バングラデシュ農業大学院計画フェイズII

実施協議調査報告書

平成2年7月

国際協力事業団

バングラデシュ農業大学院計画フェイズII

実施協議調査報告書

平成2年7月

国際協力事業団

序文

国際協力事業団は、バングラデシュ国の大学院レベルの農業研究活動の強化を行なうため昭和６０年７月より５か年の計画で技術協力を実施してきた。平成元年７月に、日本、アメリカ、バングラデシュ３カ国合同評価調査が実施され、その結果更に自立継続性を助成していくことが必要であるとの理由により５か年間の協力（フェイズⅡ）が提言された。

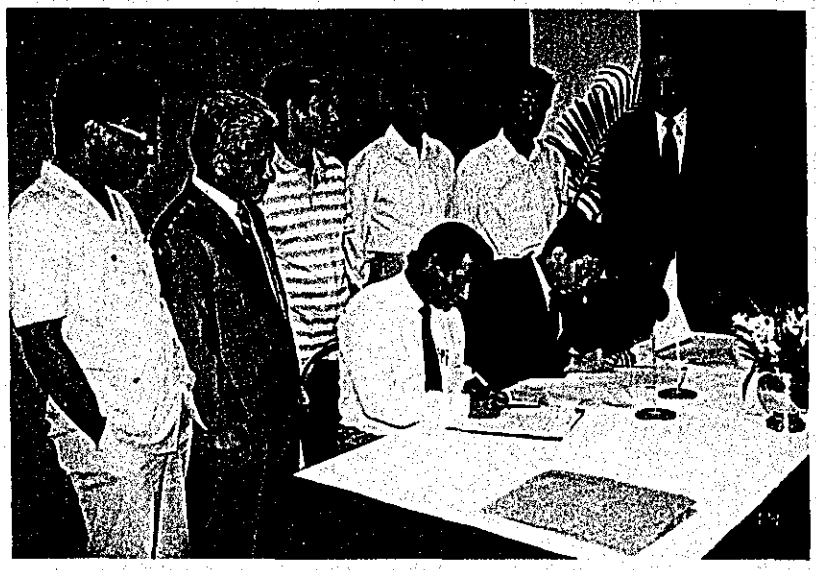
同提言に従い、バングラデシュ農業大学院が自立継続性を持って運営されるようプロジェクトのフェイズⅡについて協議するため、当事業団は、平成２年６月１６日まで、九州大学農学部長和田光史教授を団長とする実施協議調査団を現地に派遣した。

本報告書は、同調査団が、バングラデシュ国政府関係者と協議を行うとともに、プロジェクト・サイト調査を実施した結果を取纏めたものであり、本プロジェクトの推進に寄与するとともに、両国の友好・親善の一層の発展に役立つことを願うものである。

