



U.S. AGENCY FOR
INTERNATIONAL
DEVELOPMENT

ENTERED

SEP 20 1993

F2-165-117

Dr. S. Shanmugasundaram
Director
International Cooperation Program
AVRDC - P.O. Box 42
Shanhua, Taiwan 74199

September 20, 1993

Subject: Grant No. LAG-4111-G-00-3040-00

Dear Dr. Shanmugasundaram:

Pursuant to the authority contained in the Foreign Assistance Act of 1961 and the Federal Grant and Cooperative Agreement Act of 1982, as amended, the Agency for International Development (hereinafter referred to as "A.I.D.") hereby provides to the Asian Vegetable Research and Development Center (hereinafter referred to as "AVRDC") the sum set forth in Section 1C.2. of Attachment 1 of this Grant to provide financial support for the program described in Attachment 2 of this Grant entitled "Program Description."

This Grant is effective as of the date of this letter and funds obligated hereunder shall be used to reimburse the Grantee for allowable program expenditures for the period set forth in Section 1B. of Attachment 1 of this Grant.

This Grant is made to the Grantee on the condition that the funds will be administered in accordance with the terms and conditions as set forth in the attachments listed under my signature below, which together constitute the entire Grant document and have been agreed to by your organization.

Please acknowledge receipt and acceptance of this Grant by signing all copies of this Cover Letter, retaining one copy for your files, and returning the remaining copies to the undersigned.

BEST AVAILABLE DOCUMENT

If you have any questions, please contact Mr. Ron Stanley of my staff at (703) 875-1220.

Sincerely yours,



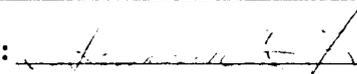
Jay M. Bergman
Grant Officer
Chief, LA Branch
Division B
Office of Procurement

Attachments:

1. Schedule
2. Program Description
3. Standard Provisions
4. Special Provision entitled "Restrictions on Lobbying"
5. A.I.D. Eligibility Rules

ACKNOWLEDGED:

ASIAN VEGETABLE RESEARCH AND DEVELOPMENT CENTER

BY: 

TYPED NAME: Samson C.S. Tsou

TITLE: Acting Director General

DATE: September 27, 1993

FISCAL DATA

A. GENERAL

- | | | | |
|------|-----------------------------------|---|----------------------|
| A.1. | Total Estimated A.I.D. Amount | : | \$ 673,540 |
| A.2. | Total Obligated A.I.D. Amount | : | \$ 673,540 |
| A.3. | Cost-Sharing Amount (Non-Federal) | : | \$ - 0 - |
| A.4. | Other Contributions (Federal) | : | \$ - 0 - |
| A.5. | Project No.: | | 936-4111 |
| A.6. | A.I.D. Project Office: | | R&D/AGR, R. Cummings |
| A.7. | Funding Source: | | A.I.D./W |

B. SPECIFIC

- B.1.(a) PIO/T No.: 936-4111-3692407
- B.1.(b) Appropriation: 72-1131021.1
- B.1.(c) Allotment: 341-36-099-00-20-31
- B.1.(d) BPC: DDVA-93-16900-KG-11
- B.1.(e) Amount: \$ 673,540

ATTACHMENT 1

SCHEDULE

1A. PURPOSE OF GRANT

The purpose of this Grant is to provide financial support for the program described in Attachment 2 of this Grant entitled "Program Description."

1B. PERIOD OF GRANT

The effective date of this Grant is the date of the Cover Letter and the estimated completion date is 3 June 1995. Funds obligated hereunder (see Section 1C.2. below) shall be used to reimburse the Grantee for allowable program expenditures incurred by the Grantee in pursuit of program objectives during the period 4 June 1993 (see Section 1D.4. below) through the estimated completion date. Funds obligated hereunder are anticipated to be sufficient for completion by the Grantee of the program described in Attachment 2 of this Grant by the estimated completion date.

1C. AMOUNT OF GRANT AND PAYMENT

1C.1. The total estimated amount of this Grant for its full period, as set forth in Section 1B. above, is \$ 673,540.

1C.2. A.I.D. hereby obligates the amount of \$673,540 for the purposes of this Grant during the indicated period set forth in Section 1B. above, thereby fulfilling A.I.D.'s funding requirements. A.I.D. shall not be liable for reimbursing the Grantee for any costs in excess of the obligated amount, except as specified in paragraph (f) of the Standard Provision of this Grant entitled "Revision of Grant Budget."

1C.3. Payment shall be made to the Grantee in accordance with procedures set forth in the Standard Provision of this Grant entitled "Payment - Periodic Advance," as shown in Attachment 3.

1C.4. The total estimated amount of the program described in Attachment 2 of this Grant is \$ 673,540, of which A.I.D. may provide the amount specified in Section 1C.1. above, and the Grantee will provide \$ 673,540 in accordance with Section 1L. below.

1D. GRANT BUDGET

1D.1. The following is the Budget for the total estimated amount of this Grant (see Section 1C.1. above) for its full period (see Section 1B. above). The Grantee may not exceed the total estimated amount or the obligated amount of this Grant, whichever is less (see Sections 1C.1. and 1C.2., respectively, above). Except as specified in the Standard Provision of this Grant entitled "Revision of Grant Budget," as shown in Attachment 3, the Grantee may adjust line item amounts as may be reasonably necessary for the attainment of program objectives.

1D.2. Budget

<u>Cost Element</u>	<u>A.I.D.</u>	<u>Total</u>
Salaries	\$ 98,000	\$ 98,000
Fringe Benefits	55,850	55,850
Travel		
- Domestic	50,320	50,320
- International	26,030	26,030
Allowances	97,500	97,500
Nonexpendable		
Property	21,000	21,000
Participant		
Training	- 0 -	- 0 -
Consultants	84,460	84,460
Other Direct	240,160	240,380
Vehicle operations		
Training/Study tours		
Seminars, Demonstration		
Adaptive research, In-		
Country Costs, A - 133		
Audits (2), office/ field supplies, home office technical support		
TOTAL EST. AMOUNT	\$673,540	\$673,540

1D.3. Inclusion of any cost in the budget of this Grant does not obviate the requirement for prior approval by the Grant Officer of cost items designated as requiring prior approval by the applicable cost principles (see the Standard Provision of this Grant set forth in Attachment 3 entitled "Allowable Costs") and other terms and conditions of this Grant, unless specifically stated in Section 1I. below.

1D.4. Notwithstanding the effective date of this Grant as shown in Section 1B. above, and subject to the Standard Provision of this Grant entitled "Allowable Costs," costs incurred by the Grantee in pursuit of program objectives on or after the earliest date set forth in Section 1B. above shall be eligible for reimbursement hereunder. Such costs are included in the Grant Budget shown above.

