguee; op.cit. page 125 - including quotation from Pravda of 22nd August, 1947

27 Noguee, op.cit. - pp.427-133

Third Report of UNAEC

A third and final report of the Commission, prepared by the French, British and United States delegations, informed the Security Council of the impasse and asked that the three Reports of the Commission be transmitted to the General Assembly - "as a matter of special concern". The Security Council's consideration of this Report was blocked by the Soviet veto, but a Canadian procedural resolution sent the reports to the General Assembly. The deteriorating international climate at that time was reflected in the beginning of the 1948 Berlin Blockade while the Security Council was considering the Reports. This climate was hardly conducive to East-West agreement on the atomic issues.

The essential gap between the Soviet and Western positions was that the Soviet Union sought a prior adjustment of the political environment before agreeing to technical procedures which in its view would subject the Soviet Union to external control. The United States was content with its established political and strategic position and consequently saw the problems of atomic control as mainly technical problems which could be given technical solutions.

37

This United States attitude was clearly incompatible with the interests of a major power seeking to consolidate and expand a newly acquired sphere of influence, especially as that policy was unacceptable to the power promoting external controls. It is an important consideration to recognize that the Soviet assessment of its situation included the judgement that the United States would not take precipitate action against it with the atomic weapon and its knowledge that it would shortly possess similar capability. Even so, their mutual apprehension was further reflected in the signature of the Brussels pact and the opening of discussions leading to the formation of NATO.²⁸ Soviet reaction was to consolidate the Eastern bloc in a similar way.

General Assembly 1948

At the General Assembly session in 1948 the Soviet Union attempted to seize the initiative publicly. The Soviet Delegate Mr. Vyshinsky proposed the reduction be one third of all military forces by permanent members of the Security Council, and the prohibition of atomic weapons. An international control

28 United States intelligence reported that a Soviet attack on Western Europe was a real possibility - Reitzel, Kaplan, Coblenz - U.S. Foreign Policy 1945-55, p.125 Washington 1956 (See Nogee, Op.cit.)

50
38

body within the framework of the Security Council would supervise both actions. The proposals on conventional arms reduction was divorced from atomic control and consigned to the Commission on conventional armaments. At the same time, however, the Soviet Union proposed to the First Committee of the General Assembly the simultaneous preparation by the Atomic Energy Commission of two conventions, one prohibiting atomic weapons and the other establishing a control system - "both conventions to be signed and brought into operation simultaneously".²⁹ Prohibition would no longer have to precede control, in principle, but the ambiguity of the Soviet wording at best implied their former proposal of limited inspection only, and at worst left unclear which of the two conventions would commence operation first.

The British, French and United States saw the ambiguity of the proposal, and their concern that it represented no change in the Soviet position was confirmed by the statements of the Soviet delegates. It seemed clear, however, that the Soviet Union was concerned, in the short run, to maintain the activity of the Atomic Energy Commission. The Soviet proposal was rejected by the First Committee and, in a final

²⁹ Document A/C.1/310

rejection of Soviet policy, the General Assembly adopted (40-6-4) a Canadian resolution supporting the majority proposals for atomic control. The General Assembly then accepted a Western resolution calling for further discussions in the Atomic Energy Commission and informally between the "Big Six" powers (five permanent members of the Security Council plus Canada). These were fruitless and acrimonious. The final report of both groups emphasised the totality of disagreement between the five and the Soviet Union. The last of these Atomic Energy Commission meetings, on 29th July, 1943, was the last session of that body.

The Soviet Bomb

The announcement by the Soviet Union of its first detonation of a nuclear device, ³⁰ included a statement confirming the Soviet priority for an agreement on prohibition before control - "control will be essential in order to check up on fulfilment of a decision on the prohibition of the production of the atomic weapons." The Soviet Union then withdrew its approval of the proposed quotas on atomic development. This marked the end of any Soviet interest in the majority proposals for control.

³⁰ Izvestia, 25th September, 1949 (quoted by Nagiec sp. cit)

As the General Assembly debate continued through the last months of 1949, there was increasing Soviet vilification of the United States and its motives in proposing the control scheme. At the end of this period Soviet isolation was reaffirmed by the adoption against Soviet wishes of a Canadian-French proposal for further six power discussions.

Having failed to impress the United Nations, the General Assembly of which clearly supported the majority control proposals, the Soviet Union launched a broadly based propaganda program directed at the world at large. The theme "ban the bomb" and the development of the World Peace Council constituted the major Soviet attempt to characterise themselves as the advocates of peace and rationality and the United States as a greedy capitalist war monger. The six power group attempted to meet once following the General Assembly resolution, but the Soviet walk-out on the grounds of the representation of China ensured the final collapse of this negotiating group. Early in 1950 the situation continued to deteriorate with the President directing that the United States proceed to develop a hydrogen bomb, with the continuation of Soviet tests, and later in June, with the opening of the Korean War. Furthermore, plans for the rearmament of both Germanies continued.

The Baruch Plan was a failure from all standpoints. The international control procedures described in the plan were unacceptable to the Soviet Union because they would have meant external control of Soviet atomic industry. This was not only unacceptable to the Soviet Union because, as was learned in 1949, it was developing an atomic bomb, but also because of fundamental Soviet objection to outside interference. The Soviet concept of the inviolability of sovereignty was in reality the expression in conventional legal terminology of the then basic Soviet policy of consolidating its newly acquired sphere of influence vis á vis the Western alignment. This fact was demonstrated by the repeated Soviet insistence that although the Baruch Plan was dressed in international clothing, it was designed to promote the interests of the United States.

This latter assertion was not entirely false because although the United States would have been the subject of its own proposal, ultimately this would only have been after the plan had been fully developed and applied in most of its elements to other countries. In other words, the United States' sacrifice would come last and only under conditions in which it felt safe to make it. The Soviet Union's sacrifice would have been one of the key conditions preceding that of the United States.

Intrinsically the safeguards system of the Baruch Plan reflected a theoretical best of all possible worlds given the United States' judgement of the special gravity of the atomic problem. As was suggested earlier, the Soviet Union shared the view that the atomic problem was grave but it chose the other of the two main alternative courses of action, that is, to develop a similar weapon for defence against the first weapon rather than agree to controls. It is difficult to know to what extent the Soviet Union's "prohibition before control" position was a negotiating tactic or a real position. Its bluff was not called so we will never know certainly but the events suggest that the first interpretation is the soundest one, mainly because the Soviet Union was not prepared at any stage to give a serious commitment to the control measures which would have followed prohibition. The key problem for the Soviet Union was the United States' bomb. If it could be eliminated well and good, but in any event there was real determination on the Soviet side to develop a balancing capability against the United States' weapon.

Politically speaking the incorporation in the plan of proposals to weaken the Security Council veto power was sheer idealism. The Soviet Union obviously

felt seriously threatened at that time. The veto power was an important instrument serving the protection of Soviet interests and it was untimely to expect the Soviet Union to allow it to be weakened in any way.

Subsequent developments have indicated that one important effect of the negotiations between 1945 and 1949 was what the United States learned from them. Its determination to gain agreement on control procedures was not weakened, but it realised more clearly the nature of its opponent's interests and the need to take closer account of them.

444

CHAPTER 2

"Atoms for Peace"

(1953-1956)

The Baruch Plan had failed, but the United States retained the achievement of international atomic control arrangements as a central part of its foreign policy. Its pursuit of this goal was given a new impetus and form by President Eisenhower's speech to the General Assembly of the United Nations on 8th December, 1953.

The new Agency

The "Problem of the atom" had been demonstrated clearly in August 1945, but even by 1953 understanding of the problem was still uncertain, mainly because its full extent was neither known nor understood. Accordingly, the atmosphere in which the President had announced his proposal for the creation of an International Agency to regulate and develop the peaceful uses of atomic energy was uncertain and ambivalent.

In explaining his scheme, the President said the loss of the United States' former monopoly of atomic weapons together with the inevitable spread and growth in knowledge of nuclear weapons technology, produced an "awful arithmetic of the atomic bomb".¹ Under these circumstances quantitative superiority in weapons would no longer guarantee the security of the world. The President reflected that "great" power had lost its conventional meaning. A smaller power armed with nuclear weapons could achieve large objectives through surprise aggression.

These reasons, and "the desire to allow all to see that the world is human first rather than destructive",² had led the United States to make proposals which would "hasten the day when the fear of the atom would disappear".³ The centrepiece of the proposal was the creation "under the aegis of the United Nations"⁴, of an International Atomic Energy Agency.

The main function of the Agency would be to act as a bank for uranium and fissile materials, but a bank which, subsequent to the receipt of its deposits, would then exercise control over the use of them. Its

1 8th December, 1953, Speech to General Assembly
2 ibid
3 ibid
4 ibid

guiding policy would be to ensure that the material was used only for peaceful purposes. In this sense the banking function of the Agency was analogous to that of a central bank in that it was to wield a control over the total movement and application of fissile materials and thereby serve as a means of beginning "to diminish the potential destructive power of the world's atomic stockpiles".⁵

The President also said that the Soviet Union should participate in any discussion or group working on the implementation of his proposals, and stated that he would submit his plan to Congress for its study and approval.

The President's speech was received with great enthusiasm. Some element of this was hysterical in the sense that it drew a markedly emotional response. This reaction reflected the deep anxiety the development of atomic weapons had caused to develop in responsible circles.

It is true that the two sides of the atomic energy have, from the beginning, stood in stark contrast to each other. On the one hand atomic energy was

⁵ ibid

most dramatically and publicly revealed at Hiroshima as a source of enormous malevolent power; on the other hand, and significantly less publicly, Enrico Fermi had shown atomic energy, controlled in a reactor, to be potentially an enormous and beneficial power. Even before that time, in the early twenties and thirties, - "the beautiful years" ⁶ - At Göttingen and later at Copenhagen, the atom was seen largely as a subject of fascinating study, as a series of problems of physical knowledge rather than of human existence. The adaption of this knowledge to political ends was extremely rapid and one result of this process was a degree of reluctance by those with responsibility to acknowledge the extent of its destructive capacity. Thus, the readiness of the world to accept predictions of an equally large but benevolent atomic energy was great. The alternative was too depressing.

The President's plan retained the assumption that the peaceful and military uses of the atom could be separated clearly. This proposition was and is a doubtful one and has been a major obstacle to be dealt with in developing plans for the control of even the peaceful uses of atomic energy. It is clear, however, that it was essential that this proposition be postulated.

6 R. Jungk - "Brighter than a Thousand Suns", Penguin Books

48

From the standpoint of the operation of safeguards it is an essential distinction. In political terms too, if this distinction could not have been postulated the Agency proposal would have been no different from a proposal to control atomic weapons as such.

The initial Soviet response to the United States proposals came on 21st December, 1953, when the Soviet Union pointed out that

"the Soviet government proceeds on the basis of the assumption that during the course of the negotiations there will be considered at the same time the proposal of the Soviet Union with regard to an agreement under which the States participating in the agreement would assume the unconditional obligation not to use atomic, hydrogen, or any weapons of mass destruction".⁷

This was clearly a first negotiating position, but because the Soviet Union had itself become a nuclear weapon power it was no longer interested in prohibition. A "non-use" declaration replaced prohibition as the first Soviet objective.

The first action by the United States was to propose that conversations should begin through diplomatic channels.⁸ The discussions would involve the United

⁷ Atoms for Peace Manual. 84th Congress 1st Session Document 55. Washington June 1955. Soviet Reply 21st December, 1953.

⁸ Dulles' note to Zaroubin, Washington 11th January, 1954. *ibid*

States and the Soviet Union initially, but the United States said it would be prepared to admit other nations wherever the subject matter discussed suggested this would be appropriate. The United States also stated its openness to any proposals in the field of control.

First Period of United States - Soviet Negotiation

The Soviet reaction was heavily qualified ⁹. The Soviet Union would accept the United States' proposal on the basis that

"at the specified stage of the negotiations there will be considered the necessity for drawing into the negotiations all powers that bear the chief responsibility for maintaining peace and international security",

and if it were agreed, alternate meetings should be given to the serious consideration of the Soviet proposal of the development of a non-use agreement. On 30th January, 1954 in Berlin, Molotov forwarded a "Draft Declaration" ¹⁰ to Dulles with the intention that it be signed by the "Big Four" and Communist China. This draft renounced the use of atomic, hydrogen and other weapons of mass destruction. A second Soviet qualification was its insistence "that

9 Note from Zaroubin to Dulles, 19th January, 1954: see Atoms for Peace Manual, page 263
10 Atoms for Peace Manual. Molotov to Dulles. page 264

the countries the Soviet Union believe were principally responsible" were the same five.¹¹

This suggestion was at cross purposes with the United States' view which, as Dulles had told Molotov in private talks in Berlin on 30th January, allowed for the participation of Britain, France, Canada and Belgium in addition to themselves.¹² In response to this view Molotov had indicated that the Soviet Union would have no objection to Canada and Belgium "at an appropriate stage" but had suggested that Czechoslovakia should also take part for the same reason.¹³

Dulles' reply to the Soviet proposal¹⁴ firmly opposed the inclusion of Communist China, and stated that the United States would raise the question of participation when the Soviet Union agreed to engage in talks at a broader conference. The Soviet Union then decided to suspend this argument temporarily by answering that it agreed that the question of participation could be settled at a later date.¹⁵

11 Atoms for Peace Manual. Molotov to Dulles, page 265

12 Atoms for Peace Manual. Page 265

13 Britain, France, Canada, Belgium were all either atomically advanced or were producers of nuclear raw materials, Czechoslovakia was a producer of raw materials.

14 16th February, 1954 - see Atoms for Peace Manual, page 265

15 10th March, 1954 - Atoms for Peace Manual, page 266

The United States then proceeded with substantial discussions of the President's proposal by submitting to the Soviet Union a memorandum giving an outline of an International Atomic Energy Agency.¹⁶ The central function of the Agency would be to "receive supplies of nuclear materials from those member nations having stocks of such materials".¹⁷ The materials would then be re-utilised in peaceful activities. A treaty to be signed by participating nations would be the source of the Agency's authority and all signatories would be members of the Agency. It was suggested, however, that a high executive authority in the Agency should be reserved for a governing board and that within this board itself "the principal contributing countries" should have special voting privileges on important questions. The Agency would have authority to establish conditions and controls for the transfer of materials and it would be expected that all members with supplies of fissionable and source material would contribute to the Agency's stocks. The United States announced that it would offer a "substantial initial contribution"¹⁸ and it expected the Soviet Union to make an equivalent donation. The Agency would also collect and disseminate nuclear data.

16 Atoms for Peace Manual, pp. 266 f

17 ibid

18 ibid

The Soviet response was not positive.¹⁹ It stated that the plan to siphon-off stocks of nuclear material would have little effect on the "special danger of atomic weapons".²⁰ The large and increasing stocks of fissionable materials existing in the world would not be effected by such a marginal process as "siphoning-off". Furthermore, the expansion of peaceful facilities would have the effect of expanding the capability of various countries for the production of nuclear weapons with these materials. The real question was the development of an unconditional declaration against the use and development of these weapons which were "by their nature, weapons of aggression"²¹. In the absence of such an agreement, any other attempt to curb the atomic threat was in vain. Accordingly, the Soviet plan of 21st December, 1953 was more pertinent and the signature of such a declaration would be the condition for the Soviet Union's proceeding with the negotiations.

The United States' reply²² drew a distinction between what it stressed was its intention, namely, to control the peaceful uses of atomic energy for its own sake

19 27th April, 1954, Soviet aide memoire from Molotov to Dulles, Geneva, see *ibid*
20 *ibid*
21 *ibid*
22 Informal paper from Dulles to Molotov 1st May, 1954:
ibid

and as a step towards greater international cooperation, and any attempt to control military atomic power. So the United States could assert, as it did, that the Soviet Union had misconstrued its intentions. Nevertheless, the United States said it would proceed with the discussion of its proposals with "other nations which might be interested".

The United States' claim that its proposal had little relationship to the problem of nuclear weapons was tenuous. President Eisenhower's speech, ^{with} the "siphoning-off" concept supported Soviet assertions on this point. The insistence by the United States that it was being misconstrued was supported by its tactical decision to de-emphasise the relationship between peaceful and military applications of atomic energy. The key lesson learned by the United States since the failure of the Baruch Plan was that development assistance in atomic energy was wanted by most states and the promise of a development agency would soften apprehensions about the control conditions which it wanted to achieve. Soviet opposition to the constructive side of the United States proposal would have rebounded heavily. The Soviet Union recognised this. The earlier Soviet position on prohibition had also been weakened by its own acquisition of a nuclear weapon. The "non-use" concept was a weak counter

to the United States promise of atomic beneficence.

The tenor of the negotiations was hardening and on the 9th July, 1954, the United States presented a memorandum to the Soviet Union giving a more detailed exposition of the United States position.²³ The memorandum placed the President's proposal in the context of the dangers of atomic armaments, but asserted again that the Soviet Union's interpretation of the proposals misconstrued their purpose. The proposals were not in themselves part of a disarmament programme, but had as their dual purpose the extension of the beneficial aspects of atomic science to all countries and the formulation of a precedent in international cooperation. In answer to the Soviet objections, the United States stressed its intention to develop safeguards against the diversion of peaceful nuclear projects to military purposes. It also argued that the Soviet proposal for a non-use declaration was unsound chiefly because it provided no guarantees of its observance. It would not in any way inhibit the arms race, and it was dangerous in that it could erode the notion of mutual deterrence which was already believed to be vital to world security.

23 Merchant to Zaroubin, Washington 9th July, 1954: ibid

55

The Soviet Union's reply ²⁴ re-stated and repeated both its objections to the United States' proposal and its intention to propose a non-use declaration. The Soviet Union also emphasised the direct relationship between any peaceful atomic programme and a military programme. Although this proposition is true as a matter of fact and was one of the basic premises on which the proposal to create the agency was based, it was no less true that an important element in the early negotiations was the tacit decision of the western proponents of the agency to minimise references to the peaceful/military relationship. To focus on the problems raised by this relationship at the early stages would have been to focus on an apparently insoluble problem. The effect of this may well have been to weaken or even destroy the negotiations by converting them into a direct consideration of the problems of nuclear arms control. The Soviet attitude implied that it would have preferred the negotiations to develop in this way. In the event, however, they did not, and the existence of the Agency today is a result of this process of seeking to deal with the easier and more immediately accessible issues first. It is easy to understand that a key factor underlying the Soviet attitude was

²⁴ Aide memoire from Gromyko to Bohlen, Moscow, 22nd September, 1954: *ibid*

its own nuclear programme. The Soviet proposal for a non-use declaration would have served to compensate partially for superior United States nuclear capability and given, Soviet superiority in and reliance on conventional forces in Europe, This would have turned the military balance towards the Soviet side. In addition, the Soviet proposal would have required lengthy and detailed negotiations before coming into effect. This would have given the Soviet Union much valuable time in which to continue weapons development. Finally, its proposal contained no provision for verifying compliance with the undertakings specified in the agreement.

On the other hand, the much less ambitious Agency proposal seemed to direct primary attention to controlling exactly the technology which was basic to Soviet weapons development. In addition, because it was less grandiose, it appears to have a greater chance of acceptance and relatively speedy application. The impact of this system on the Soviet Union would have been much greater at that time than on the United States. The emphasis given by the Soviet Union to the civil/military duality in atomic science provides therefore a valid and direct reflection of the Soviet power position vis á vis the United States. The United States' success in de-emphasising this relationship during the course of the negotiations was at least a temporary victory for it.

57

In this context, Claude ²⁵ notes further that the deadlock between the United States and the USSR on the question of the relationship between weapons and peaceful atomic programmes simply reflected the then current struggle between the two countries over disarmament. He observes that the United States saw prohibition as fundamentally hard on itself while the USSR saw control as being more costly to itself;

"the United States insisted upon the priority of control, for fear that the USSR would never permit the realisation of control if it first succeeded in imposing prohibition on its rival; the American plan postponed the American sacrifice till the Soviet sacrifice had been made. Contrarywise, the USSR demanded that prohibition should come first, for fear that the United States would never actually move to the prohibition stage if it first succeeded in securing the development of a control system; the Soviet plan delayed the Soviet sacrifice until the American sacrifice had been made".

Even though this impasse had been reached, the Soviet Union stated its willingness to continue negotiations. ²⁶ The "Atoms for Peace" proposal had gained wide support and the prospect of being isolated as an opponent was unacceptable to Moscow. Such isolation did not concern the Soviet Union in 1945-49 but since that time

25 Inis L. Claude Jr.: "Swords into Plowshares", pp.316-17

26 Aide memoire, Gromyko to Bohlen, Moscow, 22nd September, 1954 in Atoms for Peace Manual pp.278+

it had developed a nuclear weapon and by this means it had answered some of the difficulties it experienced with the Baruch Plan. Furthermore, the Atoms for Peace plan involved considerably less prospect of intrusions into sovereignty. This second American scheme was intrinsically more acceptable and American diplomatic method was notably more skillful. As a first step the Soviet Union returned to the United States memorandum of 19th March, 1954 and offered some general views on the principles of organisation of the Agency.

Following an agreement between both governments to publish the substance of their negotiations, the United States made clear its view that the USSR had obstructed progress on the IAEA scheme and announced that the United States intended to create a working agency by 1955, and to convene an international scientific conference in the spring (European) of 1955 to consider complete technical aspects of atomic energy. The United States also announced details of atomic assistance and training schemes which it would open to nationals of any country. A day later, the United States requested the inclusion in the Agenda of the Ninth General Assembly of the United Nations, an item entitled "International Cooperation in Developing the Peaceful Uses of Atomic Energy: Report of the

United States of America".²⁷ At this stage the United States was out-flanking the Soviet Union mainly through its success in capturing the approval of the vast majority of countries. The United States' promises of development assistance and the mood of optimism about the peaceful applications of atomic energy were key source of this support. On 24th September, 1954, the United States transmitted to the General Assembly copies of the exchanges with the Soviet Union.²⁸ The General Assembly resolved to include the United States item in its Agenda and referred it to its First Committee.

The Eight Power Negotiations

The United States clarified its proposals in the First Committee in an opening statement on 5th November, 1954.²⁹ It also made public the fact that in spite of the negative response of the Soviet Union, the United States had proceeded with negotiations with seven other countries, all of whom possessed an advanced atomic programme and/or were producers of nuclear raw materials.³⁰ More signi-

27 UN paper A/2734

28 UN paper A/2738

29 Statement by H. Cabot Lodge

30 United Kingdom, France, Canada, Australia, Belgium, South Africa, Portugal

600

ificantly, the United States stated that the eight had given further thought to the Agency's role in connection with the control of nuclear materials and had concluded that a process of direct "siphoning-off" of materials to the Agency would be technically difficult. Accordingly, it had been agreed that a "clearing house" system would be preferable. That is, a system where the Agency did not physically hold materials but ear-marked them for use in various schemes, or for future use, and ensured that the materials were preserved exclusively for that purpose. The "central-bank" concept had been dropped.

The views of the eight powers were then proposed in the form of a resolution for the Committee to pass on to the General Assembly. The Soviet Union and India argued strongly against the terms of the resolution so that the United States and its co-sponsors revised their text.³¹ Apart from the fact that this Soviet action reflected a Soviet decision to begin to participate in rather than fight against the proposal, the effect of this revision was to re-emphasise the urgency and peaceful purpose of the Agency proposal. The resolution also urged the convening of the technical conference proposed by the United States "no later than August 1955". This was another reflection

³¹ A/C.1/L.105/REV.1

61

of the important effect the United States' promises of technical development had on the development of positive attitudes to the overall proposal. On 4th December, 1954, the General Assembly adopted the resolution without change. ³²

Following the General Assembly discussion the United States prepared a first draft of the Statute, taking into consideration the suggestions received from the other seven states and from the General Assembly debates. This draft was then submitted to the negotiating states on 29th March, 1955, and it was discussed further by the eight powers during April and May.

While these negotiations proceeded the Soviet Union demanded that the Agency be connected closely with the United Nations, especially the Security Council, and that no member should have a "privileged position" in the Agency. The Soviet Union had by that time accepted the fact that "the Agency" was becoming a reality and turned its attention to attempting to limit the degree to which it could operate against Soviet interests. At the same time the Soviet Union saw the utility of developing a role as the champion of the atomic "have-nots", a role which it was to

³² G.A. Resolution 810 (IX)

find increasingly attractive as the negotiations progressed.

A United States note of 14th April, 1955, ³³ expressed its willingness to consider these Soviet views and reiterated that it remained open for the Soviet Union to join the negotiating group. The United States stated again, however, that whatever the Soviet Union decided, it would continue with its negotiations with the seven powers. At the same time, the United States also submitted to the Soviet Union an agenda for joint technical discussions on atomic safeguards.

On 18th July, 1955, the Soviet Union indicated it was ready to participate in the negotiations and agreed to deposit 50 kilograms of fissionable material with the Agency, as soon as agreement on its creation had been reached. ³⁴ However, it repeated again that all nations should be permitted to participate in the Agency and it suggested that the joint discussions on safeguards should take place in Geneva after the international technical conference.

On 29th July, 1955, the United States passed the eight power draft to the Soviet Union. ³⁵ On 1st October,

³³ Department of State Press Release No.527, 6th October, 1956
³⁴ ibid
³⁵ ibid

63

1955 the Soviet Union indicated that the draft, with certain amendments, could serve as a basis for drawing up the Charter of the IAEA. The Soviet amendments related mainly to the composition of the Board of Governors of the Agency. It proposed that the permanent members of the Security Council should be permanent members of the Board; that India, Indonesia, Egypt and Rumania should be added to the first Board; and that a three quarters majority vote of the Board members should be necessary to the approval of financial proposals. The Soviet Union also proposed that there should be a strong inspectorate applied to countries receiving aid from the Agency, but giving "due regard to the sovereign rights of the states". The Soviet Union reversed its earlier position saying it favoured a "bank" rather than a "clearing house" role for the Agency in respect to fissionable materials. It opposed the proposal that the International Court of Justice should have a power of compulsory jurisdiction over disputes arising out of the Statute. ³⁶

Tenth General Assembly

When the General Assembly considered the Agency proposal, the main points of debate were; the relation-

³⁶ See *ibid*

64

ship of the Agency to the United Nations and to the Specialised Agencies; the representation of states both in the Statute negotiations and ⁱⁿ the Board of Governors; universality of membership of the Agency; and the relationship of the Agency to other regional and bilateral programmes.

The Soviet Union's basic position remained that the control and development of the peaceful uses of atomic energy was subordinate to and dependent on the control of the military uses of the atom. In addition, because of the influence the use of fissile materials can exert on international security, the Agency should be more closely related to the United Nations than the other specialised Agencies, and should, in fact, be responsible to the Security Council, - "which has the main responsibility for international peace and security". 37

The Soviet position was reflected in amendments proposed to a resolution drawn up by the eight powers group. After these amendments were rejected, the Assembly adopted the resolution which formally "admitted Brazil, Czechoslovakia, India and USSR" to the negotiating group. 38 The other element of this

37 UN Doc. A/C.1/SR.759

38 Res. 912 (X); A/3116 UNGAOR, 10th Session, supp.19, 1955

65

resolution was that it prepared for a final conference on the Statute including all members of the United Nations and the Specialised Agencies. The Statute conference would be based on a twelve power draft of the treaty, but the twelve powers would take into account the views of members of the United Nations and particularly those views expressed in the General Assembly debate.

The Twelve Power Negotiations

The main task of the twelve power group was to seek agreement. The first draft of the Statute of the Agency ³⁹ had been transmitted to all 84 member states of the United Nations or of the Specialised Agencies on 22nd August, 1955. Comments and suggestions on this draft had already been submitted to the United States, acting for the eight power group. Given this process of consultation it was clear that violent or isolated exception to this draft within the twelve power group would be counter-productive and, in any case, could be overridden at the international conference to which the twelve power group was already committed to report.

At the start of the twelve power meeting, the United

³⁹ Version of 29th March, 1955

States submitted extensive revisions of the draft based on the comments received from some thirty nine states. These amendments were largely "constructive" and their acceptance imposed no serious difficulty. On the other side, the Soviet Union proposed six amendments.⁴⁰ Although a little confused in their expression, they represented what was then the basic Soviet position. First, because the development of even the peaceful uses of atomic energy has military significance, the Agency's activities in the peaceful field require "proper observation and control... on the part of the representative international organ". Accordingly, the Agency should be established within the framework of the United Nations and specifically

"it is necessary to make provision in the Charter (of the Agency) that if in connection with the Agency's activities questions are raised falling within the competence of the Security Council, these questions should be turned over by the Agency for decision to the Security Council, as the organ in which primary responsibility for maintaining peace and international security is placed".

This would "safeguard appropriate conditions for its work and guarantees of security for states - both members and non-members of the Agency".⁴¹

40 Soviet Foreign Ministry to United States Embassy, Moscow, 1st October, 1955, published in State Department Press Release No. 527, 6th October, 1956

41 Press Release 527

68

Without specifying the criteria on which issues would be judged to be more properly within the competence of the Security Council than the Agency, the Soviet Union seemed to provide a clue on the "representative" character of the United Nations organ. At this stage in negotiations the Soviet Union was, perhaps rightly, concerned that the composition and procedures proposed for the Board of Governors of the Agency would be less accessible to Soviet influence than the Security Council within which its veto power compensated for numerical minority. Its reference in the same paragraph to the necessity of controls over the Agency's "expenditure" of dangerous fissile materials entrusted to its control, was of course more than an expansion of the proposition that military and peaceful applications often share an identity, but reflected the Soviet tactic of emphasising this identity in order to demonstrate the urgency of a "non-use" declaration.

The second Soviet principle involved no technical considerations. It was part of the Soviet attempt to identify itself with developing countries (especially with India within the twelve power group). The Soviet Union said that the political conditions of participation in the Agency should ensure that "neither one country nor a group of countries will

find itself in a privileged position", and in respect of allotting Agency aid, this should "not depend on presentation to the country receiving aid of conditions of a political, economic, or military character, or requirement of any other claims inconsistent with the sovereign rights of states".⁴² India proved particularly vocal and responsive to the Soviet stand on "non-discrimination". The general claim for equality of participation sprang from Soviet apprehensions about the strength of the United States and potential groupings around the United States in the atomic field, and from the Soviet tactic of providing a broad and fairly ambiguous principle, the violation of which could be claimed whenever appropriate to Soviet interests.

Third, the Soviet Union revived its proposal that the Board of Governors of the Agency should include permanent members of the Security Council and the initial membership of the Board should include Indonesia, Egypt and Rumania. This would have necessitated an increase in the number of members of the Board as proposed in the draft and would have expanded the number of countries favourably disposed to Soviet views.

⁴² *ibid*

69

The composition of the Board was the subject of much discussion. The final compromise enlarged the Board from sixteen to twenty three members and effectively ensured a larger representation of the Middle East, the Far East and the countries under Soviet influence. This compromise was a difficult one but the principle of composition of the Board has remained firm, if not unchallenged. The only amendment since then has been the minor one of expanding the Board to twenty five members. The composition of the Board has had a basic political influence on the development of the Agency. It is an unique structure, the main characteristics of which have been; the permanent presence of the great and atomic powers - this has ensured that "cold war" issues and positions have been reflected in Board discussions; the permanent presence of a group of developing countries able to express their position in the controlling organ of the Agency; a permanent majority favourable to western/developed positions. Although the Board has some elements of similarity to the Security Council, its members are not able to take refuge in a veto power. The strength of the major powers is little weakened for this fact but they are bound to subject their policies to a very careful scrutiny of their acceptability to the Board in order to avoid a reaction in this body in which they can be out-voted.

The fifth and sixth Soviet claims were subjects of fairly easy negotiation and will be dealt with before the fourth principle, which requires a more detailed discussion. The fifth Soviet principle was a claim that decisions on financial and budgetary questions should be made by both the General Conference and Board of the Agency, and by a majority of three quarters of the vote. This proposal, which was ultimately amended in negotiation, sprang from the standard financial conservatism of the Soviet Union. The Soviet Union recognised that its position could on occasions be served better in the under forum of the General Conference. The sixth principle related to the jurisdiction of the International Court and, in the event the compromise worked out, gave the Soviet Union the assurance it wanted - that it would not be brought before the court without its consent.

As its fourth principle, the Soviet Union accepted that the Agency may dispose "of an appropriate staff of inspectors" who would inspect the projects of states receiving Agency aid and verify the peaceful use of materials and special equipment supplied by the Agency. The Charter of the Agency would establish this system, define its competence and

"provide that such observations and control be accomplished with due observance of sovereign rights of the above mentioned

41
"states and within the framework of an agreement between a given state and the Agency". 43

The meaning of this position was self-evident; inspection was accepted in principle by the Soviet Union as a valid Agency function. Even so, the particular concept of inspection stated by the Soviet Union, limited it to Agency supported projects and to materials and equipment supplied by the Agency; envisaged the Statute as providing general principles only under which an agreement covering the nature and scope of inspection would be concluded between the Agency and a state for the purpose of establishing inspection arrangements; insisted that these principles and the individual agreement would be drawn up and executed with "due observance of sovereign rights".

Even though this last qualification was based on a principle of international conduct so obvious as not to require statement, the fact that it was so often stated and was so clearly a key element in the Soviet approach to safeguards controls ensured that it assumed the position of a basic determinant in the negotiation of the safeguards provisions. It also ensured the continuation of an area of common interest between the Soviet Union and India, as participants in.

72

the twelve power talks, even though their basic policy interests were different. Subsequent events have indicated that the Soviet Union has been unprepared to accept inspection for reasons of national security. For India, safeguards inspection connected with Agency aid smacked of colonialism -

"a colonial situation as bad or worse than any that has been experienced hitherto ... If this Agency is to succeed at all, it must restrict its activities to the immediate purpose in hand, namely, aiding countries in developing the peaceful uses of atomic energy and in ensuring that this aid is not directly used to further a military purpose".

However, the Agency must "not attempt to solve a problem which is connected in the atomic age with the wider aspects of mutual security".⁴⁴

India, like many other countries, saw in atomic energy the prospect of vast sources of cheap electric power. The task of transferring to developing countries a technology which would "make the deserts bloom" was primary and should not be tied to or interfered with by security questions. The Soviet Union enjoyed Indian support and was prepared to look for it, but it could not be said of the Soviet Union that the security question was only secondary.

The ambivalence of the Soviet Union throughout the

⁴⁴ 12 Power Group, Working Doc. 19, Rev. 1 (Dr. Bhabha)

twelve power talks was a significant political feature of them. Naturally, its attitudes were much influenced by its position as a major power, but as the twelve power talks continued it increasingly identified itself with the views of the less developed countries. The peak of this trend was its support for the Indian position on Agency safeguards.

The Indian representative rejected ratification of the Statute as sufficient grounds to subject a country to Agency safeguards. Instead it urged that the only acceptable system of applying safeguards was through agreements signed between the Agency and states beneficiary of Agency projects. However, Dr. Bhabha insisted that a distinction would still need to be drawn between materials and equipment which may have a direct relationship to military atomic capability and those that have an indirect relationship only. The latter should be the subject of only general inspection, if any at all, while the former, if supplied by the Agency, should be the subject of detailed inspection. Fissionable materials were defined as the former category and all other materials (including source materials) and technical assistance would form the latter;

"source materials are on a different footing from special fissionable materials; the former cannot be used directly to serve any military purpose. They can only serve a military purpose when processed in plants which very few countries indeed are in a position to build ... uranium is very widely spread throughout the world ... no nation or group of nations is in a position to have a complete monopoly in it. If the conditions attached to the supply of source material are made unduly onerous, the Agency will only compel many states to develop their own uranium, even if at a greater cost, rather than go to the Agency for aid. An attempt to make source material supplied directly by the Agency or through any arrangements in which the Agency acts as intermediary, subject to inspection and control, while leaving source materials uncontrolled which countries obtain outside the Agency, would divide States in the world into two categories, and place those States receiving aid from or through the Agency at a disadvantage. Moreover, since control would be exercised on all fissionable material resulting from such source material, the division of States into two categories would become self-perpetuating. The Indian Delegation is, however, prepared, in the wider interests of the peace and security of the world, to give serious consideration to any inspection or safeguard measures which all nations are prepared to undertake on an equal footing". 45

In summarising the Indian position, Dr. Bhabha defined the arrangements he thought sufficient for all materials and aid other than special fissionable materials;

"The categorical assurance of the receiving State that the materials are being used only for furthering the peaceful uses of atomic energy and for the stated purpose, coupled with reports on the progress of the project should be sufficient in most cases. If any

45 Working Group Meeting; Document 14 (Rev.1) attachment 2

inspection is to be applied to such projects at all, it should be limited to checking that the materials supplied are, in fact, being used for the purpose for which they were given". 46

Finally, Dr. Bhabha reiterated that all applications of safeguards to an Agency agreement or project should be fully described in the agreement for that project

"so that the State receiving assistance is fully aware of the obligations it undertakes, and has the option to refuse aid, if it finds its conditions too onerous". 47

In supporting the Indian position, the Soviet Union said again that "due observance of the national sovereignty of states" must be assured. The United States Delegate maintained, in reply to both, that the very decision whether or not to apply for Agency assistance would be an act of sovereignty. Each country should make up its mind before applying for assistance. Even so the Indian position was not fully satisfied by the United States assertion that "each project agreement shall specifically provide for the application of safeguards as relevant. Hence there would be no indiscriminate use of safeguards".⁴⁸ India rejected this proposition as excessive, saying it meant all forms of aid would attract safeguards. France, Czechoslovakia and the Soviet Union supported the Indian position.

46 ibid
47 ibid
48 ibid - Working Group Meeting

United States' insistence that source materials should be the subject of safeguards arrangements, because their processing in power reactors produced weapons grade fissionable materials, tended to confirm the Indian view that Agency safeguards arrangements would involve "atomic colonialism".

The compromise reached by the twelve powers was to retain the principle of accountability of source materials, but to ~~ensure~~ ^{ensure} the Agency's right to account for fissionable materials recovered as a by-product of the source materials. States would return to the Agency any idle stocks of fissionable materials but would retain under safeguards any by-product materials they were able to use for research or in reactors existing or under construction -

"the Agency shall have the following rights and responsibilities to the extent relevant to the project or arrangement ... to specify disposition of any special fissionable materials recovered or produced as a by-product, and to require that such special fissionable materials be deposited with the Agency except for quantities authorised by the Agency to be retained for specific non-military uses under continuing safeguards". 49

Agency inspectors would decide on the quantities to

49 Draft Statute in Working Level Meeting, Doc. 31, 2nd July, 1956, Article XIII A

77

be retained. It was assumed that economic and political factors would not deprive states of fissionable by-products produced in their reactors. In fact, even if the Agency believed that the use of certain fissionable material was unsound economically, such material could still be retained if non-military uses could be demonstrated. ⁵⁰

The Soviet Union's insistence on "due observance" of sovereign rights was met by the compromise provision that inspectors may be accompanied by a representative of the state concerned.