終わりに、本件調査にご協力とご支援をいただいた関係者各位に対し、心より感謝の意を表するものである。

平成２年７月

国際協力事業団
理事　田口俊郎

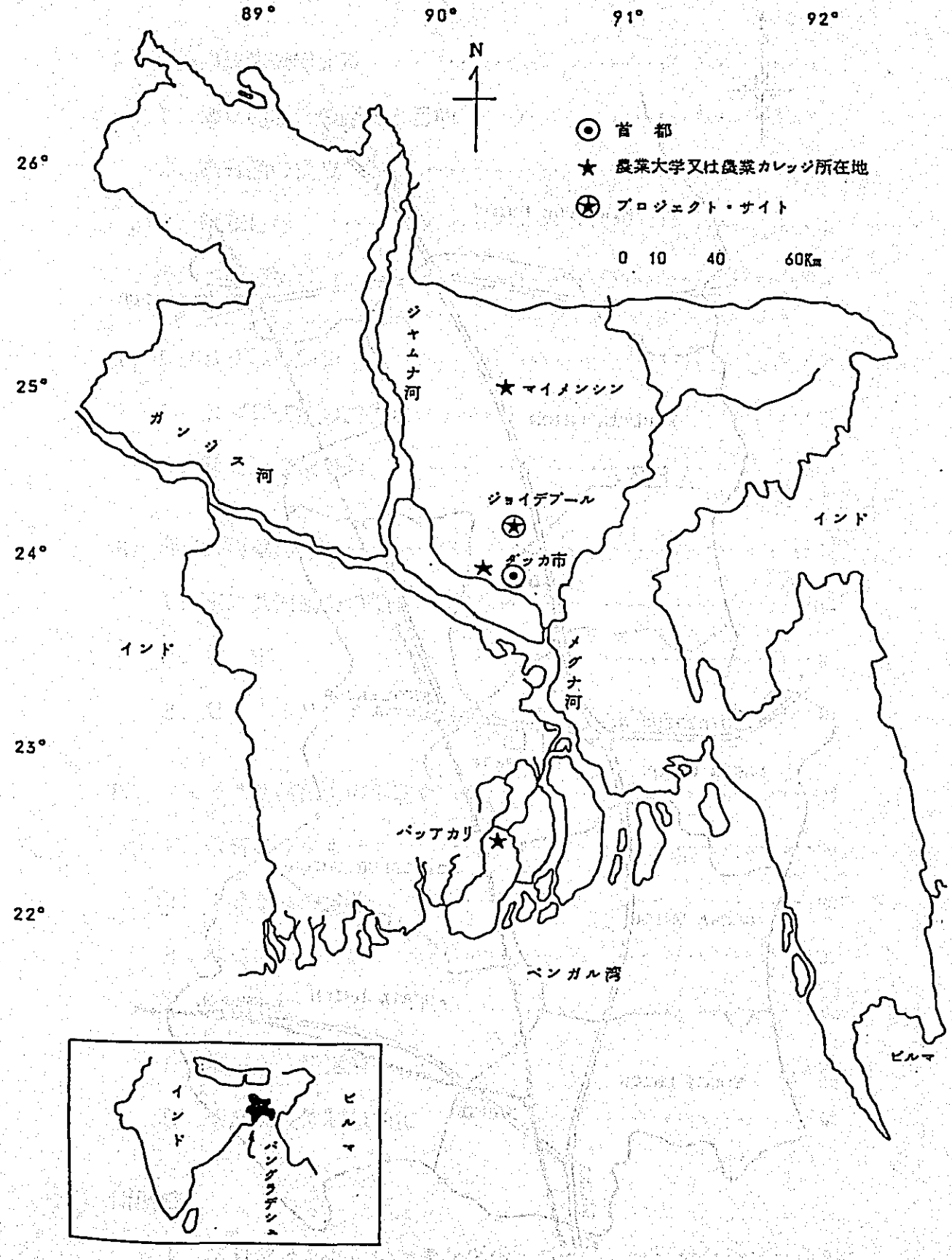


R／D署名交換
和田団長
Dr. Khan
Director, ＩＰＳＡ

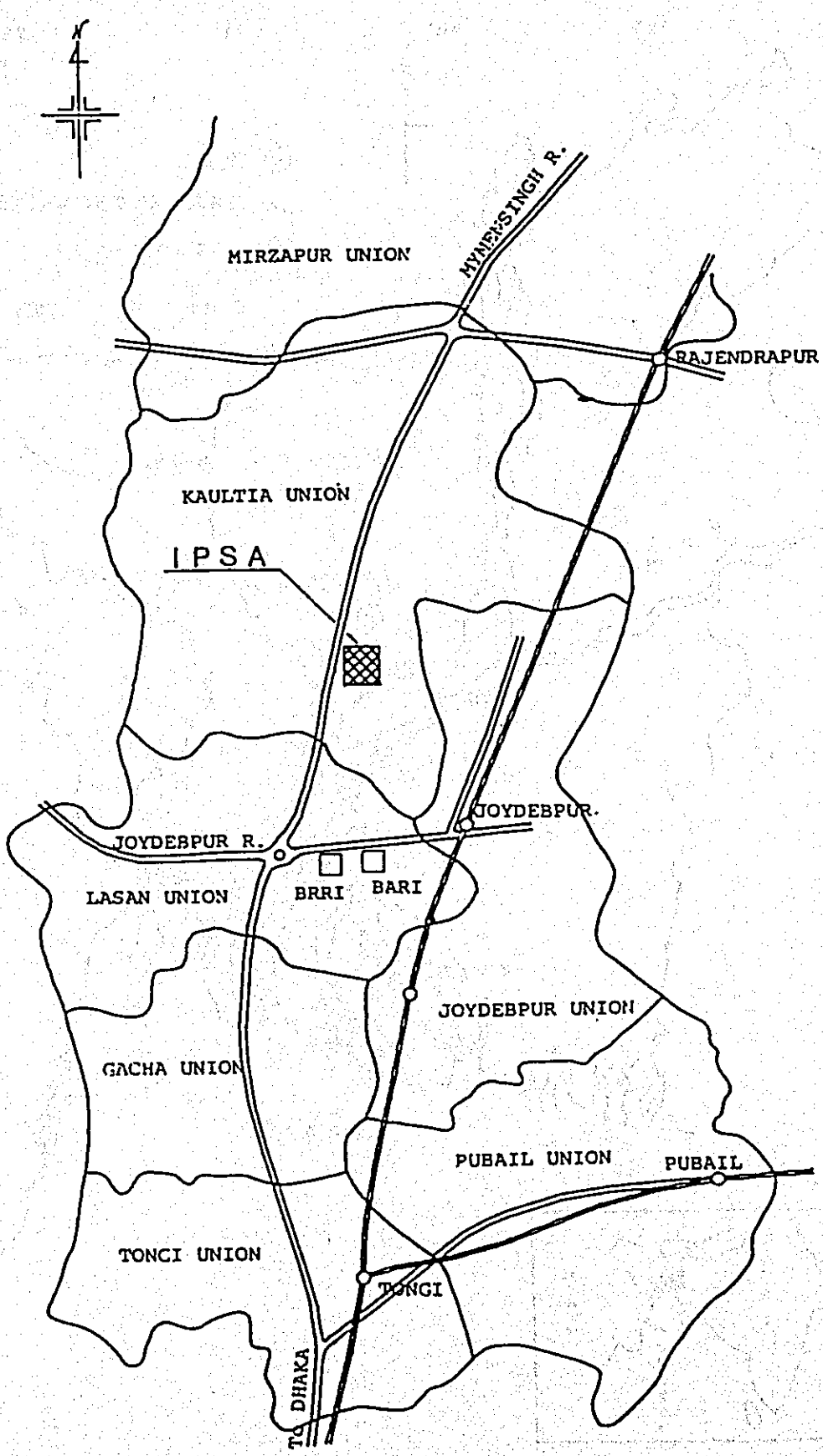
農場省表敬
次官補
Mr. Md. Hashem

R／D協議
於ＩＰＳＡ
脇本教授
和田団長
長島団員
ＩＰＳＡ学長
平嶋リーダー
梅崎ＪＩＣＡ事務所員

地図 1.　バングラデシュ地図



地図 2.　ＩＰＳＡ地図


N
MIRZAPUR UNION
MYMENSINGH R.
RAJENDRAPUR
KAULTIA UNION
IPSA
JOYDEBPUR.
JOYDEBPUR R.
LASAN UNION
BRRI
BARI
JOYDEBPUR UNION
GACHA UNION
PUBAIL UNION
PUBAIL
TONCI UNION
TONGI
TO DHAKA

目　　次

Ⅰ．実施協議調査団派遣

1．調査団派遣の経緯と目的