1E. REPORTING

1E.1. Financial Reporting

1E.1.(a) Financial reporting requirements shall be in accordance with the Standard Provision of this Grant entitled ["Payment - Cost Reimbursement," or "Payment - Periodic Advances," (to be determined)] as shown in Attachment 3. If a Standard Form 269 is required by the aforesaid Standard Provision, the "Long Form" of said form shall be used.

1E.1.(b) All financial reports shall be submitted to A.I.D., Office of Financial Management, FA/FM/CMPD/DCB, Room 700 SA-2, Washington, D.C. 20523-0209. In addition, three copies of all financial reports shall be submitted to the A.I.D. Project Office specified in the Cover Letter of this Grant, concurrently with submission of the Quarterly Technical Reports (See Section 1E.2. below).

1E.1.(c) The frequency of financial reporting and the due dates of reports shall be as specified in the Standard Provision of this Grant referred to in Section 1E.1.(a) above.

(If there will be cost-sharing under the grant, including full or partial waiver of indirect costs, the following will apply)

1E.1.(d) The Grantee's financial reports shall include expenditures of A.I.D. Grant funds provided hereunder, as well as non-federal matching funds and any other contributions in accordance with Section 1L. below.

1E.2. Program Performance Planning and Reporting

1E.2.(a) Project Implementation Plan

Not later than sixty (60) days from the effective date of this Grant (see Section 1B. above), the Grantee shall prepare and submit to the A.I.D. Project Officer specified in the Cover Letter of this Grant one (1) copy of a project implementation plan, with critical path indicators (as described in Appendix 9A of A.I.D. Handbook 3), for the full term of this Grant.

1E.2.(b) Annual Workplans

1E.2.(b)(1) Not later than sixty (60) days following the effective date of this Grant (see Section 1B. above), the Grantee shall prepare and submit to the A.I.D. Project Officer specified in the cover letter of this Grant one (1) copy of a workplan which outlines the schedule of activities under the first year of this Grant. Thereafter, the Grantee shall submit one (1) copy of an annual workplan covering each successive year of this Grant not later than sixty (60) days prior to the start of the second and each subsequent year. Based on collaborative review, the A.I.D. Project Officer will provide comments on the annual workplan within thirty (30) days of its submission.

1E.2.(b)(2) The annual workplan shall include the following information:

1E.2.(b)(2)(A) A list of activities to be undertaken during the workplan period, including testing at the various locations.

1E.2.(b)(2)(B) A statement of how the activities relate to the outputs and research priorities.

1E.2.(b)(2)(C) A projected beginning timeframe for the activities to begin.

1E.2.(b)(2)(D) A project ending timeframe for the completion of the activity.

1E.2.(b)(2)(E) A projected expenditure of person-months of input for each activity, and, by budget line item (see Section 1D.2. above), estimated expenditures of A.I.D. funds, other federal contributions, and other non-federal contributions, separately delineated.

1E.2.(b)(2)(F) The projected stage of research or the projected outputs at the end of the annual workplan.

1E.2.(b)(2)(G) A statement indicating the provisions for complying with all relevant regulations dealing with biotechnology and genetically-engineered biological products.

1E.2.(c) Quarterly Reports

The Grantee shall submit two (2) copies of brief quarterly program performance reports, which coincide with the financial reporting periods described in Section 1E.1. above, to the A.I.D. Project Office specified in the Cover Letter of this Grant. In addition, two (2) copies shall be submitted to A.I.D., POL/CDIE/DI, Washington, DC 20523-1802. These reports shall be submitted within 30 days following the end of the reporting period, and shall briefly present the following information:

1E.2.(c)(1) A comparison of actual accomplishments with the goals established for the period, the findings of the investigator, or both. If the output of programs can be readily quantified, such quantitative data should be related to cost data for computation of unit costs.

1E.2.(c)(2) Reasons why established goals were not met, if applicable.

1E.2.(c)(3) Other pertinent information including the status of finances and expenditures and, when appropriate, analysis and explanation of cost overruns or high unit costs.

1E.2.(d) Special Reports

Between the required program performance reporting dates, events may occur that have significant impact upon the program. In such instances, the Grantee shall inform the A.I.D. Project Officer as soon as the following types of conditions become known:

1E.2.(d)(1) Problems, delays, or adverse conditions that will materially affect the ability to attain program objectives, prevent the meeting of time schedules and goals, or preclude the attainment of work units by established time periods. This disclosure shall be accompanied by a statement of the action taken, or contemplated, and any A.I.D. assistance needed to resolve the situation.

1E.2.(d)(2) Favorable developments or events that enable time schedules to be met sooner than anticipated or more work units to be produced than originally projected.

1E.2.(d)(3) If any performance review conducted by the Grantee discloses the need for change in the budget estimates in accordance with the criteria established in the Standard Provision of this Grant entitled "Revision of Grant Budget," the Grantee shall submit a request for budget revision to the Grant Officer and the A.I.D. Project Officer specified in the Cover Letter of this Grant.

1E.2.(e) Annual Activity Reports

Within thirty (30) days following the annual anniversary date of this Grant, the Grantee shall submit to the A.I.D. Project Office specified in the cover letter of this Grant two (2) copies of an annual technical progress report which will be a description of the past year's activities, including technical, scientific, managerial, and fiscal information. The report shall include, both for each field site or subcontractor/subrecipient individually and for project activities as a whole, a review of program and problems to date, and a

discussion of technical and managerial issues significant to the success or failure of this Grant. The report will also address regulatory issues related to the project. Although principally a technical document, it nevertheless must include pertinent statistics or quantitative information regarding the project and its activities. An Impact Analysis Report will be appended to this report, which will be considered an instrument for Technology Transfer. The Impact Analysis Report will summarize and provide a feedback system for measurement and evaluation of the impact of the Grantee's activities in the public and private sectors. The impact analysis will generally be qualitative in nature, and quantified only as appropriate. The Annual Activity Report shall also include an annual expenditure report corresponding to each annual workplan (see Section 1E.2.[b] above). These expenditure reports will cover A.I.D. and, if applicable, cost-sharing amounts by budget line item (see Section 1D.2. above) and by estimated distribution amongst project components, e.g., research, training, technical assistance, technology transfer, information dissemination, or networking.

1E.2. (f) Technical and Research Reports and Publications

The Grantee shall summarize technical and research activities of the project in reports, and distribute such reports to the appropriate USAID Missions, LDCs, and host country and international institutions in order to encourage use of the technology developed. Such reports will be completed within 60 days after completion of the activity. Journal articles and other publications are encouraged. See also the Standard Provisions of this Grant entitled "Publications" and "Rights in Data."