Finally, in addition to the Agency's safeguards being applicable to Agency projects and assistance, Article III A5 of the twelve power draft Statute provided that they may be applied at the request of a state or group of states.

President Eisenhower's speech and the negotiations which followed it were a success for United States policy. A key element in this success was the positive emphasis the President and his negotiators gave to peaceful atomic development. An unconfirmed but widely believed story told in IAEA circles is that during his flight to New York to deliver his speech

⁵⁰ *ibid*

a somewhat depressed President urged his advisers to strengthen the words relating to development in his text. He wanted to be more positive in a dark period. It is said that it was precisely these sections of the text which received positive support from much of the Assembly. Whether this account is true or not it is true that the "positive" aspects of the United States proposal attracted wide support and reduced the area in which Soviet opposition could operate.

Accordingly, the precise nature of the United States victory was that the United States was able to demonstrate that it would be too costly to the Soviet Union for it to allow the negotiations to proceed without its participation in them. It must also be recognised, however, that the reduction in the Agency scheme of the degree of intrusiveness and comprehensiveness of the control procedures as against those of the Baruch Plan was an intrinsic improvement as far as Soviet interests were concerned.

From the Soviet point of view the negotiations were not altogether unrewarding. Its attitudes towards inspection procedures, the relationship between the application of safeguards and Agency projects and the insistence that inspection arrangements should

79

be the subject of Agency/country agreements were all reflected in the final agreement. The Soviet Union was also able to regain some political ground, especially with developing countries, through its support of Indian positions on safeguards.

The most important conclusion on this period, however, is that the negotiations produced a well developed draft Statute of IAEA and put beyond doubt the possibility that the Agency would be created. All that remained for the twelve power group was to gain "ratification" of their conclusions.

80

CHAPTER 3

The Statutory Principles of Safeguards

The first plenary meeting of the Conference on the Statute opened in New York on 20th September, 1956. It was the largest conference of nations held since the end of the Great War.

In his opening statement the Chairman of the United States Atomic Energy Commission, Admiral Louis Strauss, said the development of the concept of an International Agency was the response to the "darkness" of the "endless spiral of an atomic arms race".¹ The developmental functions of the Agency were important and a source of hope for many countries, but the Agency's first purpose was control and this would be achieved, inter alia, through the diversion of

"important amounts of fissionable material from atomic bomb arsenals to the uses of benefit to mankind, and those amounts will steadily grow with the maintenance of peace. More tons of these materials will be devoted to welfare, fewer tons to weapons and warfare".²

1 IAEA/CS/OR.1 pages 7-8
2 ibid, page 11

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81

This reference to the materials control function of the Agency and the priority assigned to it raises again the question of the extent to which the United States viewed the Agency control system as a form of arms control. As was observed earlier this was an important question in the earlier negotiations but the reversion of the United States on this occasion to the position of seeing their proposal as a form of arms control was made possible by the success it had had in the twelve power negotiations. It was now clear that the United States viewed the Agency proposal as at least a partial response to the problem of nuclear arms control.

In the general debate on the terms of the draft Statute itself, the United States Delegate then added that in proposing the creation of the Agency it had envisaged two main operational tasks for the Agency. The first was to channel nuclear materials from national stores to the Agency, and the second was "to devise methods whereby fissionable material would be allocated to serve only the peaceful pursuits of mankind".³ For this reason the draft Statute contained safeguards provisions and it was the United States' hope that these would be applied universally

³ IAEA/CS/OR.3 page 2

and would extend to bilateral arrangements throughout the world as well as to Agency projects. "If this is done, the United States can look forward to making the Agency the cornerstone of its international activities in the field of atomic energy for peace".⁴ It was recognised, however, that nothing in the Statute would prevent states from entering into a military nuclear programme using their own resources. Nevertheless, the hope remained that ultimately "all the production of fissionable materials anywhere in the world will be devoted exclusively to peaceful purposes".⁵ If this occurred, the safeguards appropriate to that situation would have to be "more complete and more pervasive than those applied to recipient States under this Statute".⁶

In reply, the Soviet Union stressed the need for the collective efforts of states in the extension of atomic science to the world. For this reason

"the Soviet Union gave its support to the idea (of the Agency) and participated in the preparation of the draft Statute to be the basis of such agency, being aware of the fact that international cooperation in this field is necessary if atomic energy is to serve

4 ibid pp. 11-12
5 ibid p.12
6 ibid

the welfare of all mankind and not only that of a narrow group of highly developed countries". 7

Sovereign equality and the security of nations would be basic to the success of the proposal, which should not itself have any pre-conditions of a military or political nature. As far as safeguards to provide this basic security were concerned, the draft Statute was inadequate in that it was not based on a fundamental international agreement outlawing atomic weapons. In any case, a system of guarantees or assurances that assistance given by the Agency was not being used for military purposes would be sufficient form of control. The draft, with its provisions for inspection, referred to "mandatory" safeguards only in respect of countries receiving assistance and for this reason was inadequate. The provisions of the draft also infringed sovereignty rights and "would certainly retard the utilization of atomic energy in those countries". 8

The Australian Delegate delivered the soundest rejection of the Soviet view that the system of safeguards inspection would be inconsistent with sovereignty or national dignity. He said this was not

7 ibid p.23

8 ibid p.32

the case because each member would be free to negotiate the specific terms of inspection and any subsequent agreement to accept inspection would reflect these negotiations. Therefore, inspection would only take place as a result of the State agreeing freely to accept it.

Nevertheless, the Soviet Union maintained this objection throughout the Conference, but there was a significant shift in what it would accept as a matter of negotiation over the period of discussion. This was the shift from the position of rejecting any control measures until an agreement on total prohibition or "non-use" had been reached, to the position of accepting safeguards control in principle but with the warning that inspection would infringe sovereignty. This shift proved to be a necessary condition to the agreement of the Statute.

The Statutory Provisions

Of the two objectives of the Agency stated in the Statute, one is to "ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose".⁹

⁹ Statute Article II. The other objective is the development of the peaceful uses of atomic energy.

The Statute then authorises the establishment and administration of Agency safeguards as a "function" of the Agency. ¹⁰ It lays down certain other basic principles of Agency safeguards, the main one of which, in respect to the procedure for applying safeguards, is that safeguards will be applied only *and a recipient country of an Agency* in connection with agreements between the Agency/projects. ¹¹ Safeguards may also be applied to other projects or agreements, for example bilateral agreements, but this depends upon a voluntary request for the application of Agency safeguards to a particular project or activity.

An essential consideration in understanding the provisions of the Statute is that they are a body of principles. Although they imply certain obligations as far as safeguards is concerned, the ratification of the Statute implies no more than an acceptance of these principles as such. For example, it is known in advance that one of these principles is that Agency safeguards will be applied to Agency projects, but no state is bound to enter into an Agency project. This is voluntary. Accordingly, ratification of the Statute by a state does not imply acceptance of safeguards on its activities. In respect of

¹⁰ Article III.A.5
¹¹ Statute Article XI.F (especially S.4)

Agency projects, Article XI of the Statute simply provides that a Project Agreement will include safeguards provisions to ensure; "that the assistance provided shall not be used in such a way as to further any military purpose".¹²

Project Agreements are the subject of negotiation between the Agency and the state concerned. The safeguards applicable to any project shall be according to the principles described in Article XII of the Statute. However, this article limits the application of its own principles to any project by stating that they will be applied "to the extent relevant".¹³ Relevancy is obviously to be determined by the nature of the project and in the light of the objective of the Agency not to "further any military purpose". It is important to recognise, however, that the question of relevancy is one of the questions subject to the process of negotiation of a Project Agreement. It is possible then that a Project Agreement with a given state may ultimately include safeguards provisions different from those which another state may consider satisfied the criterion of relevancy.

¹² Article XI.F 4

¹³ Statute Article XII.A.

87

Accordingly, an important question arising from these provisions of the Statute is the relationship between the Statute principles (and the implications of accession to them), and the Project Agreement. The Statute is analogous to a conventional Act of Parliament in a regulatory field, the detailed application of which can only be discovered by referring to the regulations made under the Act. In the Agency's case the "regulations" are found in the documents on the Agency's Safeguards System¹⁴ and the Agency's Inspectorate.¹⁵ But these regulations are only applied to a state after a specific agreement to this effect is developed in negotiation with that state. For this reason these regulations are, at least potentially, open to adjustment as the state may require. The particular issue of the relationship between the Statute and agreements under it will be discussed later. It has been referred to briefly in order to demonstrate the fact that the Statutory provisions are a set of principles.

"Military Purpose"

A key issue, both conceptually and in terms of the discussion at the Statute Conference, was the defi-

14 INFCIRC/66 and revisions

15 ~~INFCIRC/66~~ GC(V)/INF/39.

inition of "military purpose". This concept is basic to the safeguards system, its ambiguity has been a source of continuing difficulty in the development of the system.

Although the term "military purpose" is mentioned repeatedly in the Statute ¹⁶, it is not defined in it. It is used consistently in one sense only - as the antonym of peaceful purpose. Two main facts, one technical, one political, ensure that this negative definition of the term makes it unspecific and open to a variety of interpretations.

The technical fact is the identity of much of the civil and military applications of atomic energy. The simplest way of explaining this in terms recognisable by laymen ¹⁷ to atomic science is that both in the case of reactor technology and weapons technology, the key material ~~is~~ is fissionable material. In the case of reactor technology, fissionable material forms the fuel in the core of the reactor. It is in the core of the reactor that this material is permitted to fission but in the case of a reactor the process of fission is controlled or slowed down. In a nuclear weapon,

16 See e.g. Statute Articles II, III A.5, XI F.4, XII A.1, XII B
17 Of which the author is one and for this reason both apologises for and realises the necessity of a short technical digression.

the same kind of fissionable material is used to form the critical mass of the bomb. In this case, fission is permitted in a relatively uncontrolled way so that a vast and immediate "explosion" occurs. The particular type of fissile material and its degree of enrichment varies in terms of both reactor and bomb types. But the fact remains that in both cases its ability to fission is common to the material used. A related fact of particular significance is that the placement of fissionable material in a suitable environment and in proximity to other nuclear material (in this case known as fertile material) can produce or regenerate additional quantities of fissionable material.¹⁸ The circle is completed by the fact that the "suitable environment" is typically the core of a reactor.

From this brief description it can be seen that it is not possible to identify, unambiguously, material which will have a peaceful use only. It is true that nuclear material with a very low enrichment in the readily fissionable isotopes will be less satisfactory for use in a weapon than will be material with a high enrichment. But both low and high enrichment nuclear material is used in reactors. Furthermore,

¹⁸ The fissile material so produced is plutonium.

4/30
90

today's low enrichment material may be converted tomorrow to high enrichment material or may be used in conjunction with fertile material to produce further fissile material.

The usefulness of any fissile material to a civil or military programme is not unambiguously identifiable at any stage in its extraction, concentration or enrichment. The only way in which its use may be known is by verifying the way in which it is used - as a matter of fact.

Accordingly, it cannot be said in an objective ex-ante way that a given activity has a military purpose. This statement can be made ex-post but self evidently an ex-poste verification is not the point of a system which attempts to ensure in advance that materials or activities will not be adapted to any "military purpose".

At this stage I have left aside the additionally complicated questions raised by, for example, the siting of a power producing reactor at a military base for the sole purpose of producing electricity for that base. While the plant itself may be a conventional peaceful plant in an objective sense, its proximity to and use in connection with another activity - in this case the

471

activities normally associated with a military base - may compromise its "objective" character.

The second or political difficulty with the definition of military purpose will be obvious from the technical description. Clearly, States' conceptions of military use will vary in terms of the other state they are considering. This is a basic and real apprehension which is itself premised on the knowledge of the dual potential of atomic energy. The propensity of states to accept the assurance of other states that a given atomic programme is merely peaceful, is a direct function of their broader relationship and strategic importance to each other. For example, this propensity would be rather low between Israel and the United Arab Republic, or between Federal Germany and the German Democratic Republic, while it would be rather high between the United States and Canada.

The main focus of this apprehension is fear of diversion or the clandestine development of a weapons potential within the context of a purely peaceful programme. This fear is supported and fed by the real knowledge of the technical possibility of diversion. But its significance is more than technical. The degree of this apprehension accounts in part

92

for the commitment in policy of so many states to the development of an international system of safeguards against diversion.

The term safeguards has two real faults. One is that it has a ring of prevention about it which is misleading. Given a will to diversion it is a matter of real doubt that any safeguards system, short of a system of direct international ownership and management of all nuclear materials whether raw or fissionable, could be more than a system providing notification that diversion is proceeding. In other words, a system like the Baruch Plan.

The second fault lies in its weakness in terms of the basic concept under discussion - "military purpose". Even if the safeguards system was extremely efficient at notifying or even inhibiting diversion, the question remains "diversion to what?". Again, we only seem capable of negative definition. We can say what materials are being diverted from or in other words we can say what they are clearly not being used for, but without additional information, the collection of which is beyond the scope of the system, we cannot say finally what the diverted material is being diverted to. Is this then military purpose - the diversion of material from its stated (and implicitly peaceful) use?

This is no definition, unless the presumption that whatever is not peaceful must be military can be given meaning by reference to certain, necessarily incomplete but broadly acceptable, physical indicators. It is on this latter presumption that the IAEA safeguards system is based.

During the course of the Statute Conference France, supported by India, attempted to promote agreement on a precise but necessarily limited definition of "military purpose". The French draft amendment to Article XX - the article giving definitions, was the proposal of the definition; - "The only uses of atomic energy which shall be regarded as uses for non-peaceful purposes are military applications of the atomic explosion and of the toxicity of radioactive products".¹⁹

There was an obvious sense in this attempt to inject precision into the concept of military purpose. After all it was the atomic explosion and the associated radiation hazards which had directed immediate and worldwide attention to the problems posed by atomic science. Indeed, no delegate at the Statute Conference disputed the proposition that atomic explo-

¹⁹ IAEA/CS/ART. XX/Amend. 1

94

sions and their related effects involve a misuse of atomic energy. Even so the French proposal was naive and, perhaps intentionally, limited. The point of the safeguards clauses of the draft Statute was to evolve an international system to at least discourage, if not prevent, the development of the military applications of atomic energy. The French definition did not serve this purpose, but rather by reducing the target of the safeguards system to this apparently precise but actually narrow end result it limited its effect both in time and place. The consensus of the conference was that this definition would raise and leave unanswered more issues than it solved. The Indian Delegate supported the French proposal to an extent that, if not then certainly later, embarrassed the French. India suggested that any state having a military programme should be denied any Agency assistance because this assistance would simply free indigenous materials and skills for application to the state's military programme.²⁰ Following withdrawal of the French and Indian amendments, no agreement was reached on a definition of military purpose.

The debate on "military purpose" illustrated one of the basic dilemmas of the safeguards system. Taking

²⁰ IAEA/CS/OR. 28 pp.26-7

445

the phrase "military purpose" in its context, it refers to a particular and continuous activity, the end result of which is well known. Precisely because the result is the most readily known part of the activity, while it is the process leading to that end which is important, a definition such as the French definition which focuses on the result (because it is identifiable) rather than on the process, is limiting, not enabling. A flexible conceptual structure in this context must necessarily be unspecific - the more so because it deals with activities of a continuous and ambiguous kind. Indeed this was recognised to be the nature of the problem of diversion and the statutory rules for safeguards, as developed, attempted to provide insight at significant points on this continuum. The net effect of this approach is at worst an indication that diversion is occurring, and at best an indication that it is occurring in a direction away from manifestly peaceful purposes. These significant points are points which, while they do not themselves form sufficient conditions for a military atomic programme, ~~are~~ are certainly necessary conditions.

It should also be recognised at this point that the Soviet Union had considerable difficulty in accepting

46

the Statute in its draft form. Its main difficulties were in the safeguards area. Greater "precision" in the language and effect of the safeguards provisions so that it dealt with "sufficient conditions" for a military programme, could only have been achieved at the cost of the rejection of the draft by the Soviet Union.

Safeguards Agreements

Returning now to the fact that Agency safeguards may be imposed only in connection with Agency projects, it is important to recognise that the entry by a state into an Agency project is a voluntary decision. It will be known in advance that a necessary part of any such project agreement would be the application of the "relevant" Agency safeguards.²¹ It is self evident then that states which find this too high a price to pay for Agency assistance will simply have to accept their inability to obtain it. One of the main consequences of this situation has been the development of bilateral and multilateral arrangements for atomic cooperation and assistance outside the scope of the Agency (e.g. the United States' Bilateral Agreements, the Euratom Arrangement). Safeguards conditions are a part of such bilateral agreements and they have

²¹ Statute Article XI.4

97

tended to be no less stringent than those applied by IAEA. Even so bilateral safeguards are normally exercised between countries with a relationship close enough to have led to the development of a bilateral agreement. IAEA safeguards hold the prospect of inspection by nationals from a variety of countries and general scrutiny of activities by an international secretariat. In addition, the development of the safeguards system was slow and the major supplier under bilateral agreements, the United States, made its own safeguards arrangements for these agreements until this development met its requirements and it could transfer its safeguards responsibilities to IAEA. The extensive use of bilateral agreements has, on the other hand, slowed down the acceptance by countries of the IAEA system.

Although Agency assistance shall not be subject "to any political, economic, military or other conditions incompatible with the provisions of this Statute" ²² the Agency is instructed to

"conduct its activities in accordance with the purposes and principles of the United Nations to promote peace and international cooperation, and in conformity with policies of the United Nations furthering the establishment of safeguarded worldwide disarmament and in conformity with any international agreements entered into pursuant to such policies". ²³

22 Article III.C
23 Article III. B1

The former of these two provisions was of Soviet origin,²⁴ the latter reflects the United States view of the context of the safeguards system. As it is possible for a State to gain membership of the Agency while remaining outside the United Nations, it is more than mere theory to envisage a potential conflict between these two provisions. To demonstrate this difficulty we need only assume that the membership of the United Nations were to agree on a course of action in the general field of disarmament which fitted the description given to such policies in Article III. B1. For example, the United Nations could agree on a nuclear arms control treaty which gave the Agency functions under it. A principle of such a treaty could be the denial by signatories of all assistance to States with a military nuclear programme. The Agency could also be called upon to exercise the same embargo. The Agency's position in respect of a Member State with a military programme would be difficult as Article III C would seem to prevent the Agency from denying peaceful assistance to that State by virtue of its obligations under the terms of the arms control treaty we have assumed. This is a fairly remote possibility for many reasons, the most concrete of which is that a State with a military programme is unlikely to be seeking Agency assistance for its peaceful effort. However, this same question of principle was raised

²⁴ Discussed in Chapter 2

99

by Pakistan during debate on a United States resolution on the Agency's role in the provision of peaceful nuclear explosive services under Article V of the present Non-proliferation Treaty. The question was not answered.²⁵ The other implication of the latter of these provisions is that the Agency was seen to have a role in disarmament then and in the future. It is an open-ended provision and enables the United Nations to call on the Agency as it may wish and indeed as it has done ~~in~~ in the Non-proliferation Treaty.

The Principles of IAEA Safeguards

Article XII of the Statute describes the rights and responsibilities of the Agency in its administration of safeguards - "to the extent relevant to the project or arrangement". These provisions constitute the principles of Agency safeguards.

First, "to examine the design of specialized equipment and facilities, including nuclear reactors".²⁶ This examination is intended to be non-intrusive into normal plant activities as it is expressly limited to "assuring that the design will not further any military purpose and that it will permit the effective

25 Debate in Programme, Technical and Budget Committee, 12th General Conference, September 1968

26 Article XII. A.1 IAEA.

100

application of safeguards".²⁷ The purpose of this limitation is to provide states the assurance that the Agency is not concerned with industrial or commercial aspects of design and will refrain from intruding into or interfering with the technical development or commercial competitiveness of a state's nuclear technology.

The review of designs is a basic technique of safeguards as it provides the Agency with the earliest opportunity to assess the purpose for which nuclear assistance is being requested and the prospect that the assistance would have of contributing to a military activity. Clear cut cases are easily imaginable and for this reason it is hardly likely that a state would seek Agency assistance in respect of a programme that was clearly military. It is less clear that the Agency can determine the military usefulness of any given amount of assistance to a nuclear programme which, although it had no apparent relationship to weapons development, did in fact serve to provide information useful to weapons development. For example, the Agency could receive a request for the supply of material or other assistance in connection with neutron cross-section experiments. This could be explained in terms of a project of basic materials research and indeed this might be true.

²⁷ *ibid*

It is equally true, however, that the information so gained could be useful in determining the nature of the critical mass of fissionable material necessary for the production of a nuclear weapon. The actual material which would form the critical mass could be under production in another facility outside Agency control. As was suggested above, it is unlikely that a state which is in a position to be producing weapons grade nuclear material from its own resources and hence outside Agency or other external control, would make such a request to the Agency. However, the fact that this is possible emphasises two further difficulties of the Agency's system.

Firstly, the safeguards system extends mandatorily only to Agency projects and not to indigenous projects which may have an expressly military purpose. Secondly, the granting of Agency assistance even under safeguards could be important to a state bordering on weapons development as it may be a source of information not otherwise available or not readily available, and in the case of assistance in the form of supplying materials it may simply allow the state to devote more of its indigenous materials to the weapons programme. If indigenous materials are scarce, and this may be the case with plutonium for example,

even a very small quantity supplied by the Agency can form a significant replacement for domestically produced plutonium already "diverted" to a weapons programme. For these reasons, the Indian suggestion during the Conference on the Statute ²⁸ seems sensible if the principle that Agency assistance should not provide assistance to a military programme in any way is brought to its logical conclusion. On the other hand, the inter-relatedness of almost all civil and military applications of atomic science is such that this logic would require that assistance should be denied in any field of atomic science where the application of safeguards would seem advisable.

The positive aspects of the principle of reviewing designs are, firstly, that it clearly makes sense to do so in order to determine the applicability of safeguards at the earliest possible stage and to determine, as a result, the nature and extent of safeguards appropriate to the particular project. Secondly, as the article states, there is the question of whether or not a given design will permit the effective application of safeguards. This is a technical issue and is obviously an important one. The implication of it is that in cases where it is judged that modifications to the design could be made without affecting its

28 See note 20 above

103

efficiency but with advantages in terms of simplifying the application of safeguards, this will be recommended by the Agency. Thirdly, the Board of Governors approves Agency project agreements²⁹ and in doing so satisfies itself that relevant safeguards are being applied. The ability of the secretariat to provide the Board with the information on which it will base this judgement is enhanced by the fact that it has studied the relevant designs. Given the composition of the Board the provision of this information can have a positive effect in dampening political apprehensions about a given application for Agency assistance. The simple provision of information in respect of, say, a request for assistance by Nationalist China will not prevent the Soviet Union from objecting to a project agreement with it. But this objection must to a large extent remain an objection for other reasons if the assurance can be given that the Agency is satisfied that the project under question meets the requirements of Articles XI and XII. The fact that the design of the project has been studied is an important part of the Agency being able to give this assurance in respect of the safeguards aspects of the project agreement.

29 ARTS. XI.A, XI.E, XI. F.4

The second principle of Agency safeguards is that the Agency has the right and responsibility to "require the observance of any health and safety measures prescribed by the Agency". 30

The third principle relates to materials control. It gives the Agency the right and responsibility to;

"require the maintenance and production of operating records to assist in ensuring accountability for source and special fissionable materials used or produced in the project or arrangement". 31

This is a key principle of the system as^{it} is directed to accounting for the movement and production of the central element of weapons production - the nuclear materials. The precise meanings of the terms "special fissionable material" and "source material" are defined in Article XX of the Statute. These materials are the subject of accountability under this principle of safeguards because in the case of special fissionable material they are the materials capable of self-sustaining fission and in the case of source materials they are the materials which, when subjected to irradiation, enrichment, or separation, yield special fissionable materials.

It is clear then that if its safeguards system is to be effective, the Agency must account for any quantity of such materials supplied by it or otherwise used

30 Article XII. A.2
31 Article XII. A.3

in connection with assistance provided by it under a project agreement for supply of materials. Because the provision of materials or assistance may in certain cases lead to the production of further nuclear materials, the principle of accountability of this consequential material is also established.

The technique of accountability described in this part of the article is "the maintenance and production of operating records". This is a necessary step but it is only a first step. Indeed it is described as having the purpose of only assisting in ensuring accountability. The further step, common to any such auditing process, is the physical verification that the materials which form the subject of the statement of account do exist and correspond to the statement. This is the subject of a further principle of safeguards; however, two comments should first be made in respect of this third principle of safeguards.

First, this activity is expandable. Although the safeguards in a given project agreement governing the supply of special fissionable or source material may be limited initially to the material supplied, this principle extends the application of those safeguards to whatever further materials are pro-

106

duced under the project or in conjunction with the original material. If, for example, source material in the form of natural uranium is supplied, whatever plutonium is subsequently produced from the source material will be the subject of further safeguards.³² The problem of Agency supplied material simply serving to release indigenous material for other purposes is not dealt with in the Statute. The purpose of this particular principle of safeguards is to ensure that the supply of nuclear materials by the Agency will not be for military purposes and will not lead directly to the production of material which can be so used. In addition, should a state use existing material in conjunction with the material under the project agreement, for example in a mixture of materials, it will have to account for the original material and the indigenous material mixed with it in order to demonstrate that the generation of further material was not a consequence of the mixture. Naturally, any such consequential material would become the subject of Agency regulation immediately.

³² Natural uranium is composed largely of the isotope U238 which when subjected to irradiation transforms itself by gaining a neutron to PU239 (symbolically $U238 + n = PU239$)

107

Second, the maintenance and production of operating records is not an onerous obligation. As the materials involved are expensive and often dangerous, it is standard plant procedure to maintain operating records and control procedures over the material. The only additional obligation imposed by this principle is that these records should be made available to the Agency for scrutiny.

The fourth principle is a simple and self explanatory extension of the third principle. It is that the Agency has the right and responsibility to "call for and receive progress reports".³³ The point of this principle is to permit the Agency to gain an indication of the progress of an operation under safeguards in order to ensure that, in respect of operations where this is conceivable, diversion or misuse of materials is not occurring while it is in progress. In some cases a report received at the end of an operation, in the absence of any progress reports, could simply confirm that diversion or loss of materials had already occurred. This would hardly be cheering news. Obviously it is more useful to know of irregularity as it is occurring rather than as a fact of the past. Without discussing the statutory remedies at this stage, it is worth observing that in

³³ ART. XII. A.4

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³³ ART. XII. A.4

purely logical terms this fourth principle does assume the existence and perhaps efficacy of these remedies.

The fifth principle deals with the next stage of the nuclear fuel cycle and with the problem of by-product materials referred to under the third principle. It gives the Agency the right and responsibility

"to approve the means to be used for the chemical processing of irradiated materials solely to ensure that this chemical processing will not lend itself to diversion of materials for military purposes". 34

Furthermore, the Agency will

"require that special fissionable materials recovered or produced as a by-product be used for peaceful purposes under continuing Agency safeguards for research or in reactors, existing or under construction, specified by the member or members concerned". 35

If produced special fissionable materials still remain in excess of what is needed for these stated uses, they must be deposited with the Agency.

"in order to prevent stockpiling of these materials, provided that thereafter at the request of the member or members concerned special fissionable materials so deposited with the Agency shall be returned promptly to the member or members concerned for use under the same provisions stated above". 36

34 Article XII. A.5
35 ibid
36 ibid

Where the third principle established the general principle of the accountability of materials, the fifth principle addresses itself to the special problem posed by the processing of irradiated materials. The significance of irradiated materials derives from the fact that it is through the irradiation of source and fertile material that special fissionable material, most commonly plutonium, is produced. Such material is normally irradiated by placing it in the core of a reactor. These circumstances can best be illustrated through an example taken from common practice.

Assume that a reactor is fuelled with fuel elements composed of slightly enriched uranium and the uranium content of the elements is made up of 98% natural uranium (largely uranium 238) and 2% uranium 235. As a given loading of such fuel elements is permitted to fission in a reactor, the unstable uranium 235 will "burn up" and progressively stabilize itself by casting off neutrons. This is a large part of the process of fission in such a fuel loading. During this time a proportion of the atoms of uranium 238 will capture these "stray" neutrons and will convert to plutonium 239 - also a highly fissionable material.

110

After a specific time a number of the fuel elements in a given loading will have expended much of their ability to continue to sustain the fission process and will be replaced by fresh elements. The point at which such elements will be removed will be before all of the fissionable material in them has been "poisoned" by the accumulation of fission products. These spent fuel elements will thus contain a quantity of fissionable material which, if it is recovered, may be used in further fuel elements or in the fabrication of a critical mass. Some of this fissionable material will be the plutonium 239 created through irradiation of uranium 238. It is in a chemical reprocessing plant that this fissionable material is extracted from the other waste material.

The significance of the chemical processing plant from the point of view of effective safeguards control is evident. Accordingly, it has been made a basic element of the Agency's safeguards controls that the Agency is able to "approve the means" of processing. These plants apply many of the traditional methods of "wet chemistry" - dissolving, treatment of solutions, handling of sludges and wastes. These techniques are capable of inspection in cases where the means of treatment was not the

subject of prior approval. However, an optimum situation is the ability to approve the means of treatment. As is the case throughout the provisions on safeguards, the Agency's ability to undertake this activity is limited to approval of the means of processing only to the extent necessary to ensure that this activity "will not lend itself to diversion of materials for military purposes". 37

As was mentioned in the discussion of the third principle, Agency safeguards may be extended to by-product or material associated with Agency supplied material. The special fissionable material produced or recovered as a by-product in a chemical processing plant will be the subject of continuing Agency safeguards. This material may be retained by the state in question for uses which it states to the Agency and to which the Agency agrees. Naturally, if such a use is the utilisation of the material in a given reactor, then Agency safeguards must extend to that reactor. If there is material in excess of that needed for such purpose, it must be deposited with the Agency until it is demonstrated that it is needed for one of the above mentioned purposes.

37 *ibid*

This provision is clear and relatively tight because it is in processing plants that the significant nuclear materials from the point of view of a weapons programme are handled in a form where diversion could occur most readily. Provisions for safeguards over re-processing plants were developed in 1966 as an annex to the main safeguards document. ~~They will be discussed in the next section.~~

The sixth principle describes the Agency's rights and responsibilities in developing a system for the inspection of nuclear activities.³⁸ The Agency may send inspectors to states receiving Agency assistance. The inspectors are designated by the Agency after consultation with the state concerned. There is no necessity therefore for a state to accept inspection by a national of any country or countries it finds objectionable. A process of continually rejecting inspectors proposed by the Agency would lead to the Director-General having to inform the Board of Governors that the Agency is unable to apply safeguards to the state in question.^{38a} This would normally lead to the termination of the project agreement.

38 Article XII. A.6
 38a GC(V)/INF/39.

The inspector is to be given full access to places, information and persons, at all times, in order to determine whether the statutory provisions against furthering any military purpose and requiring adequate health and safety measures are being observed. If a state wishes, a representative of it may accompany an Agency inspector within that state, provided this does not impede the inspector in exercising his functions.

The staff of inspectors established by the Agency shall also be charged with determining whether or not the Agency is itself complying with its safeguards and health and safety provisions in its own activities or in activities under its direct supervision. 39

The staff of inspectors is also charged with the responsibility of "obtaining and verifying" the account of source and special fissionable materials and fissionable products the subject of Agency agreements. The inspectors are to determine the compliance of a state with the undertaking not to use Agency assistance in furtherance of any military purpose. 40
These tasks are self explanatory but it is necessary

39 Article XII B
40 Article XII C

to draw attention to the crucial role played by the inspectorate in the IAEA safeguards system. The system does not depend on inspection as its only safeguards technique but the range of techniques employed by the Agency depend for their efficacy on verification and interpretation by inspectors.

In the event of non-compliance by a state with the Agency's safeguards (a fact reported by the inspectorate⁴¹ to the Director-General), the Director-General shall notify the Board of Governors who shall in turn report this event to the Security Council and General Assembly of the United Nations and call on the state in question to remedy the situation "within a reasonable time". If the latter call is not heeded, the Agency will "suspend or terminate assistance and withdraw any materials and equipment made available by the Agency or a member in furtherance of the project".⁴² The Agency may also "suspend any non-complying member from the exercise of the privileges and rights of membership".⁴³

41 The procedure developed in the Agency is that the inspectorate as a body will submit reports of non-compliance to the Director-General. This procedure was developed both to assert the professional competence of the inspectorate and to remove the vulnerability of individual inspectors to attack after he had entered a report of non-compliance.
42 Article XII A.7
43 Article XII C

111
115

The powers of inspection described in the Statute are almost without limitation within the terms of the extent or type of Agency assistance and for this reason at least form a unique international arrangement. Even so, these provisions were the subject of only minor discussion or amendment at the Conference on the Statute.

Suggestions by Switzerland for amendment of the draft provisions governing inspection were accepted unanimously. First, the Swiss wished it to be clear that the persons subject to control by Agency inspectors are only those who because of their occupations deal with materials, equipment and facilities supplied by the Agency. Secondly, the Swiss were the source of the provision that the inspectors may be accompanied by representatives of the state under inspection.⁴⁴

The debate on the safeguards provisions of the draft Statute occupied by far the large proportion of the conference time. The United States and its supporters contended that, in general, the draft provisions provided an adequate basis for safeguarding against diversion. On the other side the main reservations

⁴⁴ IAEA/CS/Art.XII/Amend.1 and Corr.1 and Corr.1/Rev.1 Conference room papers 6 and 13 (latter as corrected in IAEA/CS/OR.37 page 102

were entered by the Soviet Union and India.

The position of the Soviet Union was stated lucidly in a statement by Mr. Zaroubin;⁴⁵

"(the Soviet Union) considered that a sufficient safeguard would be to abide by the provision of the Statute which makes recipient states assume their obligation not to use the assistance received for the production of nuclear weapons and to submit reports on the use to which the assistance given by the Agency has been put. The safeguards and controls which the draft Statute provides would be significant only if these provisions found their place within the framework of a general prohibition of nuclear weapons and if these guarantees and safeguards extended to all States, both the States receiving the assistance and those supplying it. The application of safeguards to recipient countries alone - that is, in the first place, to underdeveloped countries - falls short of the mark and imposes upon the recipient countries such conditions of control and inspection as violate their sovereignty and which would no doubt slow down the utilization of atomic energy for peaceful purposes in these countries."

The Soviet position had several bases. First, it was the United States that had demonstrated extreme nuclear capability. No matter how rightly motivated in terms of universal, moral or theoretical goals the draft safeguards arrangements were, the fact remained that their impact upon the United States would have been smaller and certainly considerably less damaging

⁴⁵ IAEA/CS/OR.36

to its security interests than on the Soviet Union. For this reason the only way in which this discriminatory effect could be attenuated, as far as the Soviet Union was concerned, was through agreement on the general prohibition of nuclear weapons. The United States superiority in nuclear weapons capability would be reduced markedly. The Soviet Union would then be free to develop its own technology in a situation where United States superiority was less obviously threatening. In the absence of such arrangements, then, Soviet interests would have been best served if safeguards were restricted to an assurance by states that they were observing the obligations of the Statute.

The emphasis given to the necessity for safeguards to be applied to all countries independently of whether they are donors or receivers of assistance was a logical consequence of the rejection of the "haves" and "have-nots" situation established by the United States monopoly; an attempt to equalise to the greatest extent possible the competitive conditions of atomic development; and a canvassing of the votes of the underdeveloped countries.

It is interesting and somewhat ironical to consider that on the United States side a key motive for the

policy of establishing international control of atomic energy was the belief that the American monopoly could not be preserved. This was to make a virtue out of an inevitable development. On the Soviet side the first and most basic reaction to the United States proposals was the charge that in an attempt to preserve their monopoly position, (a policy intrinsically unacceptable to the Soviet Union) the United States had avoided the real issue - nuclear disarmament. Technically speaking the United States seemed correct in its judgement. Atomic science was bound to grow, its growth could be dangerous to the United States and the world generally. Accordingly, control was required. On the other hand the Soviet's attitude was not without sense. Clearly the United States proposals did not involve a relative weakening of the American position. This was of central concern to its main competitor and it was foolish of the United States to hope that it could gain Soviet acceptance of proposals which would eliminate for the Soviet Union the opportunity of improving its relative position vis á vis the United States. This is especially true considering that the proposals would have in no way altered the position of the United States. The control proposals may have been sensible and better balanced than the Baruch Plan, but whatever they were they would come to naught if they were not accepted.

This acceptance depended to a large extent on the attitude of the Soviet Union and because the proposals did ^{not} shift the balance between Washington and Moscow a little towards Moscow, the Soviet Union remained critical of them during the Statute Conference and for several years thereafter. The fact that the Soviet Union was able to accept the Statute while remaining extremely critical of the safeguards clauses of it is another example that the Statute is only a set of principles to which countries subscribe as they see fit.

The Indian reservations were even stronger than those of the Soviet Union. First, the Indians argued that safeguards should be applied only in the manner and to the extent provided for in an individual agreement between the Agency and a state. Under the Statute they are to be applied "to the extent relevant to the project or arrangement". The Indian suggestion could have meant, therefore, a severe restriction on the application of safeguards, as it is conceivable that a given agreement could specify safeguards which were lighter than those considered "relevant". This suggestion was never the subject of a formal amendment to the draft Statute.

120

Secondly, India moved an amendment⁴⁶ which sought to restrict accountability for materials supplied to fissionable materials only. That is, source materials and by-produced materials would not be brought to account. Furthermore, India urged that by-produced materials should be able to be stockpiled, for peaceful purposes and under safeguards, within the territory of the state concerned and should not be returned to the Agency. India argued that the draft statutory provisions would permit the Agency to dictate the uses to which all fissionable materials would be put and this dictation could be based on political or economic considerations unrelated to the needs of economic and atomic development. Although this Indian amendment was not accepted, it was the recorded understanding of the Conference that the degree to which safeguards would be applied to source materials was less than would be the case with special fissionable materials and should be kept to the minimum consistent with effective safeguards.⁴⁷

After considerable debate, the draft provisions of Article XII of the Statute as slightly amended at

⁴⁶ IAEA/CS/Art.XII/Amend.5
⁴⁷ IAEA/CS/OR.38 pp.13 and ff

124

the Conference were adopted by 79 votes to none, with one abstention. These provisions have not been amended subsequently.

