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**MEMORANDUM**

TO: Tom Bell  
Honorable Banny de Brum  
Earl Gilmore  
Mayor Tomaki Juda  
Joseph McDermott  
Minister Philip Muller  
Jack Niedenthal

FROM: Jonathan M. Weisgall *JW*

DATE: May 21, 1996

RE: IAEA Technical Assistance Co-Operation Application

As promised at our May 14-15 meetings in Honolulu, enclosed is a copy of the Request for Assistance under the IAEA's Technical Co-Operation Program, which was signed by Minister Muller, for the establishment, among other things, of a whole body counter at Bikini Atoll as part of a program to strengthen the radiological infrastructure in the RMI.

Please contact me if you have any questions. I will keep you posted on the status of this application as I receive word from the IAEA.

JMW:jj  
Enclosures



INTERNATIONAL ATOMIC ENERGY AGENCY  
P.O. Box 100  
A-1400 Vienna, Austria

**REQUEST FOR ASSISTANCE UNDER THE IAEA  
REGULAR PROGRAMME OF  
TECHNICAL CO-OPERATION  
FOR 19 96 - 1997**

Submit in duplicate, keep the yellow copy, indicate the name of the country and the request number on each page. In order to assist you in proper planning and project implementation, please fill the relevant pages completely; if more space is needed, attach additional sheets.

**1. NAME AND ADDRESS OF DEPARTMENT, INSTITUTION OR LABORATORY WHERE PROJECT IS TO BE CARRIED OUT**

King Juda Health Physics Laboratory  
Bikini Island, Bikini Atoll  
Marshall Islands

Telephone No. 011-692-625-3177

Cable  
address

Telex No.

Fax No. 011-692-625-3330

**2. TITLE OF PROPOSED PROJECT**

Strengthening radiological infrastructure in the Republic  
of the Marshall Islands

**Government Sector:** Public Health  
(If in doubt check with local UNDP Office)

**Sub-Sector:** Public Health

**3. PROJECT AND NATIONAL DEVELOPMENT**

**3.1. Description of the national sub-sector of activity to which the project will contribute and main development issues to be tackled within the sub-sector:**

The International Atomic Energy Agency has found that Bikini Atoll is inhabitable in a way consistent with the philosophy of radiation protection as embraced by the Agency over the years and in numerous reports. The Agency has found that with technologically and financially feasible remedial actions, Bikini Atoll can be safely inhabited with a high level of confidence. The focus will be on the radiological health of the returning Bikini population.

**3.2. Government approach, strategy and plans for the development of the sub-sector concerned:**

The Government is assigning high priority to the present and future environmental (and food) radioactivity issues at Bikini Atoll, and to maintaining adequate radiological health status of the returning Bikini population.

**3.3. Specific problem to be addressed by the project:**

The radiological conditions at Bikini Atoll should be further controlled by a regular monitoring programme of the environment and the local foodstuffs, and the radiological health status of the returning Bikini population should be determined prior to its return and regularly checked after resettlement.

**3.4. Immediate objective that the project is expected to achieve:**

To assure radiologically acceptable conditions for reoccupation of Bikini Atoll, by implementing a post-remediation regular monitoring of local foodstuffs and the environment (to ensure that remediation remains effective), by following CONTINUED

- 3.5. On-going government activities that are relevant to this project and how this project will be integrated into these activities: Describe the distribution of scientific and technical tasks among the different institutions and indicate the respective management responsibilities. Are there agreements to such effect?

Recommendations on the radiological conditions in the Republic of the Marshall Islands were recently reviewed by IAEA, including several options for remedial actions at Bikini Atoll, in order to facilitate safe return of the Bikini population.

- 3.6. Which nuclear techniques will be used in the project? Are there other conventional techniques which can be used as a more appropriate alternative?

The following nuclear techniques will be used in the project:

- alpha and gamma spectrometry,
- whole body counting, and
- diagnostic radiology.

There are no other conventional techniques which can be used as a more appropriate alternative.

- 3.7. Relation and responsibilities of the counterpart institution with respect to the national sub-sector in which the project will be assisting.