1E.2. (g) Environmental Impact

If it appears that outputs of this project will result in an adverse environmental impact, the Grantee shall notify the A.I.D. Project Officer prior to implementation, in order to allow for orderly preparation of an environmental impact statement. The Grantee shall assure that appropriate U.S. Government and/or host country procedures are followed.

1E.2. (h) Trip Reports

Within 30 days following the completion of each international trip, the Grantee shall submit one (1) copy of a trip report summarizing the accomplishments of the trip to the A.I.D. Project Officer specified in the cover letter of this Grant. If several individuals are travelling together to one site, a single report representing the group will suffice. The report shall include the purpose of the trip, technical observations, suggestions and recommendations, overall impressions of the site situation (if appropriate), and a list of persons visited with their title and organizational affiliation.

1E.2.(i) Training Reports

The Grantee shall comply with reporting and information requirements of the Standard Provision of this Grant entitled "Participant Training," as well as Chapters 5 and 24 of A.I.D. Handbook 10.

1E.2.(j) Care of Laboratory Animals

The Grantee shall include the certificate required by paragraph (c) of said Standard Provision in all of its reports which pertain to the use of laboratory animals.

1E.2.(k) Research Involving Recombinant DNA

The Grantee shall comply with the reporting requirements set forth in Section 1E.2. of this Grant pertaining to research involving recombinant DNA.

1E.2.(l) Technical Advisory Group (TAG) Reports

Within two weeks of the completion of the final TAG review, the Grantee shall submit one (1) copy of an additional progress review to the A.I.D. Project Officer. Within 30 days following the completion of the midterm and final TAG evaluations, the Grantee shall submit one (1) copy of the TAG report to the A.I.D. Project Officer.

1E.2.(m) Final Report

Within 90 days following the estimated completion date of this Grant (see Section 1B. above), the Grantee shall submit two (2) copies of a final report to the A.I.D. Project Office specified in the cover letter of this Grant. In addition, two copies shall be submitted to A.I.D., POL/CDIE/DI, Washington, DC 20523-1802. It will cover the entire period of the Grant and include all information shown in Sections 1E.2.(b) through 1E.2.(l) above.

1F. TITLE TO PROPERTY

Title to property acquired hereunder shall vest in the Grantee, subject to the requirements of the Standard Provision of this Grant entitled "Title To and Use of Property (Grantee Title)" regarding use, accountability, and disposition of such property, except to the extent that disposition of property may be specified in Section 1I. below.

1G. PROCUREMENT AND (SUB)CONTRACTING

1G.1. Applicability

This Section 1G. applies to the procurement of goods and services by the Grantee (i.e., contracts, purchase orders, etc.) from a supplier of goods and services (see the Standard Provisions of this Grant entitled "Procurement of Goods and Services" and "AID Eligibility Rules for Goods and Services"), and not to assistance provided by the Grantee (i.e., a subgrant or [sub]agreement) to a subrecipient (see the Standard Provision of this Grant entitled "Subagreements").

1G.2. Requirements

In addition to other applicable provisions of this Grant, the Grantee shall comply with paragraph (b)(2) of the Standard Provision of this Grant entitled "AID Eligibility Rules for Goods and Services," concerning total procurement value of more than \$250,000 under this Grant. Further thereto, the following is (are) the Authorized Geographic Code(s):

1G.2.(a) Authorized Geographic Codes

1G.2.(a)(1) Source, Origin, and Componentry of Goods and Commodities/Nationality of Suppliers of Goods or Services/Eligibility of Commodity-Related Services

1G.2.(a)(1)(A) Source, Origin, and Componentry of Goods and Commodities

Except as specified in Sections 1G.2.(a)(1)(D), 1G.2.(a)(1)(E), and 1G.2.(a)(1)(F) below, all goods/commodities shall have their source and origin in the United States (Geographic Code 000), and shall meet A.I.D.'s componentry requirements, except as the Grant Officer may otherwise agree in writing.

1G.2.(a)(1)(B) Nationality of Suppliers

1G.2.(a)(1)(B)(i) Suppliers of Goods and Commodities

Except as specified in Sections 1G.2.(a)(1)(D), 1G.2.(a)(1)(E), and 1G.2.(a)(1)(F) below, the suppliers of goods and commodities shall have their nationality in the United States (Geographic Code 000), except as the Grant Officer may otherwise agree in writing.

1G.2. (a) (1) (B) (ii) Suppliers of Services (Other Than Commodity-Related Services)

Except as specified in Sections 1G.2.(a)(1)(D), 1G.2.(a)(1)(E), and 1G.2.(a)(1)(F) below, the suppliers of services (other than commodity-related services, as described in Section 1G.2.[a][1][C] below) shall have their nationality in the United States (Geographic Code 000), except as the Grant Officer may otherwise agree in writing.

1G.2. (a) (1) (B) (iii) Government-Owned Organizations

Notwithstanding any other provision of this Grant, a Government-Owned Organization, i.e., a firm operated as a commercial company or other organizations (including nonprofit organizations other than public educational institutions) which are wholly or partially owned by governments or agencies thereof, are not eligible as suppliers of goods or services, except as the Grant Officer may otherwise agree in writing.

1G.2. (a) (1) (C) Eligibility of Commodity-Related Services

1G.2. (a) (1) (C) (i) Ocean Transportation

The eligibility of ocean transportation services is determined by the flag registry of the vessel. Notwithstanding the Standard Provision of this Grant entitled "Ocean Shipment of Goods," ocean shipping financed hereunder shall, except as the Grant Officer may otherwise agree in writing, be financed only on flag vessels of the United States (A.I.D. Geographic Code 000). If the Grant Officer approves the use of non-U.S. flag vessels, the Standard Provision of this Grant entitled "Ocean Shipment of Goods" will apply. Notwithstanding any of the foregoing, commodities shipped by a transportation medium owned, operated, or under the control of any non-Special Free World (Geographic Code 935) country are ineligible for A.I.D. financing hereunder, regardless of whether such transportation costs are financed hereunder. Moreover, commodities are ineligible for A.I.D. financing hereunder if shipped on a vessel which A.I.D. has designated as ineligible, regardless of whether such transportation costs are financed hereunder. Commodities are also ineligible for A.I.D. financing hereunder if shipped under an ocean charter that has not received prior approval of the Grant Officer, regardless of whether such transportation costs are financed hereunder.

1G.2. (a) (1) (C) (ii) Dead Freight

Transportation costs attributable to dead freight are not eligible for A.I.D. financing.