The Conference on the Statute provided ample opportunity for countries to establish and announce their positions on the Statute and the Agency's activities. The positions so established have varied remarkably little since that time, with the notable exception of the Soviet Union. This important change is discussed later. The next stage in the development in the Agency's safeguards system was the agreement of a set of operating procedures designed to give effect to the Statutory principles.

122 35

CHAPTER 4

The Safeguards System

The General Conference and the Board of Governors of the Agency met for the first time in October, 1957.¹ The first consideration by the Board of questions under the Agency's safeguards system occurred early in 1958 when the Board considered the initial organisation chart of the Agency. The Soviet Union took the position that an Inspector-General should not be appointed until the Agency had responsibilities to perform in the safeguards area. It was agreed to postpone a decision on this question. It was discussed again in June 1958 when the Soviet Union questioned the Director-General's intention to appoint a Director of the Division of Safeguards and Inspection. Apparently, the Director-General had explained, in a memorandum circulated to Governors, that it was his intention to do this so as to give direction to the explora-

¹ Board meetings are held in closed session and the distribution of the record of Board discussions is restricted. For this reason much of the discussion of Board action in this Chapter is based on oral descriptions of Board actions and on references outside the Board to action which occurred in the Board.

tory work then in progress in the Division of Safeguards and Inspection. The Soviet Union took advantage of embarrassment arising from the fact that the circulation of the Director-General's memorandum had been mishandled and had been passed prematurely to the Soviet Union, and insisted that this staff appointment as well as that of the Inspector-General was not yet required. Western representatives opposed this Soviet view but decision was deferred.

In August 1958 the Soviet Union reopened debate on the staffing of the Safeguards Division. It argued that the Division should be constituted by staff drawn from the eight geographical areas listed in the Statute. Furthermore, in view of the extremely delicate nature of his duties the Director of the Safeguards Division should be a national of a neutral country. India supported this position and argued further that the creation of the Division itself was premature as it would have no work to do. A lengthy and unpleasant debate followed in which the Indian proposal was put to a formal vote and defeated, the Soviet proposal that the Division of Safeguards should be staffed by staff drawn from the eight geographical areas was defeated, and a proposal by United Kingdom calling

upon the Director-General to apply strictly the terms of the Statute in relation to the geographic distribution of staff was adopted.

This rather slight and inconsequential period of debate accurately reflects the Soviet attitude towards safeguards at that time. The Soviet Union was unwilling to give serious consideration to the development of a safeguards system. It held it to be in Soviet interests that the system should not be developed. The easiest line of resistance to this development was to quarrel, most often procedurally and rarely substantially, with fundamental organisational issues which, if resolved, would have led towards the development of the safeguards system. The Soviet Union was supported almost without exception by the other Socialist countries and by India.

The first solid step towards developing a safeguards system was taken in January, 1959 when during the Board's consideration of a request by Japan for assistance by the Agency in purchasing a supply of natural uranium, the United Kingdom proposed that instead of the Agency drawing up a detailed set of safeguards regulations to implement Article III A.5 of the Statute in respect of this particular request,

125

the Board would be better advised to defer its decision on it until it could draw up a set of principles which would serve as a model for the application of safeguards. By the time the Board met in June 1959, the Director-General had already circulated to Governors a set of draft principles and regulations in the manner requested by the United Kingdom.

The Draft Safeguards System

The Director-General's draft had two parts. First, a list of certain arbitrary principles or values. It was taken that these principles were primarily of a political nature and required political decision. Once such decisions had been taken, it was believed it would be possible to apply technical knowledge to determine the type and nature of safeguards that were relevant in various circumstances. The second part of the paper was an attempt to illustrate with tables and computations the type of technical information required for an effective system.

This step marked the beginning of the first serious debate on safeguards within the Board of Governors of the Agency. It was largely political in character

and it was taken as an opportunity to reopen many of the political issues discussed at the Statute Conference. Towards the end of the first exchanges, it is understood that Canada criticised this development, saying that the debate had turned on matters of principle and had not dealt with the particular issues raised by the Director-General's draft. India and the Soviet Union had apparently taken the introduction of the draft as providing an opportunity to attack the whole concept of safeguards again, in spite of the fact that the development of safeguards provisions was one of the essential conditions of the Agency coming into existence.

India referred to the provision that safeguards would be applied "to the extent relevant" saying that the criteria by reference to which relevance should be determined were not only technical but also political, economic and social. For example, the existence of increasingly larger supplies of nuclear source material in the world and the importance of these sources both in civil and military atomic programmes had very real bearing on the determination of this question of relevance. This material was of economic significance, especially to developing countries, but it was also a source of difficulty in the general application

of safeguards. On the one hand its abundance made it relatively easy for any country to undertake a military programme without recourse to the Agency. For this reason the Agency's safeguards controls could not be effective ultimately. In addition, the Agency's jurisdiction only extended to those countries which agreed to place themselves under its control. On the other hand the fact remained that many countries could benefit greatly from the Agency's assistance with developmental programmes, but it was precisely these countries to which safeguards would be applied in their most rigorous form, and these countries are the countries least likely to manufacture atomic weapons.

India revived its position at the Statute Conference saying that assistance should not be given to those countries which had a military atomic programme. The safeguards system could not delay such programmes since as long as military uses were dissociated from peaceful uses, the Agency was obliged to assist one without being able to discourage the other. As a result, assisting peaceful applications would indirectly make the military programme easier to pursue. This position seems to suggest that India, like the Soviet Union, would have preferred to see prohibition developed as the basis of safeguards. To some extent this is

128

true but it was not the essence of the Indian objection to the safeguards system. Its main objection was to the attachment of safeguards conditions to Agency assistance - the "atomic colonialism" argument. As the attachment of safeguards to Agency assistance was based on the Western view of the relationship between civil and military applications of atomic energy, it led India to challenge the efficacy of this view. India argued that it would hardly be realistic to impose safeguards on developing countries. That could always be done in a few years time, if by then an economic revolution had taken place after which developing countries may be in a position to produce atomic weapons.

The Soviet attack on the proposal supported Indian charges of discrimination against those countries which most needed atomic assistance and urged again that in any event the application of safeguards under the Agency's Statute would only be effective if accompanied by a ban on atomic weapons and if control and inspection extended to all countries without exception. The proposed safeguards system was in reality an attempt on the part of the United States and its friends to deceive public opinion

129

with the illusion that nuclear energy was subject to international control while at the same time continuing the atomic arms race. In addition, it would divide member states into two categories: small countries subject to control, and the nuclear powers exercising that control. This would hardly have the effect of decreasing tension in the world. For these reasons the Soviet Union opposed the principles of control and inspection put forward by the Director-General and the establishment as such of any system at that stage in the Agency's activities. Instead the Agency should develop plans to extend even further its technical assistance on the basis of trust and good faith between states.

The Western position was that the statutory provisions provided a set of principles only, that the Board had already spent considerable effort determining the way in which these principles would lead to the application of safeguards in the particular case of supplying uranium to Japan and that this latter activity had been time consuming and could involve the development of inconsistencies in the Agency's application of safeguards controls. It was resolved to continue discussion of the Director-General's draft.

130

An important question discussed at this time was the question of the contribution that the supply of nuclear material by the Agency might make to the general quantity of nuclear material available in a given country. The Secretariat pointed out that the alternatives for the Agency were either to apply a system of stringent safeguards to any quantity of fissionable material it might supply or to apply nominal safeguards in cases where it was known that the total amount of material in a country would not be raised to a quantity sufficient to supply a military programme. The Secretariat said it favoured this second course of action, although it would require the Agency to take account of all materials and facilities in the state concerned, including materials subject to safeguards applied by other organisations or states. It was also recognised that the national production of fissionable materials outside any form of safeguards should also be taken into account but that the Agency was not in a position to compel a state to furnish information on that point. If the Board approved this second course, however, the Agency would request member states to furnish the relevant data in order that a register of fissionable materials and nuclear facilities could be maintained. The Board decided to accept this second course of action with some minor reservations.

Concerning the minimum quantities of nuclear materials to which safeguards would be applied, the Secretariat indicated that the chief difficulty was to decide upon a point at which quantities of "special fissionable material"² become significant. Accordingly, it proposed that the significant level would be reached when a country obtained one ton of source material or 100 grams of special fissionable material from the Agency annually. These figures had been selected partly on political grounds, but also for technical reasons. The smallest quantity of uranium which would operate any reactor existing then was about 2 tons. The figure proposed was half that minimum and it was proposed that the same figure should apply to thorium and depleted uranium. Regarding special fissionable material, the figure of 100 grams had been chosen as representing one third to one half of the minimum quantity required for a critical mass. That is, approximately the minimum quantity of plutonium, uranium 233, or uranium 235 which had to be assembled before a chain reaction could take place.

Following discussion of these proposals the Board agreed that they were too stringent and that in

2 The term used in the Statute to define fissionable materials or in other words those materials with which a critical mass could be fabricated

particular it considered that safeguards should apply to thorium only as a raw material if at all and not on the same footing as uranium, that in regard to the minimum quantities it would be preferable for a cumulative system rather than an annual system to be adopted, and finally, that the specific quantities of one ton and 100 grams were too low. Although there was a fairly general agreement on these proposals, it is understood that India questioned the basis of these recommendations by asserting that a criterion dealing with a given portion of the fuel which could operate a reactor was not relevant. The aim should not be to bring every existing reactor under Agency control, but rather to prevent diversion, and the amount in question was not relevant unless the actual operation of a reactor in itself involved a military hazard.

Concerning the limits within which the rate at which diversion from civil to military purpose could be deemed to have occurred, the Secretariat proposed that in respect of special fissionable materials a loss or diversion rate of 5 kilograms in a given period of time should be taken as significant loss or diversion. In respect of uranium or source materials, the Secretariat proposed that the figure should

be 6 tons. These figures were based on a calculation of the amount of material which could be significant in itself or could be considered as significant source of special fissionable material given the assumption that about 10 kilograms of plutonium are needed to manufacture an atomic bomb and that 6 tons of uranium or thorium could produce about 5 kilograms of plutonium. It was agreed that 5 kilograms of special fissionable material was a reasonable figure to indicate diversion in a given period of time, but regarding the figure for uranium and thorium there was less certainty about the figure of 6 tons. This question was deferred.

At the same time consideration was given to principles relating to the safeguards for stocks of special fissionable materials and to safeguards applicable to assistance other than the provision of source and special fissionable materials. In both of these cases the provisions put forward were the subject of fairly short discussion, but it was agreed they should be fairly extensively revised.

The First System - 1961

In September 1959 the Board adopted a revised set of general principles of the safeguards system and in January 1960 began to consider the proposed technical procedures of the system. On 31st January, 1960 the Board approved the first Agency safeguards system.³

Over three years after the organs of the Agency had commenced meeting a system through which the Agency's obligation to "establish and administer" safeguards⁴ had been established. Paragraph 5 of the safeguards document stated that the system would be revised "after two years, in the light of the actual experience gained by the Agency as well as of the technological development which has taken place".⁵ ~~Review~~^A review was undertaken in 1964 and it was thoroughgoing. As the main body of this second system is the current system, any consideration later of the Agency's safeguards system will be based on it.

The Extension of the First System - 1964

Before that review was undertaken the United States

³ INFCIRC/26 - "The Agency's Safeguards System" 1960
⁴ Article III A.5
⁵ INFCIRC/26 par. 5

(INFCIRC = "Information Circulars"
published by IAEA)

proposed to the Board that the existing safeguards system be extended to cover reactors of over 100 thermal megawatts. The system given in INFCIRC/26 had extended only up to reactors of 100 thermal megawatts. This effectively excluded all reactors with a significant plutonium producing potential.

In explaining this proposal, United States gave a short and lucid account of what had become its view of the Agency's safeguards system. In its view, the guiding principle of the safeguards system should be its ability to provide an adequate, independent and objective assurance that the activities to which safeguards were attached were not carried out in such a way as to further any military purpose. The greatest disservice which the Agency could do its members and the world at large would be the application of a system which seemed to provide that kind of assurance but did not really do so. For its part the United States would take care to refrain from providing any assistance if they thought that likelihood was present. Though the risks might be small, however, to claim that adequate technical safeguards were unnecessary was to lose sight of the main point, which was that the world was entitled to be assured by an independent

and objective body that no diversion of resources intended for peaceful purposes was in fact taking place.

Under these circumstances the United States proposal had two principal features. First, to increase the frequency of inspections for power reactors larger than 100 megawatts, and second, to apply safeguards to subsequent generations of special fissionable material produced in large reactor facilities. The main and stated motivation for this proposal was the rapid increase in the number of large reactor facilities being built or planned at that time.

The proposal received wide support. South Africa and India alone opposed it. The fact that the Soviet Union did not was one of the first signs of a shift in Soviet attitude. South Africa expressed reservations about the attachment of safeguards to produced material, arguing that it seemed no limit was envisaged for these safeguards. The answer given to this objection was to point out that the South African view assumed that produced material could be identified separately from the original material supplied by the Agency. This was

not the case, and for this reason, if inspections of Agency material were to be conducted efficiently, it must inspect the produced material.

India's opposition was trenchant. It contended that the safeguards system was essentially discriminatory and should be revised. Instead it was being extended and this was both impracticable and undesirable because the extension sought particularly to apply safeguards to equipment. This would hinder the role of atomic energy in economic development by making it even more difficult for developing countries to acquire equipment they were not yet producing themselves.

The question of the applicability of safeguards to equipment then became the main issue. It was a reflection of the fact that "equipment" was not defined unambiguously in the basic document. There was no serious dispute, however, that the system could or should be extended to cover reactors above 100 megawatts, provided the question of equipment were left aside until the whole system was reviewed. The system was extended in 1964 with India and South Africa abstaining from the vote.

The Revision of the System - 1965

In February 1964, the Board adopted a resolution⁶ setting out the terms of reference for a Working Group to review the safeguards system in which all members of the Board were free to participate. The Group was instructed to proceed, without any preconceived ideas, to review the system. Substantial work commenced on 20th May, 1964, and the final meetings were held in January 1965. All member states were invited to submit views to the Group.

The United States indicated that the safeguards system must retain criteria which describe the circumstances and the materials or equipment which bring the Agency safeguards system into force, and as a second aspect of it the safeguards document should set forth the actual procedures which will be followed by the Agency in implementing the safeguards once they have been brought into force. In addition, the new document should be prepared in a form which permits its ready incorporation possibly by reference only into bilateral or multilateral agreements. From the United States viewpoint INFCIRC/26 was deficient in that it was constructed

⁶ GOV/Dec/35 (VII)

with primary emphasis on safeguarding Agency projects, whereas most cases involve bilateral safeguards transfer and voluntary submissions to Agency safeguards. The Board seemed to accept this attitude.

The basic questions considered by the Group were; What are the Agency's safeguards meant to accomplish, or in other words, what situations are these controls intended to prevent? Depending on the answer to this first question, how thorough must the safeguards system be to accomplish its objectives?

Concerning the first of these questions, the Statute sets definite limits to any Agency safeguards system, viz;

- (a) Agency safeguards will only extend to assistance provided by it; to assistance requested by the Agency, presumably for itself or for a third party; or to assistance under its supervision or control;
- (b) these safeguards are defined as measures to ensure that the abovementioned assistance "is not used in such a way as to further any military purpose".⁷

7 Article II

1440

Article III of the Statute gives more flesh to the concept of safeguards by saying that the Agency is "authorised" to "establish and administer safeguards designed to"

- (a) ensure that certain materials, services, equipment, facilities and information,
- (b) made available by the Agency, or at its request or under its supervision or control,
- (c) are not used "to further any military purpose".

The Agency is also authorised to apply safeguards;

- (a) at the request of parties to any bilateral or multilateral agreement
- (b) at the request of a state.

As was argued earlier, these provisions are in the nature of principles of conduct which require practical development in order that they may be applied to real situations. However, there are two politically significant implications of these particular principles.

First, it has been true as a matter of history that the chief motive of the establishment of the Agency

148

was to create an international system for the control of atomic energy. The concept of control and the policy of certain states, most notably the United States, of seeking to establish control was the necessary condition for the creation of the Agency. It was to this Agency and to no other organisation or state that the job of undertaking international control was given. Clear as it may be that the control function of the Agency is basic to its existence, it is important to recognise that the success of the negotiations which established the Agency depended almost as much on the promise that it would extend atomic technology to the nations. There are good intrinsic reasons for linking control and development. Indeed, the control proposals themselves were an attempt to answer the problems which would inevitably follow from the development and spread of atomic technology. The control side of the Agency proposal was at root a non-proliferation concept.

Second, because of the intrinsic logic and political necessity of relating the control system to development, Agency safeguards were developed to be applied only in respect of projects where assistance is being given. These safeguards would be applied automatically

to projects in which the Agency itself has an interest but they may also be applied to other projects when the Agency is requested to undertake this task.

It is clear then that the Agency safeguards system was not constructed as an international convention automatically applicable to the nuclear activities of states which accept the Statute. A judgement of the Agency's system on any other terms, for example on the basis of its ability to create in its Statute universal acceptance of nuclear control, is to judge it against an external criterion. ⁸ Important/^{as} it may be to make such judgement, it should be recognised that the Agency's system was created in the limited terms described above. An analysis of these limitations forms a part of this thesis, but the main purpose of this study is to analyse the Agency's system within its own terms of reference.

Assistance has its own characteristics. First it is most often provided by developed atomic countries to countries seeking this development. An obvious

⁸ Kramish tends to make such a judgement. See A. Kramish "The Peaceful Atom in Foreign Policy". Harper & Row. 1963

point of application of a safeguards system is, therefore, to such transfers of materials or general technology. The system should be capable of following this assistance through to whatever stages or development could have military significance. The Statute attempts to create this situation.

On the other hand, this principle of operation constitutes something of a limitation of the system. If all assistance between countries in the atomic field were provided through or under the auspices of the Agency, the application of safeguards would be on a considerably larger scale than has been the case. In fact, the large proportion of international assistance has been bilaterally arranged. In the United States' case its extensive programme of assistance has been governed by bilateral agreements for assistance signed between the United States and the recipient countries. These agreements have included clauses providing for United States safeguards procedures roughly comparable to those executed by the Agency. Furthermore, they have normally included a clause in the nature of an undertaking by both parties to transfer to the International Atomic Energy Agency

144

the safeguards responsibilities outlined in the treaty. This transfer would occur at a time deemed suitable for this purpose by the parties to the treaty.

A chief effect of this situation has been that following the development of the Agency's safeguards system, the Agency has been faced with a large number of proposals for the establishment of trilateral agreements between the Agency, the United States and a country formally a signatory to a United States bilateral assistance treaty. The chief purpose of the trilateral agreements drawn up to give effect to this transfer, has been to establish the Agency as the safeguards authority in respect of all of the activities formally covered by United States/Country treaties. Although the United States has been a prime mover in this development, it has been followed by the United Kingdom and Canada. They too have sought progressively to transfer to the Agency the safeguards responsibilities held by them in respect of countries which they have aided.

Clearly, safeguards are a condition of Agency assistance. Whereas the assistance may be free of finan-

145

cial cost and may be given freely in the sense that it may be adequate and generous, it remains true that the price of accepting Agency assistance is to accept the administrative and inspection procedures implied by Agency safeguards. The seriousness of this matter depends upon the sensitivity of the country involved and, theoretically, upon the honesty of a given country's intentions in seeking assistance. In cases where the assistance is sought for a purpose other than the stated purpose, then clearly the safeguards conditions are at least an embarrassment and possibly even a deterrent to the request for assistance.

A matter of central importance is the question of the significance of Agency assistance in terms of the overall nuclear assistance provided throughout the world. If Agency assistance represented only a small part of nuclear assistance or cooperation agreements, or if Agency assistance was always restricted to assistance with activities that could not conceivably have military significance, then the safeguards system would find itself being applied only to a small proportion of significant activities or only to activities which no matter how costly were of little value in terms of military prospects. As a matter of fact, because Agency assistance has

~~146~~
146

formed only a small part of the world's nuclear activity and because unilateral submissions to safeguards have occurred only in small number, the Agency system has been applied in the past to only a small proportion of the world's nuclear activity.

The basic point to establish, however, is that the first objective of the Agency's system is to ensure that assistance towards the development of nuclear technology will not have a military concomitant. This is the main answer to the question "what are the Agency's safeguards meant to accomplish?" This answer applies firstly to programmes of assistance in which the Agency is directly involved, in one way or another, but equally to projects under its control, for example; bilateral projects, the control provisions of which are transferred to the Agency.

The link between control and development has had three other important effects. First, it led to the Agency maintaining a scientific staff to administer the control function. In the lean years of the Agency where considerable difficulty was experienced in developing a safeguards system, it

was the developmental activity of the Agency which kept the organisation active. Furthermore, as long as development projects were proceeding and the statutory safeguards provisions existed, the Western powers could argue against their opponents that it was the responsibility of the Board to develop a safeguards system to cover these projects.

Second, the link between development and control continually demonstrates the fundamental problem to which the safeguards concept is addressed - the proliferation of military nuclear capability. The system was not designed to "destroy stockpiles" (in spite of United States policy) or to play any direct role in disarmament or arms control. The Agency is concerned with peaceful uses only, indeed, its safeguards system is constructed to ensure that peaceful activity remains peaceful. While promoting peaceful atomic development, the Agency's procedures ensure that attention is repeatedly focused on the other side of the atomic problem.

Third, the link between control and development has created political difficulties. The charge of "atomic colonialism" and more generally the charge that the Agency's system has the effect of either

limiting or imposing a particular direction on atomic development is based on the safeguards/assistance relationship. Article III C of the Statute attempts to counter this fear as do the provisions stating that safeguards will be as non-intrusive as possible. These Statutory provisions have dampened some of these apprehensions, but they have not eliminated them.

It will be evident that the answer given above to the question "what are the Agency's safeguards meant to accomplish?", must be given on the level of practical arrangements. The point of these arrangements is that they are meant to prevent any project serving "any military purpose". A clearer impression of what is taken as contributing to military purpose and what is not, can be gained by reference to the answer given to the second basic question - "How thorough must the safeguards system be?".

Military significant materials are named and identified in terms of quantities of them in document INFCIRC/66.⁹ Considerable attention was given to

⁹ "Exclusion limits" are the stated quantities of materials to which safeguards will apply. Quantities below the stated quantities are deemed insignificant and are not the subject of safeguards.

149

these exclusion limits during the discussion on the Agency's system. The limits agreed are conservative and safe. In other words, the exclusion limit on special fissionable material is stringent and it ensures that in the absence of an open violation of safeguards, diversion would have to take place in respect of individually small quantities of fissionable material over a very long period of time in order to create a quantity of material sufficient for a critical mass. Although the general principles of exclusion limits were settled in the discussions leading to the development of the safeguards document, the matter has ^{not} been settled finally. The debate continues, especially on the safeguards applicable to source materials. It is fairly clear that the countries most interested in this issue are those with an interest in the sale of uranium. The safeguards system is seen by them as a cumbersome impediment to commercial activity and their preferred position would be to see safeguards on source materials removed altogether. On the other hand it remains true as a matter of technical fact that source materials are the source of special fissionable materials and for this reason an effective safeguards system would need to include provision for identifying the nature, ownership and

150

transference of source materials throughout the world. The principle behind this assertion is not exclusive to atomic technology. The same point is true of any production line where it is assumed that the end product is the item it is important to count - in this case fissionable material. The Agency's job is to count the end product in order to know how much of the raw material was used and how much end product may be produced in the future. It is not possible to know this in the absence of clear information on input. The difficulty is to ensure that the input stays under bond.

The exclusion limits provide a technical limitation on freedom of nuclear activity. Taken together they constitute an attempt to define the concept "military purpose" by negating certain activities and by establishing definite accountability for materials. These physical provisions are basic to an effective safeguards system. For example, a procedure to provide notification that special fissionable material has been diverted from its stated purpose must be capable of establishing accurately the nature, form and movement of special fissionable materials. A system which contained tolerances of error close to the exclusion limits

151

would make the concept of exclusion limits and the concept of inspecting or verifying the existence of special fissionable materials highly dubious.

It is clear then that if the Agency's system is to have any chance of allaying apprehension on the part of one state in respect of the nuclear activities of another state, the first consideration must be that each state can be satisfied that the technical feasibility of the safeguards system is good. The attempt to develop this degree of technical feasibility was the answer given to the second basic question. In principle, the safeguards system must be sufficiently thorough to establish diversion of significant quantities of nuclear material and/or to establish that facilities are being diverted from specific purposes, sufficiently early to enable the report of non-compliance to be entered. It then remains for action to be taken on the report and to attempt to ensure that the diversion ceases and does not lead on to the development of a military nuclear capability. Unless countries are able to feel confident that the system is technically capable of providing an accurate report, then the whole question of safeguards becomes academic.

Safeguards Agreements and the Board of Governors

An important and related issue is the role and power of the Board of Governors. The Board of Governors of the Agency is the organ charged with responsibility for conducting the functions of the Agency. One of these is the development and approval of safeguards agreements incorporating the safeguards provisions of a particular project, arrangement or activity. It is of central political importance that these safeguards only become binding upon the entry into force of the safeguards agreement. 10

Accession to the Statute, acceptance of the safeguards document, the signing of a project agreement, does not establish the application of safeguards. Only the signing of a safeguards agreement has this effect. This situation is expressed most clearly in what is the basic clause of the safeguards document from the political standpoint -

"The principle factors to be considered by the Board in determining the relevance of particular provisions of this document to various types of materials and facilities shall be the form, scope and amount of the assistance supplied, the character of each individual project and the degree to which such assistance could further any military purpose. The related safeguards agreement shall take account of all pertinent circumstances at the time of its conclusion". 11

10 INFCIRC/66 para. 16
 11 INFCIRC/66 para. 17

153

The safeguards agreement is the binding form of agreement between the State and the Agency. It is based on the principles enumerated above and the responsibility for developing the agreement lies with the Board of Governors.

The principal factors mentioned in this paragraph 17 are those essential to the determination of the nature of a particular nuclear activity. The remainder of the safeguards document, including its technical provisions, should be read in relation to this paragraph.

On the one hand paragraph 17 imposes on the Board the obligation to ensure that the safeguards agreement is taking effective account of all physical parameters relevant to ensuring that no military purpose is being served. On the other hand, it provides the Board with sufficient flexibility to determine the nature of a given agreement not only in terms of the physical facilities and materials at issue, but also in terms of what are called all pertinent circumstances at the time of its conclusion.

The Board's role in safeguards administration is supreme. The Board includes members each of whom

fall into one of five categories of members. First, five members most advanced in the technology of atomic energy, including the production of source materials. ¹² These five are United States, Soviet Union, United Kingdom, Canada and France. The second group of members are the members of the Agency "most advanced in the technology of atomic energy, including the production of source materials in each of the following areas not represented by the aforesaid five" ¹³

- (a) North America
- (b) Latin America
- (c) Western Europe
- (d) Eastern Europe
- (e) Africa and the Middle East
- (f) South Asia
- (g) South-East Asia and the Pacific
- (h) Far East.

This clause provides five members. ¹⁴ Third, two further members of the Board shall be; "from among the following other producers of source materials": Belgium, Czechoslovakia, Poland and Portugal. ¹⁵

¹² Article VI.A.1

¹³ Article VI.A.1

¹⁴ In the past; Argentina and Brazil rotate (for Latin America), South Africa (Africa and Middle East), India (South Asia), Australia (South East Asia and Pacific), Japan (Far East)

¹⁵ Article VI.A.2

155

Fourth, one other member of the Agency will be designated a supplier of technical assistance, however, no member in this category in any one year is eligible for re-designation in the same category in the following year. Fifth, twelve member states of the Agency elected to membership on the Board of Governors by the general conference with

"due regard to equitable representation on the Board as a whole of the members in the areas listed above... so that the Board shall at all times include in this category three representatives of the area of Latin America, three representatives of the area of Africa and the Middle East, and the representative of each of the remaining areas except North America". 16

It will be clear from the above that the Board of Governors will at any time comprise the five principle powers in atomic energy and under present conditions will always comprise the United States and the Soviet Union. There is an additional conservatism in this arrangement in that it has not yet been possible to alter the original designations of those members considered the most advanced in the geographical areas. Accordingly, the Board has five "permanent" members, and five more members who have been permanent members for some time. Two

178
156

other of the members of the Board at any given time come to the Board after an absence of only two years. The remaining thirteen members of the Board are open to greater variation, but apart from the fact that there is a high degree of continuity in the Board, it is also significant that a body of this size, composed as it is, is most likely to reflect at any given time a fair cross section of the political tensions or disputes existing in the world.

Under these circumstances when the Board discharges its obligation to develop safeguards agreements in the light of all the circumstances, it is in a position where it is aware of the necessity of ensuring that the particular agreement provides adequate assurance for member states of compliance with the obligations of safeguards. It is of fundamental importance that the technical feasibility of the safeguards system be such that it is capable of providing the assurance to states that diversion, if it occurs, will be quickly and accurately notified. In real terms, however, it is the Board of Governors that decides the significance of these physical facts.

157

Given the composition of the Board and given a reasonably conscientious attempt at physical verification of a particular atomic activity (which verification is itself undertaken in the terms of the principles laid down by the Board) the prospect for any state of repudiating the assurance of the Board that Agency safeguards are being complied with in that activity, is small. The important political fact is the Board's decision. If the Board decides that diversion to military purposes has not occurred, it would be difficult to challenge that decision. The chief importance of the physical safeguards system is that it provides the Board with an objective basis for its judgement.

In this sense it is the confidence that is important and it is clear that the Board's system is weighted towards the "production" of this confidence. It should be added, however, that confidences can be shattered and above all shattered by realities. In other words, well and good as it may be to "produce" confidence, if this confidence is based on false information, evidence of the falsity of that information could shatter a system which relies above all on the development of national confidence.

148

The safeguards are not designed to ensure that assistance is used for a particular purpose. On the contrary, it is assumed that the only purpose for which assistance will be given, will be peaceful purposes. The safeguards system simply seeks to verify that the original purpose for which assistance was granted is the ultimate purpose. Even so, the Agency's system may have an inhibiting effect on a state which is interested in seeking an atomic military capacity because the safeguards system may serve to focus public attention on that state's activities. In other words, the ultimate sanction faced by any given state is the knowledge that fairly soon after it has commenced diversion, the fact that it can no longer satisfy Agency safeguards standards will be notified to the world. In many cases this knowledge would be an effective deterrent to a state diverting Agency supplied assistance for the development of an atomic military programme because an important element in at least the early stages of nuclear weapon development is that it remains secret.

Returning now to the consideration of safeguards agreements, paragraph 3 of the safeguards document

159
159

states that the principles set forth in the document and the procedures for which it provides are

"established for the information of member States, to enable them to determine in advance the circumstances and manner in which the Agency would administer safeguards, and for the guidance of the organs of the Agency itself, to enable the Board and the Director-General to determine readily what provisions should be included in agreements relating to safeguards and how to interpret such provisions".

Any given safeguards agreement is signed between the Agency and the country concerned. In the first instance the country is fully aware of the nature of its nuclear facilities and materials. By reference to the Agency's safeguards document the country can form a fairly clear impression of the kind of technical and physical obligations that are likely to be included in an Agency safeguards agreement.

For its part, the Board will seek basic information as to the nature of the country's atomic programme and the assistance provided to it and will consider this information against the principles set forth in the safeguards document. The Board is then able to draw up a safeguards document imposing on the country the technical obligations relevant to its nuclear

programme and sufficient to ensure the observance of compliance with the obligation not to apply any of this atomic activity to a military purpose.

Paragraph 4 of the safeguards document establishes the legal force of the safeguards agreement. It provides that the provisions of the safeguards document that are

"relevant to a particular project arrangement or activity in the field of nuclear energy will themselves only become legally binding upon the entry into force of a safeguards agreement and to the extent that they are incorporated therein".

The principles of safeguards are subordinate in real terms to the terms of the safeguards agreement.

It is relevant to ask to what extent various Agency agreements will be similar to each other. Is it conceivable that a given country, because of its special skill in negotiation with the Agency or for a technical reason, may be able to achieve an agreement between itself and the Agency less rigid than an agreement signed between the Agency and another country which does not have the same characteristics? Indeed the possibility of inconsistency is increased when one considers the fifth paragraph of the Agency's safeguards system which provides that the provisions

161

of the system may also be incorporated into bi-lateral or multilateral arrangements between member states. In an attempt to answer this difficulty, the fifth paragraph then goes on to say "the Agency will not assume such responsibility (responsibility for agreements transferred to Agency control) unless the principles of safeguards and the procedures to be used are essentially consistent with those set forth in this document". But the first of these principles is the primacy of the individual safeguards agreement. It is the responsibility of the Board to ensure consistency between agreements.

The general principles of safeguards which will be incorporated in safeguards agreements are given in the document "The Agency's Safeguards System".¹⁷

First, the Agency is obliged to implement safeguards "in a manner designed to avoid hampering a state's economic or technological development". The self evident purpose of this provision is to ensure that the administration of Agency's safeguards will not be undertaken in such a way that it could be argued

¹⁷ INFCIRC/66 Rev. 2 - paras. 9-14
¹⁸ *ibid* para. 9

162

by a member state that its ability to acquire Agency assistance, or even to gain the maximum benefit from Agency assistance, had been impeded by the fact that the extension of assistance was premised on the application of Agency safeguards to it. While it is not difficult to envisage a state arguing or perhaps even concluding that the application of safeguards in a particular case did have this effect, it is true on the other hand that it is more difficult to envisage a situation where objectively speaking this would be the case.

Second, the Agency is obliged to ensure that "the safeguards procedures set forth in this document shall be implemented in a manner designed to be consistent with prudent management practices required for the economic and safe conduct of nuclear activities".¹⁹ This provision reflects the common judgement that the safeguards procedures should not be any more burdensome than the procedures which are normally undertaken to control nuclear activities in order to ensure that they are being prudently and safely managed. For example, the provisions of the safeguards system requiring audit type checks on quantity and flow of materials can be seen to be of

¹⁹ *ibid*, para. 10

163

the same kind that an efficient manager would employ to ensure that loss or wastage does not occur.

Third, "in no case shall the Agency request a State to stop the construction or operation of any principle nuclear facility to which the Agency's safeguards procedures extend except by explicit decision of the Board".²⁰ This provision is intended to ensure that economic operations of a facility will not be interfered with by the Agency's safeguards system. It is difficult to envisage circumstances where the Agency may issue such a request to a state except for circumstances where non-compliance had been reported, and even then only when the report had not produced an adjustment of behaviour and the Board had been forced to recommend strong action. The main meaning of this principle is that it seeks to ensure potential subjects of safeguards that the Agency will not in any way cause them economic or technological loss.

Fourth, the Agency also accepts an obligation incumbent upon the Director-General to hold periodic consultations regarding the application of the provisions of Agency safeguards.

²⁰ *ibid*, para. 11

164

Fifth, another important obligation imposed on the Agency is that

"the Agency shall take every precaution to protect commercial and industrial secrets. No member of the Agency's staff shall disclose, except to the Director-General and to such other members of the staff as the Director-General may authorise to have such information by reason of their official duties in connection with safeguards, any commercial or industrial secret or any other confidential information coming to his knowledge by reason of the implementation of safeguards by the Agency". 21

The Agency is also obliged not to publish or to communicate to any state, organisation or person any information obtained by it in connection with the implementation of safeguards, with the exception that specific information necessary, but only to the extent necessary for the Agency to fulfil its safeguards responsibilities, may be given to the Board. Summarised list of items safeguarded by the Agency may be published if the Board decides so together with any other additional information the Board may decide is fit for publication.

These latter two Agency obligations raise the important question of the nature of the information collected during the process of safeguarding, and the procedures followed by the Agency to both ensure its

21 *ibid*, para. 13

104
165

security and to ensure that the appropriate organs of the Agency, especially the Board of Governors, are satisfied that safeguards are being applied effectively. It was argued earlier that one of the key characteristics of the Agency system in terms of its political significance is its ability to provide to the Board and subsequently to members, verification that the activities of a given state are pacific and that in any event the Board was not able to conclude that the state involved had failed to comply with its system. It may be validly asked, therefore, whether or not these two principles serve to act against the principle of providing information on which international confidence can be based.

On the one hand, it is certainly true that an ideal situation would be one in which all information, in full detail, is known to all states. On the other hand, it is evident that many states will be reluctant to reveal very considerable amounts of nuclear information because of its economic and commercial significance. If this security was not respected, many states would be less ready to accept the safeguards system of the Agency. It is in recognition of this problem that these two provisions seek to

give states the assurance that their commercial and technical secrets will not be published widely. In other words and in the same way that military purpose itself is only defined negatively, the assurance that a given state is conducting itself pacifically is also only provided negatively. Although, as a matter of theory, the safeguards system would be the more effective if all information collected under it were published to the general membership of the Agency, given the history of the development of the system and the attitudes of major powers towards it, it seems clear that if this had been the nature of the obligation the safeguards system would have gained little or no acceptance.

This policy on security of information demonstrates further the importance of the technical accuracy of the safeguards system. Especially important is the accuracy of the techniques of inspection and the realism of the established exclusion limits. If these latter are sufficiently low and if the methods of detecting any diversion ~~within~~ ^{above} these limits are sufficiently accurate, then in the event that a report of non-compliance with the safeguards agreement is entered this can be taken to indicate that

the obligation to utilise the materials or facilities under safeguards, for peaceful purposes only, has not been observed. Even when a report of non-compliance is entered, information is published only to the extent necessary to justify that report. It then remains for the Board to apply the remedies described in Article XII.A.7 and Article XII.C of the Statute.

The point of the exclusion limits is to ensure that a realistic time for this action is still available for remedies to be taken before diversion becomes dangerous. The first step open to the Agency in the event of non-compliance and subsequent failure by the recipient state to take corrective steps is to suspend or terminate all assistance and withdraw the materials and equipment made available to the project by the Agency.

The first report of non-compliance is made by an ^{and the inspectorate} inspector to the Director-General. The Director-General must then transfer this report to the Board of Governors. It is the Board that calls upon the state in question to remedy the non-compliance, however, the Board must also report the non-compliance to all members of the Agency and to the Security

Council and to the General Assembly of the United Nations. For the Agency's part the only other steps open to it are those of completely terminating assistance and retrieving materials supplied. On the other hand, as the non-compliance has been reported to the Security Council and to the General Assembly, it remains open to those organs to act in the ways normally pursued by them. Finally, a member that fails to comply with the system may be suspended from the exercise of privileges and rights of the Agency.