「バ」国は農業技術全般の一層の向上と普及を図るため、農業高等教育に重点を置くことを計画し、同国農業省はダッカにある農業カレッジをジョイデプール市に移転して、拡充強化を図ることとした。計画途中で移転は新設に変更され、更に日本の無償援助による建物完成後、農業教育の程度をより高めるために大学院教育のみを行う計画に変更された。「バ」国はこの大学院に対する研究・教育全般に亘る技術協力を要請してきた。

これを受けて日本側は、昭和６０年７月より５ヵ年間の計画で、実用的な研究活動の活性及び若手研究者・技術者の訓練を通じ、「バ」国大学院レベルの農業研究活動の強化を行うための技術協力を実施している。具体的内容は、(1) ６学科を対象としてスタッフの行う教育・研究活動に対する技術的助言、(2) ＩＰＳＡが実施する若手研究者・技術者を対象とする訓練に係る助言である。

平成元年７月、日本、アメリカ、バングラデシュ３ヵ国合同評価調査が実施された結果、更に自立継続性を助成していくことが必要と判断され、５ヵ年間の延長（フェイズⅡ）の実施が提言された。

合同評価調査団の提言に従い、バングラデシュ農業大学院が更に自立継続性を持って運営されるようプロジェクトのフェイズⅡを実施する実施協議調査団を派遣し、必要な協議及びＲ／Ｄの署名を行う。

また、本件プロジェクト技術協力実施のための基本計画及び事業実施計画（専門家派遣、機材供与、研修員受入、ローカルコスト負担等）につき協議し、その結果を討議議事録に署名することを目的とする。