The Kili/Bikini/Ejit Local Government Council, working through Lawrence Livermore National Laboratory and a consortium of other international laboratories, will be responsible for assisting in relationships and responsibilities between the King Juda Health Physics Laboratory and the Radiological Health Section of the Ministry of Health.

### 3.8. OUTPUTS

- 3.8.1. Project is oriented towards end users



(tick as appropriate)

Project is oriented towards upgrading scientific infrastructure



- 3.8.2. Immediate outputs that are expected to result from the project and how these will contribute to achieve the objective outlined in 3.4 (outputs should be concrete and verifiable).

- Establishment of alpha and gamma spectrometric capabilities and their implementation: to continue with a monitoring programme of local foodstuffs and environment,
- Establishment of a whole body counter: to follow <sup>137</sup>Cs body count of Bikini

CONTINUED

3.4. CONTINUED

the <sup>137</sup>Cs body burden of the Bikini residents, and by developing a programme on beneficial uses of radiation, particularly in the field of diagnostic radiology.

3.8.2. CONTINUED

residents,

- Establishment and implementation of diagnostic radiology with associated radiation safety infrastructure: to ensure appropriate radiological health conditions.

**3.9. IMPACT — Medium-term social and economic impacts of the project. — How and by whom will the results of the project be utilized:**

The results of the project will be utilized by both the Kili/Bikini/Ejit Local Government Council and the Government of the Marshall Islands Ministry of Health to monitor the radiological cleanup of Bikini and to ensure that the people of Bikini return to a radiologically safe environment, which they can measure on an ongoing basis as necessary.

**3.10. Management approach envisaged for project implementation (summarize the implementation plan).**

Project implementation plan:

- Provision of equipment: gamma spectrometry, whole body counter, equipment for diagnostic radiology -- preferably in the first half of 1997;
- Expert services and training -- in 1997;
- Programme implementation: radioactivity measurements in local foodstuffs and in environment, determination of the whole body  $^{137}\text{Cs}$  levels of the Bikini residents, diagnostic radiology -- in 1998.

**3.11. SUSTAINABILITY — Describe arrangements by counterpart institution to assure the project outputs will result in a sustained activity (project results are called sustainable if they continue to be utilized by recipients after completion of the project without further external (IAEA) ASSISTANCE).**

The Kili/Bikini/Ejit Local Government Council has already commenced construction of the King Juda Health Physics Laboratory. The foundations were laid in February 1996 (see attached photographs), and work has proceeded steadily since that time. Once the whole body counter is obtained and Marshallese citizens are properly trained in its calibration and use, it is anticipated that the Council will take over operation of the project on a sustained basis without further IAEA assistance necessary.

**3.12. Proposed project duration (years) to achieve objectives.**

Two (2) years



**3.14. Factors that may cause delays or prevent implementation of the project as proposed above?**

(e.g. delays in construction of laboratories, lack of transport for field operations, unavailability of personnel, lack of budget, etc.)

All materials to complete the King Juda Health Physics Laboratory are on site at Bikini Island. The project manager just returned from a site visit on April 30 - May 2 and reports that construction should be completed by September 30. It is anticipated that the U.S. Government will approve the necessary expenditures to complete all required work.

**4. COUNTERPART ORGANIZATION: CAPACITY, COMMITMENT AND INPUTS TO ENABLE THE PROJECT TO PRODUCE THE PROPOSED OUTPUTS****4.1. Short description of counterpart institution facilities, personnel, budget (converted in US dollars), infrastructure and main activities.**

The Kili/Bikini/Ejit Local Government Council, working with the IAEA and the Ministry of Health of the Republic of the Marshall Islands, has the commitment and resources to enable the project to produce the proposed output. With the assistance of the U.S. Government, the Council has allocated \$75,000 for construction of the King Juda Health Physics Laboratory during fiscal year 1996, which will end on September 30. IBC, a Guam-based construction company, has already laid the foundations, and the pre-fabricated modular units, which were constructed on Guam, have arrived on site at Bikini and will be installed during the summer of 1996 in time for completion of construction by September 30, 1996.