1G.2. (a) (1) (C) (iii) Despatch and Demurrage

If the Grantee finances the delivery costs beyond the port of loading, the Grantee must refund to A.I.D. all despatch earned at the port of unloading. Demurrage costs are ineligible for A.I.D. financing.

1G.2. (a) (1) (C) (iv) Air Transportation

The eligibility of air travel and transportation services is determined by the flag registry of the aircraft. The Standard Provision of this Grant entitled "Air Travel and Transportation" applies. Commodities are ineligible for A.I.D. financing hereunder if shipped under an air charter that has not received prior approval of the Grant Officer, regardless of whether such transportation costs are financed hereunder.

1G.2. (a) (1) (C) (v) Marine Insurance

The Authorized Geographic Code for marine insurance is the same as is set forth in Section 1G.2.(a)(1)(B)(ii) above. Paragraph (c) of the Standard Provision of this Grant entitled "AID Eligibility Rules for Goods and Services" applies. If Selected Free World (Geographic Code 941) is authorized, the Cooperating Country shall also be authorized for marine insurance. However, if the Cooperating Country is authorized for the placement of marine insurance but discriminates against any marine insurance company authorized to do business in any state of the United States, failure to insure all A.I.D.-financed commodities with U.S. insurance companies shall render the commodities ineligible for A.I.D. financing hereunder.

1G.2. (a) (1) (C) (vi) Other Delivery Services

No special eligibility requirements pertain to other delivery services (such as export packing, loading, commodity inspection services, and services of a freight forwarder) except that citizens or firms of any non-Special Free World (Geographic Code 935) country are ineligible as suppliers of delivery services, and non-U.S. citizens lawfully admitted for permanent residence in the U.S. are eligible regardless of their citizenship.

1G.2. (a) (1) (C) (vii) Incidental Services

Incidental services are defined as installation or erection of A.I.D.-financed equipment or the training of personnel in the maintenance, operation, and use of such equipment. No special eligibility requirements pertain to incidental services except that citizens or firms of any non-Special Free World (Geographic Code 935) country are ineligible as suppliers of incidental services, and non-U.S. citizens lawfully admitted for permanent residence in the U.S. are eligible regardless of their citizenship.

1G.2.(a)(1)(D) Exception for Purchase/Procurement
Transactions not Exceeding \$5,000

If the proposed purchase/procurement transaction does not exceed \$5,000 excluding transportation costs, paragraph (b)(1) of the Standard Provision of this Grant entitled "AID Eligibility Rules for Goods and Services" shall apply in lieu of Sections 1G.2.(a)(1)(A) and 1G.2.(a)(1)(A) above, except as specified in Section 1G.2.(a)(1)(E) below.

1G.2.(a)(1)(E) Exception for Restricted Goods

Notwithstanding Sections 1G.2.(a)(1)(A) and 1G.2.(a)(1)(D) above, the restricted goods listed in paragraph (a)(3) of the Standard Provision of this Grant entitled "AID Eligibility Rules for Goods and Services" must be specifically approved by the Grant Officer regardless of dollar value and source, origin, and componentry, except as specified in Section 1G.2.(a)(1)(F) below, and except to the extent that such approval may be provided in Section 1I. below.

1G.2.(a)(1)(F) Other Exceptions

Notwithstanding Sections 1G.2.(a)(1)(A), 1G.2.(a)(1)(B), 1G.2.(a)(1)(D), and 1G.2.(a)(1)(E) above, the following additional exceptions apply:

1G.2.(a)(1)(F)(i) Development Fund for Africa (DFA)

Unless otherwise specified in the Project Agreement, commodities and services financed under the Development Fund for Africa (DFA) shall be in accordance with paragraph (b)(1) of the Standard Provision of this Grant entitled "AID Eligibility Rules for Goods and Services" (however, U.S. procurement is to be maximized to the maximum extent practicable, and, except in emergencies, timing shall not be deemed a factor to justify non-U.S. procurement), except that:

1G.2.(a)(1)(F)(i)a. If the total amount of non-U.S. procurement exceeds \$5,000,000, such procurement must be approved in advance and in writing by the Grant Officer;

1G.2.(a)(1)(F)(i)b. Although (notwithstanding Section 1G.2.[a][1][E] above) procurement of motor vehicles from Special Free World countries (Geographic Code 935) is authorized, procurement of non-U.S. vehicles shall be held to an absolute minimum (and, unless approval to purchase vehicles is provided in Section 1I. below, the Agreement Officer's prior written approval to purchase such vehicles, regardless of the source, origin, componentry, supplier nationality, or eligibility of commodity-related service, must still be obtained by the Grantee);

1G.2.(a)(1)(F)(i)c. Although (notwithstanding Section 1G.2.[a][1][E] above) procurement of fertilizer from Special Free World countries (Geographic Code 935) is authorized, procurement of more than 5,000 tons of non-U.S. fertilizer must have the advance written approval of the Grant Officer;

1G.2.(a)(1)(F)(i)d. Unless otherwise approved in advance and in writing by the Grant Officer, construction services estimated to be in excess of \$5,000,000 shall be limited to the United States (Geographic Code 000); construction implemented by U.S. firms, regardless of dollar value, requires that at least 50% of the supervisors and other specified key personnel working at the project site must be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the United States; and engineering services, regardless of dollar value, shall be limited to the United States (Geographic Code 000); and

1G.2.(a)(1)(F)(i)e. Although (notwithstanding Section 1G.2.[a][1][E] above) procurement of agricultural commodities from Special Free World countries (Geographic Code 935) is authorized, procurement of agricultural commodities outside the United States must have the advance written approval of the Grant Officer when the domestic price of the commodity is less than parity, unless the commodity cannot reasonably be procured in the U.S. in order to meet the needs of the project.

1G.2.(a)(1)(F)(ii) Local Procurement

Notwithstanding Sections 1G.2.(a)(1)(A) and 1G.2.(a)(1)(B) above, local procurement of the following is authorized (however, if required by the Standard Provision of this Grant entitled "Revision of Grant Budget" or the applicable federal cost principles as described in the Standard Provision of this Grant entitled "Allowable Costs," the Grantee must still obtain the approval of the A.I.D. Agreement Officer for procurement/subcontracts/subagreements, regardless of dollar value or the source, origin, componentry, supplier nationality, or eligibility of commodity-related service):

1G.2.(a)(1)(F)(ii)a. Locally-available commodities of U.S. origin, which are otherwise eligible for A..I.D. financing, if the value of the transaction is estimated not to exceed the local currency equivalent of \$100,000, exclusive of transportation costs;

1G.2.(a)(1)(F)(ii)b. Professional services contracts estimated not to exceed \$250,000;

1G.2.(a)(1)(F)(ii)c. Construction services contracts estimated not to exceed \$5,000,000; and

1G.2.(a)(1)(F)(ii)d. The following commodities and services which are available only locally:

- Utilities, including fuel for heating and cooking, waste disposal, and trash collection;
- Communications, such as telephone, telex, fax, postal, and courier services;
- Rental costs for housing and office space;
- Petroleum, oils, and lubricants for operating vehicles and equipment;
- Newspapers, periodicals, and books published in the Cooperating Country; and
- Other commodities and services (and related expenses) that, by their nature or as a practical matter, can only be acquired, performed, or incurred in the Cooperating Country, e.g., vehicle maintenance, hotel accommodations, etc.