A first consideration in assessing the efficiency of any given remedy against non-compliance is its timing. In other words, the stage at which the non-compliance was discovered is a crucial factor. If all deliveries of assistance had not been completed, or if the assistance is in some other sense a continuing arrangement, the simple termination of it may be effective. ^{If it} ~~It~~ has been fully given, however, the Agency's capabilities are reduced. Perhaps this is less true in cases where several parties may be involved and the Agency may be able to obtain the cooperation of a number of the parties to an agreement in terminating the project. On the

169

other hand, it may equally be the case that the involvement of a number of parties in the project could complicate the issue and make both detection and termination difficult if all parties are involved in the diversion. This latter situation, although theoretically possible, is difficult to imagine given that most states, even closely allied states, are reluctant to see the development of a nuclear military capability by another state.

At a later stage in this study the questions raised by the obligations to be assumed by the Agency under the nuclear non-proliferation treaty will be discussed. It is relevant at this stage, however, to recognise that the present statutory obligation of the Agency is very much more limited than this new obligation. At the present time it is concerned only with peaceful activities and only with ensuring "so far as it is able" that these activities themselves do not further any military purpose. Its access to these activities is bound by the three situations in which it may conclude a safeguards agreement. These agreements are themselves bound to reflect the principles of the safeguards system, which principles simply define a set of circumstances the absence or violation of which would lead the

Agency to "report non-compliance". On the other hand, the central intention of the non-proliferation treaty is to prohibit manufacture or acquisition by states of nuclear weapons or other explosive devices.

To summarise this chapter. The principles of safeguards developed in the Statute are; the negation of "military purpose", and the automatic application of safeguards to projects in which the Agency plays a part.

As a result, the Statute article dealing with project agreements refers to the article setting out the principles of Agency safeguards. It is tempting to think that the regulatory position could be understood by reference to these provisions. This is not the case. The Statutory principles of safeguards are not sufficient in themselves as an instruction to the Agency on the exercise of this responsibility. This instruction is given in the safeguards document developed by the Board of Governors pursuant to the statutory principles.

The most important fact from the political standpoint can only be discovered on reading INFCIRC/66. The

171

safeguards agreement is the binding document relating to safeguards. In other words, in answer to the question "what is the Agency's safeguards system?" the strict reply must be - the nuclear control provisions agreed between the Agency and signatories of safeguards agreements. Accordingly, negotiation of these agreements is a process of major political importance. This process and the form and effect of the safeguards it produces is discussed in the next chapter. However, one further point about safeguards agreements should be stated.

An obvious question arising from the fact that safeguards "legislation" is found in several different documents is, which of these references to safeguards arrangements is superior. Putting this question another way: what would the position of the Agency be if the safeguards provisions incorporated into a given safeguards agreement were different from those which the statutory principles would seem to recommend? The answer given by the Agency's legal advisers is that the safeguards agreement is the legally binding "contract" and it has primacy and superiority over the other provisions. ²²

²² An opinion given to me orally by a member of the IAEA Secretariat

172

The development of the safeguards system was a major success for American policy. The more it has developed, the more clearly have its limitations emerged. The policy of the Baruch period was characterised by denial and restriction of information and technology in an attempt to achieve controlled nuclear disarmament. The policy of developing the IAEA represented a considerable shift in American policy towards the more positive objective of sharing peaceful nuclear technology under effective controls. The development of the safeguards system in the way that it did take shape illustrates this shift in policy. The subsequent United States policy of transferring to IAEA its safeguards responsibility under its bilateral agreements confirms that this is the United States' view of the Agency.

On the Soviet side the shift in policy which occurred subsequent to the signing of the Moscow Test Ban Treaty in 1963 was probably the most significant political event in the Agency's history. Before this time Soviet opposition to safeguards had appeared unshakeable. When the question of extending the safeguards system to reactors exceeding 100 megawatts was put to the Seventh General Conference, the Soviet Dele-

gate still insisted that the safeguards system had basic weaknesses but then agreed to support the extension. This was the beginning of Soviet cooperation, which has grown to such proportions that the Soviet Union is now the chief opponent of amendments to the safeguards system. A Soviet representative is reported to have argued fervently against change in a recent meeting of an Agency working group saying that "this document (INFCIRC/66) is sacred".

This shift in Soviet policy came after the Soviet Union felt well enough developed for it to be compatible with its interests to agree to a Test-Ban Treaty. The corollary of this development was the realisation that the IAEA safeguards system served Soviet interests.

In broader terms it also illustrates the way in which the disposition of the general political environment affects Agency affairs. In this case the Agency benefited from a change in that environment.

CHAPTER 5

The Political Effects of the Safeguards System

Since the Agency has commenced operations the United States has sought to portray the Agency as a non-political, technical Agency whose work should not be influenced by political considerations or tensions. As soon as it appears that political issues will be raised in an Agency meeting, the United States representatives tend to brand this an irrelevant intrusion.

Although this attitude is superficially inconsistent with the keenness of the United States to promote the Agency's control functions, it demonstrates the marked caution with which Agency affairs are handled. This caution is based on a recognition of the susceptibility of the Agency to changes in the general political environment (a susceptibility which is guaranteed by the composition of the Board of Governors) and a recognition of the importance to the survival and development of the Agency of maintaining its technical and developmental "front". On this

175
175

latter point the willingness of the United States to contribute more than one third of the Agency's budget and its general expansiveness in respect of the Agency's scientific programme, also indicates its recognition of the importance of maintaining this "front". It is not suggested that this is a cynical policy on the part of the United States. Doubtless the Agency's scientific programme has its intrinsic uses. Rather it is suggested that although control has a clear priority over development in United States' policy, it recognises the political importance in terms of safeguards development of continuing to support the Agency's developmental functions.

United States' attitudes towards the Agency reflect the whole range of its policy problems. Its emphasis on development and the technical character of the Agency is designed both to satisfy developing countries and to maintain what was its most successful tactic in ensuring support for its control proposals against Soviet opposition. In this way it deals both with the East-West and "have-have nots" problems. Similarly, the Soviet Union has sought to promote its influence with the "third world" through such attitudes as its stand on technical

assistance, the inviolability of sovereignty. In respect of the issues connected with the central power balance the Soviet Union continues to question the exclusion from the Agency of the communist states outside the Agency and argues against assistance being granted to states to which it is hostile, for example Nationalist China, South Vietnam. The developing countries also bring to Agency affairs their claims against the developed countries. All of these positions are political and they demonstrate that the Agency is influenced by general political tensions.

This then is the background against which the particular political effects of the Agency's safeguards system should be examined.

To facilitate this examination we shall assume for the time being: that it is technically possible to detect non-compliance with the safeguards agreement; that clandestine activities are not likely to occur in a project under safeguards; and that the exclusion limits are sufficiently conservative to provide a fair period of time for remedial action to be taken after a report of non-compliance is entered.

Nuclear Weapon States

For nuclear weapon states the safeguards system has only a limited significance in terms of their domestic industrial and defence industries. It will be easier to exemplify this situation by referring to the position of United States.

As a nuclear weapon power, the United States' atomic industry is divided into two distinct parts - the military and civil sections. A first effect of this situation is that in the event that the IAEA safeguards system was applied to all civil atomic industry in the United States, while it may ensure that no civil materials or facilities are diverted from the civil to the military section of the industry, it does nothing to impair military work. It cannot be supported even in theory that the existence of the safeguards system ensures that the division of the industry and the consequent duplication of effort continues, because in a private enterprise economy reasons of national security normally ensure that important military plants are maintained and controlled separately.

On the other hand, the safeguards system would limit to a small extent the convenient rationalisation of

178
179

the total nuclear effort in the United States. For example, the process of separating heavy isotopes of uranium has military and civil uses. This process could be undertaken in a common plant, after which the quantity of heavy isotopes necessary for military uses would be transferred to the military fabrication plant. Even so the decision to utilise a common plant would still be determined by a variety of economic and technical factors as well as the national security factor. However, the last of these factors, if taken fully seriously, would most likely determine that even the basic processes of a military programme, such as the separation process, would be undertaken separately so that the quantity and degree of enrichment of materials being manufactured for military uses could be kept as secret as possible.

It is evident that for a country like the United States, with large domestic resources of raw materials, sufficient capital and skills, and the political imperative of maintaining a military atomic capacity, the necessity of maintaining separate military and civil industries is not burdensome and is most likely the course of action which would be followed in any case. Accordingly, the United States could accept

179

IAEA safeguards on its civil programme without inconvenience. These arguments are true as a matter of fact because the history of United States atomic activity was one of developing the military capacity first and then permitting the entry of private enterprise into the field of civil development. Furthermore, in 1967 as a gesture in the negotiations on the Nuclear Non-proliferation Treaty the United States offered to place its civil facilities under IAEA control.

On the side of civil development the approach taken by United States authorities has been marked by a high degree of regulation. The atomic energy legislation of the United States has been Federal. It started from a position of tight and exclusive government control and has now proceeded to a point where private ownership of nuclear materials is permitted. Even so, all such materials are subject to the materials control and accounting procedures laid down by the United States Atomic Energy Commission. The basis of this control is the recognition of the value and strategic significance of these materials. Considering the nature of United States policy on international control, it would be a logical extension of its domestic situation, or an extension which at the very least does the United States no harm in

180

foreign eyes, to substitute an international system providing roughly the same controls for its purely domestic system.

Present thinking in the United States is giving considerable weight to the necessity for comprehensive control on nuclear materials from the point of view of preventing the development of a black market in them. This prospect may seem exotic but it is based on the recognition of the monetary value of fissionable materials, which are being produced in very great quantities in the United States, as well as on their strategic importance.¹

From its point of view as a nuclear weapon power the strategic position of the United States is not damaged by a system of safeguards on its peaceful nuclear industry. Indeed the magnitude and complexity of its civil industry demands control, as does the stability of the economics of the industry. It would also seem that general social stability would be served by such a system.

¹ The problem of materials control was illustrated vividly by the "disappearance" of some 100 kilograms of U235 from the plant of a company working on contract to USAEC. This loss was announced in September 1967 but it had apparently occurred over a period of some 5 years. During the same period the USAEC appointed an ad hoc Advisory Panel on Safeguarding Special Nuclear Materials. The Report produced by the committee, "The Lumb Report", (AE.13, 10th March 1967) urged stricter domestic materials controls for the USA.

481
181

These same issues also have a foreign relations significance. Relative to major nuclear weapon powers such as the Soviet Union, the United States position depends mainly on the military side of its industry. If this side of the industry were not sufficiently large in itself, and if the United States did not have sufficient raw materials to maintain it separately, it would need to consider carefully any international control measures. In fact, United States' military atomic industry has been developed self sufficiently and on an extensive scale. Accordingly, its decision on the acceptability of international control will be based on its judgement of its capacity to maintain this situation.

Soviet atomic effort is not divided as clearly into two sections if for no other reason than the fact that all such Soviet industry is controlled and coordinated by the central authority. Under these circumstances Soviet reluctance to accept international controls is intelligible and as far as domestic controls are concerned, state ownership means that it is not necessary for the Soviet Union to elaborate the kind of system of materials control that is necessary in the United States.

164
182

For both of these powers, but for their separate reasons, international controls of the Agency's kind have little relevance to their strategic position in relation to each other.

The main characteristic of the relationship between powers like the United States and the Soviet Union and non-nuclear weapon powers (especially those which are not near acquiring a weapons capability) is that of providing technological assistance and supplying materials. In this area safeguards have a distinct utility for the suppliers.

The United States has granted extensive assistance to a large number of countries since the atomic era began. This assistance has been regulated by various programmes for assistance but more particularly by bilateral agreements signed for this purpose. A common feature of these agreements has been safeguards arrangements administered by the donor country. They have had the same basic purpose as the Agency's system, and indeed the United States system of safeguards is very like the Agency's system. Whatever other purpose it may have had, and a commercial purpose has been one of them, this United States safeguards system has had the definite purpose of re-

straining the growth of other weapon powers and thereby ensuring that the United States retained its relative strategic superiority.

Another characteristic of United States bilateral agreements has been a clause undertaking to transfer the safeguards arrangements under the treaty to IAEA control at a mutually agreed time. In 1964 the United States commenced a process of making this transfer. Since that time some forty such bilateral agreements have been converted to trilateral safeguards agreements between the original recipient country, the United States and the IAEA. It is difficult to predict what the United States reaction may have been towards a country which was reluctant to effect this transfer. Apparently no bilateral partner of the United States has refused this proposal. The common period of duration of a United States bilateral agreement is ~~two~~ ^{five} to ~~two~~ ^{ten} years, ^{1a} and while it is difficult to imagine the United States terminating an agreement in midstream, it is known that Congress would be reluctant to renew the agreement with a country which refused the trilateral proposal.

The suggestion that the United States has brought some pressure to bear in order to achieve the trilateral

1a. The U.S./Australia Agreement was for ten years.

104
184

transfers, may not be without substance. However, it is true that the only significant difference between the United States system of safeguards and the Agency's is not ~~the~~ ^{the} seriousness or severity of the Agency's (they are comparable in this respect) but the fact that in the case of the Agency's system the inspectors may be drawn from any member state. Under United States safeguards the inspectors are Americans.

On the question of IAEA inspection, the Director-General designates inspectors in writing to the state concerned, after which a state has 30 days in which to accept or object to an inspector. Following an objection, the Director-General is bound to propose alternatives. If these are unacceptable,

"the Director-General may refer to the Board, for its action, the repeated refusal of a state to accept the designation of an Agency inspector, if in his opinion, this refusal would impede the inspections provided for in the relevant project or safeguards agreement". 2

Under such circumstances the Board would most likely report "non-compliance" in the specific form that the Agency has been unable to apply the safeguards provided for in the agreement. The provisions of the document on the Agency's inspectorate are, however,

2 GC/V/INF/39 Annex page 1, para. 2

107
185

"not mandatory, and they and the other provisions that may be agreed in negotiation will only be given legal effect by the entry into force of the particular agreement which incorporates them". 3

In general terms, even in respect of the potentially most onerous effect of a transfer to a trilateral system, the country involved is free to make its position on inspection clear during the period of negotiation of the transfer.

The United States has made this policy of transferring its agreements to the IAEA a basic part of its policy towards the Agency. No other country has done this. The Soviet Union has made its own conditions for the provision of assistance although it has, from time to time, used the Agency as the intermediary body in the provision of Soviet aid. In respect of its Eastern European allies it maintains strict materials controls. For example, fuel elements for reactors in Eastern Europe are provided by the Soviet Union but are returned to the supplier for reprocessing.

The main political significance of the United States policy of transferring its bilateral agreements to

the Agency is that it demonstrates in practical terms that the development of the IAEA safeguards system has been a central part of the United States policy of seeking to ensure that the increasing development of atomic science and industry would not alter its position of atomic superiority in relation to the rest of the world. This policy required the creation of the system as such and the transfer policy has been the method used to bring countries under the system.

To say only this, however, is to single out one country because of the very influential role it played in developing the system. It should also be recognised that the United States actions were supported by others and, since 1963, by the Soviet Union. Furthermore, it is a view which invites value judgement and one of the more responsible judgements is that given the seriousness of the problem of the spread of atomic materials and technology, this United States policy has constituted a responsible and stabilising exercise of great power.

Near-Nuclear Weapon States

At least seven countries are considered to be able to produce an atomic bomb in less than two years - India, Japan, Canada, Switzerland, F.R. Germany, Sweden and Israel.⁴ Canada and Japan serve as a good example of the second group of countries. Both have highly developed industrial and scientific sectors. Their atomic research and industry are also highly developed.

For countries like Canada and Japan there is little question of dependence on outside assistance as the source of technology ~~is available~~ which could contribute to a military atomic programme. In these countries the technology and the necessary materials exist indigenously, so the first problems of acquiring a nuclear military capability are answered. It follows then that the main means through which Agency safeguards are applied to a given country, namely, through their attachment to programmes of assistance, are less effective in these cases. This is slightly less true of Japan than it is of Canada, for in Japan's case the nuclear industry,

⁴ "Stopping the Spread of Nuclear Weapons" - Report of a National Policy Panel; United Nations Association of USA - November 1967

188

although extensive, is not as independent in terms of raw materials as Canada's.

Given that the technology and skills necessary to the construction of a nuclear weapon programme exists in these countries, what then can it be said a safeguards system achieves assuming that it is applied to their civil atomic industry either through a treaty or through unilateral request? The most that can be said of the system is that it can have the effect of making more cumbersome or less convenient the diversion of civil materials and facilities to military purposes. In other words, the same concept of duplication of effort referred to in the case of weapon powers applies in this case.

Assuming that Canada decided to commence a nuclear weapon programme while remaining under safeguards, a first step would be to mine or process the nuclear raw materials quite separately from those materials intended for civil purposes. The subsequent conversion of the raw materials into fissionable material would necessarily have to be undertaken in a plant separately and specially constructed for this purpose. Another and perhaps the most efficient and economic way of proceeding would be to construct a reactor which would irradiate the raw materials, in the form

of fuel elements. The irradiated fuel elements would then have to be transferred to a plant for the separation of plutonium. This separation plant would also have to be constructed separately. The fissionable material thus acquired could then be fabricated into a nuclear explosive device.

Cost estimates of such an undertaking vary but the important fact is that for a country with a technology as developed as Canada's, the cost involved is not prohibitive given the cost of modern conventional weapons systems. More inconvenient than the financial cost of these activities would be the necessity for constructing them separately from the systems under Agency safeguards control. As a result, the most significant factor would be the time it would take to construct and operate these facilities. Estimates of the time involved vary from two to three years up to a period as long as seven or eight years, but in any event the situation of a country like Canada is that compared with most countries, the time would be shorter rather than longer.

Accordingly, given that the total civil programme of a country like Canada was operating under Agency safeguards, this would impose upon Canada the time consuming and inconvenient obligation of constructing

a complex of separate facilities as the basis of a weapon programme. This would by no means be beyond its capability. The safeguards system would not prevent this development given the political decision to pursue it, and it is extremely unlikely that the safeguards system would notify that Canada was pursuing weapon development.

There is, however, a shorter way to military nuclear development. This is the utilisation in whole or in part of existing civil facilities. It is precisely this utilisation that the Agency's safeguards system attempts to deter through the threat of notification. The steps open to the Agency in the event of non-compliance, especially the non-compliance report, demonstrate that the safeguards system may impose a degree of preventative control. This has only a slight physical basis, but in the case of a country like Canada it would not be attractive to be placed in a position where non-compliance had been notified. Indeed, this publicity may destroy much of the advantage it hoped to gain from nuclear weapons.

On the other hand, urgent political or military circumstances may appear to present an even greater disadvantage than that of general public odium. This possibility weakens the remedies open to the Agency.

The crucial question in any case is the length of time between the first diversion and the first detonation. In other words, given the diversion of some 6 kilograms of special fissionable material, which diversion had itself been notified, how much time would elapse before a first detonation could occur? There is no categorical answer to this question but it is fairly clear the answer lies somewhere between a minimum of nine months and a maximum of eighteen months.

Assuming that this period of time was twelve months, it is not difficult to imagine the deliberations of the Board of Governors of the Agency and discussions in the Security Council and General Assembly of the United Nations occupying at least this time before reaching any conclusion. Furthermore, it is difficult to conceive of a conclusion being reached, especially in the Security Council, of a kind other than a recommendation that the diverting country discontinue its weapons development programme. Joint or collective action by the United Nations would be the subject of the normal processes of decision. It is unlikely then under present circumstances that a joint decision would be taken effectively. Even though it would be argued that a nuclear threat is of a special order and requires a special kind of

of action, it is difficult to conceive of a situation where a group of powers acting in response to a decision by the United Nations might be prepared to take physical action against a country reported to have failed to comply with IAEA safeguards. Even though the action need not necessarily be military, it could range from sanctions of various kinds, it would involve a degree of interference in domestic affairs that many countries would find unattractive. Sanctions against the Smith regime in Rhodesia may appear comparable in principle, however it is doubtful that, for example, Canada "going nuclear" would touch Afro-Asian passions to the same degree. Furthermore, in the former case sanctions against Rhodesia are exercised from outside the country. Effective prevention of a nuclear development could depend on the confiscation of materials. It would be difficult to get agreement on that course of action.

The key conclusion to be drawn from this analysis is that the Agency's safeguards system is weakened to the extent that it is associated or brought closer to dealing with actual nuclear weapons. In this sense the effectiveness of the safeguards system bears an indirect relationship to the degree of nuclear sophistication of the country involved. The more highly sophisticated a given country is, the less

193

193

effective is the safeguards system because the country in question has in the nature of things moved that much closer towards the capacity for developing a military programme. In cases where the degree of sophistication is low the early introduction of the safeguards system can serve as a rather more forceful inhibitor of the development of a military nuclear capability.

It can be seen once again that the safeguards system addresses itself essentially to the problems raised by the inevitable exportation from developed to developing countries of nuclear plant and technology. This trend is illustrated by the fact that in 1966 the number of peaceful nuclear power reactors operating in countries outside the United States was approximately 50 whereas in 1970 some 80 reactors are expected to be in operation and in 1972 the figure is 110. A concomitant of the growth in the construction of power reactors is the increase in the amount of plutonium which will be produced in the world. In this context it is estimated that somewhere between 20,000 and 30,000 kilograms of plutonium will be produced in power reactors in 1980. If 3% of this plutonium was diverted to military purposes this would mean that the special fissionable material so diverted would be sufficient

194

for the construction of some 90 nuclear bombs in that year.⁵ This rate of growth is exponential and no peak is in sight.

The first question of political significance raised by this growth in nuclear reactor construction is the question whether it will mean as a matter of course that this plutonium will be utilised for military nuclear purposes? The answer of the United States and of a majority of members of the International Atomic Energy Agency has been quite clearly that it should not. The role of safeguards in the commercial activities of this group of countries will be discussed below.

Developing Countries

Whereas the task of safeguarding is almost completely academic in the case of nuclear weapon powers and only slightly less academic in the case of near-nuclear weapon powers, this is not true in respect of powers which do not possess a sophisticated technological base but may under the conditions presently prevailing acquire a nuclear power reactor. It is in these cases that the IAEA safeguards system is most

5 *ibid*

effective. For example, assume that a country such as Ghana wished to construct a nuclear power reactor, the normal course of events would be for the civil authorities in Ghana to request assistance for the construction or possibly even grant of the reactor. It would not be capable of designing and constructing it itself. If this request is met, it would normally be arranged in the form of a technical assistance agreement, which as well as setting out the technical and economic basis of the agreement, would include safeguards provisions. Even so, the essential fact about such countries is that the most effective sanction for the observance of a safeguards undertaking would be the lack of indigenous technical sophistication.

For example, all power reactors require an initial loading of fuel and subsequent refuelling. A country which requests a power reactor in the first place is most unlikely to be able to undertake the highly sophisticated process of fuel fabrication and re-processing. Given these circumstances and assuming a safeguards agreement, the initial load of fuel will be delivered under full safeguards and remain under these safeguards for the duration of the reactor's life. The normal safeguards provision would ensure

145

196

that when fuel is changed the spent fuel elements would be collected together and returned to the country of origin for reprocessing. In their place new fuel elements will be returned to the reactor to keep it in running order. Provided these arrangements are kept under relatively strict safeguards, the prospects of ^{detecting} diversion are not only ensured by that fact but are guaranteed further by the technical inability of the recipient country to undertake the reprocessing and handling of the diverted material.

It is conceivable that a side effect of Ghana acquiring a power reactor would be that Ghanaian scientists and technicians would gain experience with its operation and with the fuel cycle. As a matter of logic it can be presumed that over a period of time Ghana may then be able to commence the construction of indigenous facilities for handling the fuel cycle arrangements for itself as a result of what Ghanaian scientists have learned from the first project. Logical as this may be, this process would be extremely slow and costly. The time scales involved are so great that it may be concluded that the safeguards system is effective within reasonable time considerations.

Returning briefly to countries with a highly developed nuclear industry, one other aspect of the safeguards system deserves consideration. This is the corollary of the situation described immediately above. Countries with a sophisticated nuclear technology and with a source of raw materials, the commercial sale of which is an interesting prospect to them, are protected by the existence of a safeguards system. This system enables them to continue to transfer nuclear technology to countries where it is commercially and politically desirable for them to do so without fearing that this action will inevitably erode their strategic position vis à vis these countries. This proposition is especially true in the highly competitive field of raw materials. The safeguards system is only a source of annoyance in the raw materials market to the extent that some suppliers, for policy reasons, will only sell under safeguards when other suppliers do not impose this restriction on themselves. This is a weakness/ ^{arising from the lack of a} ~~is~~ universal safeguards system and ^{from} ~~in~~ the commercial environment. It is clear that if raw material is being offered by one country under safeguards and by another country without safeguards, a prospective buyer is free to choose between the two. If this choice ^{is available} ~~is made~~ ~~to whether or not~~ the unsafeguarded material will be

148

end to be
chosen as against the safeguarded material. But the choice is seldom determined solely by commercial considerations because of the political importance of safeguards. This is reflected in the fact that suppliers willing to sell raw materials without safeguards have been able to obtain slightly higher prices for their material.

It is evident then that in the case of a developing country the effectiveness of the safeguards is higher than in other cases. This fact demonstrates further that the safeguards system is essentially a system of "non-proliferation" or controlled development. It assumes and is based on the real fact that nuclear technology has become a feature of general economic and scientific development. The beneficial aspects of this technology ensure that it will spread and indeed it is in the commercial and political interests of developed countries to ensure that it does spread. Since the discovery of the atom and its potential uses it has been the consistent view of developing countries that this technology should be extended to them as widely and as quickly as possible. In this sense the social, economic and political interests of developed and developing countries are the same. The simple but major difficulty these circumstances present to developed countries is the prospect that

the extension of this technology may bring with it a corresponding extension in military nuclear capability throughout the world. On the level of the relationships between developed and developing countries, the safeguards system is the attempt of developed countries to ensure that this special part of the development process will not alter their strategic position vis á vis the emerging countries.

Developed Non-Nuclear Weapon Countries

Between near nuclear powers and unambiguously less developed countries are countries which possess a sophisticated nuclear technology, but cannot be said to be within proximity to the development of a nuclear weapons capability. The main characteristic of such countries (of which there are a number) is that at the present they are not able to construct the full range of nuclear plant without external assistance. Another typical characteristic is that even if such a country had an indigenous supply of nuclear raw materials, the highly sophisticated processes of converting these materials into enriched or special fissionable materials are presently beyond them.

The nature of such countries' dependence is the main determinant of their proximity to a situation where

"diversion" may be attractive. This factor will determine the likely effectiveness of safeguards. To illustrate this point, I will assume that one of the meanings of the term "relatively sophisticated nuclear technology" is that the availability of source materials is good. The two key facilities in developing a supply of weapons grade material are an isotope separation plant and or a reactor of at least moderate power. The construction of a reactor with purely indigenous skills and materials may not be beyond the capability of such a power, but it is a job which would normally require at the very least two and more likely four years for completion. Accordingly, if the necessary skills exist indigenously, time is the main factor. External assistance would shorten this time but it would also attract safeguards controls. In this instance then the effect of safeguards is to impose on a country the necessity of carrying out this construction work exclusively with its own resources. This may impose a longer time scale on the operation.

An isotope separation plant is a more important facility and its cost and complexity has hitherto placed it beyond the reach of all but the most sophisticated powers. It is difficult to envisage assistance

towards the development of such plant being given outside safeguards of some kind, if it is given at all. The purely indigenous development of a separation plant would be difficult, costly and potentially very slow.

Let us assume that a country with this degree of development, for example South Africa, operating under IAEA safeguards, took the decision to produce a nuclear weapon. The first step this would normally require would be to construct a power producing reactor. This reactor would be the source of plutonium production. The raw materials to fuel this reactor could be indigenous and it is not impossible that the fabrication of the raw materials into fuel elements could be undertaken domestically, however, the problems associated with manufacturing fuel elements increase directly to the extent that some degree of enrichment of natural uranium is required. Enrichment is a difficult process and the development of an indigenous enrichment capability is difficult and costly. After fuel has been irradiated the plutonium so produced must be extracted. A chemical re-processing plant for this purpose is another important facility in a weapons programme. External aid with these facilities would normally involve the application of safeguards.

202

Although the safeguards system tends to inhibit nuclear weapon development by forcing the countries in question to rely on domestic effort, the system has a definite limitation. It does not and cannot have any control over acquired skills or accumulated knowledge. For example, a given scientist may have spent a considerable period of time conducting nuclear research in connection with a project which itself is under safeguards. During the course of this research he may acquire knowledge relevant to the construction of a nuclear weapon. The Agency safeguards system in no way prevents this scientist transferring from the project under safeguards to an unsafeguarded nuclear weapon programme. This is not an inconsiderable factor in the case of the kind of countries presently under consideration.

A second way for such countries to attempt to acquire a nuclear weapon would be for it to seek assistance in materials and facilities, and possibly in personnel from external sources but without the application of safeguards. The supplier countries willing to give assistance under these conditions are few in number. The United Kingdom, the United States and the Soviet Union have made their positions clear on

nuclear non-proliferation. They would not supply assistance without safeguards. France and China have made no such undertaking, although in France's case it has stated it supports non-proliferation and will not contribute to the further spread of nuclear weapons.

Although France "supports" non-proliferation, its attitude to the treaty and to the safeguards arrangements of both IAEA and Euratom would support a country at least wondering whether France might be willing to extend assistance towards a weapons programme. To take France ~~as~~ an example of the situation which could prevail, the main "safeguard" is that no matter what France's rationale for its own nuclear policy may be, it is clearly against its interests to see nuclear weapons spread to other countries. The French attitude to the nuclear non-proliferation treaty illustrates this point. The basic proposition put by France is that non-proliferation is a good thing for all other countries. Concerning the IAEA safeguards system its position is that the system is of no use to France because France is a weapons power, France is already a party to the Euratom safeguards arrangements, and as a final comment, France very much doubts that the IAEA safeguards system is technically effective. This latter comment could be

taken as a suggestion that France may be prepared to extend nuclear assistance to other countries, if they reject safeguards arrangements. This has not been true and it is to confuse what is essentially a debating position helpful to French policy with the real implication of the policy, namely, that France has been prepared to pursue the creation of a nuclear weapon and so France is and must be concerned to ensure that other states do not acquire the same military capacity. There can be no doubt that France is clearly aware that atomic weapons are useful not only absolutely but relatively, and the acquisition of atomic weapons by any other state decreases their relative use to France. Indeed it can be said of the Force de Frappe that its uses are almost exclusively relative. Its utility in response to the weapons systems of the major nuclear powers is small.

For this group of countries, one other way of proceeding towards a military capacity remains open to it. This is the decision to use existing facilities in spite of the fact that they are under IAEA controls. In other words, to decide consciously to divert, in the sense that this term is used in the Agency's documentation, from peaceful purposes

to military purposes. Diversion has the attraction of saving time; however, whether enough time will be saved is an open question. For the countries in this group the period of time from diversion to the time at which a weapon could be detonated would be considerably larger than would be the case with a country such as Canada. Where it was assumed in Canada's case that the period of time may be of the order of some twelve months, a fair estimate in the case of the countries presently under discussion, given their less sophisticated technical base, is that the time would be somewhere between two ~~and~~ three years. This considerably larger period of time would enable other countries interested in military development of the diverting country to have an extended period of notice within which they could adjust their own relative strategic position. Furthermore, the opportunities for the Agency and for the United Nations to take action against the diverting country would be greater because of this longer period of time, and because it reflects a high degree of nuclear dependence. The opportunities for cutting off assistance would be greater.

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205

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The case of developing countries indicated the effectiveness of the IAEA system in utilising the

development process as a support for atomic control. The group of countries now under discussion illustrate related effects of the system. Given a minimal degree of technological sophistication and the political will to create a nuclear weapon, it is clear that in one way or another, and over widely varying periods of time, this will can be materialised. The French experience demonstrates the events which follow the political decision to create a nuclear weapon. Even with a country as technologically sophisticated as France, the decision having been taken, the key requirements were the will to spend vast sums of money and the patience to commit these funds and effort over a considerable period of time. The presence of the IAEA system in France over this period of time, assuming it was not violated, could have lengthened the period of time, increased the amount of money needed to complete the programme. In the case of a country like South Africa, because the degree of technological sophistication is ^{probably} less than that which existed in France at the beginning of the French experience, the time taken for a completely independent development would be even longer. The Agency's system in such a country would ensure notification of these events if it had been decided to utilise some of the existing facilities. This would not be the case if the

decision to create a nuclear weapon had entailed building completely separate facilities; however, the main costs under those circumstances would be financial and in terms of time.

The IAEA safeguards system cannot prevent a nuclear weapons programme in countries with a given minimum of technical development. It simply ensures that the pursuit of a nuclear weapon programme will be much more difficult, cumbersome and costly than would be the case if the system did not exist. The chief impact of the system is on the level of the granting of assistance. For suppliers it is in their interest to supply only under safeguards, but it cannot be assumed that countries such as those discussed above could not still develop a nuclear weapon. Finally, the safeguards system may be able to inform countries that a given recipient of assistance is apparently proceeding to develop a nuclear weapon.

Looking at the situation of any non-nuclear weapon country from the point of view of its relationship with other states, it is pertinent to ask, is it in that country's interest that the safeguards system be adopted universally accepting the fact that the present number of nuclear weapon states is small?

This question would be judged by any non-nuclear weapon state in terms of its immediate strategic and political interests. Clearly the simple answer for any country is that nuclear control is good for everyone else. But this is never the question requiring decision. It is the opposite one - is nuclear control in our own interest?

This would normally involve a judgement of regional interests. For example, Japan must clearly consider the implications for its future of Chinese nuclear development. Although strategic nuclear weapons have a global effectiveness, it is hardly open to countries to attempt to match the super-powers in this. Regional situations raise more important questions.

Of all the alternatives open as a means of defending against a Chinese nuclear threat, the best possible alternative for the present time would seem to be to engage the commitment or assistance of another state capable of deterring China adequately.

Fundamental to the judgement of whether or not to accept IAEA safeguards is a country's assessment of whether or not it will need nuclear weapons. This is not to suggest that the IAEA system is so tight

that it forces this choice. It does not, but it raises the question, so it should be given some consideration.

The advantages of nuclear weapons are fairly clear. The main one is that a power possessing these weapons can improve considerably its ability to gain a political objective in very short time. It also improves its ability to defend against attack to an extent that is disproportionate to classical indicators of strength such as size of population and territory. The disadvantages are more often the subject of dispute. I will discuss two situations which are relevant in this context.

In a case where a non-nuclear weapon country has to judge its position against the emergence of a nuclear weapons power within its area of interest, the key question is the question of technological advantage. Given the emergence of the nuclear weapons power, it only makes sense to attempt to develop a nuclear capacity in response if that capacity can match the first one in terms of range and quality of both weapons and delivery systems. Countries possessing nuclear weapons are obliged to deter each other. It would be foolish to wittingly create an inefficient deterrent. The problem of defending against the

210

other nuclear capability would remain, but unless it can be at least matched the most sensible course of action is to engage another nuclear power on your behalf through an alliance or other form of commitment. Commitments can be broken, but in the case of nuclear commitments they possess a certain stability because nuclear weapon states must mutually deter each other.

The acceptance of safeguards by the non-nuclear weapon state in this situation seems almost a matter of taste. The objective reasons for doing so would have been damaged by the emergence of a weapons power in its region. However, it may still be advisable for two reasons. Acceptance of safeguards may assist in gaining the protection of a friendly nuclear weapon power. Indeed it may be a required condition. This would not be a high price to pay. Secondly, the corollary of the theory of nuclear retaliation is that states which remain unambiguously non-nuclear weapon states do not attract retaliation or pre-emptive attack. Acceptance of IAEA safeguards may help a country demonstrate its non-nuclear weapon status.

In a situation where a country's region of interest is free of nuclear weapon states, the universal appli-

211

cation of safeguards to countries of the region would seem politically sensible. This is not to exaggerate the efficacy of safeguards. It is to argue that even the limited assurance the safeguards system provides would assist the development of mutual confidence and stability within a given political area. It should be recognised, however, that the notification of a diversion or some other failure of safeguards within the region could have a serious effect on it. The shattering of an established confidence may produce a more extreme reaction than would be the case where worst suspicions about an "enemy" are simply confirmed.

Regional situations constitute not only the greatest threat to stability and security in the world, but the greatest threat to measures such as the IAEA safeguards system and their effects in terms of a general dampening down of regional arms races. A situation like that in the Middle East is one marked by such degrees of tension that if one of the powers appeared to be moving towards the acquisition of a nuclear potential, it is a matter of little doubt that the opposition power would feel constrained to take the same step. It cannot be argued coherently that a system of regional balance would produce the

kind of stability that the major strategic balance between Moscow and Washington has produced. The key difference is that where it seems characteristic of regional situations that the degree of tension between states opposing each other is rather high, in the central power balance the development of tension has fluctuated and in any case has been in carefully measured terms. Each thrust from one side is met by a measured and sufficient response by the other side. The relative remoteness of the super-powers from each other in comparison to the obvious proximity of Egypt and Israel together with the magnitude of the consequences of any mistake, ensures this caution.

The technical order in regional situations is also lower. For example, the delivery systems necessary for an effective nuclear capability in regional situations is much less complicated. The quality and range of nuclear weapons necessary is similarly less complicated and for this reason can be produced more quickly and more readily. The key difficulty is that the production of these weapons may take place at a different speed. The situation which prevailed between Washington and Moscow was a measured development where steps on either side were slowly and care-

fully matched by steps on the other side. The same luxury of time is not afforded to countries sharing a geographical region and strong mutual apprehension. The distances are smaller, the targets are more highly concentrated, and above all the prospect that one power may achieve an effective nuclear weapon and delivery capability just a short time before a related power does so is greater and more dangerous.

Universal application of a safeguards system would help in such situations, but only if the countries involved were prepared to accept its technical indicators as accurate. Otherwise the application of the system may have the effect of providing one further source of mutual suspicion.

The last part of this analysis has tended to discuss nuclear weapons, yet the IAEA safeguards system is concerned only distantly with nuclear weapons. A commitment to the Agency's safeguards system does not entail a commitment against the manufacture of nuclear weapons. The only assurance of a related kind provided by the IAEA system is that the manufacture of nuclear weapons might be more difficult where the system is applied to a

country interested in the development of a weapons capability. Indeed one of the most commonly heard criticisms of the Agency's system is that it does not address itself to the problem of weapons but only to the related problems. True as this may be, it was never the intention that the Agency system should address itself to this particular problem of nuclear weapons or disarmament. Its relationship to the problem of disarmament is its function to restrict the environment of the disarmament problem within particular proportions. If there was no system of control of the military development of atomic energy, the environment of the disarmament problem would be an ever expanding one. Although it is appropriate to answer this common criticism, its internal consistency should be recognised. Indeed, it has been recognised in the development of a nuclear non-proliferation treaty. Although this instrument has been developed outside the Agency's safeguards system it bears a distinct relationship to it through the treaty's reference to the International Atomic Energy Agency and its safeguards system as the means through which the obligations of the treaty will be verified. A consideration of the relationship between the treaty and the IAEA system is the subject of the next chapter.

