



International Atomic Energy Agency

## INFORMATION CIRCULAR

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THE TEXT OF THE AGREEMENT OF 22 SEPTEMBER 1980 CONCERNING  
THE AGENCY'S ASSISTANCE TO MALAYSIA FOR THE  
ESTABLISHMENT OF A RESEARCH REACTOR PROJECT

The text [1] of the Supply and Project Agreement of 22 September 1980 between the Agency and the Governments of Malaysia and the United States of America concerning the Agency's assistance for the transfer of a research reactor and enriched uranium by the United States to Malaysia is reproduced in this document for the information of all Members. The Agreement entered into force on 22 September 1980, pursuant to Article XIV.

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[1] The footnotes to the texts have been added in the present information circular.

## **SUPPLY AND PROJECT AGREEMENT**

### **AGREEMENT BETWEEN THE INTERNATIONAL ATOMIC ENERGY AGENCY AND THE GOVERNMENTS OF MALAYSIA AND THE UNITED STATES OF AMERICA CONCERNING THE TRANSFER OF A RESEARCH REACTOR AND ENRICHED URANIUM**

WHEREAS the Government of Malaysia (hereinafter called "Malaysia") desiring to establish a project consisting of a reactor for research purposes, has requested the assistance of the International Atomic Energy Agency (hereinafter called the "Agency") in securing a TRIGA Mark II reactor and the special fissionable material therefor;

WHEREAS Malaysia on 29 February 1972 concluded with the Agency an agreement for the application of safeguards in connection with the Treaty on the Non-Proliferation of Nuclear Weapons [2] (hereinafter called the "Treaty Safeguards Agreement") [3];

WHEREAS Malaysia and the Government of the United States of America (hereinafter called the "United States") reaffirm their support of the objectives of the Statute of the Agency (hereinafter called the "Statute") and their commitment to ensuring that the international development and use of nuclear energy for peaceful purposes are carried out under arrangements which, to the maximum extent, will prevent the proliferation of nuclear explosive devices;

WHEREAS Malaysia has made arrangements with a manufacturer in the United States of America (hereinafter called the "manufacturer") for the purchase of a TRIGA Mark II reactor and for the fabrication of enriched uranium into fuel elements for the reactor;

WHEREAS under the Agreement for Co-operation between the Agency and the United States, concluded on 11 May 1959, as amended (hereinafter called the "Co-operation Agreement") [4], the United States undertook to make available to the Agency pursuant to the Statute certain quantities of special fissionable material, and also undertook, subject to various applicable provisions and licence requirements, to permit, upon request of the Agency, persons under the jurisdiction of the United States to make arrangements to transfer and export materials, equipment or facilities for Members of the Agency in connection with an Agency project;

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[2] Reproduced in document INFCIRC/140.

[3] Reproduced in document INFCIRC/182.

[4] Reproduced in documents INFCIRC/5, part III, INFCIRC/5/Mod.1 and 2.

WHEREAS, pursuant to the Co-operation Agreement, the Agency and the United States on 14 June 1974 concluded a Master Agreement Governing Sales of Source, By-Product and Special Nuclear Materials for Research Purposes (hereinafter called the "Master Agreement") [5]; and

WHEREAS the Board of Governors of the Agency (hereinafter called the "Board") approved the project on 17 June 1980;

NOW THEREFORE the Agency, Malaysia and the United States hereby agree as follows:

## ARTICLE I

### Definition of the Project

1. The project to which this Agreement relates is the establishment at the Tun Ismail Atomic Research Centre at Bangi, Selangor, in Malaysia of a TRIGA Mark II research reactor, including any necessary ancillary equipment, (hereinafter called the "supplied reactor"), to be operated by the Centre.
2. This Agreement shall, mutatis mutandis, apply to any additional assistance provided by the Agency to Malaysia for the project.
3. Except as specified in this Agreement, neither the Agency nor the United States assumes any obligations or responsibilities insofar as the project is concerned.

## ARTICLE II

### Supply of the Reactor

1. The Agency, pursuant to Article IV of the Co-operation Agreement, shall request the United States to permit the transfer and export to Malaysia of the supplied reactor.
2. All arrangements for the transfer, delivery and installation of the supplied reactor shall be made between Malaysia and the manufacturer. These arrangements shall provide that title to the supplied reactor shall pass to Malaysia upon delivery to a carrier mutually agreed upon by Malaysia and the manufacturer.