さらに、本件協力につき、ＵＳＡＩＤ側と打合せを行い、必要な事項につき議事録に署名する。

2．調査団の構成

担当	氏名	所属先
団長	和田光史	九州大学　農学部　部長
大学院協力	脇本　哲	九州大学　農学部　教授
研究管理	岩堀修一	鹿児島大学　農学部　教授
協力企画	大瀧富夫	九州大学　国際交流課　課長
協力政策	栗林　晃	外務省　経済協力局　技術協力課
技術協力	長島俊一	国際協力事業団　農業開発協力部 農業技術協力課　課長

3. 調査日程

日順	月　日	曜日	調　査　内　容
1	6月 4日	月	11:00 発　東京⇨⇨ TG-641 ⇨⇨バンコク
2	5日	火	15:30 着　バンコク⇨⇨ TG-321 ⇨⇨ダッカ 16:30　日本大使館表敬 17:30　ＪＩＣＡ事務所と打合せ
3	6日	水	9:30　大蔵省外国援助局表敬 11:00　バングラデシュ農業研究評議会表敬 14:00　ＵＳＡＩＤ表敬 17:00　専門家と打合せ（於ＪＩＣＡ事務所）
4	7日	木	9:30　計画省表敬 14:00　ＩＰＳＡ表敬・視察・打合せ
5	8日	金	団員打合せ
6	9日	土	9:00　バングラデシュ農業研究所表敬 10:00　バングラデシュ稲研究所表敬 14:00　農業省表敬・打合せ
7	10日	日	9:00　Ｒ／Ｄ協議　ＩＰＳＡ 14:00　Ｒ／Ｄ協議　ＩＰＳＡ，ＭＯＡ
8	11日	月	9:00　Ｒ／Ｄ協議　ＩＰＳＡ 14:00　Ｒ／Ｄ協議　ＩＰＳＡ，ＭＯＡ
9	12日	火	9:00　Ｒ／Ｄ協議　ＭＯＡ 14:00　合同会議　Ｒ／Ｄ最終協議
10	13日	水	10:00　ＵＳＡＩＤ打合せ、共同協力
11	14日	木	AM　Ｒ／Ｄ最終作成，ＵＳＡＩＤ覚書作成 14:30　ＵＳＡＩＤ共同協力覚書署名・交換 17:30　大使館報告 19:30　Ｒ／Ｄ署名・交換
12	15日	金	14:00 発　ダッカ⇨⇨ TG-322 ⇨⇨バンコク
13	16日	土	8:50 発　バンコク⇨⇨ JL-702 ⇨⇨台湾⇨⇨大阪 11:00 発　バンコク⇨⇨ TG-640 ⇨⇨東京

4. 主 要 面 談 者

[バングラデシュ側]

農業省　Ministry of Agriculture

Mr. M. A. Syed	Secretary
Mr. Md. Hashem	Additional Secretary
Mr. W. Khan	Agricultural Economic Specialist

Plnning Commision

Dr. S. M. Hasanussaman	Member
Dr. Zaman Mazunder	Division Chief

大蔵省　ERD

Mr. K. M. Ejazul Hug	Joint Secretary
Mr. Md. Nasim	Deputy secretary

BRRI

Dr. A Z. M. Azizul	Director

BARC

Dr. M. S. Chowdhury	Executive Vice-Chairman

BIRI

Dr. M. H. Mondel	Director General

バングラデシュ農業大学院　IPSA

Dr. S. H. Khan	Director
Mr. K. Azad	Deputy Director

[USAID MISSION ダッカ]

Dr. M. J. Parvis	Act. Director
Dr. D. G. Brown	Director (農業担当)
Dr. R. Morton	農業開発専門官
Ms. H. Gunthern	Deputy Director (プログラム開発担当)

［日　本　側］

日本大使館

伊藤哲朗	公使
岡田憲治	一等書記官

ＪＩＣＡ事務所

松沢憲夫	所長
梅崎裕	所員

ＩＰＳＡプロジェクト

平嶋義宏	リーダー
隆杉実夫	業務調整員
後藤兵作	専門家（施工管理）
Dr. L. M. Eisguber	USAID Advisor （カリキュラム開発）

［Abbreveations］

MOA: Ministry of Agriculture
BARI: Bangladesh Agricultural Research Institute
BRRI: Bangladesh Rice Research Institute
BARC: Bangladesh Agricultural Research Council
USAID: United States Agency for International Development
IPSA: Institute of Postgraduate Studies in Agriculture
ERD: External Resouces Division
BAU: Bangladesh Abricultural University