CHAPTER 6

IAEA Safeguards and the Nuclear Non-Proliferation Treaty

The earliest serious statement of international concern for the problem of the proliferation of nuclear weapons was in 1959 when an Irish draft resolution was adopted by the General Assembly.¹ The operative part of this resolution suggested that the ten nation disarmament committee should consider

"the feasibility of an international agreement subject to inspection and control whereby the powers producing nuclear weapons would refrain from handing over the control of such weapons to any nation not possessing them and whereby the powers not possessing such weapons would refrain from manufacturing them."

This resolution stated the basic issue of proliferation.

In subsequent years the debate continued in the assembly and a series of resolutions of increasing strength were adopted. Action on these resolutions was slow but at the 20th Session of the General Assembly a resolution commanding 93 votes to none with 5 abstentions was accepted. It called upon the conference of the Eighteen Nation Disarmament Committee (ENDC) to give urgent consideration to the question of non-proliferation of nuclear weapons and to that end to reconvene

¹Res. 1380/XIV

as early as possible with a view to negotiating an international treaty on non-proliferation². The subsequent discussions in ENDC and in the First Committee of the General Assembly strengthened the movement towards the creation of a treaty the culmination of which was the joint United States/Soviet draft presented to the ENDC in October 1967. The committee continued its consideration of this draft until April 1968 after which it sent the draft to the General Assembly, which meeting in a resumed session, approved it as a text open for general signature.³

The context and principles of the Treaty

The preambular paragraphs of the treaty develop three basic principles. First, that States should refrain from the threat or use of force against the territorial integrity or political independence of other States.

Second, the parties to the treaty undertake to continue to develop measures against the nuclear arms race, to seek to achieve the discontinuance of test explosions, and ultimately to eliminate nuclear stockpiles altogether.⁴

These two sets of preambular principles indicate that the treaty is seen as a partial step towards the achievement of general international disarmament. However the nature of this step is that it is an attempt to control the environment within which

²Res. 2028/XX

³Document A/7016/Add.1 (10th June 1968)

⁴Preambular paragraphs 9, 11, 12; IBID

proposals for general and complete disarmament must operate. It contains no undertakings to disarm.

The third of the main preambular principles is written in response to the anxiety expressed by members of the ENDC that the treaty would in various ways inhibit the development of peaceful nuclear technology. Thus preambular paragraphs 5 to 8 inclusive provide that the control mechanisms established under the Treaty (the IAEA system is named), will not inhibit atomic development including the peaceful use of nuclear explosives or information exchanges. Indeed, participation in the "fullest possible exchange" is stated as an entitlement of all parties to the Treaty.

The preambular reference to IAEA safeguards is ambiguous. Signatories are to undertake "to co-operate in facilitating the application of" IAEA safeguards. The obligation to accept IAEA safeguards is not stated in the preamble. The obligation at the preambular stage is simply designed to commit States to a positive attitude towards the IAEA system. This commitment is a basic feature of the Treaty. As was argued earlier, even accession to the IAEA Statute did not necessitate in any operative sense such a commitment. A reading of these preambular paragraphs of the Treaty in the context of its substantive articles indicates that the Treaty establishes this commitment as a basic obligation of signatories.

A second preambular reference to IAEA safeguards extends this basic commitment to the future development of the system. Furthermore, a particular principle of safeguards operations is mentioned, namely the principle of safeguarding at "strategic points". Reference to this principle was included in response to the position of the Federal Republic of Germany. The safeguards system of the Atomic Energy Agency does not mention the principle of "strategic points"; however, this preambular paragraph implies that this principle is not only one which could be equated in terms of its importance with general research and development effort but is also compatible with the safeguards system of the IAEA and should be included within its framework.

The concept of "strategic points" is a recent development. It reflects the Federal Republic's particular concern that international inspection may damage its commercial position. This concern has led the Federal Republic to expend considerable effort and money⁵ on the development of a system of safeguards which will be applied only at certain strategic points within a nuclear operation. The chief basis of the Federal Republic's concern is the importance it attaches to its developmental work on fast reactor systems. The main source of economy in these systems is in the method and techniques of fuel fabrication and reprocessing. Accordingly Germany argues that if international

⁵Some US \$5 million is to be spent in the five years beginning in 1967. General Debate speech of the German representative, 11th General Conference of IAEA, September 1967.

inspectors are given access to these processes they could not be kept secret and the economic advantage of the work undertaken in Germany could be lost. The "strategic points" concept is an attempt to promote a reliable safeguard technique which will not intrude into these processes. The strategic points are: the point of entry to the nuclear plant; the point of exit and the storage points in connection with the plant. It is argued that if these points are safeguarded, a satisfactory materials flow check could be provided and diversion would be notified. At the same time this system would keep inspectors out of the centre of the plant within which the fuel is fabricated and processed. A related aspect of this development is the German concern to develop instruments which can measure flow and composition of materials accurately and as a result reduce the need to rely on human inspection.

The third of the preambular principles cited is fairly self explanatory. It was included mainly in response to apprehensions expressed by Germany and Italy. It involves the argument that there is a "spin off" of technological advantage available to countries who enter into a weapons programme. In other words it is argued that research and work on the development of a weapons programme provides other technological benefits. By definition these benefits will not be available to States which do not conduct a weapons programme. It was feared that the Treaty would preclude the extension of these benefits to countries which did not have access to them themselves. This paragraph of the Treaty states

270

that these benefits, whatever they may be, will be made available for peaceful purposes to all parties to the Treaty. The reference to co-operation with other States in this context is designed to enable collective arrangements (e.g. EURATOM) to proceed in a way which is not seen to be against the spirit of the Treaty and to enable established bilateral developments to continue. It also recognises that the technological spin off enjoyed by nuclear-weapon powers is unlikely to be extended as readily to a country which maintains a close relationship to an "opposing" nuclear-weapon power. This paragraph recognises the realities of established relationships in the world.

The substance of the Treaty

Articles I and II of the Treaty establish the main and complementary obligations. Although these articles are short and apparently simple they are not free of ambiguity. To begin positively however, one thing is clear. The articles intend to be prohibitive and the object of this prohibition is a nuclear explosive device or nuclear weapon. There are two important implications from this.

First, a range of nuclear activity about which the position was previously unclear is not prohibited. To take a key example, a nuclear propulsion reactor in a military vessel is not prohibited by the Treaty. This employment of nuclear technology is clearly outside the definition "nuclear explosive", and although the vessel concerned may bristle with nuclear warheads assistance towards its being propelled by a marine

reactor is not prohibited.

Second, whereas the IAEA safeguards system contains no definition of military purpose it now appears that in so far as this Treaty bears a relationship to the IAEA system, the system has now been provided with, if not a definition of military purpose, certainly an additional obligation. It seems beyond doubt that the concept "military purpose" as used in IAEA documents would have included the manufacture of a nuclear explosive device; however, this was never explicitly stated. Now the Treaty makes it clear that weapons manufacture is prohibited and as the Treaty both requests the Agency to verifying compliance with the Treaty and imposes on signatories the obligation of accepting IAEA safeguards, it has the effect of defining weapons manufacture as at least a part of the IAEA concept "military purpose".

The terms "transfer" or "control over" require study. The obvious sense of "transfer" is to mean that nuclear weapons as such shall not be passed outright from one hand to another, typically from their manufacturer to a "client". The concept of "control over" nuclear weapons "either directly or indirectly" is less clear.

Although physical transfer is an objectively identifiable act the question of political importance is not simply "where are the weapons?", but "where are they and who controls them?". The importance of the concept of control is underlined by the Treaty distinction between "direct" and "indirect control". The handing over of nuclear weapons and of direct control over them

necessarily implies "transfer" of them. On the other hand, while "transfer" could occur under conditions where only "indirect control" was given it is not possible to conceive of "direct control" being transferred without "transfer" of the weapons. Although it is necessary as a matter of logic to prohibit physical transfer of nuclear weapons if the Treaty is to make conceptual sense the real purpose of non-proliferation is to ensure that control over nuclear weapons should not change hands or "proliferate".

The situation of a handing over of direct control and the physical transfer it necessarily implies is clear. The concept of indirect control is less clear especially as this does not necessarily imply physical transfer of weapons. Perhaps the most coherent interpretation of this latter concept can be gained by viewing it in terms of the method of transfer rather than the nature of the controlling power over the weapons. In other words this clause can be seen as prohibiting the clandestine transfer of control over nuclear weapons through a third party or alliance. The example of NATO arrangements is useful. These clauses in the treaty could be taken as prohibiting the outright transfer of nuclear weapons to NATO control by the United States. Although it could be argued that no individual State in the alliance had gained control over the weapons, the fact that a given bomb which was once under United States control had passed out of that control would contradict the general treaty injunction against this. Nuclear weapons of United States origin may be stationed in NATO countries and in proximity to joint military forces but they must remain under United States control.

227

Control over NATO warheads for example and the decision to use or not to use them must remain in the hands of the manufacturing country.

The concept of a weapons power assisting, encouraging or inducing a non nuclear weapons State to manufacture or acquire nuclear weapons⁶ embraces a whole variety of possible situations. These obligations and the complementary obligation of non-nuclear weapon States raise more clearly than any other part of the Treaty the great physical difficulties of safeguarding the Treaty. Given the general undertaking and obligation to provide peaceful nuclear assistance not only as it has been done in the past but even more liberally, the concept of what might constitute assistance, encouragement, or inducement to a non-nuclear weapon State becomes all the more complex. The IAEA must now evolve a system appropriate to this task.

A study of these two articles suggests that the concept of most basic technical significance and the ~~one~~^{one} which requires the most thorough elucidation both on the level of principle and in terms of practice is that of "manufacture". The other principles of not providing or not seeking assistance, encouragement, etcetera, towards the manufacture of weapons derive their meaning from the concept "manufacture". Acquisition is a no more difficult concept than the undertakings not to transfer or not to receive control directly or indirectly to which it is related. The concept of manufacture however is less clear.

⁶ Articles I and II of the Treaty

224

The source of this lack of clarity is that, as with any other industrial process, manufacture of a nuclear weapon or explosive device has a series of stages. As was argued in earlier parts of this thesis the first stages of the manufacture of a nuclear weapon are activities which can also have a civil significance. The crucial issue then is the point at which it may be determined that a given activity has ceased to have this dual significance and has moved into the area where it can be said unambiguously that a given step, a given activity, or a given plant, can have no other purpose than the manufacture of a nuclear weapon in part or whole.

To take a simple example, assistance towards the development of a power reactor, can be viewed as assistance towards the manufacture of a nuclear weapon, because it will also bring the capacity to create plutonium. The difficulties raised by such an obviously unacceptable interpretation may be answered by reference to the IAEA safeguards system. It does not view such assistance as serving "military purpose" but it does view a report that the quantities of plutonium produced in the reactor could not be accounted for as demonstrating diversion. What is not clear from the Treaty is whether or not such procedures for notifying diversion satisfy its more stringent obligations. All that can be said sensibly about the prohibition of manufacture is that it prohibits the end product of manufacture. To do this involves controlling the process of manufacture but the difficulty is to determine when a State has commenced manufacture of a nuclear weapon as against having commenced the construction of a sophisticated nuclear

system for civil purposes. This question must also be determined when the Treaty is applied to particular cases. The answer arrived at will be reflected in the safeguards agreements with IAEA called for in the Treaty.⁷

The Treaty safeguards arrangements

The first part of article III imposes a relatively unambiguous obligation on non-nuclear weapons States:

"to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system, for the exclusive purpose of verification of the fulfilment of its obligations assumed under this treaty with a view to preventing diversions of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices."

Looking at the last and basic part of this obligation first, it is clear that its ultimate aim is to prevent diversion from peaceful activities to the specific activity of creating nuclear weapons or other explosive devices. It is this article of the Treaty that extends the purpose of the Agency's safeguards system from being concerned with "military purpose" to a specific concern with "nuclear weapons and other nuclear explosive devices". Whether or not it was the intention of those who drafted the Treaty,

⁷Article III of the Treaty

the retroactive effect of this clause on the IAEA safeguards system is to define at least in part the meaning of the phrase "military purpose". Although this definition may not be applied to Agency projects already in existence, it must apply to Agency responsibilities towards signatories of the Treaty. The reference in the Treaty to the two places in which the Agency safeguards system is described, the Statute and the Safeguards Document, demonstrates that the Treaty assumes the obligations established by the Agency on the levels of principle and practice are basic obligations for signatories. The Treaty provisions are additional to them.

The Treaty then establishes that the only purpose for which safeguards will be applied under the Treaty is for verifying the fulfilment of the obligations of States under the Treaty. This clause suggests further that the amorphous concept of military purpose with which the Agency has had to work previously has been made more specific by the Treaty. It is now to cover particular obligations of signatories to the Treaty. As a result if the Non-Proliferation Treaty is accepted by a large number of countries and the Agency commences to undertake the task of verification under the Treaty, the Agency's safeguards system will become increasingly directed towards verifying that nuclear weapons or explosive devices are not being produced from activities which are overtly peaceful, rather than towards notifying diversion even though such notifications may remain a basic part of the modus operandi of the IAEA system.

In political terms this clause covers the crux of the Treaty:-

the obligation of parties to it to negotiate an agreement with IAEA for the application of safeguards. Like the Statute of IAEA the Treaty sets out certain principles. They are stated directly as a set of mutual obligations the purpose of which is "non-proliferation". But the circumstances of each country are different. The negotiation of a safeguards agreement is a common obligation but the fact that this will be achieved through negotiation demonstrates that account will be taken of individual circumstances. The fact that this negotiation will take place in reference to the IAEA safeguards system demonstrates that account of individual circumstances will not only be taken but must be taken. Paragraph 17 of the safeguards document INFCIRC/66 assures this. The strict answer to the question, "what will be the form and extent of safeguards under the Treaty?" will be, whatever the signatory and the Board of Governors agree should be written into the safeguards agreement with that country. For any country negotiating such an agreement and wishing it to be as non-intrusive as possible the crucial task will be to seek to assure the Agency that the Agency's present concept of "military purpose" and all that it implies in terms of the structure of the IAEA system is sufficient for the purpose of verifying its Treaty obligations.

On the Agency's side, it is now obliged to determine the relevance of its system to the Treaty concepts and obligations. The first step towards answering this question lies in a consideration of the Treaty concept of "verification" but unless the meaning of this term is that the Agency should merely play an ex poste supervisory role then it seems radical changes in its system are

required. This issue will be taken up shortly; however, it is important to establish at this stage the enormous importance of this new type of safeguards agreement. From the point of view of the obligations established by the Treaty the agreements are of first ranking importance. Articles I and II indicate what they should ensure is achieved, but from the point of view of its establishing agreed international arrangements, the first and greatest effect of the Treaty is that it obligates the conduct of and establishes the limits of a particular negotiation.

Paragraph 1 of article III establishes that the safeguards required under the safeguards agreement and under article III

"shall be followed with respect to source or special fissionable material whether it is being produced, processed or used in any principle nuclear facility or is outside any such facility. The safeguards required by this article shall be applied on all source or special fissionable materials in all peaceful nuclear activities within the territory of such States, under its jurisdiction, or carried out under its control anywhere."

The terminology of these provisions accords with the terminology of the Agency's safeguards documents, however the Treaty paragraph goes further than the Agency safeguards system. It insists that the Agency shall be given the ability to pursue relevant materials wherever they may be in a given country or wherever that country may wish to transfer them. This ^{is} more far reaching control than for example the Agency's system of

accountability for by-produced material. This degree of materials control is potentially an enormous job. Commercial interests will most likely oppose this degree of control at least as far as source materials are concerned.

The fourth paragraph of article III contains an important concession towards collective arrangements in the atomic field. It provides that safeguards under the Treaty can be applied to such collective systems in the same way as to individual countries. This was a concession designed to enable the EURATOM countries to subscribe to the Treaty as a group. If this had not been provided for it is doubtful that the EURATOM countries would sign the Treaty not only because of political opposition to the external control system of the IAEA, but also because the EURATOM Treaty requires collective agreement of such treaties concluded outside the community. It is in this context that the word "verification" used in paragraph 1 of article III has its full significance.

EURATOM presently operates a safeguards system extending to the member States of the organisation. One of the key points of issue during the course of the ENDC discussions was the way in which the Treaty could be applied to the EURATOM System. The EURATOM countries indicated that they would be unprepared to accept the simple replacement of the EURATOM safeguards system by the IAEA system.⁸ As a result the formula devised was that IAEA safeguards under the Treaty would have "the exclusive

⁸A weighty campaign was launched in many sections of Western European press against "the gentlemen from Vienna" who would inspect community facilities.

purpose of verification of the fulfilment of its (each non-nuclear weapon State) obligations assumed under this treaty". The intended meaning of "verification" in the EURATOM context is that the Agency will not itself conduct safeguards procedures within the EURATOM group.⁹ Negotiations between the IAEA and EURATOM have not yet commenced but it is expected that the end result of these negotiations will be the development of a system whereby the Agency scrutinizes the reports and the activities of EURATOM in the manner of an external auditor and in this way verify that EURATOM safeguards are satisfying the Agency's principles of safeguards. If this verification is given its implication would be that the terms of the treaty are being observed.

Articles I, II and III provide the substance of the Treaty obligations as far as atomic control is concerned. The two parts of article IV of the Treaty reflect what has now become the established need to promise development as a concomitant of control proposals. As the Treaty control proposals are stringent, the clauses on development establish a "right" to the fruits of atomic energy.

Article V addresses itself to a particular concern expressed during the negotiation of the Treaty, namely, the question of making available to non-nuclear weapon States the beneficial uses of peaceful nuclear explosions. This technology has great political significance as even though the language used may

⁹This proposal was agreed in a NATO Ministerial Council shortly before the U.S./Soviet draft treaty was tabled at J.N.D.C.

sometimes suggest otherwise nuclear weapons and peaceful explosive devices are not much different and the latter could certainly be employed as a weapon. For this reason an effective Treaty must seek to control them. The article imposes the obligation on parties to the Treaty to take appropriate measures to ensure that the potential benefits from any peaceful applications of nuclear explosions will be made available to non-nuclear weapon States, under appropriate international observation and through appropriate international procedures, and furthermore that these benefits will be made available on "an indiscriminatory basis and that the charge to such parties for the explosive devices used will be as low as possible and will exclude any charge for research and development". The article then states that non-nuclear weapon States will be able to obtain these benefits "pursuant to a special international agreement or agreements through an appropriate international body with adequate representation of non-nuclear weapon States negotiations on this subject shall commence as soon as possible after the Treaty enters into force". In addition, non-nuclear weapon States may also acquire these benefits pursuant to bilateral agreements if they wish to proceed in this way.

The technology of peaceful nuclear explosions is not yet developed to a stage where it may be applied for civil purposes and at present stages the indications are that sufficiently clean and effective explosive devices will only become available

for major civil engineering purposes within 8 - 10 years.¹⁰ However during the ENDC and General Assembly negotiations this issue assumed great significance. It is a promising technology, but the contention it caused was based largely on the fact that peaceful explosives more than anything else symbolised the fear that the nuclear weapon powers would have technological advantage over the non-nuclear weapon powers. Both the United States and the Soviet Union have made it clear that the International Organisation they have in mind to supervise a peaceful nuclear explosive service is IAEA.¹¹ The Agency has no procedures developed for this activity.

Article VI implies that the Treaty is one step towards general and complete disarmament. It provides that parties to the Treaty are obliged to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control."

Article VII recognises the virtues of seeking stability regionally. It was also included to provide for the Treaty on the Denuclearisation of Latin America which preceded it by a few months.

¹⁰ Soviet and U.S. estimates agree.

¹¹ A resolution stating that the Agency "seemed to be" the appropriate international organisation was accepted at the 12th General Conference of IAEA on September 30th, 1968. Document number not yet available.

The Treaty and the IAEA Board of Governors

The procedure for amendments to the Treaty also reflect the major importance of IAEA in the Treaty. The requirement that amendments will only be accepted and enter into force if the whole Board of Governors of IAEA agree to this imparts another dimension to the Board's role in the Treaty. Its role in safeguards arrangements is a basic factor in the operation of the Treaty but under article VIII it is given a controlling position of the scope and nature of the Treaty itself. Obviously this arrangement imparts a considerable degree of stability to the Treaty. Amendments will not be easy to secure. Apart from the simple majority necessary for their approval, under present Board arrangements some 25 States have a veto - the members of the Board of Governors of IAEA (the number includes the nuclear weapon States excepting China).

The implication of these provisions is that there are three distinct groups of countries potentially signatory to the Treaty. First, there are the nuclear weapons powers. They occupy a place of primary under the Treaty. Second, there are those countries which at any given time hold a seat on the Board of Governors of the Agency. Third, there are those countries which fall into neither of these two groups. An important implication of this situation is that with the exception of France and China, neither of whom will sign the Treaty, the nuclear weapon States party to the Treaty (United Kingdom, United States and USSR) are all permanent members of the Board of Governors of the Agency.

France is also a permanent member. Having in this sense merged the first two groups of countries into the Board of Governors of the Agency, it becomes quite clear that it is the Board of Governors which will hold central authority in the administration of the Treaty. Politically speaking this situation is logical given that the Board will control safeguards agreements and more generally is the organ of the Agency charged with carrying out the functions of the Agency. However there will be increasing pressure to change the composition of the Board of Governors to provide wider and more frequent representation on the Board.¹²

An interesting aspect of Article IX of the Treaty which deals with the mechanical provisions for bringing it into force is that a nuclear weapon State is defined as one that has manufactured and exploded a nuclear weapon or other nuclear device prior to the first of January 1967. It is as amusing as it is puzzling to consider what the effect of this clause would be in respect of the country which exploded a nuclear weapon after 1st January 1967 but before the time ~~at~~ ^{at} which it decided to accept the Treaty.

The escape clause in article X seems to constitute a nice example of the rather foolish compromises that can be the result of a multilateral negotiating process. Given that an exit clause was desirable, it would have been more realistic

¹²The 12th General Conference accepted a resolution drafted by Italy and supported by several Latin American and developing countries, calling for a study to be undertaken as a basis for the revision of the Board's composition. 30th September, 1968. Document number not yet available.

to restrict it to its first part leaving a country free simply to state that extraordinary events have jeopardized its basic interests and have dictated termination of the Treaty. The concept of the period of notice opens (perhaps welcome) opportunities for such a country to manage its announcement in the most advantageous way. The period of three months is an attempt to restrict the degree to which recourse to this clause will be taken. As was suggested earlier, for a relatively sophisticated country the time lapse from diversion until the first detonation may be something of the order of 12 months. Assuming that this is the time period involved then at best the provision of the three months notice period simply serves to extend the period of notice given to the world from something like 12 months to 15 months. That is assuming this condition of the Treaty will be observed. It would hardly be in the interest of a potential denouncer to do so. Indeed this clause seems to have its most obvious effect in institutionalising what for some countries may prove to be a useful source of pressure on a weapon power - the threat of denunciation. The implication of this article is that after it is invoked the matter will then be discussed in the United Nations Security Council, and that the basis of the discussion shall be the statement of the extraordinary events which led to the decision to withdraw from the treaty. All that could be said rationally about this concept is that the obligation of providing a statement is hardly realistic given that a decision to withdraw from the Treaty would normally be accompanied by some kind of explanation. It is difficult to believe that simply because a statement is called

for the explanation given will be in any way very different or to any extent more arguable. Whatever the circumstances may be, with or without the obligations of providing a statement, a State which has decided to enter a nuclear weapons programme will explain this decision in the way which protects that programme and most clearly protects its political position vis á vis those countries against which the nuclear programme is directed.

The future of IAEA under the Treaty

From the point of view of this study it is significant that the Non-Proliferation Treaty calls on the International Atomic Energy Agency rather than another organisation or country to verify that the obligations imposed by the treaty are being fulfilled.

From the Agency's point of view the Treaty requests it to develop a new kind of safeguards agreement. The Treaty requires that the new agreements be based on the present Agency system but then imposes on the Agency new concepts and objectives of safeguards. This has the effect of defining certain basic Agency concepts which were ambiguous. The Treaty banishes the idea that the Agency is essentially a scientific organisation with some rather incongruous and annoying policeman-like responsibilities. The Agency is now overtly rather than covertly at the centre of international political life. Whether or not the Board of Governors alters its composition remains to be seen. However the former American tactic of

dampening conflict in the Board by insisting that it deals with technical matters can be disposed of. The main job of the Board is political in the simple sense that arms control is political. The problems of the Agency will be great. They are probably no better reflected than by contemplating that whereas the Statute discusses the peaceful uses of atomic energy at length and does not define military purposes it has now been given an enormous and important job pursuant to a Treaty which speaks exclusively of nuclear weapons and nuclear explosive devices.

Although the text of the Treaty calls upon the Agency to verify that countries are observing their obligations under the Treaty, the fact that the Treaty also refers to the Agency Statute and to the Agency's safeguards system, seems to limit the Agency's ability to verify purely military aspects of the Treaty. For example the question of whether or not a party to the Treaty has received indirect control over nuclear weapons. The Agency's safeguards system contains no provisions for this kind of verification. It may have to develop them. Under existing circumstances however the point of these principles in the Treaty seems to be to bring the states party to the Treaty to the position where a declaration is made and a legal obligation is established. This obligation will have force in international law to the extent that this Treaty forms a part of that body of law. However, undertakings of this kind are not verifiable and will ultimately depend as do the provisions of all treaties, upon a combination of international good faith and the coercive pressures of States interested in ensuring that the obligations are met.

~~448~~
238

Although article III only imposes the obligation of accepting IAEA safeguards upon non-nuclear weapon States, both the United States and United Kingdom have stated that they will request the application of IAEA safeguards on their own peaceful activities. This is of little practical significance in terms of their nuclear weapon power although they may now be slightly less free to transfer atomic weapons or military technology to other countries. On the other hand, these undertakings of the United States and the United Kingdom will impose a very heavy burden of work upon the Agency even if it is restricted to "verification" of domestic safeguards.

The Non-Proliferation Treaty may clarify certain of the Agency's weaknesses: the vagueness of the purpose of the system; the lack of clarity about what the term "military purpose" means; and the fact that the Agency system is applied only in and through agreements for technical co-operation. The success or failure of the Treaty will in a basic way depend upon the capacity of the IAEA to develop its safeguards system in this new context to the point that it is able to apply inspection and other safeguards techniques to signatories and report non-compliance quickly when sufficiently small quantities or small scales of diversion have occurred. If the Agency's system is not able to do this the Treaty obligations will not have much real meaning in terms of prohibiting the spread of nuclear weapons. Furthermore, only if technical confidence in the Agency's system is developed will the nations be in a position to make a fairly

259
239

clear judgement as to the nuclear aspirations or policies of other nations. In other words, the IAEA system will have to provide the Non-Proliferation Treaty that basic technical assurance the absence of which will make the Treaty a fairly hollow declaration of high principles.

Conclusions

This discussion of the Treaty has been brief. In recent time many valuable and more detailed studies of the Treaty have been published.¹³ In this last chapter I have been concerned to show the main effects of the Treaty on the IAEA and its safeguards system. These effects will be large.

Not least of them will be the political effects, but then the tendency of this thesis has been such as to see the Agency's entering seriously into the business of atomic control and international politics as analogous to a coming of age. Furthermore this maturation/^{is} what the Agency's parent has worked towards.

The first United States response to its own atomic power was to control it, at home and internationally. It wanted this because it believed the alternative would be too dangerous for

¹³To mention a few: Record of Hearing before the Senate Foreign Relations Committee, Washington, June 1963.
Mason Willrich - "The Treaty on the Non-Proliferation Treaty on Nuclear Weapons: Nuclear Technology Confronts World Politics" in Yale Law Journal Volume 77, No. 8, July 1968.
An Australian view - Hedley Bull - "The Non-Proliferation Treaty and its Implications for Australia" in Australian Outlook Vol. 22 No. 2 August 1968.

LHC
240

the United States. The latter proposition has certainly proven true and it now seems that the original solution will be given a test. Not all elements of the Baruch Plan can be identified in either the IAEA scheme or the Treaty. Since the first Plan, nuclear weapons development in other parts of the world and the rising influence of the developing countries have brought about changes in United States policy. Even so, some marked similarities can be identified. The Baruch Plan wrapped total atomic control and development into one package but this clumsiness was not the only reason why it failed. It also failed because the Soviet Union wanted to create its own nuclear weapon.

The remnants of or rather the revamped Baruch Plan can be recognised in two places today. At IAEA where the safeguards system provides some of the softer parts of the Baruch inspection and control procedures. Then in the Non-Proliferation Treaty where the hard undertakings against acquisition of a weapon are given in return for copious promises of aid. The general and complete disarmament ideas have been lodged in the preamble but then this is the right place for them in a Treaty concerned only with a limited form of arms control.

The United States has persevered with its aim to arrange international atomic control. Its greatest success was the creation of IAEA. The policy of the transfer of the United States Bilateral Agreements to the Agency and its use of the Board of Governors have been extremely successful too. Its greatest

gain was the shift in 1963 in Soviet attitude towards safeguards.

Speaking of Soviet policy, the longer view of it shows far less change. After all from the beginning it has wanted the sort of prohibition that the Treaty may now provide, but in its own good time. It was beaten by the United States during the early period of Agency negotiations but in the meantime its weapons system was developed. Now others have developed similar weapons systems. As a result support of the IAEA safeguards system and the Non-Proliferation Treaty serve Soviet interests.

The shared interest of the United States and the Soviet Union in non-proliferation is not just notionally a mutually convenient relationship. Events in IAEA in recent time and in relation to the Treaty have been based on this mutual interest as an operational fact.

Indeed, there is no other issue between the two super-powers over which there is such agreement. This agreement seems to be their chosen and desperate alternative to the horror of massive confrontation with nuclear weapons.

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ANNEX (a)

INF



International Atomic Energy Agency

INFORMATION CIRCULAR

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16 September 1968

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THE AGENCY'S SAFEGUARDS SYSTEM
(1965, AS PROVISIONALLY EXTENDED IN 1966 AND 1968)

1. The Agency's safeguards system, as approved by the Board of Governors in 1965, and provisionally extended in 1966 and 1968, is set forth in this document for the information of all Members.
2. The development of the system from 1961 onwards has been as follows:

System		
Nature	Name	Set forth in document
The first system	The Agency's Safeguards System (1961)	INFCIRC/26
The 1961 system as extended to cover large reactor facilities	The Agency's Safeguards System (1961, as Extended in 1964)	INFCIRC/26 and Add.1
The revised system	The Agency's Safeguards System (1965)	INFCIRC/66
The revised system with additional provisions for reprocessing plants	The Agency's Safeguards System (1965 as Provisionally Extended in 1966)	INFCIRC/66/Rev.1
The revised system with further additional provisions for safeguarded nuclear material in conversion plants and fabrication plants	The Agency's Safeguards System (1965, as Provisionally Extended in 1966 and 1968)	INFCIRC/66/Rev.2

THE AGENCY'S SAFEGUARDS SYSTEM
(1965, AS PROVISIONALLY EXTENDED IN 1966 AND 1968)

3

CONTENTS

<i>Parts</i>		<i>Paragraphs</i>
I.	GENERAL CONSIDERATIONS.....	1 — 18
	THE PURPOSE OF THIS DOCUMENT.....	1 — 8
B.	GENERAL PRINCIPLES OF THE AGENCY'S SAFEGUARDS.....	9 — 18
	The Agency's obligations.....	9 — 14
	Principles of implementation.....	15 — 18
II.	CIRCUMSTANCES REQUIRING SAFEGUARDS.....	19 — 28
	A. NUCLEAR MATERIALS SUBJECT TO SAFEGUARDS.....	19 — 20
	B. EXEMPTIONS FROM SAFEGUARDS.....	21 — 23
	General exemptions.....	21
	Exemptions related to reactors.....	22 — 23
	C. SUSPENSION OF SAFEGUARDS.....	24 — 25
	D. TERMINATION OF SAFEGUARDS.....	26 — 27
	E. TRANSFER OF SAFEGUARDED NUCLEAR MATERIAL OUT OF THE STATE.....	28
III.	SAFEGUARDS PROCEDURES.....	29 — 68
	A. GENERAL PROCEDURES.....	29 — 54
	Introduction.....	29
	Design review.....	30 — 32
	Records.....	33 — 36
	Reports.....	37 — 44
	GENERAL REQUIREMENTS.....	37 — 38
	ROUTINE REPORTS.....	39 — 40
	PROGRESS IN CONSTRUCTION.....	41
	SPECIAL REPORTS.....	42 — 43
	AMPLIFICATION OF REPORTS.....	44
	Inspections.....	45 — 54
	GENERAL PROCEDURES.....	45 — 48
	ROUTINE INSPECTIONS.....	49 — 50
	INITIAL INSPECTIONS OF PRINCIPAL NUCLEAR FACILITIES.....	51 — 52
	SPECIAL INSPECTIONS.....	53 — 54
	B. SPECIAL PROCEDURES FOR REACTORS.....	55 — 58
	Reports.....	55
	Inspections.....	56 — 58
	C. SPECIAL PROCEDURES RELATING TO SAFEGUARDED NUCLEAR MATERIAL OUTSIDE PRINCIPAL NUCLEAR FACILITIES.....	59 — 68
	Nuclear material in research and development facilities.....	59 — 60
	ROUTINE REPORTS.....	59
	ROUTINE INSPECTIONS.....	60
	Source material in sealed storage.....	61 — 65
	DESIGN OF STORAGE FACILITIES.....	62
	ROUTINE REPORTS.....	63
	ROUTINE INSPECTIONS.....	64
	REMOVAL OF MATERIAL.....	65
	Nuclear material in other locations.....	66 — 68
	ROUTINE REPORTS.....	67
	ROUTINE INSPECTIONS.....	68

<i>Parts</i>	<i>Paragraphs</i>
IV. DEFINITIONS	69 — 85
ANNEX I: PROVISIONS FOR REPROCESSING PLANTS	
INTRODUCTION.....	1
SPECIAL PROCEDURES.....	2 — 6
Reports	2
Inspections.....	3 — 5
Mixtures of safeguarded and unsafeguarded nuclear material.....	6
DEFINITIONS	7 — 8
ANNEX II: PROVISIONS FOR SAFEGUARDED NUCLEAR MATERIAL IN CONVERSION PLANTS AND FABRICATION PLANTS	
INTRODUCTION.....	1
SPECIAL PROCEDURES.....	2 — 11
Reports	2
Inspections.....	3 — 7
Residues, scrap and waste.....	8
Safeguarded and unsafeguarded nuclear material.....	9
Blending of nuclear material.....	10 — 11
DEFINITIONS	12 — 13

THE AGENCY'S SAFEGUARDS SYSTEM (1965, AS PROVISIONALLY EXTENDED IN 1966 AND 1968)

I. GENERAL CONSIDERATIONS

A. THE PURPOSE OF THIS DOCUMENT

1. Pursuant to Article II of its Statute the Agency has the task of seeking "to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world". Inasmuch as the technology of nuclear energy for peaceful purposes is closely coupled with that for the production of materials for nuclear weapons, the same Article of the Statute provides that the Agency "shall ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose".
2. The principal purpose of the present document is to establish a system of controls to enable the Agency to comply with this statutory obligation with respect to the activities of Member States in the field of the peaceful uses of nuclear energy, as provided in the Statute. The authority to establish such a system is provided by Article III.A.5. of the Statute, which authorizes the Agency to "establish and administer safeguards designed to ensure that special fissionable and other materials, services, equipment, facilities, and information made available by the Agency or at its request or under its supervision or control are not used in such a way as to further any military purpose". This Article further authorizes the Agency to "apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State, to any of that State's activities in the field of atomic energy". Article XII.A sets forth the rights and responsibilities that the Agency is to have, to the extent relevant, with respect to any project or arrangement which it is to safeguard.
3. The principles set forth in this document and the procedures for which it provides are established for the information of Member States, to enable them to determine in advance the circumstances and manner in which the Agency would administer safeguards, and for the guidance of the organs of the Agency itself, to enable the Board and the Director General to determine readily what provisions should be included in agreements relating to safeguards and how to interpret such provisions.
4. Provisions of this document that are relevant to a particular project, arrangement or activity in the field of nuclear energy will only become legally binding upon the entry into force of a *safeguards agreement*¹⁾ and to the extent that they are incorporated therein. Such incorporation may be made by reference.
5. Appropriate provisions of this document may also be incorporated in bilateral or multilateral arrangements between Member States, including all those that provide for the transfer to the Agency of responsibility for administering safeguards. The Agency will not assume such responsibility unless the principles of the safeguards and the procedures to be used are essentially consistent with those set forth in this document.
6. Agreements incorporating provisions from the earlier version of the Agency's safeguards system²⁾ will continue to be administered in accordance with such provisions, unless all States parties thereto request the Agency to substitute the provisions of the present document.
7. Provisions relating to types of *principal nuclear facilities*, other than *reactors*, which may produce, process or use safeguarded *nuclear material* will be developed as necessary.
8. The principles and procedures set forth in this document shall be subject to periodic review in the light of the further experience gained by the Agency as well as of technological developments.

1) The use of italics indicates that a term has a specialized meaning in this document and is defined in Part IV.

2) Set forth in documents INFCIRC/26 and Add.1.

B. GENERAL PRINCIPLES OF THE AGENCY'S SAFEGUARDS

The Agency's obligations

9. Bearing in mind Article II of the Statute, the Agency shall implement safeguards in a manner designed to avoid hampering a State's economic or technological development.
10. The safeguards procedures set forth in this document shall be implemented in a manner designed to be consistent with prudent management practices required for the economic and safe conduct of nuclear activities.
11. In no case shall the Agency request a State to stop the construction or operation of any *principal nuclear facility* to which the Agency's safeguards procedures extend, except by explicit decision of the Board.
12. The State or States concerned and the Director General shall hold consultations regarding the application of the provisions of the present document.
13. In implementing safeguards, the Agency shall take every precaution to protect commercial and industrial secrets. No member of the Agency's staff shall disclose, except to the Director General and to such other members of the staff as the Director General may authorize to have such information by reason of their official duties in connection with safeguards, any commercial or industrial secret or any other confidential information coming to his knowledge by reason of the implementation of safeguards by the Agency.
14. The Agency shall not publish or communicate to any State, organization or person any information obtained by it in connection with the implementation of safeguards, except that:
- Specific information relating to such implementation in a State may be given to the Board and to such Agency staff members as require such knowledge by reason of their official duties in connection with safeguards, but only to the extent necessary for the Agency to fulfil its safeguards responsibilities;
 - Summarized lists of items being safeguarded by the Agency may be published upon decision of the Board; and
 - Additional information may be published upon decision of the Board and if all States directly concerned agree.