## ARTICLE III

### Supply of Enriched Uranium

1. The Agency, pursuant to Article IV of the Co-operation Agreement, shall request the United States to permit the transfer and export to Malaysia of the following materials (hereinafter called the "supplied materials") for the supplied reactor:
  - (a) Approximately 24 760 grams of uranium enriched to approximately 19.90 per cent by weight in the isotope uranium-235, contained in fuel elements; and
  - (b) Approximately 7.6 grams of uranium enriched to approximately 93 per cent by weight in the isotope uranium-235, electrodeposited in neutron detectors,

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[5] Reproduced in document INFCIRC/210.

2. The United States, subject to the provisions of the Co-operation Agreement and the Master Agreement and to the issuance of any required licences or permits, shall transfer to the Agency and the Agency shall transfer to Malaysia the supplied materials.
3. The particular terms and conditions for the transfer of the supplied materials, including all charges for or connected with such materials, a schedule of deliveries and shipping instructions, shall be specified in a Supplemental Contract to the Master Agreement to be concluded by the Agency, Malaysia and the United States (hereinafter called the "Supplemental Contract") in implementation of this Agreement.
4. The supplied reactor and the supplied materials and any special fissionable material used in or produced through the use of either, including subsequent generations of produced special fissionable material, shall be used exclusively by and remain at Tun Ismail Atomic Research Centre, unless Malaysia and the United States otherwise agree.
5. The supplied materials and any special fissionable material used in or produced through the use of the supplied reactor or the supplied materials, including subsequent generations of produced special fissionable material, shall be stored or reprocessed or otherwise altered in form or content only under conditions and in facilities acceptable to Malaysia and the United States. Such materials shall not be further enriched unless Malaysia and the United States agree.

#### ARTICLE IV

##### Shipment of the Supplied Materials

All arrangements for the export from the United States of America of the supplied materials shall be the responsibility of Malaysia and the manufacturer. Prior to the export of any part of such materials, Malaysia shall notify the Agency of the amount thereof and of the date, place and method of shipment.

#### ARTICLE V

##### Payment

1. Malaysia shall pay the manufacturer all charges for or connected with the supplied reactor and the fabrication of the supplied materials into fuel elements and neutron detectors, in accordance with the arrangements made between Malaysia and the manufacturer.
2. Malaysia shall pay the United States all charges for or connected with the supplied materials in accordance with the provisions of the Supplemental Contract, except as provided for in paragraph 4 of this Article.
3. In extending their assistance for the project, neither the Agency nor the United States assumes any financial responsibility in connection with the transfer of the supplied reactor and the supplied materials by the United States to Malaysia.

4. In order to assist and encourage research on peaceful nuclear uses or for medical therapy, the United States has in each calendar year offered to distribute to the Agency, free of charge, special fissionable material of a value of up to \$50 000 at the time of transfer, to be supplied from the amounts specified in Article II, A of the Co-operation Agreement. If the United States finds the project to which this Agreement relates eligible, it shall decide by the end of the calendar year in which this Agreement is concluded on the extent, if any, to which the project shall benefit by the gift offer, and shall promptly notify the Agency and Malaysia of that decision. The payments provided for in paragraph 2 of this Article shall be reduced by the value of any gift material thus made available or, if payments for such material have been made by Malaysia, the United States shall credit Malaysia with the value of such material.

## ARTICLE VI

### Transport, Handling and Use

Malaysia and the United States shall take all appropriate measures to ensure the safe transport, handling and use of the supplied reactor and the supplied materials. Neither the United States nor the Agency warrants the suitability or fitness of the supplied reactor or the supplied materials for any particular use or application or shall at any time bear any responsibility towards Malaysia, or any person for any claims arising out of the transport, handling and use of the supplied reactor or the supplied materials.

## ARTICLE VII

### Safeguards

1. Malaysia undertakes that the supplied reactor, the supplied materials and any special fissionable material used in or produced through the use of either, including subsequent generations of produced special fissionable material, shall not be used for the manufacture of any nuclear weapon or any nuclear explosive device, or for research on or the development of any nuclear weapon or any nuclear explosive device, or for any other military purpose.