**4.2. Indicate the status of on-going activities in the institution which are related to the project.**

As indicated in Section 4.1. above, construction is ongoing and should be completed by September 30.

**4.3. Person responsible for the execution of the project:**

Name	Job title	Academic degree(s)/Major subject
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What share of his/her time will be assigned to the project?  
Indicate the training and experience he/she has in the field of the project.

**4.4. Other scientific as well as technical staff to be assigned directly to the project:**

Name	Job title	Degree(s)/Diploma(s)/Experience
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Note: Under 4.4. also provide information on persons who are in the process of being recruited if it is certain they will participate in the project

**4.5. List relevant facilities and infrastructure which are already available for the project**

- a) **Premises:** With the approval of the U.S. Government, the Kili/Bikini/Ejit Local Government Council is currently spending approximately \$250,000 to upgrade the field station located at Bikini Island, which is immediately adjacent to the King Juda Health Physics Laboratory. This field station, which has been operated by the U.S. Government for the past 20 years, has deteriorated greatly, and repairs are currently underway to redo the electrical work, plumbing and to upgrade the facilities to add rooms in order to house the necessary personnel who will assist in the operation of the King Juda Health Physics Laboratory.
- b) **Equipment (type and name of manufacturers of major items and other important articles):**
- By September 30, 1996, the field station will be fully equipped to assist in the operation of the King Juda Health Physics Laboratory. Telephone and facsimile equipment are now in place.

**c) Provision of consumable items and supplies during project implementation:**

The field station is adequately equipped with food and supplies for up to six (6) months at a time. There are three (3) full-time Bikini personnel living at the field station, who are responsible for on-going maintenance and upkeep, cooking and cleaning and operation of the field station. The field station is also equipped with a walk-in freezer, full cafeteria-style dining room, refrigerators, shower and laundry facilities, air conditioning, a separate office, and a small room equipped with a VCR, television and videos.

**d) Vehicles (for all projects with activities in the field, e.g. agriculture, hydrology, environmental monitoring, etc.)**

Working with the Kili/Bikini/Ejit Local Government Council, the U.S. Government has donated surplus vehicles to assist the Council at the field station. There are currently approximately four (4) trucks available for use in the field.

**4.6. List additional premises and major equipment items that will be made available by the counterpart institution for the execution of the project.****a) Building/laboratory space to be designed, built or upgraded specially for the project:**

Enclosed under separate cover are the drawings for the King Juda Health Physics Laboratory.

Anticipated date of completion: September 30, 1996

What financial resources are available for this purpose: It is anticipated that the U.S. Government will provide funding for the indefinite future for the operation and maintenance of the King Juda Health Physics Laboratory.

**b) Equipment to be purchased (indicate each major item and when it will be available):**

**4.7. Project operating costs:**

What financial resources have been secured and will be made available by the government in support of the project (by budget year)?

- **Salaries and wages of project personnel:**

US \$ 50,000.00...../year for three (3) years

- **Consumables, supplies and spare parts:**

US \$ 15,000.00...../year for three (3) years

- **Local and field transportation (if applicable):**

US \$ 10,000.00...../year for three (3) years

- **Maintenance of buildings and equipment:**

US \$ 10,000.00...../year for three (3) years

**4.8. What basic infrastructure must and will be upgraded to support project activities?**

(e.g. electric power supply, current stabilization, water supply, laboratory air-conditioning, etc.)

As indicated above, the Kili/Bikini/Ejit Local Government Council is expending approximately \$250,000 to upgrade the adjacent Bikini Island field station. A new 75-kilowatt generator is being installed this summer in order to provide reliable electric power for air conditioning for the laboratory and for living quarters. In addition, a reverse osmosis unit has been moved from Eneu Island to Bikini Island to support the water needs of additional personnel at the Bikini field station. Lastly, plumbing and electrical infrastructure is being upgraded this summer to support project activities.