Principles of implementation

15. The Agency shall implement safeguards in a State if:
- The Agency has concluded with the State a *project agreement* under which materials, services, equipment, facilities or information are supplied, and such agreement provides for the application of safeguards; or
 - The State is a party to a bilateral or multilateral arrangement under which materials, services, equipment, facilities or information are supplied or otherwise transferred, and:
 - All the parties to the arrangement have requested the Agency to administer safeguards; and
 - The Agency has concluded the necessary *safeguards agreement* with the State; or
 - The Agency has been requested by the State to safeguard certain nuclear activities under the latter's jurisdiction, and the Agency has concluded the necessary *safeguards agreement* with the State.

16. In the light of Article XII.A.5 of the Statute, it is desirable that *safeguards agreements* should provide for the continuation of safeguards, subject to the provisions of this document, with respect to produced special fissionable material and to any materials substituted therefor.

17. The principal factors to be considered by the Board in determining the relevance of particular provisions of this document to various types of materials and facilities shall be the form, scope and amount of the assistance supplied, the character of each individual project and the degree to which such assistance could further any military purpose. The related *safeguards agreement* shall take account of all pertinent circumstances at the time of its conclusion.

18. In the event of any non-compliance by a State with a *safeguards agreement*, the Agency may take the measures set forth in Articles XII.A.7 and XII.C of the Statute.

II. CIRCUMSTANCES REQUIRING SAFEGUARDS

A. NUCLEAR MATERIALS SUBJECT TO SAFEGUARDS

19. Except as provided in paragraphs 21 - 28, *nuclear material* shall be subject to the Agency's safeguards if it is being or has been:
- Supplied under a *project agreement*; or
 - Submitted to safeguards under a *safeguards agreement* by the parties to a bilateral or multilateral arrangement; or
 - Unilaterally submitted* to safeguards under a *safeguards agreement*; or
 - Produced, processed or used in a *principal nuclear facility* which has been:
 - Supplied wholly or substantially under a *project agreement*; or
 - Submitted to safeguards under a *safeguards agreement* by the parties to a bilateral or multilateral arrangement; or
 - Unilaterally submitted* to safeguards under a *safeguards agreement*; or
 - Produced in or by the use of safeguarded *nuclear material*; or
 - Substituted, pursuant to paragraph 26(d), for safeguarded *nuclear material*.
20. A *principal nuclear facility* shall be considered as substantially supplied under a *project agreement* if the Board has so determined.

B. EXEMPTIONS FROM SAFEGUARDS

General exemptions

21. *Nuclear material* that would otherwise be subject to safeguards shall be exempted from safeguards at the request of the State concerned, provided that the material so exempted in that State may not at any time exceed:
- 1 kilogram in total of special fissionable material, which may consist of one or more of the following:
 - Plutonium;

- (ii) Uranium with an enrichment of 0.2 (20%) and above, taken account of by multiplying its weight by its enrichment;
- (iii) Uranium with an enrichment below 0.2 (20%) and above that of natural uranium, taken account of by multiplying its weight by five times the square of its enrichment;
- (b) 10 metric tons in total of natural uranium and depleted uranium with an enrichment above 0.005 (0.5%);
- (c) 20 metric tons of depleted uranium with an enrichment of 0.005 (0.5%) or below; and
- (d) 20 metric tons of thorium.

Exemptions related to reactors

22. Produced or used nuclear material that would otherwise be subject to safeguards pursuant to paragraph 19(d) or (e) shall be exempted from safeguards if:

- (a) It is plutonium produced in the fuel of a reactor whose rate of production does not exceed 100 grams of plutonium per year; or
- (b) It is produced in a reactor determined by the Agency to have a maximum calculated power for continuous operation of less than 3 thermal megawatts, or is used in such a reactor and would not be subject to safeguards except for such use, provided that the total power of the reactors with respect to which these exemptions apply in any State may not exceed 6 thermal megawatts.

23. Produced special fissionable material that would otherwise be subject to safeguards pursuant only to paragraph 19(e) shall in part be exempted from safeguards if it is produced in a reactor in which the ratio of fissionable isotopes within safeguarded nuclear material to all fissionable isotopes is less than 0.3 (calculated each time any change is made in the loading of the reactor and assumed to be maintained until the next such change). Such fraction of the produced material as corresponds to the calculated ratio shall be subject to safeguards.

C. SUSPENSION OF SAFEGUARDS

24. Safeguards with respect to nuclear material may be suspended while the material is transferred, under an arrangement or agreement approved by the Agency, for the purpose of processing, reprocessing, testing, research or development, within the State concerned or to any other Member State or to an international organization, provided that the quantities of nuclear material with respect to which safeguards are thus suspended in a State may not at any time exceed:

- (a) 1 effective kilogram of special fissionable material;
- (b) 10 metric tons in total of natural uranium and depleted uranium with an enrichment above 0.005 (0.5%);
- (c) 20 metric tons of depleted uranium with an enrichment of 0.005 (0.5%) or below; and
- (d) 20 metric tons of thorium.

25. Safeguards with respect to nuclear material in irradiated fuel which is transferred for the purpose of reprocessing may also be suspended if the State or States concerned have, with the agreement of the Agency, placed under safeguards substitute nuclear material in accordance with paragraph 26(d) for the period of suspension. In addition, safeguards with respect to plutonium contained in irradiated fuel which is transferred for the purpose of reprocessing may be suspended for a period not to exceed six

months if the State or States concerned have, with the agreement of the Agency, placed under safeguards a quantity of uranium whose enrichment in the isotope uranium-235 is not less than 0.9 (90%) and the uranium-235 content of which is equal in weight to such plutonium. Upon expiration of the said six months or the completion of reprocessing, whichever is earlier, safeguards shall, with the agreement of the Agency, be applied to such plutonium and shall cease to apply to the uranium substituted therefor.

D. TERMINATION OF SAFEGUARDS

26. Nuclear material shall no longer be subject to safeguards after:

- (a) It has been returned to the State that originally supplied it (whether directly or through the Agency), if it was subject to safeguards only by reason of such supply and if:
 - (i) It was not improved while under safeguards; or
 - (ii) Any special fissionable material that was produced in it under safeguards has been separated out, or safeguards with respect to such produced material have been terminated; or
- (b) The Agency has determined that:
 - (i) It was subject to safeguards only by reason of its use in a principal nuclear facility specified in paragraph 19(d);
 - (ii) It has been removed from such facility; and
 - (iii) Any special fissionable material that was produced in it under safeguards has been separated out, or safeguards with respect to such produced material have been terminated; or
- (c) The Agency has determined that it has been consumed, or has been diluted in such a way that it is no longer usable for any nuclear activity relevant from the point of view of safeguards, or has become practically irrecoverable; or
- (d) The State or States concerned have, with the agreement of the Agency, placed under safeguards, as a substitute, such amount of the same element, not otherwise subject to safeguards, as the Agency has determined contains fissionable isotopes:
 - (i) Whose weight (with due allowance for processing losses) is equal to or greater than the weight of the fissionable isotopes of the material with respect to which safeguards are to terminate; and
 - (ii) Whose ratio by weight to the total substituted element is similar to or greater than the ratio by weight of the fissionable isotopes of the material with respect to which safeguards are to terminate to the total weight of such material; provided that the Agency may agree to the substitution of plutonium for uranium-235 contained in uranium whose enrichment is not greater than 0.05 (5.0%); or
- (e) It has been transferred out of the State under paragraph 28(d), provided that such material shall again be subject to safeguards if it is returned to the State in which the Agency had safeguarded it; or
- (f) The conditions specified in the safeguards agreement, pursuant to which it was subject to Agency safeguards, no longer apply, by expiration of the agreement or otherwise.

27. If a State wishes to use safeguarded source material for non-nuclear purposes, such as the production of alloys or ceramics, it shall agree with the Agency on the circumstances under which the safeguards on such material may be terminated.

E. TRANSFER OF SAFEGUARDED NUCLEAR MATERIAL OUT OF THE STATE

28. No safeguarded *nuclear material* shall be transferred outside the jurisdiction of the State in which it is being safeguarded until the Agency has satisfied itself that one or more of the following conditions apply:

- (a) The material is being returned, under the conditions specified in paragraph 26(a), to the State that originally supplied it; or
- (b) The material is being transferred subject to the provisions of paragraph 24 or 25; or
- (c) Arrangements have been made by the Agency to safeguard the material in accordance with this document in the State to which it is being transferred; or
- (d) The material was not subject to safeguards pursuant to a *project agreement* and will be subject, in the State to which it is being transferred, to safeguards other than those of the Agency but generally consistent with such safeguards and accepted by the Agency.

III. SAFEGUARDS PROCEDURES

A. GENERAL PROCEDURES

Introduction

29. The safeguards procedures set forth below shall be followed, as far as relevant, with respect to safeguarded *nuclear materials*, whether they are being produced, processed or used in any *principal nuclear facility* or are outside any such facility. These procedures also extend to facilities containing or to contain such materials, including *principal nuclear facilities* to which the criteria in paragraph 19(d) apply.

Design review

30. The Agency shall review the design of *principal nuclear facilities*, for the sole purpose of satisfying itself that a facility will permit the effective application of safeguards.

31. The design review of a *principal nuclear facility* shall take place at as early a stage as possible. In particular, such review shall be carried out in the case of:

- (a) An Agency project, before the project is approved;
- (b) A bilateral or multilateral arrangement under which the responsibility for administering safeguards is to be transferred to the Agency, or an activity *unilaterally submitted* by a State, before the Agency assumes safeguards responsibilities with respect to the facility;
- (c) A transfer of safeguarded *nuclear material* to a *principal nuclear facility* whose design has not previously been reviewed, before such transfer takes place; and
- (d) A significant modification of a *principal nuclear facility* whose design has previously been reviewed, before such modification is undertaken.

32. To enable the Agency to perform the required design review, the State shall submit to it relevant design information sufficient for the purpose, including information on such basic characteristics of the *principal nuclear facility* as may bear on the Agency's safeguards procedures. The Agency shall require only the minimum amount of information and data consistent with carrying out its responsibility under this section. It shall complete the review promptly after the submission of this information by the State and shall notify the latter of its conclusions without delay.

Records

33. The State shall arrange for the keeping of records with respect to *principal nuclear facilities* and also with respect to all safeguarded *nuclear material* outside such facilities. For this purpose the State and the Agency shall agree on a system of records with respect to each facility and also with respect to such material, on the basis of proposals to be submitted by the State in sufficient time to allow the Agency to review them before the records need to be kept.

34. If the records are not kept in one of the working languages of the Board, the State shall make arrangements to facilitate their examination by inspectors.

35. The records shall consist, as appropriate, of:

- (a) Accounting records of all safeguarded *nuclear material*; and
- (b) Operating records for *principal nuclear facilities*.

36. All records shall be retained for at least two years.

Reports

GENERAL REQUIREMENTS

37. The State shall submit to the Agency reports with respect to the production, processing and use of safeguarded *nuclear material* in or outside *principal nuclear facilities*. For this purpose the State and the Agency shall agree on a system of reports with respect to each facility and also with respect to safeguarded *nuclear material* outside such facilities, on the basis of proposals to be submitted by the State in sufficient time to allow the Agency to review them before the reports need to be submitted. The reports need include only such information as is relevant for the purpose of safeguards.

38. Unless otherwise provided in the applicable *safeguards agreement*, reports shall be submitted in one of the working languages of the Board.

ROUTINE REPORTS

39. Routine reports shall be based on the records compiled in accordance with paragraphs 33-36 and shall consist, as appropriate, of:

- (a) Accounting reports showing the receipt, transfer out, inventory and use of all safeguarded *nuclear material*. The inventory shall indicate the nuclear and chemical composition and physical form of all material and its location on the date of the report; and
- (b) Operating reports showing the use that has been made of each *principal nuclear facility* since the last report and, as far as possible, the programme of future work in the period until the next routine report is expected to reach the Agency.

40. The first routine report shall be submitted as soon as:

- (a) There is any safeguarded *nuclear material* to be accounted for; or
- (b) The *principal nuclear facility* to which it relates is in a condition to operate.

PROGRESS IN CONSTRUCTION

41. The Agency may, if so provided in a *safeguards agreement*, request information as to when particular stages in the construction of a *principal nuclear facility* have been or are to be reached.

SPECIAL REPORTS

42. The State shall report to the Agency without delay:

- (a) If any unusual incident occurs involving actual or potential loss or destruction of, or damage to, any safeguarded *nuclear material* or *principal nuclear facility*; or
- (b) If there is good reason to believe that safeguarded *nuclear material* is lost or unaccounted for in quantities that exceed the normal operating and handling losses that have been accepted by the Agency as characteristic of the facility.

43. The State shall report to the Agency, as soon as possible, and in any case within two weeks, any transfer not requiring advance notification that will result in a significant change (to be defined by the Agency in agreement with the State) in the quantity of safeguarded *nuclear material* in a facility, or in a complex of facilities considered as a unit for this purpose by agreement with the Agency. Such report shall indicate the amount and nature of the material and its intended use.

AMPLIFICATION OF REPORTS

44. At the Agency's request the State shall submit amplifications or clarifications of any report, in so far as relevant for the purpose of safeguards.

Inspections

GENERAL PROCEDURES

45. The Agency may inspect safeguarded *nuclear materials* and *principal nuclear facilities*.

46. The purpose of safeguards inspections shall be to verify compliance with *safeguards agreements* and to assist States in complying with such agreements and in resolving any questions arising out of the implementation of safeguards.

47. The number, duration and intensity of inspections actually carried out shall be kept to the minimum consistent with the effective implementation of safeguards, and if the Agency considers that the authorized inspections are not all required, fewer shall be carried out.

48. Inspectors shall neither operate any facility themselves nor direct the staff of a facility to carry out any particular operation.

ROUTINE INSPECTIONS

49. Routine inspections may include, as appropriate:

- (a) Audit of records and reports;
- (b) Verification of the amount of safeguarded *nuclear material* by physical inspection, measurement and sampling;
- (c) Examination of *principal nuclear facilities*, including a check of their measuring instruments and operating characteristics; and
- (d) Check of the operations carried out at *principal nuclear facilities* and at *research and development facilities* containing safeguarded *nuclear material*.

50. Whenever the Agency has the right of access to a *principal nuclear facility* at all times³⁾, it may perform inspections of which notice as required by paragraph 4 of the *Inspectors Document* need not be given, in so far as this is necessary for the effective application of safeguards. The actual procedures to implement these provisions shall be agreed upon between the parties concerned in the *safeguards agreement*.

INITIAL INSPECTIONS OF PRINCIPAL NUCLEAR FACILITIES

51. To verify that the construction of a *principal nuclear facility* is in accordance with the design

³⁾ See para. 57.

reviewed by the Agency, an initial inspection or inspections of the facility may be carried out, if so provided in a *safeguards agreement*:

- (a) As soon as possible after the facility has come under Agency safeguards, in the case of a facility already in operation; or
- (b) Before the facility starts to operate, in other cases.

52. The measuring instruments and operating characteristics of the facility shall be reviewed to the extent necessary for the purpose of implementing safeguards. Instruments that will be used to obtain data on the *nuclear materials* in the facility may be tested to determine their satisfactory functioning. Such testing may include the observation by inspectors of commissioning or routine tests by the staff of the facility, but shall not hamper or delay the construction, commissioning or normal operation of the facility.

SPECIAL INSPECTIONS

53. The Agency may carry out special inspections if:

- (a) The study of a report indicates that such inspection is desirable; or
- (b) Any unforeseen circumstance requires immediate action.

The Board shall subsequently be informed of the reasons for and the results of each such inspection.

54. The Agency may also carry out special inspections of substantial amounts of safeguarded *nuclear material* that are to be transferred outside the jurisdiction of the State in which it is being safeguarded, for which purpose the State shall give the Agency sufficient advance notice of any such proposed transfer.

B. SPECIAL PROCEDURES FOR REACTORS

Reports

55. The frequency of submission of routine reports shall be agreed between the Agency and the State, taking into account the frequency established for routine inspections. However, at least two such reports shall be submitted each year and in no case shall more than 12 such reports be required in any year.

Inspections

56. One of the initial inspections of a *reactor* shall if possible be made just before the reactor first reaches criticality.

57. The maximum frequency of routine inspections of a *reactor* and of the safeguarded *nuclear material* in it shall be determined from the following table:

Whichever is the largest of: (a) Facility inventory (including loading); (b) Annual <i>throughput</i> ; (c) Maximum potential annual production of special fissionable material (<i>Effective kilograms of nuclear material</i>)	Maximum number of routine inspections annually
Up to 1	0
More than 1 and up to 5	1
More than 5 and up to 10	2
More than 10 and up to 15	3
More than 15 and up to 20	4
More than 20 and up to 25	5
More than 25 and up to 30	6
More than 30 and up to 35	7
More than 35 and up to 40	8
More than 40 and up to 45	9
More than 45 and up to 50	10
More than 50 and up to 55	11
More than 55 and up to 60	12
More than 60	Right of access at all times

58. The actual frequency of inspection of a *reactor* shall take account of:
- Whether the State possesses irradiated-fuel reprocessing facilities;
 - The nature of the *reactor*; and
 - The nature and amount of the *nuclear material* produced or used in the *reactor*.

C. SPECIAL PROCEDURES RELATING TO SAFEGUARDED NUCLEAR MATERIAL OUTSIDE PRINCIPAL NUCLEAR FACILITIES

Nuclear material in research and development facilities

ROUTINE REPORTS

59. Only accounting reports need be submitted in respect of *nuclear material* in *research and development facilities*. The frequency of submission of such routine reports shall be agreed between the Agency and the State, taking into account the frequency established for routine inspections; however, at least one such report shall be submitted each year and in no case shall more than 12 such reports be required in any year.

ROUTINE INSPECTIONS

60. The maximum frequency of routine inspections of safeguarded *nuclear material* in a *research and development facility* shall be that specified in the table in paragraph 57 for the total amount of material in the facility.

Source material in sealed storage

61. The following simplified procedures for safeguarding stockpiled source material shall be applied if a State undertakes to store such material in a sealed storage facility and not to remove it therefrom without previously informing the Agency.

DESIGN OF STORAGE FACILITIES

62. The State shall submit to the Agency information on the design of each sealed storage facility and agree with the Agency on the method and procedure for sealing it.

ROUTINE REPORTS

63. Two routine accounting reports in respect of source material in sealed storage shall be submitted each year.

ROUTINE INSPECTIONS

64. The Agency may perform one routine inspection of each sealed storage facility annually.

REMOVAL OF MATERIAL

65. The State may remove safeguarded source material from a sealed storage facility after informing the Agency of the amount, type and intended use of the material to be removed, and providing sufficient other data in time to enable the Agency to continue safeguarding the material after it has been removed.

Nuclear material in other locations

66. Except to the extent that safeguarded *nuclear material* outside of *principal nuclear facilities* is covered by any of the provisions set forth in paragraphs 59-65, the following procedures shall be applied with respect to such material (for example, source material stored elsewhere than in a sealed storage facility, or special fissionable material used in a sealed neutron source in the field).

ROUTINE REPORTS

67. Routine accounting reports in respect of all safeguarded *nuclear material* in this category shall be submitted periodically. The frequency of submission of such reports shall be agreed between the Agency and the State, taking into account the frequency established for routine inspections; however, at least one such report shall be submitted each year and in no case shall more than 12 such reports be required in any year.

ROUTINE INSPECTIONS

68. The maximum frequency of routine inspections of safeguarded *nuclear material* in this category shall be one inspection annually if the total amount of such material does not exceed five *effective kilograms*, and shall be determined from the table in paragraph 57 if the amount is greater.

IV. DEFINITIONS

- "Agency" means the International Atomic Energy Agency.
- "Board" means the Board of Governors of the Agency.
- "Director General" means the Director General of the Agency.
- "Effective kilograms" means:
 - In the case of plutonium, its weight in kilograms;

- (b) In the case of uranium with an *enrichment* of 0.01 (1%) and above, its weight in kilograms multiplied by the square of its *enrichment*;
 - (c) In the case of uranium with an *enrichment* below 0.01 (1%) and above 0.005 (0.5%), its weight in kilograms multiplied by 0.0001; and
 - (d) In the case of depleted uranium with an *enrichment* of 0.005 (0.5%) or below, and in the case of thorium, its weight in kilograms multiplied by 0.00005.
73. "Enrichment" means the ratio of the combined weight of the isotopes uranium-233 and uranium-235 to that of the total uranium in question.
74. "Improved" means, with respect to *nuclear material*, that either:
- (a) The concentration of fissionable isotopes in it has been increased; or
 - (b) The amount of chemically separable fissionable isotopes in it has been increased; or
 - (c) Its chemical or physical form has been changed so as to facilitate further use or processing.
75. "Inspector" means an Agency official designated in accordance with the *Inspectors Document*.
76. "Inspectors Document" means the Annex to the Agency's document GC(V)/INF/39.
77. "Nuclear material" means any source or special fissionable material as defined in Article XX of the Statute.
78. "Principal nuclear facility" means a *reactor*, a plant for processing *nuclear material* irradiated in a *reactor*, a plant for separating the isotopes of a *nuclear material*, a plant for processing or fabricating *nuclear material* (excepting a mine or ore-processing plant) or a facility or plant of such other type as may be designated by the Board from time to time, including associated storage facilities.
79. "Project agreement" means a *safeguards agreement* relating to an Agency project and containing provisions as foreseen in Article XI.F.4(b) of the Statute.
80. "Reactor" means any device in which a controlled, self-sustaining fission chain-reaction can be maintained.
81. "Research and development facility" means a facility, other than a *principal nuclear facility*, used for research or development in the field of nuclear energy.
82. "Safeguards agreement" means an agreement between the Agency and one or more Member States which contains an undertaking by one or more of those States not to use certain items in such a way as to further any military purpose and which gives the Agency the right to observe compliance with such undertaking. Such an agreement may concern:
- (a) An Agency project;
 - (b) A bilateral or multilateral arrangement in the field of nuclear energy under which the Agency may be asked to administer safeguards; or
 - (c) Any of a State's nuclear activities *unilaterally submitted* to Agency safeguards.
83. "Statute" means the Statute of the Agency.
84. "Throughput" means the rate at which *nuclear material* is introduced into a facility operating at full capacity.
85. "Unilaterally submitted" means submitted by a State to Agency safeguards, pursuant to a *safeguards agreement*.

ANNEX I

PROVISIONS FOR REPROCESSING PLANTS

INTRODUCTION

1. The Agency's Safeguards System (1965) is so formulated as to permit application to *principal nuclear facilities* other than *reactors* as foreseen in paragraph 7. This Annex lays down the additional procedures which are applicable to the safeguarding of *reprocessing plants*. However, because of the possible need to revise these procedures in the light of experience, they shall be subject to review at any time and shall in any case be reviewed after two years' experience of their application has been gained.

SPECIAL PROCEDURES

Reports

2. The frequency of submission of routine reports shall be once each calendar month.

Inspections

3. A *reprocessing plant* having an annual *throughput* not exceeding 5 *effective kilograms* of *nuclear material*, and the safeguarded *nuclear material* in it, may be routinely inspected twice a year. A *reprocessing plant* having an annual *throughput* exceeding 5 *effective kilograms* of *nuclear material*, and the safeguarded *nuclear material* in it, may be inspected at all times. The arrangements for inspections set forth in paragraph 50 shall apply to all inspections to be made under this paragraph.¹⁾
4. When a *reprocessing plant* is under Agency safeguards only because it contains safeguarded *nuclear material*, the inspection frequency shall be based on the rate of delivery of safeguarded *nuclear material*.
5. The State and the Agency shall co-operate in making all the necessary arrangements to facilitate the taking, shipping or analysis of samples, due account being taken of the limitations imposed by the characteristics of a plant already in operation when placed under Agency safeguards.

Mixtures of safeguarded and unsafeguarded nuclear material

6. By agreement between the State and the Agency, the following special arrangements may be made in the case of a *reprocessing plant* to which the criteria in paragraph 19(d) do not apply, and in which safeguarded and unsafeguarded *nuclear materials* are present:
- (a) Subject to the provisions of sub-paragraph (b) below, the Agency shall restrict its safeguards procedures to the area in which irradiated fuel is stored, until such time as all or any part of such fuel is transferred out of the storage area into other parts of the plant. Safeguards procedures shall cease to apply to the storage area or plant when either contains no safeguarded *nuclear material*; and
 - (b) Where possible safeguarded *nuclear material* shall be measured and sampled separately from unsafeguarded material, and at as early a stage as possible. Where separate measurement, sampling or processing are not possible, the whole of the material being processed in that *campaign* shall be subject to the safeguards procedures set out in this Annex. At the conclusion of the processing the *nuclear material* that is thereafter to be safeguarded shall be selected by agreement between the State and the Agency from the whole output of the plant resulting from that *campaign*, due account being taken of any processing losses accepted by the Agency.

¹⁾ It is understood that for plants having an annual *throughput* of more than 60 *effective kilograms*, the right of access at all times would normally be implemented by means of continuous inspection.

DEFINITIONS

7. "Reprocessing plant" ²⁾ means a facility to separate irradiated *nuclear materials* and fission products, and includes the facility's head-end treatment section and its associated storage and analytical sections.
8. "Campaign" means the period during which the chemical processing equipment in a *reprocessing plant* is operated between two successive wash-outs of the *nuclear material* present in the equipment.

²⁾ This term is synonymous with the term "a plant for processing nuclear material irradiated in a reactor" which is used in paragraph 78.

ANNEX II

PROVISIONS FOR SAFEGUARDED NUCLEAR MATERIAL IN CONVERSION PLANTS AND FABRICATION PLANTS

INTRODUCTION

1. The Agency's Safeguards System (1965, as Provisionally Extended in 1966) is so formulated as to permit application to *principal nuclear facilities* other than *reactors* as foreseen in paragraph 7. This Annex lays down the additional procedures which are applicable to safeguarded *nuclear material* in *conversion plants* and *fabrication plants* ¹⁾. However, because of the possible need to revise these procedures in the light of experience, they shall be subject to review at any time and shall in any case be reviewed after two years' experience of their application has been gained.

SPECIAL PROCEDURES

Reports

2. The frequency of submission of routine reports shall be once each calendar month.

Inspections

3. A *conversion plant* or *fabrication plant* to which the criteria in paragraph 19(d) apply and the *nuclear material* in it, may be inspected at all times if the plant inventory at any time, or the annual input, of *nuclear material* exceeds five *effective kilograms*. Where neither the inventory at any time, nor the annual input, exceeds five *effective kilograms* of *nuclear material*, the routine inspections shall not exceed two a year. The arrangements for inspection set forth in paragraph 50 shall apply to all inspections to be made under this paragraph ²⁾.
4. When a *conversion plant* or *fabrication plant* to which the criteria in paragraph 19(d) do not apply contains safeguarded *nuclear material* the frequency of routine inspections shall be based on the inventory at any time and the annual input of safeguarded *nuclear material*. Where the inventory at any time, or the annual input, of safeguarded *nuclear material* exceeds five *effective kilograms* the plant may be inspected at all times. Where neither the inventory at any time, nor the annual input, exceeds five *effective kilograms* of safeguarded *nuclear material* the routine inspections shall not exceed two a year. The arrangements for inspection set forth in paragraph 50 shall apply to all inspections to be made under this paragraph ²⁾.
5. The intensity of inspection of safeguarded *nuclear material* at various steps in a *conversion plant* or *fabrication plant* shall take account of the nature, isotopic composition and amount of safeguarded *nuclear material* in the plant. Safeguards shall be applied in accordance with the general principles set forth in paragraphs 9-14. Emphasis shall be placed on inspection to control uranium of high enrichments and plutonium.
6. Where a plant may handle safeguarded and unsafeguarded *nuclear material*, the State shall notify the Agency in advance of the programme for handling safeguarded batches to enable the Agency to make inspections during these periods, due account being also taken of the arrangements under paragraph 10 below.

¹⁾ This terminology is intended to be synonymous with the term "a plant for processing or fabricating *nuclear material*" (excepting a mine or ore-processing plant") which is used in paragraph 78.

²⁾ It is understood that for plants having an inventory at any time, or an annual input, of more than 60 *effective kilograms* the right of access at all times would normally be implemented by means of continuous inspection. Where neither the inventory at any time nor the annual input exceeds one *effective kilogram* of *nuclear material* the plant would not normally be subject to routine inspection.

7. The State and the Agency shall co-operate in making all the necessary arrangements to facilitate the preparation of inventories of safeguarded *nuclear material* and the taking, shipping and/or analysis of samples, due account being taken of the limitations imposed by the characteristics of a plant already in operation when placed under Agency safeguards.

Residues, scrap and waste

8. The State shall ensure that safeguarded *nuclear material* contained in residues, scrap or waste created during conversion or fabrication is recovered, as far as is practicable, in its facilities and within a reasonable period of time. If such recovery is not considered practicable by the State, the State and the Agency shall co-operate in making arrangements to account for and dispose of the material.

Safeguarded and unsafeguarded nuclear material

9. By agreement between the State and the Agency, the following special arrangements may be made in the case of a *conversion plant* or a *fabrication plant* to which the criteria in paragraph 19(d) do not apply, and in which safeguarded and unsafeguarded *nuclear material* are both present:

- (a) Subject to the provisions of sub-paragraph (b) below, the Agency shall restrict its safeguards procedures to the area in which safeguarded *nuclear material* is stored, until such time as all or any part of such *nuclear material* is transferred out of the storage area into other parts of the plant. Safeguards procedures shall cease to be applied to the storage area or plant when it contains no safeguarded *nuclear material*; and
- (b) Where possible, safeguarded *nuclear material* shall be measured and sampled separately from unsafeguarded *nuclear material*, and at as early a stage as possible. Where separate measurement, sampling or processing is not possible, any *nuclear material* containing safeguarded *nuclear material* shall be subject to the safeguards procedures set out in this Annex. At the conclusion of processing, the *nuclear material* that is thereafter to be safeguarded shall be selected, in accordance with paragraph 11 below when applicable, by agreement between the State and the Agency, due account being taken of any processing losses accepted by the Agency.

Blending of nuclear material

10. When safeguarded *nuclear material* is to be blended with either safeguarded or unsafeguarded *nuclear material*, the State shall notify the Agency sufficiently in advance of the programme of blending to enable the Agency to exercise its right to obtain evidence, through inspection of the blending operation or otherwise, that the blending is performed according to the programme.

11. When safeguarded and unsafeguarded *nuclear material* are blended, if the ratio of fissionable isotopes in the safeguarded component going into the blend to all the fissionable isotopes in the blend is 0.3 or greater, and if the concentration of fissionable isotopes in the unsafeguarded *nuclear material* is increased by such blending, then the whole blend shall remain subject to safeguards. In other cases the following procedures shall apply:

- (a) Plutonium/plutonium blending. The quantity of the blend that shall continue to be safeguarded shall be such that its weight, when multiplied by the square of the weight fraction of contained fissionable isotopes, is not less than the weight of originally safeguarded plutonium multiplied by the square of the weight fraction of fissionable isotopes therein, provided however that:
 - (i) In cases where the weight of the whole blend, when multiplied by the square of the weight fraction of contained fissionable isotopes, is less than the weight of originally

safeguarded plutonium multiplied by the square of the weight fraction of fissionable isotopes therein, the whole of the blend shall be safeguarded; and

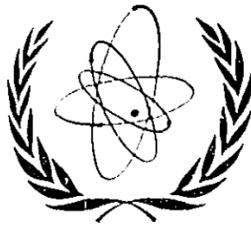
- (ii) The number of fissionable atoms in the portion of the blend that shall continue to be under safeguards shall in no case be less than the number of fissionable atoms in the originally safeguarded plutonium;
- (b) Uranium/uranium blending. The quantity of the blend that shall continue to be safeguarded shall be such that the number of *effective kilograms* is not less than the number of *effective kilograms* in the originally safeguarded uranium, provided however that:
 - (i) In cases where the number of *effective kilograms* in the whole blend is less than in the safeguarded uranium, the whole of the blend shall be safeguarded; and
 - (ii) The number of fissionable atoms in the portion of the blend that shall continue to be under safeguards shall in no case be less than the number of fissionable atoms in the originally safeguarded uranium;
 - (c) Uranium/plutonium blending. The whole of the resultant blend shall be safeguarded until the uranium and the plutonium constituents are separated. After separation of the uranium and plutonium, safeguards shall apply to the originally safeguarded component; and
 - (d) Due account shall be taken of any processing losses agreed upon between the State and the Agency.

DEFINITIONS

12. "Conversion plant" means a facility (excepting a mine or ore-processing plant) to improve unirradiated *nuclear material*, or irradiated *nuclear material* that has been separated from fission products, by changing its chemical or physical form so as to facilitate further use or processing. The term *conversion plant* includes the facility's storage and analytical sections. The term does not include a plant intended for separating the isotopes of a *nuclear material*.

13. "Fabrication plant" means a plant to manufacture fuel elements or other components containing *nuclear material* and includes the plant's storage and analytical sections.

ANNEX (A)



International Atomic Energy Agency

General Conference

GC(V)/INF/39
28 August 1961
GENERAL Distr.

Original: ENGLISH

Fifth regular session

THE AGENCY'S INSPECTORATE

Memorandum by the Director General

1. The General Conference will recall that in connection with its fourth regular session the Board transmitted to it for information a memorandum on the Agency's inspectors. [1] In that document the Board indicated that until certain issues relevant to the recruitment and sources of members of the Agency's inspectorate had been resolved, it would not consider its examination of the problems connected therewith as complete.
2. The Board reverted to the subject at meetings held in April and June 1961, and on 29 June decided that the Inspector General and all officers of Professional grade of the Division of Inspection would be appointed by the Director General as staff officials of the Agency after he had submitted applications recommended by him to the Board for approval. As a corollary to that decision the Board also decided that its consideration of the establishment of the Agency's inspectorate was concluded, and that the detailed provisions relating to the Agency's inspectors which it had annexed to its memorandum of last year were in effect.
3. As the Board pointed out last year, that Annex - which deals with matters that arise in the application of the Agency's safeguards and health and safety measures - is intended to serve as a guide to the parties concerned in negotiating provisions that are normally included in project agreements, and in agreements for the application of Agency safeguards and the Agency's health and safety measures to bilateral or multilateral arrangements or to a State's own activities in the field of atomic energy, to the extent that such provisions are relevant to each project or arrangement. The provisions of the Annex are not mandatory, and they and other provisions that may be agreed in negotiation will only be given legal effect by the entry into force of the particular agreement which incorporates them.
4. The Board has requested the communication of this memorandum to the General Conference, together with the text of the Annex to its memorandum of last year, for information at the fifth regular session.

[1] GC(IV)/INF/27.

A N N E X

THE AGENCY'S INSPECTORS

I. Designation [1] of Agency inspectors

1. When it is proposed to designate an Agency inspector for a State, the Director General shall inform the State in writing of the name, nationality and grade of the Agency inspector proposed, shall transmit a written certification of his relevant qualifications and shall enter into such other consultations as the State may request. The State shall inform the Director General, within 30 days of receipt of such a proposal, whether it accepts the designation of that inspector. If so, the inspector may be designated as one of the Agency's inspectors for that State, and the Director General shall notify the State concerned of such designation.
2. If a State, either upon proposal of a designation or at any time after a designation has been made, objects to the designation of an Agency inspector for that State, it shall inform the Director General of its objection. In this event, the Director General shall propose to the State an alternative designation or designations. The Director General may refer to the Board, for its appropriate action, the repeated refusal of a State to accept the designation of an Agency inspector if, in his opinion, this refusal would impede the inspections provided for in the relevant project or safeguards agreement.
3. Each State shall as speedily as possible grant or renew appropriate visas, where required, for persons whose designation as Agency inspectors that State has accepted.

II. Visits of Agency inspectors

4. The State shall be given at least one week's notice of each inspection, including the names of the Agency's inspectors, the place and approximate time of their arrival and departure, and the facilities and materials to be inspected. Such notice need not exceed 24 hours for any inspection to investigate any incident requiring a "special inspection". [2]
5. Agency inspectors shall be accompanied by representatives of the State concerned, if the State so requests, provided that the inspectors shall not thereby be delayed or otherwise impeded in the exercise of their functions. Agency inspectors shall use such points of entry into and departure from the State, and such routes and modes of travel within it, as may be designated by the State.

Agency inspectors, in locations where this is necessary, shall be provided, on request and for reasonable compensation if agreed on, with appropriate equipment for carrying out inspections and with suitable accommodation and transport.

The visits and activities of the Agency's inspectors shall be so arranged as to ensure on the one hand the effective discharge of their functions and on the other hand the minimum possible inconvenience to the State and disturbance to the facilities inspected.

[1] The term "designation" as used in this Annex refers to the assignment of Agency inspectors to a particular task or tasks and not to the recruitment or appointment of Agency inspectors.

[2] "Special inspections" are provided for in paragraphs 58 and 59 of the Agency's safeguards system (INFCIRC/26); they are also provided for in paragraph 32 of the Agency's health and safety measures (INFCIRC/18).

8. Consultations shall take place with the State to ensure that consistent with the effective discharge of the functions of the Agency's inspectors, their activities will be conducted in harmony with the laws and regulations existing in the State.

III. Rights of access and inspection

9. After submitting their credentials, and to the extent relevant to the project or arrangement, Agency inspectors shall have access, depending upon the type of inspection to be carried out, either:

- (a) To all materials, equipment and facilities to which Agency safeguards against diversion are applied under the relevant provisions of document INFCIRC/26; or
(b) To all radiation sources, equipment and facilities which can be inspected by those Agency inspectors who are making inspections in relation to the provisions of paragraphs 31 and 32 of the Agency's health and safety measures set forth in document INFCIRC/18.

They shall have access at all times to all places and data and to any person, to the extent provided for in Article XII.A.6 of the Statute. The State shall direct all such persons under its control to co-operate fully with Agency inspectors, and shall indicate the exact location of and identify all such materials, equipment and facilities.