1G.2.(a)(1)(G) Definitions

1G.2.(a)(1)(G)(i) Source, Origin, Componentry, and Nationality of Supplier

Source, origin, componentry requirements, and supplier nationality are defined in Chapter 5 of A.I.D. Handbook 1, Supplement B, which, as may be amended from time to time, is incorporated herein as a part of this Grant by reference (see also Attachment 5 of this Grant which reflects the substance of Chapter 5 of A.I.D. Handbook 1, Supplement B as of the effective date of this Grant).

1G.2.(a)(1)(G)(ii) A.I.D. Geographic Codes

A.I.D. Geographic Codes are defined in Appendix D of A.I.D. Handbook 18, which, as may be amended from time to time, is incorporated herein as a part of this Grant by reference (see also Attachment 5 of this Grant which reflects the substance of Appendix D of A.I.D. Handbook 18 as of the effective date of this Grant).

1G.3. Approvals

Inclusion of costs in the budget of this Grant for the purchase of nonexpendable equipment obviates neither the requirement of Section J.13. of OMB Circular A-21 (for educational institutions) or Section 13 of Attachment B of OMB Circular A-122 (for nonprofit organizations other than educational institutions) for prior approval of such purchases by the Grant Officer, nor any other terms and conditions of this Grant, unless specifically stated in Section 1I. below.

1G.4. Title to Property

See Section 1F. above.

1H. INDIRECT COST RATES

1H.1. No indirect costs will be charged to this Grant. The Grantee understands and agrees that indirect costs attributable to this Grant will be absorbed by the Grantee and considered cost sharing.

1I. SPECIAL PROVISIONS

1I.1. Limitations on Reimbursement of Costs of Compensation for Personal Services and Professional Service Costs

1I.1.(a) Employee Salaries

Except as the Grant Officer may otherwise agree in writing, A.I.D. shall not be liable for reimbursing the Grantee for any costs allocable to the salary portion of direct compensation paid by the Grantee to its employees for personal services which exceed the highest salary level for a Foreign Service Officer, Class 1 (FS-1), as periodically amended.

1I.1.(b) Consultant Fees

Compensation for consultants retained by the Grantee hereunder shall not exceed, without specific approval of the rate by the Grant Officer: either the highest rate of annual compensation received by the consultant during any full year of the immediately preceding three years; or the maximum rate of a Foreign Service Officer, Class 1 (FS-1) (as periodically amended), whichever is less. A daily rate is derived by dividing the annual compensation by 2,087 and multiplying the result by 8.

1I.2. Compliance With Federal Guidelines and Regulatory Procedures Pertaining to Recombinant DNA

1I.2.(a) The Grantee shall implement any research activities under this Grant which involve recombinant DNA in accordance with:

1I.2.(a)(1) The National Institutes of Health Guidelines for Research Involving Recombinant DNA Molecules;

1I.2.(a)(2) Procedures issued by the U.S. Department of Agriculture (USDA), the Environmental Protection Agency (EPA), or other appropriate Federal agency;

1I.2.(a)(3) A.I.D.'s environmental procedures; and

1I.2.(a)(4) Such other Federal guidelines and procedures as may apply during the course of research.

1I.2.(b) The Grantee cannot commence testing in any foreign location until written approval for such testing is obtained from the A.I.D. Project Officer and the government of the country where testing is planned. Testing shall be conducted in accordance with all applicable regulations of that country.

1I.2.(c) In addition, and prior to commencement of any such testing, the Grantee shall make a judgement and communicate same to the A.I.D. Project Officer as to whether the regulations, procedures, or facilities of the country in question are adequate to ensure testing in an environmentally sound manner. In the event such judgement is that they are not, the Grantee and the A.I.D. Project Officer will consult and agree on the conditions to be applied to the testing which will have such environmental effect.

1I.2.(d) Reports submitted to A.I.D. under this Grant will address regulatory issues as noted above related to the activity.

1I.3. Equipment and Other Capital Expenditures

1I.3.(a) Requirement for Prior Approval

Pursuant to Sections 1D.3. and 1G.3. above and the Standard Provisions of this Grant entitled "Allowable Costs" and "Revision of Grant Budget," and by extension, Section J.13. of OMB Circular A-21, the Grantee must obtain A.I.D. Grant Officer approval for the following:

1I.3.(a)(1) Purchase of General Purpose Equipment, which is defined as an article of nonexpendable tangible personal property, the use of which is not limited only to research, medical, scientific, or other activities [e.g., office equipment and furnishings, air conditioning equipment, reproduction and other equipment, motor vehicles, and automatic data processing equipment, having a useful life of more than two years and an acquisition cost of \$500 or more per unit);

1I.3.(a)(2) Purchase of Special Purpose Equipment, which is defined as an article of nonexpendable tangible personal property, which is used only for research, medical, scientific, or other technical activities, and which has a useful life of more than two years and an acquisition cost of \$1,000 or more per unit); and

1I.3.(a)(3) Other Capital Expenditures, which is defined as the cost of the asset, including the cost to put it in place).

1I.3.(b) Approvals

In furtherance of the foregoing, the Grant Officer does hereby provide approval for the following purchases, which shall not be construed as authorization to exceed the total estimated amount or the obligated amount of this Grant, whichever is less (see Section 1C. above):

<u>Quantity</u>	<u>Description</u>	<u>Est. Unit Price/Cost</u>
1	Computer (PC)	\$5000.00
1	Printer	\$2,000.00
1	Air Conditioner	\$1,000.00
1	Photocopier	\$4,000.00
1	Slide Projector	\$1,000.00
1	Overhead projector	\$1,000.00
1	Refrigerator	\$1,000.00
1	Dehumidifier	\$1,500.00
1	Balance	\$2,000.00
1	Office furniture	\$2,000.00

1I.3.(c) Exception for Automation Equipment

Any approval for the purchase of automation equipment which may be provided in Section 1I.3.(b) above or subsequently provided by the Grant Officer is not valid if the total cost of purchases of automation equipment (e.g., computers, word processors, etc.), software, or related services made hereunder will exceed \$100,000. The Grantee must, under such circumstances, obtain the approval of the Grant Officer for the total planned system of any automation equipment, software, or related services.