**5. DESCRIPTION OF THE INPUTS REQUESTED FROM THE AGENCY****5.1. Expert services (If more than four experts are needed, please attach additional sheets):**

Expert post No: 1

Special field:

Duty station:

Duration of proposed assignment: 3 weeks When required (specify month &amp; year): July 1997 --

Duties (Please specify in detail or attach a draft job description):

after major equipment  
is on hand.

Determination of alpha emitting radionuclides ( $^{239,240}\text{Pu}$ ) in environmental samples, using radiochemical separation techniques.

If, for example, the construction of a facility must be completed, or some equipment must be on hand before the expert arrives, please give details.

The expert should arrive  before the  building has been completed.  
 after  major equipment items are on hand.

Acceptable working language of expert: English or Marshallese  
(first choice) (second choice)

If a specific expert is requested, please indicate name and address. *It does not however follow that the Agency will automatically employ the expert named.*

Expert post No.: 2

Special field:

Duty station:

Duration of proposed assignment: 2 weeks When required (specify month &amp; year): January 1998 --

Duties (Please specify in detail or attach a draft job description):

after equipment  
is available.

Preparation of strategy and operational programme for the whole body counting.

If, for example, the construction of a facility must be completed, or some equipment must be on hand before the expert arrives, please give details.

The expert should arrive  before the  building has been completed.  
 after  major equipment items are on hand.

Acceptable working language of expert: English or Marshallese  
(first choice) (second choice)

If a specific expert is requested, please indicate name and address. *It does not however follow that the Agency will automatically employ the expert named.*

Expert post No.: 3

Special field:

Duty station:

Duration of proposed assignment: 2 weeks When required (specify month &amp; year): September 1997 --

Duties (Please specify in detail or attach a draft job description): after equipment is available.

Preparation of the operational programme in diagnostic radiology.

If, for example, the construction of a facility must be completed, or some equipment must be on hand before the expert arrives, please give details.

The expert should arrive  before the  building has been completed.  
 after the  major equipment items are on hand.

Acceptable working language of expert: English or Marshallese  
 (first choice) (second choice)

If a specific expert is requested, please indicate name and address. *It does not however follow that the Agency will automatically employ the expert named.*

Expert post No.:

Special field:

Duty station:

Duration of proposed assignment: When required (specify month &amp; year):

Duties (Please specify in detail or attach a draft job description):

If, for example, the construction of a facility must be completed, or some equipment must be on hand before the expert arrives, please give details.

The expert should arrive  before the  building has been completed.  
 after the  major equipment items are on hand.

Acceptable working language of expert: \_\_\_\_\_ or \_\_\_\_\_  
 (first choice) (second choice)

If a specific expert is requested, please indicate name and address. *It does not however follow that the Agency will automatically employ the expert named.*

5.2. Equipment needed for the project:

IAEA form TA-4E (white), "Basic information regarding equipment requested for a technical co-operation project", must be completed and attached if equipment is being requested.

Likewise, IAEA form TA-5E (blue), "Equipment Summary", must be completed and attached if two or more items are being requested.

IAEA form TA-6E (pink), "Data for a single equipment item", must be completed and attached for each major equipment item, as well as in respect of all precision and electronic instruments. If a specific make of equipment is requested, please give the reasons on form TA-6E. (The Agency will normally provide the most appropriate equipment that will perform the functions required; however, if very special reasons are given and explained in detail, the purchase of a specific make will be considered. Please indicate the location of the nearest service representative of the make requested.)

Note: Only on exceptional cases and when adequately justified will expendable supplies and miscellaneous equipment items be provided. Such supplies are expected to be provided by the counterpart organization.

5.2.1. Maintenance of equipment:

Are trained technicians available to maintain and repair the requested equipment?

Yes  No

What facilities are available to ensure the maintenance and repair of the requested equipment?

IBC, a Guam-based construction company, is able to order and ship necessary repair and maintenance supplies for ongoing support of the Bikini field station. It is anticipated that IBC will be able to assist the King Juda Health Physics Laboratory to ensure the ability to obtain necessary parts for the repair of whole body counting equipment.