10. With respect to all materials, equipment and facilities to which Agency safeguards against diversion are applied, the Agency's inspectors shall be permitted to carry out their inspections in accordance with the pertinent agreements which may include provisions for:

- (a) Examination of the facility and/or materials to which Agency safeguards are applied;
(b) Audit of reports and records;
(c) Verification of the amounts of material to which Agency safeguards are applied, by physical inspection, measurement and sampling; and
(d) Examination and testing of the measurement instruments.

11. Agency inspectors for health and safety measures may perform inspections in accordance with each individual agreement, which may necessitate:

- (a) Tests of radiation sources, of radiation detection and monitoring instruments and of other equipment or devices in connection with the use, storage, transportation or disposal as waste of radiation sources;
(b) Examination of facilities wherein radiation sources are used or stored, of waste disposal facilities and of all records on which reports to the Agency are based; and
(c) Examinations related to the evaluation of the radiation exposure of persons who have or may have been over-exposed.

The State shall perform, in a manner prescribed by the Agency, or arrange for the Agency to perform those tests and examinations deemed necessary by the Agency.

12. After an inspection has been carried out, the State concerned shall be duly informed by the Agency of its results. In case the State disagrees with the report of the Agency's inspectors, it shall be entitled to submit a report on the matter to the Board of Governors.

IV. The privileges and immunities of the Agency's inspectors

13. Agency inspectors shall be granted the privileges and immunities necessary for the performance of their functions. Suitable provision shall be included in each project or safeguards agreement for the application, in so far as relevant to the execution of that agreement, of the provisions of the Agreement on the Privileges and Immunities of the International Atomic Energy Agency [3] excepting Articles V and XII thereof, provided that all parties to the project or safeguards agreement so agree.
14. Disputes between a State and the Agency arising out of the exercise of the functions of Agency inspectors will be settled according to an appropriate disputes clause in the pertinent project or safeguards agreement.

[3] INFCIRC/9/Rev.1.

ANNEX (C) /

The Treaty on the Non-Proliferation of Nuclear Weapons.

(Copy extracted from IAEA Bulletin, number 4, 1968.)

The complete text of the *Treaty on the Non-Proliferation of Nuclear Weapons* was as follows:

The States concluding this Treaty, hereinafter referred to as the "Parties to the Treaty",

Considering the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war and to make measures to safeguard the security of peoples,

Recognizing that the proliferation of nuclear weapons would seriously enhance the danger of nuclear war,

Recalling the resolutions of the United Nations General Assembly calling for the conclusion of an agreement on the prevention of wider dissemination of nuclear weapons,

Desiring to co-operate in facilitating the application of International Atomic Energy Agency safeguards on peaceful nuclear activities,

Desiring their support for research, development and other efforts to further the application within the framework of the International Atomic Energy Agency safeguards system of the principle of safeguarding effectively the flow of nuclear energy and special fissionable materials by use of instruments and other technical devices at certain strategic points,

Adopting the principle that the benefits of peaceful applications of nuclear technology, including any technological by-products which may be derived by nuclear-weapon States from the development of nuclear explosive devices, should be available for peaceful purposes to all Parties to the Treaty, whether nuclear-weapon or non-nuclear-weapon States,

Convinced that, in furtherance of this principle, all Parties to the Treaty are entitled to participate in the fullest possible exchange of scientific information for and to contribute alone or in co-operation with other States to the further development of the applications of atomic energy for peaceful purposes,

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to undertake effective measures in the direction of nuclear disarmament,

Urging the co-operation of all States in the attainment of this objective,

Reaffirming the determination expressed by the Parties to the 1963 Treaty limiting nuclear-weapon tests in the atmosphere, in outer space and under water in its preamble to seek to achieve the discontinuance of all test explosions save for those permitted for all time and to continue negotiations to this end,

Desiring to further the easing of international tension and the strengthening of relations between States in order to facilitate the cessation of the manufacture of nuclear weapons, the liquidation of all their existing stockpiles, and the elimination of all nuclear armaments of nuclear weapons and the means of their delivery, pursuant to a Treaty or general and complete disarmament under strict and effective international control,

Reaffirming that, in accordance with the Charter of the United Nations, States must refrain from their international relations from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the Purposes of the United Nations, and that the promotion of the highest and maintenance of international peace and security are to

be promoted with the least diversion to armaments of the world's human and economic resources.

It has effect as follows:

Article I

Each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices.

Article II

Each non-nuclear-weapon State Party to the Treaty undertakes not to receive, manufacture, or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices, and not to seek or receive any assistance for the manufacture of nuclear weapons or other nuclear explosive devices.

Article III

Each non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the Agency, the Agency's safeguards system, and the Agency's objectives and purposes of verification of the fulfillment of its obligations to refrain from nuclear weapons or other nuclear explosive devices. Provisions to be entered into and required by this article shall be followed with respect to special fissionable material whether it is being produced, processed, or used in any principal nuclear facility or is outside any such facility. The provisions required by this article shall be applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere.

Each non-nuclear-weapon State Party to the Treaty undertakes not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this article.

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3. The safeguards required by this article shall be implemented in a manner designed to comply with article IV of this Treaty, and to avoid hampering the economic or technological development of the parties or international cooperation in the field of peaceful nuclear activities, including the international exchange of nuclear material and equipment for the processing, use or production of nuclear material for peaceful purposes in accordance with the provision of this article and the principle of safeguarding set forth in the preamble.

4. Non-nuclear-weapon States Party to the Treaty shall conclude agreements with the International Atomic Energy Agency to meet the requirements of this article either individually or together with other States in accordance with the Statute of the International Atomic Energy Agency. Negotiation of such agreements shall commence within 180 days from the original entry into force of this Treaty. For States depositing their instruments of ratification or accession after the 180-day period, negotiation of such agreements shall commence not later than the date of such deposit. Such agreements shall enter into force not later than eighteen months after the date of initiation of negotiations.

Article IV

1. Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with article I and II of this Treaty.

2. All the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy. Parties to the Treaty in a position to do so shall also cooperate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty, with due consideration for the needs of the developing areas of the world.

Article V

Each Party to the Treaty undertakes to take appropriate measures to ensure that, in accordance with this Treaty, under appropriate international supervision and through appropriate international procedures, potential benefits from any peaceful applications of nuclear explosions will be made available to non-nuclear-weapon States Party to the Treaty on a non-discriminatory basis and that the charge to such Parties for the explosive devices used will be as low as possible and exclude any charge for research and development. Non-nuclear-weapon States Party to the Treaty shall be able to obtain such benefits, pursuant to a special international agreement or agreements, through an appropriate international body with adequate representation of non-nuclear-weapon

States. Negotiations on this subject shall commence as soon as possible after the Treaty enters into force. Non-nuclear-weapon States Party to the Treaty so desiring may also obtain such benefits pursuant to bilateral agreements.

Article VI

Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international control.

Article VII

Nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories.

Article VIII

1. Any Party to the Treaty may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Government which shall circulate it to all Parties to the Treaty. Thereupon, if requested by a majority of one or more of the Parties to the Treaty, the Depositary Government shall convene a conference, to which they shall invite all the Parties to the Treaty, to consider such an amendment.

2. An amendment to this Treaty must be approved by a majority of the votes of all the Parties to the Treaty, including the votes of all nuclear-weapon States Party to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. The amendment shall enter into force for a Party which deposits its instrument of ratification of the amendment only after it has received instruments of ratification by a majority of all the Parties to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. Thereafter, it shall enter into force for any other Party upon the deposit of its instrument of ratification of the amendment.

3. Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held in Geneva, Switzerland, in order to review the operation of this Treaty with a view to assuring that the purposes of the Treaty and the provisions of the Treaty are being realized. At intervals of five years thereafter, a majority of the Parties to the Treaty may obtain, by

The undersigned hereby certify that the foregoing is a true and correct copy of the original as the same appears in the records of the Board of Health of the City of New York.

ARTICLE II

1. This Treaty shall be in full force and effect from the date of its ratification by the Board of Health of the City of New York.

2. The undersigned hereby certify that the foregoing is a true and correct copy of the original as the same appears in the records of the Board of Health of the City of New York.

3. The undersigned hereby certify that the foregoing is a true and correct copy of the original as the same appears in the records of the Board of Health of the City of New York.

4. The undersigned hereby certify that the foregoing is a true and correct copy of the original as the same appears in the records of the Board of Health of the City of New York.

5. The undersigned hereby certify that the foregoing is a true and correct copy of the original as the same appears in the records of the Board of Health of the City of New York.

6. The undersigned hereby certify that the foregoing is a true and correct copy of the original as the same appears in the records of the Board of Health of the City of New York.

7. The undersigned hereby certify that the foregoing is a true and correct copy of the original as the same appears in the records of the Board of Health of the City of New York.

8. The undersigned hereby certify that the foregoing is a true and correct copy of the original as the same appears in the records of the Board of Health of the City of New York.

9. The undersigned hereby certify that the foregoing is a true and correct copy of the original as the same appears in the records of the Board of Health of the City of New York.

it definitely, or shall be extended for an additional fixed period or periods.
This decision shall be taken by a majority of the Parties to the Treaty.

Article XI

This Treaty, the English, Russian, French, Spanish and Chinese texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

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ANNEX(d)



INTERNATIONAL ATOMIC ENERGY AGENCY

STATUTE

As amended up to 31 January 1963

Reprinted by the
International Atomic Energy Agency
in Austria - March 1967

This Statute was approved on 23 October 1956 by the Conference on the Statute of the International Atomic Energy Agency, which was held at the Headquarters of the United Nations. It was opened for signature on 26 October 1956 and came into force on 29 July 1957.

On 4 October 1961 the General Conference of the Agency approved an amendment to the first sentence of Article VI.A.3, which came into force on 31 January 1963.

CONTENTS

<i>Article</i>	<i>Title</i>	<i>Page</i>
I.	Establishment of the Agency	5
II.	Objectives	5
III.	Functions	6
IV.	Membership	10
V.	General Conference	11
VI.	Board of Governors	15
VII.	Staff	19
VIII.	Exchange of information	21
IX.	Supplying of materials	22
X.	Services, equipment, and facilities ..	25
XI.	Agency projects	26
XII.	Agency safeguards	30
XIII.	Reimbursement of members	34
XIV.	Finance	35
XV.	Privileges and immunities	38
XVI.	Relationship with other organizations	39
XVII.	Settlement of disputes	40
XVIII.	Amendments and withdrawals	41
XIX.	Suspension of privileges	43
XX.	Definitions	43
XXI.	Signature, acceptance, and entry into force	45

XXII.	Registration with the United Nations	46
XXIII.	Authentic texts and certified copies .	47
ANNEX I.	Preparatory Commission	48
Index	51

STATUTE OF THE
INTERNATIONAL
ATOMIC ENERGY AGENCY

ARTICLE I

Establishment of the Agency

The Parties hereto establish an International Atomic Energy Agency (hereinafter referred to as "the Agency") upon the terms and conditions hereinafter set forth.

ARTICLE II

Objectives

The Agency shall seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world. It shall ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose.

ARTICLE III

Functions

A. The Agency is authorized:

1. To encourage and assist research on, and development and practical application of, atomic energy for peaceful uses throughout the world; and, if requested to do so, to act as an intermediary for the purposes of securing the performance of services or the supplying of materials, equipment, or facilities by one member of the Agency for another; and to perform any operation or service useful in research on, or development or practical application of, atomic energy for peaceful purposes;

2. To make provision, in accordance with this Statute, for materials, services, equipment, and facilities to meet the needs of research on, and development and practical application of, atomic energy for peaceful purposes, including the production of electric power, with due consideration for the needs of the under-developed areas of the world;

3. To foster the exchange of scientific and technical information on peaceful uses of atomic energy;

4. To encourage the exchange and training of scientists and experts in the field of peaceful uses of atomic energy;

5. To establish and administer safeguards designed to ensure that special fissionable and other materials, services, equipment, facilities, and information made available by the Agency or at its request or under its supervision or control are not used in such a way as to further any military purpose; and to apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State, to any of that State's activities in the field of atomic energy;

6. To establish or adopt, in consultation and, where appropriate, in collaboration with the competent organs of the United Nations and with the specialized agencies concerned, standards of safety for protection of health and minimization of danger to life and property (including such standards for labour conditions), and to provide for the application of these standards to its own operations as well as to the operations making use of materials, services, equipment, facilities, and information made available by the Agency or at its request or under its control or supervision; and

to provide for the application of these standards, at the request of the parties, to operations under any bilateral or multilateral arrangement, or, at the request of a State, to any of that State's activities in the field of atomic energy;

7. To acquire or establish any facilities, plant and equipment useful in carrying out its authorized functions, whenever the facilities, plant, and equipment otherwise available to it in the area concerned are inadequate or available only on terms it deems unsatisfactory.

B. In carrying out its functions, the Agency shall:

1. Conduct its activities in accordance with the purposes and principles of the United Nations to promote peace and international co-operation, and in conformity with policies of the United Nations furthering the establishment of safeguarded world-wide disarmament and in conformity with any international agreements entered into pursuant to such policies;

2. Establish control over the use of special fissionable materials received by the Agency, in order to ensure that these materials are used only for peaceful purposes;

3. Allocate its resources in such a manner as to secure efficient utilization and the greatest possible general benefit in all areas of the world, bearing in mind the special needs of the underdeveloped areas of the world;

4. Submit reports on its activities annually to the General Assembly of the United Nations and, when appropriate, to the Security Council: if in connexion with the activities of the Agency there should arise questions that are within the competence of the Security Council, the Agency shall notify the Security Council, as the organ bearing the main responsibility for the maintenance of international peace and security, and may also take the measures open to it under this Statute, including those provided in paragraph C of article XII;

5. Submit reports to the Economic and Social Council and other organs of the United Nations on matters within the competence of these organs.

C. In carrying out its functions, the Agency shall not make assistance to members subject to any political, economic, military, or other conditions incompatible with the provisions of this Statute.

D. Subject to the provisions of this Statute and to the terms of agreements concluded between a State or a group of States and the Agency which shall be in accordance with the provisions of the Statute, the activities of the Agency shall be carried out with due observance of the sovereign rights of States.

ARTICLE IV

Membership

A. The initial members of the Agency shall be those States Members of the United Nations or of any of the specialized agencies which shall have signed this Statute within ninety days after it is opened for signature and shall have deposited an instrument of ratification.

B. Other members of the Agency shall be those States, whether or not Members of the United Nations or of any of the specialized agencies, which deposit an instrument of acceptance of this Statute after their membership has been approved by the General Conference upon the recommendation of the Board of Governors. In recommending and approving a State for membership, the Board of Governors and the General Conference shall determine that the State is able and willing to

carry out the obligations of membership in the Agency, giving due consideration to its ability and willingness to act in accordance with the purposes and principles of the Charter of the United Nations.

C. The Agency is based on the principle of the sovereign equality of all its members, and all members, in order to ensure to all of them the rights and benefits resulting from membership, shall fulfil in good faith the obligations assumed by them in accordance with this Statute.

ARTICLE V

General Conference

A. A General Conference consisting of representatives of all members shall meet in regular annual session and in such special sessions as shall be convened by the Director General at the request of the Board of Governors or of a majority of members. The sessions shall take place at the headquarters of the Agency unless otherwise determined by the General Conference.

B. At such sessions, each member shall be represented by one delegate who may be accompanied by alternates and by advisers. The cost of

attendance of any delegation shall be borne by the member concerned.

C. The General Conference shall elect a President and such other officers as may be required at the beginning of each session. They shall hold office for the duration of the session. The General Conference, subject to the provisions of this Statute, shall adopt its own rules of procedure. Each member shall have one vote. Decisions pursuant to paragraph H of article XIV, paragraph C of article XVIII and paragraph B of article XIX shall be made by a two-thirds majority of the members present and voting. Decisions on other questions, including the determination of additional questions or categories of questions to be decided by a two-thirds majority, shall be made by a majority of the members present and voting. A majority of members shall constitute a quorum.

D. The General Conference may discuss any questions or any matters within the scope of this Statute or relating to the powers and functions of any organs provided for in this Statute, and may make recommendations to the membership of the Agency or to the Board of Governors or to both on any such questions or matters.

E. The General Conference shall:

1. Elect members of the Board of Governors in accordance with article VI;

2. Approve States for membership in accordance with article IV;

3. Suspend a member from the privileges and rights of membership in accordance with article XIX;

4. Consider the annual report of the Board;

5. In accordance with article XIV, approve the budget of the Agency recommended by the Board or return it with recommendations as to its entirety or parts to the Board, for resubmission to the General Conference;

6. Approve reports to be submitted to the United Nations as required by the relationship agreement between the Agency and the United Nations, except reports referred to in paragraph C of article XII, or return them to the Board with its recommendations;

7. Approve any agreement or agreements between the Agency and the United Nations and other organizations as provided in article XVI or return such agreements with its recommendations to the Board, for resubmission to the General Conference;

8. Approve rules and limitations regarding the exercise of borrowing powers by the Board, in accordance with paragraph G of article XIV; approve rules regarding the acceptance of voluntary contributions to the Agency; and approve, in accordance with paragraph F of article XIV, the manner in which the general fund referred to in that paragraph may be used;

9. Approve amendments to this Statute in accordance with paragraph C of article XVIII;

10. Approve the appointment of the Director General in accordance with paragraph A of article VII.

F. The General Conference shall have the authority:

1. To take decisions on any matter specifically referred to the General Conference for this purpose by the Board;

2. To propose matters for consideration by the Board and request from the Board reports on any matter relating to the functions of the Agency.

ARTICLE VI

Board of Governors

A. The Board of Governors shall be composed as follows:

1. The outgoing Board of Governors (or in the case of the first Board, the Preparatory Commission referred to in Annex I) shall designate for membership on the Board the five members most advanced in the technology of atomic energy including the production of source materials and the member most advanced in the technology of atomic energy including the production of source materials in each of the following areas not represented by the aforesaid five:

- (1) North America
- (2) Latin America
- (3) Western Europe
- (4) Eastern Europe
- (5) Africa and the Middle East
- (6) South Asia
- (7) South East Asia and the Pacific
- (8) Far East.

2. The outgoing Board of Governors (or in the case of the first Board, the Preparatory Commission referred to in Annex I) shall designate

for membership on the Board two members from among the following other producers of source materials: Belgium, Czechoslovakia, Poland, and Portugal; and shall also designate for membership on the Board one other member as a supplier of technical assistance. No member in this category in any one year will be eligible for redesignation in the same category for the following year.

3. The General Conference shall elect twelve members to membership on the Board of Governors, with due regard to equitable representation on the Board as a whole of the members in the areas listed in sub-paragraph A-1 of this article, so that the Board shall at all times include in this category three representatives of the area of Latin America, three representatives of the area of Africa and the Middle East and a representative of each of the remaining areas except North America. Except for the five members chosen for a term of one year in accordance with paragraph D of this article, no member in this category in any one term of office will be eligible for re-election in the same category for the following term of office.

B. The designations provided for in sub-paragraphs A-1 and A-2 of this article shall take place not less than sixty days before each regular

annual session of the General Conference. The elections provided for in sub-paragraph A-3 of this article shall take place at regular annual sessions of the General Conference.

C. Members represented on the Board of Governors in accordance with sub-paragraphs A-1 and A-2 of this article shall hold office from the end of the next regular annual session of the General Conference after their designation until the end of the following regular annual session of the General Conference.

D. Members represented on the Board of Governors in accordance with sub-paragraph A-3 of this article shall hold office from the end of the regular annual session of the General Conference at which they are elected until the end of the second regular annual session of the General Conference thereafter. In the election of these members for the first Board, however, five shall be chosen for a term of one year.

E. Each member of the Board of Governors shall have one vote. Decisions on the amount of the Agency's budget shall be made by a two-thirds majority of those present and voting, as provided in paragraph H of article XIV. Decisions on other questions, including the determination of additional

questions or categories of questions to be decided by a two-thirds majority, shall be made by a majority of those present and voting. Two-thirds of all members of the Board shall constitute a ~~quorum~~.

F. The Board of Governors shall have authority to carry out the functions of the Agency in accordance with this Statute, subject to its responsibilities to the General Conference as provided in this Statute.

G. The Board of Governors shall meet at such times as it may determine. The meetings shall take place at the headquarters of the Agency unless otherwise determined by the Board.

H. The Board of Governors shall elect a Chairman and other officers from among its members and, subject to the provisions of this Statute, shall adopt its own rules of procedure.

I. The Board of Governors may establish such committees as it deems advisable. The Board may appoint persons to represent it in its relations with other organizations.

J. The Board of Governors shall prepare an annual report to the General Conference concerning the affairs of the Agency and any projects approved

by the Agency. The Board shall also prepare for submission to the General Conference such reports as the Agency is or may be required to make to the United Nations or to any other organization the work of which is related to that of the Agency. These reports, along with the annual reports, shall be submitted to members of the Agency at least one month before the regular annual session of the General Conference.

ARTICLE VII

Staff

A. The staff of the Agency shall be headed by a Director General. The Director General shall be appointed by the Board of Governors with the approval of the General Conference for a term of four years. He shall be the chief administrative officer of the Agency.

B. The Director General shall be responsible for the appointment, organization, and functioning of the staff and shall be under the authority of and subject to the control of the Board of Governors. He shall perform his duties in accordance with regulations adopted by the Board.

C. The staff shall include such qualified scientific and technical and other personnel as may be required to fulfil the objectives and functions of the Agency. The Agency shall be guided by the principle that its permanent staff shall be kept to a minimum.

D. The paramount consideration in the recruitment and employment of the staff and in the determination of the conditions of service shall be to secure employees of the highest standards of efficiency, technical competence, and integrity. Subject to this consideration, due regard shall be paid to the contributions of members to the Agency and to the importance of recruiting the staff on as wide a geographical basis as possible.

E. The terms and conditions on which the staff shall be appointed, remunerated, and dismissed shall be in accordance with regulations made by the Board of Governors, subject to the provisions of this Statute and to general rules approved by the General Conference on the recommendation of the Board.

F. In the performance of their duties, the Director General and the staff shall not seek or receive instructions from any source external to the Agency. They shall refrain from any action

which might reflect on their position as officials of the Agency; subject to their responsibilities to the Agency, they shall not disclose any industrial secret or other confidential information coming to their knowledge by reason of their official duties for the Agency. Each member undertakes to respect the international character of the responsibilities of the Director General and the staff and shall not seek to influence them in the discharge of their duties.

G. In this article the term "staff" includes guards.

ARTICLE VIII

Exchange of information

A. Each member should make available such information as would, in the judgement of the member, be helpful to the Agency.

B. Each member shall make available to the Agency all scientific information developed as a result of assistance extended by the Agency pursuant to article XI.

C. The Agency shall assemble and make available in an accessible form the information made available to it under paragraph A and B of

this article. It shall take positive steps to encourage the exchange among its members of information relating to the nature and peaceful uses of atomic energy and shall serve as an intermediary among its members for this purpose.

ARTICLE IX

Supplying of materials

A. Members may make available to the Agency such quantities of special fissionable materials as they deem advisable and on such terms as shall be agreed with the Agency. The materials made available to the Agency may, at the discretion of the member making them available, be stored either by the member concerned or, with the agreement of the Agency, in the Agency's depots.

B. Members may also make available to the Agency source materials as defined in article XX and other materials. The Board of Governors shall determine the quantities of such materials which the Agency will accept under agreements provided for in article XIII.

C. Each member shall notify the Agency of the quantities, form, and composition of special fissionable materials, source materials, and other

materials which that member is prepared, in conformity with its laws, to make available immediately or during a period specified by the Board of Governors.

D. On request of the Agency a member shall, from the materials which it has made available, without delay deliver to another member or group of members such quantities of such materials as the Agency may specify, and shall without delay deliver to the Agency itself such quantities of such materials as are really necessary for operations and scientific research in the facilities of the Agency.

E. The quantities, form and composition of materials made available by any member may be changed at any time by the member with the approval of the Board of Governors.

F. An initial notification in accordance with paragraph C of this article shall be made within three months of the entry into force of this Statute with respect to the member concerned. In the absence of a contrary decision of the Board of Governors, the materials initially made available shall be for the period of the calendar year succeeding the year when this Statute takes effect with respect to the member concerned. Subsequent

notifications shall likewise, in the absence of a contrary action by the Board, relate to the period of the calendar year following the notification and shall be made no later than the first day of November of each year.

G. The Agency shall specify the place and method of delivery and, where appropriate, the form and composition, of materials which it has requested a member to deliver from the amounts which that member has notified the Agency it is prepared to make available. The Agency shall also verify the quantities of materials delivered and shall report those quantities periodically to the members.

H. The Agency shall be responsible for storing and protecting materials in its possession. The Agency shall ensure that these materials shall be safeguarded against (1) hazards of the weather, (2) unauthorized removal or diversion, (3) damage or destruction, including sabotage, and (4) forcible seizure. In storing special fissionable materials in its possession, the Agency shall ensure the geographical distribution of these materials in such a way as not to allow concentration of large amounts of such materials in any one country or region of the world.

I. The Agency shall as soon as practicable establish or acquire such of the following as may be necessary:

1. Plant, equipment, and facilities for the receipt, storage, and issue of materials;
2. Physical safeguards;
3. Adequate health and safety measures;
4. Control laboratories for the analysis and verification of materials received;
5. Housing and administrative facilities for any staff required for the foregoing.

J. The materials made available pursuant to this article shall be used as determined by the Board of Governors in accordance with the provisions of this Statute. No member shall have the right to require that the materials it makes available to the Agency be kept separately by the Agency or to designate the specific project in which they must be used.

ARTICLE X

Services, equipment, and facilities

Members may make available to the Agency services, equipment, and facilities which may be

of assistance in fulfilling the Agency's objectives and functions.

ARTICLE XI

Agency projects

A. Any member or group of members of the Agency desiring to set up any project for research on, or development or practical application of, atomic energy for peaceful purposes may request the assistance of the Agency in securing special fissionable and other materials, services, equipment, and facilities necessary for this purpose. Any such request shall be accompanied by an explanation of the purpose and extent of the project and shall be considered by the Board of Governors.

B. Upon request, the Agency may also assist any member or group of members to make arrangements to secure necessary financing from outside sources to carry out such projects. In extending this assistance, the Agency will not be required to provide any guarantees or to assume any financial responsibility for the project.

C. The Agency may arrange for the supplying of any materials, services, equipment, and

facilities necessary for the project by one or more members or may itself undertake to provide any or all of these directly, taking into consideration the wishes of the member or members making the request.

D. For the purpose of considering the request, the Agency may send into the territory of the member or group of members making the request a person or persons qualified to examine the project. For this purpose the Agency may, with the approval of the member or group of members making the request, use members of its own staff or employ suitably qualified nationals of any member.

E. Before approving a project under this article, the Board of Governors shall give due consideration to:

1. The usefulness of the project, including its scientific and technical feasibility;

2. The adequacy of plans, funds, and technical personnel to assure the effective execution of the project;

3. The adequacy of proposed health and safety standards for handling and storing materials and for operating facilities;

4. The inability of the member or group of members making the request to secure the necessary finances, materials, facilities, equipment, and services;

5. The equitable distribution of materials and other resources available to the Agency;

6. The special needs of the under-developed areas of the world; and

7. Such other matters as may be relevant.

F. Upon approving a project, the Agency shall enter into an agreement with the member or group of members submitting the project, which agreement shall:

1. Provide for allocation to the project of any required special fissionable or other materials;

2. Provide for transfer of special fissionable materials from their then place of custody, whether the materials be in the custody of the Agency or of the member making them available for use in Agency projects, to the member or group of members submitting the project, under conditions which ensure the safety of any shipment required and meet applicable health and safety standards;

3. Set forth the terms and conditions, including charges, on which any materials, services, equipment, and facilities are to be provided by the Agency itself, and, if any such materials, services, equipment, and facilities are to be provided by a member, the terms and conditions as arranged for by the member or group of members submitting the project and the supplying member;

4. Include undertakings by the member or group of members submitting the project: (a) that the assistance provided shall not be used in such a way as to further any military purpose; and (b) that the project shall be subject to the safeguards provided for in article XII, the relevant safeguards being specified in the agreement;

5. Make appropriate provision regarding the rights and interests of the Agency and the member or members concerned in any inventions or discoveries, or any patents therein, arising from the project;

6. Make appropriate provision regarding settlement of disputes;

7. Include such other provisions as may be appropriate.

G. The provisions of this article shall also apply where appropriate to a request for materials, services, facilities, or equipment in connexion with an existing project.

ARTICLE XII

Agency safeguards

A. With respect to any Agency project, or other arrangement where the Agency is requested by the parties concerned to apply safeguards, the Agency shall have the following rights and responsibilities to the extent relevant to the project or arrangement :

1. To examine the design of specialized equipment and facilities, including nuclear reactors, and to approve it only from the view-point of assuring that it will not further any military purpose, that it complies with applicable health and safety standards, and that it will permit effective application of the safeguards provided for in this article ;

2. To require the observance of any health and safety measures prescribed by the Agency ;

3. To require the maintenance and production of operating records to assist in ensuring account-

ability for source and special fissionable materials used or produced in the project or arrangement ;

4. To call for and receive progress reports ;

5. To approve the means to be used for the chemical processing of irradiated materials solely to ensure that this chemical processing will not lend itself to diversion of materials for military purposes and will comply with applicable health and safety standards ; to require that special fissionable materials recovered or produced as a by-product be used for peaceful purposes under continuing Agency safeguards for research or in reactors, existing or under construction, specified by the member or members concerned ; and to require deposit with the Agency of any excess of any special fissionable materials recovered or produced as a by-product over what is needed for the above-stated uses in order to prevent stock-piling of these materials, provided that thereafter at the request of the member or members concerned special fissionable materials so deposited with the Agency shall be returned promptly to the member or members concerned for use under the same provisions as stated above ;

6. To send into the territory of the recipient State or States inspectors, designated by the

Agency after consultation with the State or States concerned, who shall have access at all times to all places and data and to any person who by reason of his occupation deals with materials, equipment, or facilities which are required by this Statute to be safeguarded, as necessary to account for source and special fissionable materials supplied and fissionable products and to determine whether there is compliance with the undertaking against use in furtherance of any military purpose referred to in sub-paragraph F-4 of article XI, with the health and safety measures referred to in sub-paragraph A-2 of this article, and with any other conditions prescribed in the agreement between the Agency and the State or States concerned. Inspectors designated by the Agency shall be accompanied by representatives of the authorities of the State concerned, if that State so requests, provided that the inspectors shall not thereby be delayed or otherwise impeded in the exercise of their functions ;

7. In the event of non-compliance and failure by the recipient State or States to take requested corrective steps within a reasonable time, to suspend or terminate assistance and withdraw any materials and equipment made available by the Agency or a member in furtherance of the project.

B. The Agency shall, as necessary, establish a staff of inspectors. The staff of inspectors shall have the responsibility of examining all operations conducted by the Agency itself to determine whether the Agency is complying with the health and safety measures prescribed by it for application to projects subject to its approval, supervision or control, and whether the Agency is taking adequate measures to prevent the source and special fissionable materials in its custody or used or produced in its own operations from being used in furtherance of any military purpose. The Agency shall take remedial action forthwith to correct any non-compliance or failure to take adequate measures.

C. The staff of inspectors shall also have the responsibility of obtaining and verifying the accounting referred to in sub-paragraph A-6 of this article and of determining whether there is compliance with the undertaking referred to in sub-paragraph F-4 of article XI, with the measures referred to in sub-paragraph A-2 of this article, and with all other conditions of the project prescribed in the agreement between the Agency and the State or States concerned. The inspectors shall report any non-compliance to the Director

General who shall thereupon transmit the report to the Board of Governors. The Board shall call upon the recipient State or States to remedy forthwith any non-compliance which it finds to have occurred. The Board shall report the non-compliance to all members and to the Security Council and General Assembly of the United Nations. In the event of failure of the recipient State or States to take fully corrective action within a reasonable time, the Board may take one or both of the following measures: direct curtailment or suspension of assistance being provided by the Agency or by a member, and call for the return of materials and equipment made available to the recipient member or group of members. The Agency may also, in accordance with article XIX, suspend any non-complying member from the exercise of the privileges and rights of membership.

ARTICLE XIII

Reimbursement of members

Unless otherwise agreed upon between the Board of Governors and the member furnishing to the Agency materials, services, equipment, or facilities, the Board shall enter into an agreement

with such member providing for reimbursement for the items furnished.

ARTICLE XIV

Finance

A. The Board of Governors shall submit to the General Conference the annual budget estimates for the expenses of the Agency. To facilitate the work of the Board in this regard, the Director General shall initially prepare the budget estimates. If the General Conference does not approve the estimates, it shall return them together with its recommendations to the Board. The Board shall then submit further estimates to the General Conference for its approval.

B. Expenditures of the Agency shall be classified under the following categories:

1. Administrative expenses: these shall include:

(a) Costs of the staff of the Agency other than the staff employed in connexion with materials, services, equipment, and facilities referred to in sub-paragraph B-2 below; costs of meetings; and expenditures required for the preparation of

Agency projects and for the distribution of information;

(b) Costs of implementing the safeguards referred to in article XII in relation to Agency projects or, under sub-paragraph A-5 of article III, in relation to any bilateral or multilateral arrangement, together with the costs of handling and storage of special fissionable material by the Agency other than the storage and handling charges referred to in paragraph E below;

2. Expenses, other than those included in sub-paragraph 1 of this paragraph, in connexion with any materials, facilities, plant, and equipment acquired or established by the Agency in carrying out its authorized functions, and the costs of materials, services, equipment, and facilities provided by it under agreements with one or more members.

C. In fixing the expenditures under sub-paragraph B-1 (b) above, the Board of Governors shall deduct such amounts as are recoverable under agreements regarding the application of safeguards between the Agency and parties to bilateral or multilateral arrangements.

D. The Board of Governors shall apportion the expenses referred to in sub-paragraph B-1

above, among members in accordance with a scale to be fixed by the General Conference. In fixing the scale the General Conference shall be guided by the principles adopted by the United Nations in assessing contributions of Member States to the regular budget of the United Nations.

E. The Board of Governors shall establish periodically a scale of charges, including reasonable uniform storage and handling charges, for materials, services, equipment, and facilities furnished to members by the Agency. The scale shall be designed to produce revenues for the Agency adequate to meet the expenses and costs referred to in sub-paragraph B-2 above, less any voluntary contributions which the Board of Governors may, in accordance with paragraph F, apply for this purpose. The proceeds of such charges shall be placed in a separate fund which shall be used to pay members for any materials, services, equipment, or facilities furnished by them and to meet other expenses referred to in sub-paragraph B-2 above which may be incurred by the Agency itself.

F. Any excess of revenues referred to in paragraph E over the expenses and costs there referred to, and any voluntary contributions to the Agency, shall be placed in a general fund which

may be used as the Board of Governors, with the approval of the General Conference, may determine.

G. Subject to rules and limitations approved by the General Conference, the Board of Governors shall have the authority to exercise borrowing powers on behalf of the Agency without, however, imposing on members of the Agency any liability in respect of loans entered into pursuant to this authority, and to accept voluntary contributions made to the Agency.

H. Decisions of the General Conference on financial questions and of the Board of Governors on the amount of the Agency's budget shall require a two-thirds majority of those present and voting.

ARTICLE XV

Privileges and immunities

A. The Agency shall enjoy in the territory of each member such legal capacity and such privileges and immunities as are necessary for the exercise of its functions.

B. Delegates of members together with their alternates and advisers, Governors appointed to

the Board together with their alternates and advisers, and the Director General and the staff of the Agency, shall enjoy such privileges and immunities as are necessary in the independent exercise of their functions in connexion with the Agency.

C. The legal capacity, privileges, and immunities referred to in this article shall be defined in a separate agreement or agreements between the Agency, represented for this purpose by the Director General acting under instructions of the Board of Governors, and the members.

ARTICLE XVI

Relationship with other organizations

A. The Board of Governors, with the approval of the General Conference, is authorized to enter into an agreement or agreements establishing an appropriate relationship between the Agency and the United Nations and any other organizations the work of which is related to that of the Agency.

B. The agreement or agreements establishing the relationship of the Agency and the United Nations shall provide for:

1. Submission by the Agency of reports as provided for in sub-paragraphs B-4 and B-5 of article III;

2. Consideration by the Agency of resolutions relating to it adopted by the General Assembly or any of the Councils of the United Nations and the submission of reports, when requested, to the appropriate organ of the United Nations on the action taken by the Agency or by its members in accordance with this Statute as a result of such consideration.

ARTICLE XVII

Settlement of disputes

A. Any question or dispute concerning the interpretation or application of this Statute which is not settled by negotiation shall be referred to the International Court of Justice in conformity with the Statute of the Court, unless the parties concerned agree on another mode of settlement.

B. The General Conference and the Board of Governors are separately empowered, subject to authorization from the General Assembly of the United Nations, to request the International Court of Justice to give an advisory opinion on any legal

question arising within the scope of the Agency's activities.

ARTICLE XVIII

Amendments and withdrawals

A. Amendments to this Statute may be proposed by any member. Certified copies of the text of any amendment proposed shall be prepared by the Director General and communicated by him to all members at least ninety days in advance of its consideration by the General Conference.

B. At the fifth annual session of the General Conference following the coming into force of this Statute, the question of a general review of the provisions of this Statute shall be placed on the agenda of that session. On approval by a majority of the members present and voting, the review will take place at the following General Conference. Thereafter, proposals on the question of a general review of this Statute may be submitted for decision by the General Conference under the same procedure.

C. Amendments shall come into force for all members when:

(i) Approved by the General Conference by a two-thirds majority of those present and voting after consideration of observations submitted by the Board of Governors on each proposed amendment, and

(ii) Accepted by two-thirds of all the members in accordance with their respective constitutional processes. Acceptance by a member shall be effected by the deposit of an instrument of acceptance with the depositary Government referred to in paragraph C of article XXI.

D. At any time after five years from the date when this Statute shall take effect in accordance with paragraph E of article XXI or whenever a member is unwilling to accept an amendment to this Statute, it may withdraw from the Agency by notice in writing to that effect given to the depositary Government referred to in paragraph C of article XXI, which shall promptly inform the Board of Governors and all members.

E. Withdrawal by a member from the Agency shall not affect its contractual obligations entered into pursuant to article XI or its budgetary obligations for the year in which it withdraws.

ARTICLE XIX

Suspension of privileges

A. A member of the Agency which is in arrears in the payment of its financial contributions to the Agency shall have no vote in the Agency if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two years. The General Conference may, nevertheless, permit such a member to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the member.