1I.3.(d) Compliance with A.I.D. Eligibility Rules

Any approvals provided in Section 1I.3.(b) above or subsequently provided by the Grant Officer shall not serve to waive the A.I.D. eligibility rules described in Section 1G. of this Grant, unless specifically stated.

1I.4. Restricted Goods

Pursuant to Section 1G. above and paragraph (a)(3) of the Standard Provision of this Grant entitled "AID Eligibility Rules for Goods and Services," the Grant Officer's prior written approval is required for purchase of the restricted goods described therein. In furtherance thereof, the Grant Officer does hereby provide such approval to the extent set forth below. The Grant Officer's approval is required for purchases of such restricted goods if all of the conditions set forth below are not met by the Grantee. Any approval provided below or subsequently provided by the Grant Officer shall not serve to waive any terms and conditions of this Grant unless specifically stated.

1I.4.(a) Agricultural Commodities

Agricultural commodities may be purchased provided that they are of U.S. source (generally, the country from which the commodities are shipped) and origin (generally, the country in which the commodities are mined, grown, or produced) and purchased from a U.S. supplier, except that wheat, rice, corn, soybeans, sorghums, flour, meal, beans, peas, tobacco, hides and skins, cotton, vegetable oils, and animal fats and oils cannot be purchased under any circumstances without the prior written approval of the Grant Officer.

1I.4.(b) Motor Vehicles

Except as specified in Section 1G.2.(a)(1)(F)(i) of this Cooperative Agreement, motor vehicles, if approved for purchase under Section 1I.3.(b) above or subsequently approved by the Grant Officer, must be of U.S. manufacture (origin) and must be of at least 51% U.S. componentry. The source of the motor vehicles, and the nationality of the supplier of the vehicles, must be in accordance with Sections 1G.2.(a)(1)(A) and 1G.2.(a)(1)(B) above. Motor vehicles are defined as self-propelled vehicles with passenger carriage capacity, such as highway trucks, passenger cars and busses, motorcycles, scooters, motorized bicycles, and utility vehicles. Excluded from this definition are industrial vehicles for materials handling and earthmoving, such as lift trucks, tractors, graders, scrapers, and off-the-highway trucks.

1I.4.(c) Pharmaceuticals

Pharmaceuticals may be purchased provided that all of the following conditions are met: (1) the pharmaceuticals must be safe and efficacious; (2) the pharmaceuticals must be of U.S. source and origin (see Section 1G. above); (3) the pharmaceuticals must be of at least 51% U.S. componentry (see Section 1G. above); (4) the pharmaceuticals must be purchased from a supplier whose nationality is in the U.S. (see Section 1G. above); (5) the pharmaceuticals must be in compliance with U.S. Food and Drug Administration (FDA) (or other controlling U.S. authority) regulations governing United States interstate shipment of pharmaceuticals; (6) the manufacturer of the pharmaceuticals must not infringe on U.S. patents; and (7) the pharmaceuticals must be competitively procured in accordance with the procurement policies and procedures of the Grantee and the Standard Provision of this Grant entitled "Procurement of Goods and Services."

1I.4.(d) Pesticides

Pesticides may only be purchased if the purchase and/or use of such pesticides is for research or limited field evaluation by or under the supervision of project personnel. Pesticides are defined as substances or mixtures of substances: intended for preventing destroying, repelling, or mitigating any unwanted insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, bacteria, or other micro-organisms (except viruses, bacteria, or other micro-organisms on or living in man or other living animals); or intended for use as a plant regulator, defoliant, or dessicant.

1I.4.(e) Rubber Compounding Chemicals and Plasticizers

Rubber compounding chemicals and plasticizers may only be purchased with the prior written approval of the Grant Officer.

1I.4.(f) Used Equipment

Used equipment may only be purchased with the prior written approval of the Grant Officer.

1I.4.(g) Fertilizer

Fertilizer may be purchased if it is either purchased in the U.S. and used in the U.S., or if it is purchased in the cooperating country with local currency for use in the cooperating country. Any fertilizer purchases which do not comply with these limitations must be approved in advance by the Grant Officer, except as specified in Section 1G.2.(a)(1)(F)(i) of this Cooperative Agreement.

1I.5. Limitation on Use of Funds

1I.5.(a) The Grantee shall not utilize funds provided by A.I.D. for any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference or training in connection with the growth or production in countries other than the United States of an agricultural commodity for export which would compete with a similar commodity grown or produced in the United States.

1I.5.(b) The reports described in Section 1E.2. shall contain a statement indicating the projects or activities to which United States funds have been attributed, together with a brief description of the activities adequate to show that United States funds have not been used for the purpose in Section 1I.5.(a) above.

1I.5.(c) The Grantee agrees to refund to A.I.D. upon request an amount equal to any United States funds used for the purposes prohibited by Section 1I.5.(a) above.

1I.5.(d) No funds provided by A.I.D. under this Grant shall be used to provide assistance, either directly or indirectly, to any country ineligible to receive assistance pursuant to the Foreign Assistance Act as amended, related appropriations acts, or other statutes and Executive Orders of the United States (also see the Standard Provision of this Grant entitled "Ineligible Countries").

1J. RESOLUTION OF CONFLICTS

Conflicts between any of the Attachments of this Grant shall be resolved by applying the following descending order of precedence:

- Attachment 1 - Schedule
- Attachment 3 - Standard Provisions
- Attachment 4 - Special Provision entitled "Restrictions on Lobbying"
- Attachment 5 - A.I.D. Eligibility Rules
- Attachment 2 - Program Description

1L. COST-SHARING AND OTHER CONTRIBUTIONS

1L.1. The Grantee agrees to expend an amount not less than (a) the amount shown in the budget of this Grant for financing by the Recipient and/or others from non-federal funds (see Sections 1D. and/or 1H.), and (b) the amount shown in the budget of this Grant for financing by the Recipient and/or others from other federal funds.

1L.2. The Standard Provision of this Grant entitled "Cost Sharing (Matching)" makes reference to project costs. "Project Costs" are defined in Attachment E of OMB Circular A-110 as all allowable costs (as set forth in the applicable cost principles [see the Standard Provision of this Grant entitled "Allowable Costs"]) incurred by a Grantee and the value of in-kind contributions made by the Grantee or third parties in accomplishing the objectives of this Grant during the program period.