5.3. Fellowships and scientific visits needed in connection with the project:

Name of candidate	Job title	Years of service	Field(s) of training required
	Technician	2m/m	Determination of alpha emitting radionuclides
	Technician	3m/m	Diagnostic radiology and associated radiation protection infrastructure
	Technician	2m/m	Whole body counting

How many of the above received previous training by the IAEA?

Note: Requests for fellowships and scientific visits must be submitted on the Agency form, "Application for Fellowship/Scientific Visit", TA-2EF or TA-2ES. If possible, attach the completed application forms to this request.

5.4. State how the capabilities acquired through training will be used.

5.5. IAEA publications needed for the project (list)

## 5.6. Summary of the inputs requested from the Agency:

## A. EXPERT SERVICES

Post No.	Job title	Total	Man-months required		
			19__	19__	19__

## B. EQUIPMENT

Major items	Total	Estimated cost (in US \$)		
		19__	19__	19__
Alpha spectrometric equipment (alpha detectors, vacuum chambers, PCA, accessories)			\$ 20,000	
Equipment for radiochemical laboratory + expendable supplies			\$ 20,000	
Whole body monitor			\$120,000	
Equipment for diagnostic radiology (3 kits)			\$ 50,000	

Other equipment items (added together), if any:

## C. FELLOWSHIPS AND SCIENTIFIC VISITS

Field(s)	Total	Man-months required		
		19__	19__	19__

**6. TECHNICAL ASSISTANCE AGREEMENTS AND CONDITIONS FOR IMPLEMENTING THE PROJECT****6.1. Prior counterpart Institution's obligations and prerequisites for project Implementation.**

Subject to positive appraisal of the request, IAEA assistance to the project will be provided only if the counterpart institution obligations and project prerequisites have been fulfilled or are likely to be met to IAEA's satisfaction.

In this respect, the project will be subject to continuous monitoring and evaluation. When anticipated fulfillment of one or more prerequisites fails to materialize, IAEA may, at its discretion, either suspend or terminate its assistance to the project.

**RECIPIENT INSTITUTION ACKNOWLEDGEMENT**

\_\_\_\_\_  
Name and title of the head of the institution where the project will be executed

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**6.2. Country undertaking**

**6.2.1. The Government acknowledges that assistance provided by the Agency will be subject to the relevant conditions required by the Statute of the Agency and by decisions of its Board of Governors, in particular as set forth in IAEA document INFCIRC/267. The Government further agrees:**

**(a) to apply**

- i. the Agreement on the Privileges and Immunities of the Agency, reproduced in document INFCIRC/9/Rev.2, for the purpose of the assistance requested;
- ii. the United Nations Revised Standard Agreement or the United Nations Development Programme Standard Basic Assistance Agreement;
- iii. the IAEA Revised Supplementary Agreement thereto concerning the provision of technical assistance;
- iv. the Agency's health and safety measures, as required. The standards and measures are specified in INFCIRC/18/Rev.1 (particularly p. 11) and, when applicable, the International Basic Safety Standards for Protection Against Ionizing Radiation and for the Safety of Radiation Sources (Safety Series No. 115).

**(b) to ensure that national inputs to the project as stated in 4.3 to 4.7) will be available.**

6.2.2. Endorsement by the national regulatory body for nuclear/radiation safety that will be responsible for radiation safety supervision.

\_\_\_\_\_  
Name

Existing National Law and Regulations:  
(please specify)

\_\_\_\_\_  
Address

\_\_\_\_\_

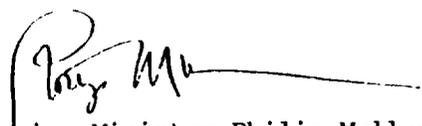
\_\_\_\_\_  
Name and title of signing official (typewritten or printed)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

7. Priority ranking of this request: \_\_\_\_\_ out of \_\_\_\_\_ requests.  
(for example: second out of three requests).

NOTE: This form should be signed by the official authorized by the Government to request assistance from the IAEA.



Foreign Minister Philip Muller  
Name and title of signing official (typewritten or printed)  
of the Government of the Marshall Islands



May 8, 1996

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