B. A member which has persistently violated the provisions of this Statute or of any agreement entered into by it pursuant to this Statute may be suspended from the exercise of the privileges and rights of membership by the General Conference acting by a two-thirds majority of the members present and voting upon recommendation by the Board of Governors.

ARTICLE XX

Definitions

As used in this Statute:

1. The term "special fissionable material" means plutonium-239; uranium-233; uranium

enriched in the isotopes 235 or 233; any material containing one or more of the foregoing; and such other fissionable material as the Board of Governors shall from time to time determine; but the term "special fissionable material" does not include source material.

2. The term "uranium enriched in the isotopes 235 or 233" means uranium containing the isotopes 235 or 233 or both in an amount such that the abundance ratio of the sum of these isotopes to the isotope 238 is greater than the ratio of the isotope 235 to the isotope 238 occurring in nature.

3. The term "source material" means uranium containing the mixture of isotopes occurring in nature; uranium depleted in the isotope 235; thorium; any of the foregoing in the form of metal, alloy, chemical compound, or concentrate; any other material containing one or more of the foregoing in such concentration as the Board of Governors shall from time to time determine; and such other material as the Board of Governors shall from time to time determine.

ARTICLE XXI

Signature, acceptance, and entry into force

A. This Statute shall be open for signature on 26 October 1956 by all States Members of the United Nations or of any of the specialized agencies and shall remain open for signature by those States for a period of ninety days.

B. The signatory States shall become parties to this Statute by deposit of an instrument of ratification.

C. Instruments of ratification by signatory States and instruments of acceptance by States whose membership has been approved under paragraph B of article IV of this Statute shall be deposited with the Government of the United States of America, hereby designated as depositary Government.

D. Ratification or acceptance of this Statute shall be effected by States in accordance with their respective constitutional processes.

E. This Statute, apart from the Annex, shall come into force when eighteen States have deposited instruments of ratification in accordance with paragraph B of this article, provided that such

eighteen States shall include at least three of the following States: Canada, France, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America. Instruments of ratification and instruments of acceptance deposited thereafter shall take effect on the date of their receipt.

F. The depositary Government shall promptly inform all States signatory to this Statute of the date of each deposit of ratification and the date of entry into force of the Statute. The depositary Government shall promptly inform all signatories and members of the dates on which States subsequently become parties thereto.

G. The Annex to this Statute shall come into force on the first day this Statute is open for signature.

ARTICLE XXII

Registration with the United Nations

A. This Statute shall be registered by the depositary Government pursuant to Article 102 of the Charter of the United Nations.

B. Agreements between the Agency and any member or members, agreements between the Agency

and any other organization or organizations, and agreements between members subject to approval of the Agency, shall be registered with the Agency. Such agreements shall be registered by the Agency with the United Nations if registration is required under Article 102 of the Charter of the United Nations.

ARTICLE XXIII

Authentic texts and certified copies

This Statute, done in the Chinese, English, French, Russian and Spanish languages, each being equally authentic, shall be deposited in the archives of the depositary Government. Duly certified copies of this Statute shall be transmitted by the depositary Government to the Governments of the other signatory States and to the Governments of States admitted to membership under paragraph B of article IV.

In witness whereof the undersigned, duly authorized, have signed this Statute.

DONE at the Headquarters of the United Nations, this twenty-sixth day of October, one thousand nine hundred and fifty-six.

ANNEX I

Preparatory Commission

A. A Preparatory Commission shall come into existence on the first day this Statute is open for signature. It shall be composed of one representative each of Australia, Belgium, Brazil, Canada, Czechoslovakia, France, India, Portugal, Union of South Africa, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, and United States of America, and one representative each of six other States to be chosen by the International Conference on the Statute of the International Atomic Energy Agency. The Preparatory Commission shall remain in existence until this Statute comes into force and thereafter until the General Conference has convened and a Board of Governors has been selected in accordance with article VI.

B. The expenses of the Preparatory Commission may be met by a loan provided by the United Nations and for this purpose the Preparatory Commission shall make the necessary arrangements with the appropriate authorities of the United Nations, including arrangements for repayment of the loan by the Agency. Should these funds be insufficient, the Preparatory Commission may accept advances from Governments. Such advances may be set off against the contributions of the Governments concerned to the Agency.

C. The Preparatory Commission shall:

1. Elect its own officers, adopt its own rules of procedure, meet as often as necessary, determine its own place of meeting and establish such committees as it deems necessary;

2. Appoint an executive secretary and staff as shall be necessary, who shall exercise such powers and perform such duties as the Commission may determine;

3. Make arrangements for the first session of the General Conference, including the preparation of a provisional agenda and draft rules of procedure, such session to be held as soon as possible after the entry into force of this Statute;

4. Make designations for membership on the first Board of Governors in accordance with sub-paragraphs A-1 and A-2 and paragraph B of article VI;

5. Make studies, reports, and recommendations for the first session of the General Conference and for the first meeting of the Board of Governors on subjects of concern to the Agency requiring immediate attention, including (a) the financing of the Agency; (b) the programmes and budget for the first year of the Agency; (c) technical problems relevant to advance planning of Agency operations; (d) the establishment of a permanent Agency staff; and (e) the location of the permanent headquarters of the Agency;

6. Make recommendations for the first meeting of the Board of Governors concerning the provisions of a headquarters agreement defining the status of the Agency and the rights and obligations which will exist in the relationship between the Agency and the host Government;

7. (a) Enter into negotiations with the United Nations with a view to the preparation of a draft agreement in accordance with article XVI of this Statute, such draft agreement to be submitted to the first session of the General Conference and to the first meeting of the Board of Governors; and

(b) make recommendations to the first session of the General Conference and to the first meeting of the Board of Governors concerning the relationship of the Agency to other international organizations as contemplated in article XVI of this Statute.

INDEX

Articles

A

Acceptance of the Statute	
Date on which instruments shall take effect	XXI.E
Deposit of instruments	IV.B, XXI.C, E and F
Communication of the date of deposit In accordance with constitutional processes	XXI.F XXI.D
Accountability for source and special fissionable materials	XII.A.3 and 6, and C
Administrative facilities for staff	IX.I.5
Admission of members,	
Approval by the General Conference ..	IV.B, V.E.2
Recommendation by the Board	IV.B
Requirements	IV.B
Advisers,	
Privileges and immunities of	XV.B and C
To delegates to the General Conference	V.B
To members of the Board	XV.B
Africa and the Middle East, representation on the Board	VI.A.1 and 3
Agency projects,	
Accounting for materials	XII.A.3 and 6, and C

Adequacy of plans, funds and technical personnel	XI.E.2
Agency to provide no guarantees and assume no financial responsibility .	XI.B
Equitable distribution of materials, etc.	XI.E.5
Financing	XI.B and E.4
Health and safety standards	XI.E.3 and F.2
Materials, etc., necessary for the project	XI.A and C
Missions (to examine projects)	XI.D
Project agreements, Mandatory clauses of	XI.F
Allocation of materials to the project	XI.F.1
Rights in inventions or discoveries, and patents therein	XI.F.5
Settlement of disputes	XI.F.6
Terms and conditions of supply	XI.F.3
Transfer of materials	XI.F.2
Undertaking not to use the assistance to further military purposes ..	XI.F.4
Undertaking that the project shall be subject to safeguards	XI.F.4
Projects to be considered by the Board	XI.A and E
Requests in connection with existing projects	XI.G
Requests for assistance to be accompanied by explanatory statements .	XI.A
Safeguards, Application of	XI.F.4
Suspension or termination of assistance in the event of non-compliance with safeguards obligations .	XII.A.7, B and C
Under-developed areas, Needs of	XI.E.6

Agency safeguards,	
Accounting for source and special fissionable materials	XII.A.3 and 6, and C
Action in event of non-compliance with obligations	XII.A.7, B and C
Application to bilateral or multi-lateral arrangements	III.A.5
Application to the activities of a State	III.A.5
Approval of means for the chemical processing of irradiated materials ..	XII.A.5
Diversions of materials	XII.A.5 and C
Establishment and administration of safeguards against misuse of materials, etc.	III.A.5
Examination and approval of plans, equipment and facilities	XII.A.1
Excess quantities of special fissionable materials to be deposited with the Agency	XII.A.5
Inspectors	XII.A.6
Expenditure on	XIV.B.1(b)
Observance of health and safety measures	XII.A.1, 2, 5, 6 and 7, and B
Operating records	XII.A.3
Progress reports	XII.A.4
Rights and responsibilities of the Agency	XII.A
Agreements	
Between members of the Agency	XXII.B
Between the Agency and a State or group of States	III.D
Between the Agency and one or more members	XI.C, XXII.B

Between the Agency and the United Nations or other organizations,	
Approval by the General Conference or return to the Board	V.E.7
Conclusion by the Board	XVI.A
Mandatory clauses	XVI.B
Registration	XXII.B
Defining legal capacity of the Agency .	XV.C
On Agency projects	XI.C
On reimbursement of members	XIII
Persistent violation of	XIX.B
Registration with the Agency	XXII.B
Registration with the United Nations ..	XXII.B
Alternates,	
Privileges and immunities	XV.B and C
To delegates to the General Conference	V.B
To members of the Board	XV.B
Amendments to the Statute, <i>see</i> Statute	
Appointment of staff	VII.B and E
Areas, Representation on the Board	VI.A.1 and 3
Arrears in payment of contributions,	
Consequences of	XIX.A
Assistance,	
Curtailed, suspension or termination of assistance for non-compliance with undertakings	XII.A.7 and C
In setting up projects, <i>see also</i> Agency projects	XI.A
Not to be subject to political, economic, military or other considerations	III.C
Not to be used to further any military purpose	II, III.A.5, XI.F.4, XII.A.1, XII.A.6 and B

Atomic energy,	
Contribution to world peace, health and prosperity	II
Peaceful uses of	III.A.1, 2, 3 and 4, B.2, VIII.C

B

Belgium, producer of source materials ..	VI.A.2
Board of Governors,	
Acceptance of voluntary contributions .	XIV.G
Agreements concluded by	XVI.A
Authorized by the General Conference to enter into agreements between the Agency and the United Nations or other organizations	XVI.A
Loans	V.E.8, XIV.G
Chairman, Election of the	VI.H
Committees of	VI.I
Composition of	VI.A.1, 2 and 3
Consideration and approval of projects .	XI.E
Date of meetings	VI.G
Decisions, Voting on	XIV.H
Definition of nuclear materials	XX.1 and 3
Designation of members of	VI.A.1 and 2, and B
Re-designation, Eligibility for	VI.A.2
Time-limits for	VI.B
Determination of quantities of source materials to be accepted by the Agency	IX.B
Election	
Of Officers	VI.H

Of the Chairman	VI.H
Election of members	VI.A.3
Date of	VI.B
Re-election, Eligibility for	VI.A.3
Expenses of meetings	XIV.B.1(a)
Functions	VI.F
Loans entered into by	V.E.8, XIV.G
Members most advanced in the technology of atomic energy	VI.A.1
Members producers of source materials .	VI.A.1 and 2
Member supplier of technical assistance	VI.A.2
Place of meeting	VI.G
Privileges and immunities of members .	XV.B and C
Quorum	VI.E
Recommendations to the General Con- ference	
On proposed amendments to the Statute	XVIII.C (i)
On staffing questions	VII.E
On suspension of rights and pri- vileges of membership	XIX.B
Regional representation	VI.A.1 and 3
Reports,	
On Agency projects	VI.J
Time-limit for submission	VI.J
To the General Conference	VI.J
To the United Nations and other organizations	VI.J
Representation with other organiza- tions	VI.I
Request for advisory opinion of International Court of Justice	XVII.B
Request for convening special sessions of the General Conference .	V.A

Responsibility to the General Con- ference	VI.F
Rules of procedure	VI.H
Term of office of members	VI.C and D
Voting	
On decisions in general	VI.E
On the amount of the budget	XIV.H
Voting rights in	VI.E
Suspension of	XIX.A
Budget,	
Board to decide on amount	VI.E and XIV.H
Estimates to be approved by the General Conference	V.E.5
Estimates prepared by the Director General	XIV.A
Estimates returned to the Board	V.E.5 and XIV.A
Estimates submitted by the Board to the General Conference	XIV.A
Budgetary obligations <i>see</i> Obligations, Budgetary	
C	
Certified copies	
Of the Statute	XXIII
Of the text of proposed amendments to the Statute	XVIII.A
Chairman of the Board, Election of	VI.H
Charges for storage and handling of mate- rials	XIV.E
Charter of the United Nations, <i>see</i> United Nations	

Chemical processing of irradiated materials	XII.A.5
Committees of the Board	VI.I
Composition of the Board	VI.A
Confidential information not to be disclosed	VII.F
Contractual obligations <i>see</i> Obligations, Contractual	
Contributions to the regular budget (administrative expenses), Principles to be used in assessing. Results of delay in payment	XIV.D XIX.A
Control laboratories	IX.I.4
Convening of meetings, Meetings of the Board	VI.G
Sessions of the General Conference .	V.A
Cost of materials, facilities, plant and equipment	XIV.B.2
Czechoslovakia, producer of source materials	VI.A.2

D

Dates	
Of entry into force of amendments to the Statute	XVIII.C
Of entry into force of the Annex to the Statute	XXI.G
Of entry into force of the Statute.	XXI.E
Of meetings of the Board	VI.G
Of opening the Statute for signature.	XXI.A

Decisions	
Of the Board	
On the amount of the Budget	XIV.H
To determine additional questions to be decided by a two-thirds majority	VI.E
To be adopted by a simple majority of those present and voting	VI.E
To be adopted by a two-thirds majority of those present and voting.	VI.E, XIV.H
Of the General Conference	
On financial questions	XIV.H
On proposed amendments to the Statute	XVIII.C(i)
On suspension of the privileges and rights of membership	XIX.B
To determine additional questions to be decided by a two-thirds majority	V.C
To be adopted by a simple majority of those present and voting	V.C
To be adopted by a two-thirds majority of those present and voting.	V.C, XIV.H, XVIII.C(i) and XIX.B

Definitions	
Of "source material"	XX.3
Of "special fissionable material"	XX.1
Of "uranium enriched in the isotopes 235 or 233"	XX.2

Delegates,	
Privileges and immunities of	XV.B and C
Representing members in the General Conference	V.B

Depository Government, Deposit of the Statute in the archives of	XXIII
Designation of	XXI.C
Notifications to be sent to signatories and members	XXI.F
Deposit of instruments Of acceptance of amendments to the Statute	XVIII.C (ii)
Of acceptance of the Statute	IV.B, XXI.C, E and F
Of ratification of the Statute	IV.A, XXI.B, C, E and F
Deposit of the Statute in the archives of the depository Government	XXIII
Designation of members of the Board by the outgoing Board (or Preparatory Commission), Date of	VI.B
Members technologically most advanced	VI.A.1
Members producers of source materials	VI.A.1 and 2
Member supplier of technical assistance	VI.A.2
Redesignation, Eligibility for	VI.A.2
Term of office of designated members .	VI.C
Director General, Administrative grade	VII.A
Approval of appointment by the General Conference	V.E.10 and VII.A
Duties	VII.B
International character of respon- sibilities	VII.F
Privileges and immunities	XV.B and C
Responsibility to the Board	VII.B

Term of office	VII.A
Disputes, <i>see</i> Settlement of disputes	

E

Eastern Europe, representation on the Board	VI.A.1 and 3
Economic and Social Council (of the United Nations), Consideration by the Agency of resolutions adopted by	XVI.B.2
Reports by the Agency to	III.B.5
Elections Of officers of the Board	VI.H
Of officers of the General Conference .	V.C
Of the Chairman of the Board	VI.H
Of the President of the General Con- ference	V.C
To the Board, Date of	VI.B
Equitable geographical distribution .	VI.A.3
Re-election	VI.A.3
Special case of North America	VI.A.3
Term of office of elected members ..	VI.D
Encouragement of research on, and development and practical appli- cation of, atomic energy	III.A.1
Entry into force of the Annex to the Statute	XXI.G
Entry into force of the Statute	XXI.E
Date of to be communicated by the depository Government	XXI.F

Equipment, <i>see</i> Materials	
Establishment of the Agency	I
Exchange and training of scientists and Experts	III.A.4
Exchange of scientific and technical information	III.A.3, VIII.C
Expenditures of the Agency, Administrative (Regular budget), Apportionment among members	XIV.D XIV.B.1(a) and (b)
Definition	XIV.D
Financing	XIV.C
Fixing	XIV.B.1 and 2
Classification	XIV.B.2
Non-administrative (Operational budget), Definition	XIV.E and F
Financing	XIV.B.1(a) and (b)
On Agency projects	XIV.B.1(a)
On distribution of information	XIV.B.1(b) and E
On handling and storage of materials and equipment	XIV.B.1(b)
On implementation of safeguards	XIV.B.1(a)
On meetings of the General Conference and Board	XIV.B.1(a) and (b) and 2
On staff	XI.D
Experts (to be sent to examine projects) .	
F	
Facilities, <i>see</i> Materials	
Far East, representation on the Board ...	VI.A.1 and 3

Finance.	
Amounts recoverable under safeguards agreements to be deducted from non-administrative expenses ..	XIV.C
Apportionment of administrative expenses among members	XIV.D
Budget, Annual budget estimates	XIV.A
Contributions to the regular budget, <i>see</i> Contributions, to the regular budget	
Cost of materials, facilities, plants and equipment	XIV.B.2
Decisions on financial questions, Voting on, In the Board, on the amount of the budget	XIV.H XIV.H
In the General Conference	
Expenses, <i>see</i> Expenses	
Financing of Agency projects	XI.B, E. 4 and F.3
Financing of expenses, <i>see</i> Expenses	
General Fund, Revenue to be placed in and use of	V.E.8 and XIV.F
Liability not to be incurred	
By members in respect of loans entered into by the Board	XIV.G
By the Agency in respect of projects undertaken by members	XI.B
Loans entered into by the Board	V.E.8, XIV.G
Reimbursement of members for materials or services furnished	XIII
Scale of charges for storage and handling of materials, etc., furnished to members	XIV.E

Separate fund (for revenue from storage and handling charges)	XIV.E
Voluntary contributions, <i>see</i> Voluntary contributions	
Fuel elements, <i>see</i> Materials	
Functions of the Agency,	
To acquire or establish facilities, plant and equipment for carrying out its functions	III.A.7
To act as an intermediary in securing the performance of services or the supplying of materials, equipment or facilities	III.A.1
To encourage research on, and development and practical application of, atomic energy	III.A.1
To encourage the exchange and training of scientists and experts .	III.A.4
To establish and administer safeguards	III.A.5
To establish and apply health and safety standards	III.A.6
To foster the exchange of scientific and technical information	III.A.3
To provide materials, services, equipment and facilities	III.A.2
G	
General Assembly of the United Nations, <i>see</i> United Nations	
General Conference, Competence of	V.D

Composition of	V.A
Costs of meetings of	XIV.B.1(a)
Election of	
Officers of	V.C
Members of the Board	V.E.1 and VI.A.3 and B
The President of	V.C
Proposals and requests to the Board .	V.F.2
Recommendations	
To members of the Agency	
On questions within the scope of the Statute	V.D
To the Board	
On agreements between the Agency and other organizations	V.E.7
On questions within the scope of the Statute	V.D
On reports to the United Nations ..	V.E.6
On the draft budget	V.E.5
Requests to the International Court of Justice for advisory opinions ...	XVII.B
Sessions,	
Cost of attendance at	V.B
Place of	V.A
Regular and special	V.A
Representation at	V.B
To be convened by the Director General	
At the request of the Board	V.A
At the request of a majority of members	V.A
Suspension of privileges and rights of membership,	
For non-compliance with undertakings .	XII.C
For persistent violation of the Statute or agreements	V.E.3 and XIX.B

Suspension of voting rights	XIX.A
Permission to vote granted in certain circumstances	XIX.A
To approve	
Admission of new members	V.E.2 and IV.B
Agreements between the Agency and the United Nations or other organizations	V.E.7 and XVI.A
Amendments to the Statute	V.E.9 and XVIII.C (i)
Appointment of Director General	V.E.10 and VII.A
Budget	V.E.5 and XIV.A
Manner of using General Fund	V.E.8 and XIV.F
Proposed review of the Statute	XVIII.B
Reports to the United Nations	V.E.6
Rules and limitations regarding the exercise of borrowing powers by the Board	V.E.8 and XIV.C
Rules regarding the acceptance of voluntary contributions	V.E.8
To consider the Board's annual report	V.E.4
To decide on matters referred to it by the Board	V.F.1
Voting	
By simple majority	V.C
By two-thirds majority	V.C, XIV.H, XVIII.C (i) and XIX.B
On financial questions	XIV.II
On proposed amendments to the Statute	XVIII.C (i)
On suspension of privileges and rights of membership	XIX.B

To determine additional questions to be decided by two-thirds majority	V.C
General Fund,	
Excess revenue and voluntary con- tributions to be placed in	XIV.F
Use of	V.E.8 and XIV.F
Guards,	
To be included under "staff"	VII.C
H	
Handling of materials, <i>see</i> Storage of materials	
Health and safety standards,	
Adequacy of, in relation to Agency projects	XI.E.3
Application	
To Agency projects	XI.E.3 and F.2
To a State's activities in the field of atomic energy	III.A.6
To operations making use of mate- rials, services, etc., made availa- ble by the Agency or at its request .	III.A.6
To operations under bilateral or multilateral arrangements	III.A.6
To the Agency's own operations	III.A.6
To the transfer of special fission- able materials	XI.F.2
Consultation and collaboration with the United Nations and the specialized agencies	III.A.6
Establishment or adoption	III.A.6

Housing and administrative facilities for staff required for storage, etc. of materials IX.I.5

I

Information,
 Agency inspectors to have access to all relevant information XII.A.6
 Agency staff not to disclose confidential information VII.F
 Agency to assemble and make available VIII.C
 Agency to foster exchange of III.A.3 and VIII.C
 Safeguards against misuse of information made available by the Agency III.A.5
 To be made available by members VIII.A and B
 Inspectors,
 Access to places, data and persons .. XII.A.6
 Establishment of a staff of inspectors. XII.B
 Functions of XII.B and C
 To be accompanied by representatives of the State authorities XII.A.6
 To be sent to recipient States XII.A.6
 To report in the event of non-compliance XII.C
 Instruments» see Deposit of instruments
 Intermediary, The Agency's role as,
 In securing for members necessary financing for carrying out projects . XI.B

In securing the performance of services or the supply of materials, equipment or facilities by one member for another III.A.1
 In supplying members with materials, equipment, services and facilities needed for projects XI.C
 In the exchange and training of scientists and experts III.A.4
 In the exchange of information VIII
 International character of the responsibilities of the Director General and the staff VII.F
 International Court of Justice,
 Advisory opinions of XVII.B
 Arbitration by XVII.A
 Inventions or discoveries, Rights in XI.F.5
 Irradiated materials, Chemical processing of XII.A.5

L

Labour conditions, Safety standards for . III.A.6
 Languages of the Statute XXIII
 Latin America, representation on the Board VI.A.1 and 3
 Legal capacity of the Agency XV.A and C
 To be defined in agreements XV.C
 Loans intered into by the Board V.E.8, XIV.C

M

Materials, facilities, equipment and services,	
Furnished by or through the Agency ..	III.A.1 and 2, IX.D, XI
Allocation to projects	XI.F.1
"By" or "through"	XI.C
Charges and other conditions in respect of	XI.F.3
Delivery	IX.D and G
Safeguards to be applied to (see also Safeguards)	III.A.5
Storage and handling, Charges for	XIV.E
Cost of	XIV.E
Irradiated materials, Chemical processing of	XII.A.5
Made available to the Agency for carrying out its functions, Delivery of	IX.D and G
Health and safety measures in respect of	IX.I.3
Notification of, To members	IX.G
To the Agency	IX.C and F
Quantities, form and composition of ..	IX.C, E and G
Receipt of	IX.G and I.1
Reimbursement of members for	XIII
Safe custody of	IX.H and I.2
Staff required for storage, etc., Cost of	XIV.B.2
Housing and administrative facilities for	IX.I.5
Storage of	IX.A, II and I.1
Cost of	XIV.B.1(b)

Use of	IX.J
Verification of quantities of	IX.G and I.4
Withdrawal and return of	XII.A.7 and C
Source materials, (see also Materials, Furnished by or through the Agency and Materials, Made available to the Agency for carrying out its functions) Definition	XX.3
Special fissionable materials, (see also Materials, Furnished by or through the Agency and Materials, Made available to the Agency for carrying out its functions) Control over the use of (see also Safeguards)	III.B.2
Definition	XX.1
Large amounts not to be concentrated in one country or area	IX.H, XI.E.5
Transfer of	XI.F.2
Subject to safeguards (see also Safeguards)	III.A.5, XII.A.3, 4, 5 and 6
Members of the Agency, Initial members	IV.A
Members other than initial members ..	IV.B
Obligations, see Obligations of membership	
Requirements for membership	IV.B
Suspension of privileges	XIX
Voting rights, see Voting rights	
Withdrawal	XVIII.D
Contractual and budgetary obligations not affected by	XVIII.E

Members of the Board,	
Designated by the Board	VI.A.1 and 2
Date of designation	VI.B
Redesignation, Eligibility for	VI.A.2
Term of office	VI.C
Elected by the General Conference ...	VI.A.3
Date of election	VI.B
Re-election, Eligibility for	VI.A.3
Term of office	VI.D
Privileges and immunities	XV.B and C
Voting rights	VI.E and XIX.A
Middle East, <i>see</i> Africa and the Middle East	
Military purpose, Assistance not to be used to further any	II, III.A.5, XI.F.4, XII.A.1 and 6, and B

N

Non-compliance with undertakings,	
In regard to safeguards	XII.A.7, B and C
In regard to the payment of contributions	XIX.A
Resulting from the Statute	XIX.B
North America,	
Designation for membership on the Board	VI.A.1
Special position with regard to elections to the Board	VI.A.3
Nuclear power	III.A.2

O

Objectives	II
Obligations, Budgetary,	
Not affected by withdrawal from the Agency	XVIII.E
Obligations, Contractual,	
Entry into	XI
Not affected by withdrawal from the Agency	XVIII.E
Obligations of membership	
To act in accordance with the purposes and principles of the United Nations Charter	IV.B
To fulfil in good faith the obligations assumed under the Statute	IV.C
To make available all scientific information resulting from assist- ance received	VIII.B
To make available such information as would be helpful to the Agency.	VIII.A
Officers of the Board, Election of	VI.H
Officers of the General Conference, Election and term of office of	V.C
Operating records, <i>see</i> Records	
Operational budget, <i>see</i> Expenditures of the Agency	

P

Pacific, <i>see</i> South East Asia and the Pacific	
--	--

Patents (in regard to inventions or discoveries arising from Agency projects)	XI.F.5
Peaceful uses of atomic energy	III.A.1, 2, 3 and 4, B.2, VIII.C
Persistent violation of the Statute or agreements	XIX.B
Place of meeting	
Of the Board	VI.G
Of the General Conference	V.A
Plant, see Materials	
Poland, producer of source materials	VI.A.2
Portugal, producer of source materials	VI.A.2
Powers and functions of organs provided for in the Statute	V.D
Preparatory Commission	VI.A.1 and 2, and Annex I
President of the General Conference, Election of	V.C
Principles,	
Assistance to be used in such a way as not to further any military purpose	II, III.A.5, XI.F.4, XII.A.1 and 6, and B
Contribution of atomic energy to peace, health and prosperity throughout the world	II
Equitable distribution of materials and other resources (for Agency projects)	XI.E.5

Equitable geographical representation in the Agency's staff	VII.D
Equitable regional representation in the Board	VI.A.3
Permanent staff to be kept to a minimum	VII.C
Practical application of atomic energy for peaceful purposes	III.A.1, 2, 3 and 4, B.2, VIII.C and XII.A.6
Promotion of peace and international co-operation	III.B.1
Respect for sovereign rights of members	III.D
Sovereign equality of members	IV.C
World-wide disarmament	III.B.1
Privileges and immunities	
Of delegates, alternates and advisers	XV.B and C
Of members of the Board and their alternates and advisers	XV.B and C
Of the Agency	XV.A and C
Of the Director General and staff	XV.B and C
To be defined in agreements	XV.C
Privileges and rights of membership,	
Suspension for non-compliance with undertakings in regard to safeguards	XII.C
Suspension for persistent violation of the Statute or agreements	V.E.3 and XIX.B
Suspension of voting rights	XIX.A
Projects, see Agency projects	

Q

Quorum	
In the Board	VI.E
In the General Conference	V.C

R

Ratification of the Statute,	
Date on which instruments of rati-	
fication take effect	XXI.E
Deposit of instruments	IV.A, XXI.B,
	C, E and F
In accordance with constitutional	
procedures	XXI.D
Members to be informed of date of	
deposit of instruments	XXI.F
Recommendations	
Of the Board	
To the General Conference	
On proposed amendments to the	
Statute	XVIII.C (i)
On questions of staff	VII.E
On suspension of rights and	
privileges	XIX.B
Of the General Conference	
To members of the Agency	
On questions within the scope of	
the Statute	V.D
To the Board	
On agreements between the Agency	
and other organizations	V.E.7

On questions within the scope of	
the Statute	V.D
On reports to the United Nations ...	V.E.6
On the draft budget estimates	V.E.5
Records, Operating records (required in	
connection with Agency projects) ..	XII.A.3
Recruitment of staff	VII.D
Redesignation of members of the Board .	VI.A.2
Re-election of members of the Board	VI.A.3
Regional representation in the Board ...	VI.A.1 and 3
Registration	
Of agreements	XXII.B
Of the Statute	XXII.A
Regular budget, see Expenditures of the	
Agency	
Regulations, Staff Regulations and Rules.	VII.B and E
Reimbursement of members for items	
furnished	XIII and XIV.F
Relationship with other organizations,	
Relationship agreements	XVI.A
Mandatory clauses (of agreement	
with the United Nations)	XVI.B
Representation (of the Board)	VI.I
Remuneration of staff	VII.E
Reports,	
By the Agency,	
To be approved by the General Con-	
ference or returned to the Board .	V.E.6
To other organs of the United	
Nations	III.B.5
To the Economic and Social Council .	III.B.5
To the General Assembly	III.B.4 and VI.J

To the Security Council	III.B.4
By the Agency's inspectors	XII.C
By the Board,	
Time-limit for submission to members.	VI.J
To the General Conference, annual	
report	V.E.4 and VI.J
To the General Conference, on	
Agency projects	VI.J
To the United Nations and other	
organizations	VI.J and XII.C
Progress reports (in connection with	
the application of safeguards)	XII.A.4
Representation in the General Conference	V.A and B
Representation of the Board in relations	
with other organizations	VI.I
Requests	
For advisory opinions of the Inter-	
national Court of Justice	XVII.B
For application of health and safety	
standards	III.A.6
For application of safeguards	III.A.5
For assistance in setting up projects	
(<i>see also</i> Agency projects)	XI.A
For materials, services, facilities or	
equipment in connection with	
projects	XI.G
For special sessions of the General	
Conference	V.A
Resolutions of the General Assembly or	
any of the Councils of the United	
Nations, to be considered by the	
Agency	XVI.B.2
Responsibility	
Of members not engaged in respect of	
loans	XIV.G

Of the Agency for storing and protect-	
ing materials in its possession .	IX.H
Of the Agency not engaged for the	
financial implications of projects ..	XI.B
Of the Board to the General Conference	VI.F
Of the Director General to the Board ..	VII.B
Revenue, <i>see</i> Contributions to the	
regular budget, Scale of charges,	
Voluntary contributions	
Review of the Statute	XVIII.B
Rights and privileges of membership,	
<i>see</i> Privileges and rights of	
membership	
Rules of procedure	
Of the Board	VI.H
Of the General Conference	V.C

S

Safeguards, <i>see</i> Agency safeguards	
Safeguards, Physical safeguards	IX.I.2
Safety, <i>see</i> Health and safety standards	
Safety standards for labour conditions ...	III.A.6
Salaries of staff	VII.E
Scale of charges for storage and	
handling of materials	XIV.E
Scale of contributions to the regular	
budget (administrative expenses),	
Principles to be used in fixing .	XIV.D

Secrets. Industrial secrets not to be disclosed	VII.F
Security Council (of the United Nations), Consideration by the Agency of resolutions adopted by	XVI.B.2
Reports by the Agency to	III.B.4
To be notified of questions within its competence	III.B.4
Separate fund (for revenue from storage and handling charges)	XIV.E
Separation from service	VII.E
Services. <i>see</i> Materials	
Settlement of disputes, Arbitration, negotiation or other means. Provision to be made in project agreements	XVII.A
Signature of the Statute	XI.F.6
Date of opening for	XXI.A
Time-limit for	IV.A and XXI.A
Simple majority, Decisions in the Board by	VI.E
Decisions in the General Conference by	V.C and XVIII.B
South Asia, representation on the Board ..	VI.A.1 and 3
South East Asia and the Pacific, representation on the Board	VI.A.1 and 3
Sovereign rights of States, Observance of, Staff.	III.D
Appointment	VII.B and E
Director General. <i>see</i> Director General	
Expenses	XIV.B.1(a) and(b)

Guards, to be included under "staff" ..	VII.G
International character of responsibilities	VII.F
Not to act in a manner which might reflect on their official position ...	VII.F
Not to disclose industrial secrets or other confidential information	VII.F
Not to seek or receive instructions from any external source	VII.F
Principles, Of geographical distribution	VII.D
Of keeping permanent staff to a minimum	VII.C
Privileges and immunities	XV.B and C
Recruitment	VII.D
Regulations and Rules	VII.B and E
Salaries	VII.E
Termination	VII.E
Use on missions, for examining projects	XI.D
Staff of inspectors, <i>see</i> Inspectors	
Statute, Acceptance, Deposit of instruments	IV.B, XXI.C, E and F
In accordance with constitutional procedures	XXI.D
Amendments to, Acceptance of	XVIII.C (ii)
Approval of proposals for	V.E.9
Entry into force of	XVIII.C
Non-acceptance by a member	XVIII.D
Submission of proposals for	XVIII.A
Time-limit for communication of certified copies of proposals for.	XVIII.A
Voting on	XVIII.B and C (i) and (ii)

Authentic texts of	XXIII
Certified copies. Communication of.	
Of proposed amendments to the Statute	XVIII.A
Of the Statute	XXIII
Deposit	
Of instruments of acceptance	IV.B, XXI.C, E and F
Of instruments of ratification	IV.A, XXI.B, C, E and F
Of the Statute in the archives of the depository Government	XXIII
Entry into force	XXI.E and F
Languages of	XXIII
Persistent violation of the provisions of	XIX.B
Ratification.	
Deposit of instruments	IV.A, XXI.B, C, E and F
In accordance with constitutional procedures	XXI.D
Review of	XVIII.B
Settlement of disputes concerning the interpretation or application of .	XVII.A
To be registered with the United Nations by the depository Government	XVII.A
Signature.	
Date of opening for	XXI.A
Time-limit for	IV.A and XXI.A
Storage of materials	IX.A, H and I
Scale of charges for	XIV.E
Suspension from privileges and rights of membership.	
For non-compliance with undertakings.	XII.C

For persistent violation of the Statute or agreements	XIX.B
Suspension of voting rights	XIX.A

T

Term of office	
Of the Director General	VII.A
Of the members of the Board	VI.C and D
Of the President and officers of the General Conference	V.C
Termination of staff	VII.E
Terms and conditions of supply (for Agency projects)	XI.F.3
Time-limits,	
Date after which a member may withdraw	XVIII.D
For communication of certified copies of proposed amendments to the Statute	XVIII.A
For designation of members of the Board	VI.B
For notification of initial offers of materials	IX.F
For signature and ratification of the Statute	IV.A and XXI.A
For submission of reports to members .	VI.J
Two-thirds majority,	
Decisions in the Board by	VI.E and XIV.H
Decisions in the General Conference by	V.C, XIV.H, XVIII.C(i) and XIX.B

U

Under-developed areas, Consideration to be given to special needs	III.A.2 and B.3 and XI.E.6
United Nations, Agency and its members to act in accordance with The purposes and principles of the Charter of the United Nations	IV.B
The United Nations' policy of world-wide disarmament	III.B.1
The United Nations' principles of peace and international co- operation	III.B.1
Charter, Article 102 (Registration of agree- ments and the Statute)	XXII.A and B
Members to act in accordance with purposes and principles of	IV.B
Consideration of resolutions adopted by the General Assembly or any of the Councils of	XVI.B.2
Consultation and collaboration in establishing or adopting health and safety standards	III.A.6
Contributions to regular budget to be assessed on basis of principles adopted by	XIV.D
Registration Of agreements between the Agency and its members, between them or between the Agency and other organizations	XXII.B

Of the Statute by the depositary Government	XXII.A
Reports by the Agency, Approval by the General Conference . On non-compliance with undertakings. Preparation by the Board	V.E.6 XII.C VI.J
To other organs of the United Nations	III.B.5
To the Economic and Social Council .	III.B.5
To the General Assembly	III.B.4
To the Security Council	III.B.4
The General Assembly and Security Council to be informed of non- compliance with undertakings	XII.C
The General Assembly to authorize requests for advisory opinions of the International Court of Justice .	XVII.B
United States of America, Depositary Government	XXI.C
Uranium enriched in the isotopes 235 or 233	XX.2

V

Voluntary contributions, Acceptance by the Board	XIV.G
The General Conference to approve rules for acceptance of	V.E.8
To be deducted from sum required for non-administrative costs	XIV.E and F
To be placed in General Fund	XIV.F
Use of	V.E.8 and XIV.F

Voting,	
In the Board,	
By simple majority	VI.E
By two-thirds majority	VI.E, XIV.H
On the amount of the budget	XIV.H
To determine additional questions to be decided by a two-thirds majority	VI.E
In the General Conference,	
By simple majority	V.C and XVIII.B
By two-thirds majority	V.C, XIV.H, XVIII.C(i) and XIX.B
On financial questions	XIV.H
On general review of the Statute	XVIII.B
On proposed amendments to the Statute	XVIII.C(i)
On suspension of rights and privileges	XIX.B
To determine additional questions to be decided by a two-thirds majority	V.C
Voting rights	
In the Board	VI.F
In the General Conference	V.C
Suspension of voting rights for non- payment of contributions	XIX.A
Permission to vote granted in certain circumstances	XIX.A

W

Western Europe, representation on the Board	VI.A.1 and 3
--	--------------

Withdrawal from membership	
Contractual and budgetary obligations not affected by	XVIII.E
Date after which a member may withdraw	XVIII.D
Withdrawal of materials and equipment for non-compliance with safeguards obligations	XII.A.7