2. The safeguards rights and responsibilities of the Agency provided for in Article XII, A of the Statute are relevant to the project and shall be implemented and maintained with respect to the project. Malaysia shall co-operate with the Agency to facilitate the implementation of the safeguards required by this Agreement.

3. The implementation of the Agency's safeguards rights and responsibilities referred to in paragraph 2 of this Article is satisfied by the application of safeguards procedures pursuant to the Treaty Safeguards Agreement signed on 29 February 1972 and which entered into force on the same date.

4. In the event the Board determines, in accordance with Article XII, C of the Statute, that there has been any non-compliance with paragraph 1 or 2 of this Article, the Board shall call upon Malaysia to remedy such non-compliance forthwith, and the Board shall make such reports as it deems appropriate. In the event of failure by Malaysia to take fully corrective action within a reasonable time, the Board may take any other measures provided for in Article XII, C of the Statute.

5. Upon request of the United States, Malaysia shall inform the United States of the status of all inventories of any materials required to be safeguarded pursuant to this Agreement. If the United States so requests, Malaysia shall permit the Agency to inform the United States of the status of all such inventories to the extent such information is available to the Agency.

## **ARTICLE VIII**

### **Safety Standards and Measures**

**The safety standards and measures specified in Annex A to this Agreement shall apply to the project.**

## **ARTICLE IX**

### **Agency Inspectors**

**The relevant provisions of the Treaty Safeguards Agreement shall apply to Agency inspectors performing functions pursuant to this Agreement.**

## **ARTICLE X**

### **Scientific Information**

**In conformity with Article VIII. B of the Statute, Malaysia shall make available to the Agency without charge all scientific information developed as a result of the assistance provided by the Agency for the project.**

## **ARTICLE XI**

### **Languages**

**All reports and other information required for the implementation of this Agreement shall be submitted to the Agency in one of the working languages of the Board.**

## **ARTICLE XII**

### **Physical Protection**

**1. Malaysia undertakes that adequate physical protection measures shall be maintained with respect to the supplied reactor and the supplied materials and any special fissionable material used in or produced through the use of the supplied reactor or any supplied material, including subsequent generations of produced special fissionable material.**

**2. The Parties to this Agreement (hereinafter called the "Parties") agree to the levels for the application of physical protection set forth in Annex B to this Agreement, which levels may be modified by mutual consent of the Parties without amendment to this Agreement. Malaysia shall maintain adequate physical security measures in accordance with such levels. These measures shall as a minimum provide protection comparable to that set forth in Agency document INFCIRC/225/Rev.1, entitled "The Physical Protection of Nuclear Material", as it may be revised from time to time.**

## ARTICLE XIII

### Settlement of Disputes

1. Any decision of the Board concerning the implementation of Article VII, VIII or IX shall, if the decision so provides, be given effect immediately by the Agency and Malaysia pending the final settlement of any dispute.
2. Any dispute arising out of the interpretation or implementation of this Agreement, which is not settled by negotiation or as may otherwise be agreed by the parties concerned, shall on the request of any such party be submitted to an arbitral tribunal composed as follows: each party to the dispute shall designate one arbitrator and the arbitrators so designated shall by unanimous decision elect an additional arbitrator, who shall be the Chairman. If the number of arbitrators so selected is even, the parties to the dispute shall by unanimous decision elect an additional arbitrator. If within thirty (30) days of the request for arbitration any party to the dispute has not designated an arbitrator, any other party to the dispute may request the President of the International Court of Justice to appoint the necessary number of arbitrators. The same procedure shall apply if within thirty (30) days of the designation or appointment of the arbitrators, the Chairman or any required additional arbitrator has not been elected. A majority of the members of the arbitral tribunal shall constitute a quorum, and all decisions shall be made by majority vote. The arbitral procedures shall be established by the tribunal, whose decisions, including all rulings concerning its constitution, procedure, jurisdiction and the division of the expenses of arbitration between the parties to the dispute, shall be final and binding on all the parties concerned. The remuneration of the arbitrators shall be determined on the same basis as that of ad hoc judges of the International Court of Justice.