1L.3. The restrictions on the use of A.I.D. funds provided hereunder, as set forth in this Grant, do not apply to cost-sharing (matching) or other contributions unless such restrictions are stated in the applicable federal cost principles and/or imposed by the source of such cost-sharing (matching) funds or other contributions.

ATTACHMENT 2

PROGRAM DESCRIPTION

The Grantee's proposal entitled "Introducing and Developing Adaptive Adaptive Technologies for Year-Round Vetable Production in Bangladesh" dated April 12, 1992 is attached hereto as the Program Description (Attachment 2) and is made a part of this Grant.

BEST AVAILABLE DOCUMENT

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Introducing and Developing Adaptive Technologies for Year-Round
Vegetable Production In Bangladesh

A Project Proposal

from

Asian Vegetable Research and Development Center

to

The USAID R&D/AGR/IARC

Washington

April 12, 1993

BEST AVAILABLE DOCUMENT

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Introducing and Developing Adaptive Technologies for Year-Round Vegetable Production In Bangladesh

Introduction and background

Bangladesh has an area of 144,000 km² inhabited by 112 million people, making it one of the most densely populated (775 people/km²) in the world. The total cultivable land is around 9.6 million ha, with a cropping intensity of 154.5%. The diet of majority of the population in Bangladesh is dominated by cereals. Vegetable production is highly seasonal and, as a result, per capita consumption of vegetables in the country is extremely low - only 32 g/day or 70 g/day with potato, against the minimum recommended daily rate of 200 g of vegetables per day per head. Every year, about 30,000 children suffer from blindness for lack of Vitamin A in their daily diet. Vegetables are essential part of a balanced diet and are rich sources of vitamins such as A, C, niacin, riboflavin, thiamin and minerals.

More than 60 different kinds of vegetables are grown in Bangladesh. Production of summer vegetables is constrained by lack of suitable and high yielding varieties, and by high rainfall, humidity and temperature; meanwhile, vegetable production in the winter is favored by suitable climate. Also, acute shortage of vegetables is experienced during two slack seasons, from mid-March to April and from October to November, due to transition from one season to another. Thus, an adequate supply of vegetables for the population must be ensured. A 10-fold increase in vegetable production would provide for the population's vegetable requirement by the year 2000. Hence, improved year-round vegetable production can assure nutritional security by alleviating nutritional deficiencies among the vulnerable groups in the rural and urban poor. It is also expected to improve employment opportunities and income of the rural and urban poor.

AVRDC and its role In serving vegetable research In the tropics

The Asian Vegetable Research and Development Center (AVRDC) was established in 1971 to promote production, marketing and consumption of vegetable in Asia. AVRDC headquarters is in Taiwan. In 1992, the center's activities have been expanded with the establishment of a regional center in Bangkok, Thailand and other one in Arusha, Tanzania. A third regional center in Costa Rica for the Central and Latin American countries will be established in 1993. The key role of AVRDC is to help national systems achieve desired goal in vegetable research and development. It works as a catalyst in collecting germplasm, generating and disseminating information, providing training and stimulating vegetable research. In 1991, AVRDC's mission was restated as:

"to enhance the nutritional well-being and raise the incomes of poor people in rural and urban areas of developing countries through improved varieties and methods of vegetable production, marketing and distribution, which take into account the need to preserve the quality of the environment".

AVRDC is supported largely by contributions from the governments of Australia, Republic of China, France, Germany, Japan, Republic of Korea, Philippines, Thailand,

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United States and the World Bank. Additional special project support is provided by the Asian Development Bank (ADB) and several other donors.

AVRDC's research and development programs are led by 22 internationally recruited professionals representing various disciplines. They are backstopped by about 330 national junior researchers and general support personnel.

The center's main campus has a land area of 14 ha and experimental farm area of 102 ha. The research facilities include research laboratory building, greenhouse complex, genebank and seed laboratory, quarantine house, screenhouse, insectary, training classrooms, administration building, cafeteria, dormitory, residential housing for 21 families, and a multipurpose service building.

AVRDC research is two-pronged: improving the genetic potential of crops and improving the environment in which these crops are grown. Its activities are organized into three programs:

- **Crop improvement**, with units for breeding, pathology, entomology, physiology, biotechnology, and genetic resources and seed technology.
- **Production systems**, with units for crops management, soil science, socioeconomic, postharvest technology and home gardens.
- **International cooperation**, providing management support to special projects and to the regional networks and country programs, and consisting of units for information, publications and documentation and training.

AVRDC is a major global repository of vegetable germplasm. Close to 40,000 accessions of its principal crops and other minor vegetables are kept in storage. More are added each year. Since 1973, close to 290,000 seed packets have been distributed to scientific organizations, universities and private businesses throughout the world.

Production and research training courses are conducted each year at AVRDC headquarters as well as at AVRDC's Regional Training Program with Kasetsart University in Thailand. Over a thousand scientists, researchers, graduate students and extension workers from 50 countries/territories have attended these courses, each of which is tailored to fit the needs of individual participants. These courses make extensive use of a variety of training materials including videos and slide sets produced at the center.

AVRDC project activities and accomplishments in Bangladesh (From April 1991 - May 1993)

In April 1991, AVRDC initiatives in Bangladesh started with the implementation of the BARC/BARI and AVRDC contract supported by USAID. One of the most interesting points in this collaboration is the considerable environmental similarity between Bangladesh and AVRDC in Taiwan because of the same latitude. The research work done and materials developed at AVRDC can easily be adapted under Bangladesh conditions. For instance, sweet potato variety Kamala Sundari and tomato

variety Manik which were developed out of segregating lines of AVRDC were released for general cultivation throughout Bangladesh by the National Seed Board in 1985.

In the two years of the project's implementation, the project has made the following notable contributions:

1. Introduction and Confirmation of Adaptation of Improved Vegetable Varieties

Four hundred fifty lines/varieties of different vegetable crops from AVRDC and other sources were collected and made available to BARI, Horticulture Research Center and are now being tested in the field. These new introductions carry many desirable characters like earliness, high yield, quality characters, heat tolerance, resistance to diseases and insect pests like bacterial wilt, black rot, phomopsis blight, powdery mildew, downy mildew, leaf curl virus complex, yellow vein mosaic virus and tolerance to fruit and shoot borer. Among these introductions, 39 promising varieties have been selected and are ready for farmer's field test. These include lines of summer tomato, summer cauliflower, vegetable soybean, kangkong, virus free okra, Chinese cabbage, mungbean, yard-long bean, chili, garden peas, edible podded peas, brinjal, etc.