Ⅱ．Ｒ／Ｄ交渉の経緯

１．Ｒ／Ｄ交渉の主要点

本調査団は、６月10日，11日バングラデシュ関係機関関係者とＲ／Ｄの協議を行ない、６月12日、合同委員会にてＲ／Ｄ修正案が認められ、６月14日、実施協議調査団々長、和田教授とバングラデシュ農業大学院（ＩＰＳＡ）学長、Dr. Khanとの間で署名交換が行なわれた。この交渉経緯以下のとおりである。

１）Ｒ／Ｄ署名者について

バングラデシュ側の署名者は、原案では農業省次官であったがＩＰＳＡの自治権が承認されたこともあり、農業省にてＩＰＳＡの位置づけはＢＡＲＩ，ＢＲＲＩと同格となったことから、バングラデシュ側の署名者はＩＰＳＡの学長とすることとなった。

２）プロジェクトの目的

昨年７月行なわれた３ヶ国合同評価にて、提言されたＩＰＳＡのSustainabilityを、プロジェクトの目的に表現することがプロジェクトサイドから強く要望あったのでSustainable Institution を入れることとした。

３）専門家派遣

プロジェクトサイドから、専門家の派遣については、カウンターパートの研究分野にあった専門家及び派遣時期、期間もよく連絡をとりあって派遣すべきとの強い要望があり、本趣旨を附属文書(Explanatory Note)に記入することとした。

４）機材供与について

ＩＰＳＡにおいて、供与機材の維持・管理は重要な問題であり、機材の選定にあたっては、この点を充分に考慮すべき旨、Explanatory Noteに明記した。

ＡＮＮＥＸについて

１）専門家派遣

長期専門家派遣について、ＩＰＳＡの学科で統計等、将来教官が配備された場合、その要望に応える意味で、又、協力科学分野で読めない農場管理、機材の維持の専門家を派遣する場合を考慮してOthersを入れることとした。

又、原案でSpecialistはその資格条件として教育経験を有する(Professors, Associate Professors, Assistant Professors)が明記されていたが、これを削除することとし、専門家として、大学関係者のみならず、例えば農水省の試験場等からもリクルートできるようにした。

2）Coordination Committee

(1) 原案のCoordinating → Coordinationに変更した。

(2) 構成は書記局を専任におくこととし、ＩＰＳＡ Directorを任命した。

2．署名討議議事録

THE RECORD OF DISCUSSIONS
BETWEEN THE JAPANESE IMPLEMENTATION SURVEY TEAM
AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF BANGLADESH
ON THE JAPANESE TECHNICAL COOPERATION
FOR THE INSTITUTE OF POSTGRADUATE STUDIES
IN AGRICULTURE PROJECT (PHASE II) IN BANGLADESH

With regard to the recommendations of the Joint Tripartite Evaluation on the Technical Cooperation for the Institute of Postgraduate Studies in Agriculture Project dated July 24, 1989, the Japanese Implementation Survey Team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Professor Koji Wada, Dean of the Faculty of Agriculture, Kyushu University, visited Bangladesh from June 5 to June 15, 1990 for the purpose of working out the details of the technical cooperation program concerning the Institute of Postgraduate Studies in Agriculture Project (Phase II) in Bangladesh (hereinafter referred to as "the Project").

During its stay in Bangladesh, the Team exchanged views and had a series of discussions with the Bangladesh authorities concerned in respect of desirable measures to be taken by both Governments for the successful implementation of the Project.

As a result of the discussions, both parties agreed to recommend to their respective Governments the matters referred to in the document attached hereto.

Dhaka, June 14, 1990

Koji Wada

Professor Dr. Koji Wada
Leader,
Implementation Survey Team,
Japan International Cooperation Agency,
JAPAN

Dr. S. H. Khan
Director,
Institute of Postgraduate Studies
in Agriculture,
Ministry of Agriculture,
BANGLADESH

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN BOTH GOVERNMENTS

1. The Government of Japan and the Government of Bangladesh will cooperate with each other in implementing the Project for the purpose of developing a sustainable institution to strengthen agricultural postgraduate education and relevant research in Bangladesh.

2. The Project will be carried out at the Institute of Postgraduate Studies in Agriculture (hereinafter referred to as "IPSA") at Salna, Gazipur.

3. The Project will be implemented in accordance with the Master Plan which is given in Section I of the Annex.

II. DISPATCH OF JAPANESE EXPERTS

1. In accordance with the laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to provide at its own expense the services of Japanese experts as listed in Section II of the Annex through the normal procedures under the Colombo Plan Technical Cooperation Scheme.

2. The Japanese experts referred to in 1. above and their families will be granted in Bangladesh the privileges, exemptions and benefits no less favourable than those accorded to experts of third countries working in Bangladesh under the Colombo Plan Technical Cooperation Scheme.