## ARTICLE XIV

### Entry into Force and Duration

1. This Agreement shall enter into force upon signature by or for the Director General of the Agency and by the authorized representatives of Malaysia and the United States.
2. This Agreement shall continue in effect so long as any material, equipment or facility which was ever subject to this Agreement remains in the territory of Malaysia or under its jurisdiction or control anywhere, or until such time as the Parties agree that such material, equipment or facility is no longer usable for any nuclear activity relevant from the point of view of safeguards.

DONE in Vienna on the twenty-second day of September 1980, in triplicate in the English language.

For the INTERNATIONAL ATOMIC ENERGY AGENCY:

(signed) Sigvard EKLUND

For the GOVERNMENT OF MALAYSIA:

(signed) KHOR Eng Hee

For the GOVERNMENT OF THE UNITED STATES OF AMERICA:

(signed) Gerard C. SMITH

## **ANNEX A**

### **SAFETY STANDARDS AND MEASURES**

- 1. The safety standards and measures applicable to the project shall be those defined in Agency document INFCIRC/18/Rev.1 (hereinafter called the "Safety Document") and as specified below.**
- 2. Malaysia shall apply the Agency's Basic Safety Standards for Radiation Protection [6] and the relevant provisions of the Agency's Regulations for the Safe Transport of Radio-active Materials [7], as they are revised by the Agency from time to time, and shall as far as possible apply them also to any shipment of the supplied material outside the jurisdiction of Malaysia. Malaysia shall endeavour to ensure safety conditions as recommended in the relevant parts of the Agency's codes of practice.**
- 3. Malaysia shall arrange for the submission to the Agency, at least 60 days prior to the proposed transfer of any part of the supplied materials to the jurisdiction of Malaysia, of a detailed safety analysis report containing the information specified in paragraph 4.7 of the Safety Document, with particular reference to the following types of operations, to the extent that such information is relevant and not yet available to the Agency:**
  - (a) Receipt and handling of the supplied materials;**
  - (b) Loading of the fuel elements into the supplied reactor;**
  - (c) Start-up and pre-operational testing of the supplied reactor with the supplied materials;**
  - (d) Experimental program and procedures involving the supplied reactor;**
  - (e) Unloading of the fuel elements from the supplied reactor;**
  - (f) Handling and storage of the fuel elements after unloading.**

**Once the Agency has determined that the safety measures provided for are adequate, it shall give its consent for the start of the assisted operation. Should Malaysia desire to make substantial modifications to the procedures with respect to which information has been submitted, or to perform any operations with the supplied reactor or the supplied materials with respect to which operations no such information has been submitted, it shall submit to the Agency all relevant information as specified in paragraph 4.7 of the Safety Document, on the basis of which the Agency may require the application of additional safety measures in accordance with paragraph 4.8 of the Safety Document. Once Malaysia has undertaken to apply the additional safety measures requested by the Agency, the Agency shall give its consent for the modifications or operations referred to above.**

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**[6] Safety Series No. 9, 1967 Edition (STI/PUB/147).**

**[7] Ibid., No. 6, IAEA Safety Standards, 1973 Revised Edition (As Amended), 1979 (STI/PUB/517).**

4. Malaysia shall arrange for submission to the Agency, as appropriate, of the reports specified in paragraphs 4.9 and 4.10 of the Safety Document.

5. The Agency may, in agreement with Malaysia, send safety missions for the purpose of providing advice and assistance to Malaysia in connection with the application of safety measures to the project, in accordance with paragraphs 5.1 and 5.3 of the Safety Document. Special safety missions may be arranged by the Agency in the circumstances specified in paragraph 5.2 of the Safety Document.

6. Changes in the safety standards and measures laid down in this Annex may be made in accordance with paragraphs 6.1 to 6.3 of the Safety Document.

## **ANNEX B**

### **LEVELS OF PHYSICAL PROTECTION**

Pursuant to Article VII, the agreed levels of physical protection to be ensured by the competent national authorities in the use, storage and transportation of nuclear material listed in the attached table shall as a minimum include protection characteristics as follows:

#### **CATEGORY III**

Use and storage within an area to which access is controlled,

Transportation under special precautions including prior arrangements between sender, recipient and carrier, and prior agreement between entities subject to the jurisdiction and regulation of the supplier State and the recipient State, respectively, in case of international transport, specifying time, place and procedures for transferring transport responsibility.