2. Popularization of Kangkong, An Aquatic Vegetable

A significant initial impact made by the project was its cyclone rehabilitation activities. In 1991, soon after a survey of the cyclone affected areas, the project identified kangkong as a potential crop for such areas. Large quantities of kangkong seed of an improved selection from Taiwan was distributed to these areas in Cox's Bazar and Chittagong. The kangkong crop was so successful that it is now considered as the perfect vegetable for cyclone rehabilitation activities.

3. Year-Round Tomatoes

Tomatoes in Bangladesh are hardly available during the hot, rainy summer months; using AVRDC heat tolerant varieties, raised beds and a relatively inexpensive and readily available hormone, Tomatone, very high yields were obtained during these months. Thus, with heat tolerant varieties, hormone treatment and grafting with wild species, the project has demonstrated the commercial feasibility of year-round tomato production.

4. Vegetative Grafting With Wild Species to Control Diseases in Tomato and Eggplant

Bacterial wilt of tomato and eggplant and nematode damage were overcome by grafting eggplant or tomato onto a wild species, *Solanum torvum*. With the very low wages in Bangladesh this previously known scientific curiosity was demonstrated to be commercially feasible.

5. Homestead Gardening

In homestead vegetable production program, a new modified plan has been prepared for on-station testing with an idea of raising crop intensity to almost double which will help fulfill the total vitamins A and C and Iron needs of the family.

In the new plan, provision has been made for the gardeners to raise their own seedlings, production and preservation of own seeds, and planting of quick growing fruit plants like papaya, lemon, guava and banana.

6. Training of Government and NGO Workers

Seven different in-country training programs were offered to about 1000 NGOs and national program staffs. These were on (i) Vegetable Breeding (ii) Germplasm Collection, Evaluation, Documentation and Conservation, (iii) Intensive Vegetable Production Technology training for NGOs, (iv) Diseases and Insect Pests Management of Vegetable Crops, (v) Homestead Vegetable production, (vi) Experimental Design and Data Analysis for Vegetable Crops and (vii) Innovative Practices for Summer Vegetable Production.

7. National Vegetable R&D Planning

A National Vegetable Review and Planning Workshop and a Regional Vegetable Research Joint Planning Meeting of SAVERNET from SAVERNET-member countries were organized. Laboratory and field research facilities for BARI and the Horticultural Research Center have been enhanced. Opportunities were opened for Bangladesh scientists to participate in international trainings and symposia/workshops outside of the country.

Technical know-how and training by the AVRDC staff in Bangladesh helped the Horticulture Research Center, BARI and other sister organizations like Bangladesh Agricultural Development Corporation (BADC), Institute of Post-Graduate Studies in Agriculture (IPSA) and NonGovernment Organizations (NGOs) in strengthening the vegetable research and development in Bangladesh.

Benefits from continuing collaboration between Bangladesh and AVRDC

During the last two years, AVRDC has made significant contributions to uplift the status of vegetable research and development in Bangladesh. AVRDC, as an international organization with its major global germplasm repository, highly skilled experts and training facilities, is helping Bangladesh strengthen its vegetable research and development system. To bring the country to a sustainable condition, there is a need for continuous flow of germplasm that are disease free, capable of growing under stress, off-season, and suitable for export and processing. For this purpose, AVRDC can play a key role. The training by highly skilled international experts of AVRDC is very effective and continuity of this kind of training is very much needed to equip the national scientists with updated knowledge of vegetable science. Many useful technologies developed by the AVRDC project in Bangladesh should also be transferred immediately to the growers for which AVRDC can provide expertise. Therefore, it is felt that AVRDC's assistance to this country should be on a long-term basis. The center can serve as a catalyst in developing national vegetable programs; Bangladesh will benefit from this association and collaboration in strengthening its vegetable research and development capabilities.

The following are the proposed objectives of the project.

- Support and strengthen the adaptive vegetable research activities in the country.

- Provide necessary germplasm for the development of improved vegetable varieties adapted to local conditions.
- Develop cost-effective and environmentally friendly management technologies/ practices for year-round production in specific ecological regions.
- Transfer mature technologies through on-farm research and demonstration at the farmers' field.
- Train a core of vegetable researchers to strengthen the vegetable research.
- Develop information material for research and extension.
- Link nongovernment and public research and developmental agencies to promote vegetable production.
- Study the socioeconomic aspects and market potential of vegetables in the domestic and international market.
- Support the efforts of women in the promotion of home garden, its sustainability through seed production and storage, and bring awareness of nutrition and income generation.
- Promote the use of integrated pest management in vegetable.
- Protect the environment and sustain vegetable production.

Expected output

- Introduction of new vegetables and development of improved varieties.
- Production of important locally adapted technologies.
- Transfer of mature technologies to the growers.
- Sufficient number of trained manpower to sustain vegetable production.
- Development of systems for home garden, marketing, nutrition and women participation.
- Introduction/development of vegetable varieties for processing industry to produce value added products for home market and export.
- Improvement of linkages between NGOs and government agencies.
- Promotion of privatization of vegetable industry.
- Increase in vegetable production.
- Increased income for vegetable farmers.

SCOPE OF WORK

AVRDC will assist the Bangladesh Agricultural Research Council (BARC)/ Bangladesh Agricultural Research Institute (BARI) to strengthen the latter's capacity to manage and improve the National Agriculture Research System (NARS) to improve vegetable production. To this end, AVRDC will provide the services of Resident Senior Horticulturist/ Agronomist Specialist for a period of 24 months. In addition, AVRDC will provide services of short-term specialist consultants. The responsibilities of the Resident Senior Horticulturist/Agronomist are described below.

General Responsibilities

The AVRDC Senior Horticulturist/Agronomist will work in collaboration with BARC/BARI/NARS, vegetable growers, NGOs and private entrepreneurs. Specific emphasis will be given on introduction of germplasm, development of adaptive technologies and transfer of mature technologies to farmer's field, He/She will assist and coordinate linkages between AVRDC and NARS.

Specific Responsibilities

- 1 Facilitate introduction, testing and popularization of improved varieties of vegetable crops into Bangladesh.
- 2 Assist BARI in developing and introducing adaptive technologies for year-round vegetable production.
- 3 Assist BARI/NARS in the transfer of vegetable technologies through extension agencies/NGOs and model farmers.
- 4 Provide training to improve skill of scientists, extension workers and growers in the field of vegetable production.
- 5 Develop location specific homestead intensive vegetable production system and ensure its sustainability through small-scale seed production and storage.
- 6 Assist in the development of institution - NGO - private sector linkages for vegetable research and development.
- 7 Assist BARC/BARI in the planning, organization, and monitoring of a national R&D program on vegetable crops.