#### **CATEGORY II**

Use and storage within a protected area to which access is controlled, i.e. an area under constant surveillance by guards or electronic devices, surrounded by a physical barrier with a limited number of points of entry under appropriate control, or any area with an equivalent level of physical protection,

Transportation under special precautions including prior arrangements between sender, recipient and carrier, and prior agreement between entities subject to the jurisdiction and regulation of the supplier State and the recipient State, respectively, in case of international transport, specifying time, place and procedures for transferring transport responsibility.

#### **CATEGORY I**

Materials in this category shall be protected with highly reliable systems against unauthorized use as follows:

Use and storage within a highly protected area, i.e. a protected area as defined for Category II above, to which, in addition, access is restricted to persons whose trustworthiness has been determined, and which is under surveillance by guards who are in close communication with appropriate response forces. Specific measures taken in this context should have as their objective the detection and prevention of any assault short of war, unauthorized access or unauthorized removal of material.

Transportation under special precautions as identified above for transportation of Category II and III materials and, in addition, under constant surveillance by escorts and under conditions which assure close communication with appropriate response forces.

**TABLE: CATEGORIZATION OF NUCLEAR MATERIAL<sup>e</sup>**

Material	Form	Category		
		I	II	III
1. Plutonium <sup>a,f</sup>	Unirradiated <sup>b</sup>	2 kg or more	Less than 2 kg but more than 500 g	500 g or less <sup>c</sup>
2. Uranium-235 <sup>d</sup>	Unirradiated <sup>b</sup>	5 kg or more — —	Less than 5 kg but more than 1 kg 10 kg or more —	1 kg or less <sup>c</sup> Less than 10 kg <sup>c</sup> 10 kg or more
	— uranium enriched to 20% <sup>235</sup> U or more			
	— uranium enriched to 10% <sup>235</sup> U but less than 20% — uranium enriched above natural, but less than 10% <sup>235</sup> U			
3. Uranium-233	Unirradiated <sup>b</sup>	2 kg or more	Less than 2 kg but more than 500 g	500 g or less <sup>c</sup>

<sup>a</sup> All plutonium except that with isotopic concentration exceeding 80% in plutonium-238.

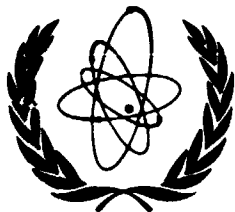
<sup>b</sup> Material not irradiated in a reactor or material irradiated in a reactor but with a radiation level equal to or less than 100 rads/hour at one meter unshielded.

<sup>c</sup> Less than a radiologically significant quantity should be exempted.

<sup>d</sup> Natural uranium, depleted uranium and thorium and quantities of uranium enriched to less than 10% not falling in Category III should be protected in accordance with prudent management practice.

<sup>e</sup> Irradiated fuel should be protected as Category I, II or III nuclear material depending on the category of the fresh fuel. However, fuel which by virtue of its original fissile material content is included as Category I or II before irradiation should only be reduced one Category level, while the radiation level from the fuel exceeds 100 rads/h at one meter unshielded.

<sup>f</sup> The State's competent authority should determine if there is a credible threat to disperse plutonium malevolently. The State should then apply physical protection requirements for category I, II or III of nuclear material, as it deems appropriate and without regard to the plutonium quantity specified under each category herein, to the plutonium isotopes in those quantities and forms determined by the State to fall within the scope of the credible dispersal threat.



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The Supply and Project Agreement

Amendment

On 22 July 1981 the Agency and the Governments of Malaysia and the United States of America amended by letter of agreement paragraph 1(a) of Article III of the Supply and Project Agreement, concluded in connection with the Agency's assistance to Malaysia for the transfer of a research reactor and enriched uranium by the United States to Malaysia and reproduced in document INFCIRC/287, to provide for the transfer to Malaysia of about 30 240 grams (instead of about 24 760 grams) of uranium enriched to approximately 19.90 per cent by weight in the isotope uranium-235 and contained in fuel elements for the reactor.