III. PROVISION OF MACHINERY AND EQUIPMENT

1. In accordance with the laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to provide at its own expense such machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for implementation of the Project as listed in Section III of the Annex through normal procedures under the Colombo Plan Technical Cooperation Scheme.

2. The Equipment will become the property of the Government of Bangladesh upon being delivered C.I.F. to the Bangladesh authorities concerned at the ports and/or airports of disembarkation, and will be utilized exclusively for implementation of the Project in consultation with the Japanese experts referred to in Section II of the Annex.

IV. TRAINING OF BANGLADESH PERSONNEL IN JAPAN

1. In accordance with the laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to receive at its own expense the Bangladesh personnel connected with the Project for technical training and/or study visit in Japan through normal procedures under the Colombo Plan Technical Cooperation Scheme.

2. The Government of Bangladesh will take necessary measures to ensure that the knowledge and experience acquired by the Bangladesh personnel from technical training and/or study visit in Japan will be utilized effectively for implementation of the Project.

V. SPECIAL MEASURES TO BE TAKEN BY THE GOVERNMENT OF JAPAN

For fostering the smooth promotion of the Project, the Govenment of Japan, in accordance with the laws and regulations in force in Japan, will take necessary measures through JICA to supplement a portion of the local cost expenditures such as those for minor construction work.

VI. SERVICES OF BANGLADESH COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. In accordance with the laws and regulations in force in Bangladesh, the Government of Bangladesh will take necessary measures to secure at its own expense the necessary services of Bangladesh counterpart and administrative personnel as listed in Section IV of the Annex.

2. The Government of Bangladesh will allocate the necessary number of well qualified personnel corresponding to each Japanese expert to be dispatched by the Government of Japan as specified in Section II of

the Annex for effective and successful transfer of technology under the Project.

VII. MEASURES TO BE TAKEN BY THE GOVERNMENT OF BANGLADESH

1. In accordance with the laws and regulations in force in Bangladesh, the Government of Bangladesh will take necessary measures to provide at its own expense:

   (1) Land, buildings and facilities as listed in Section V of the Annex;

   (2) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for implementation of the Project other than those provided through JICA under III above;

   (3) Transportation facilities and travel allowance for the official travel of Japanese experts within Bangladesh;

   (4) Suitably furnished accommodations for the Japanese experts and their families.

2. In accordance with the laws and regulations in force in Bangladesh, the Government of Bangladesh will take necessary measures to meet:

   (1) Expenses necessary for transportation of the Equipment within Bangladesh as well as for installation, operation and maintenance thereof;

   (2) Customs duties, internal taxes and fees imposed on the Equipment which are not exempted from such payment in Bangladesh;

   (3) Handling, clearing and any other charges imposed on the Equipment in Bangladesh;

   (4) All running expenses necessary for implementation of the Project.

VIII. ADMINISTRATION OF THE PROJECT

1. The Secretary, Ministry of Agriculture, will bear overall responsibility for implementation of the Project.

2. The Director of IPSA, as Head of the Project, will be responsible for the administrative and managerial matters of the Project.

3. The Japanese Team Leader will provide necessary recommendations and advice on technical and administrative matters concerning implementation of the Project to the Head of the Project.

4. The Japanese experts will give necessary technical guidance and advice to the Bangladesh counterpart personnel on matters pertaining to the implementation of the Project.

5. For effective and successful implementation of the Project, the Coordination Committee will be established with the function and composition as referred to in Section VI of the Annex.

IX. CLAIMS AGAINST JAPANESE EXPERTS

The Government of Bangladesh undertakes to bear claims, if any arises, against the Japanese experts engaged in the Project resulting from, occurring in the course of, or otherwise connected with, the discharge of their official functions in Bangladesh, except for those arising from willful misconduct or gross negligence by the Japanese experts.

X. MUTUAL CONSULTATION

There will be mutual consultation between the two Governments on any major issues arising from, or in connection with this Attached Document.

XI. TERM OF COOPERATION

The duration of technical cooperation for the Project under this Attached Document will be five (5) years from July 4, 1990.

ANNEX

I. MASTER PLAN

1. Objectives of the Project

The project will be carried out for the purpose of strengthening postgraduate level agricultural research and education at IPSA and making IPSA a sustainable institution, thus contributing to enhancement of higher agricultural education and agricultural research system in Bangladesh toward the accelerated agricultural development and the improved economic well-being of the farmers.

2. Activities under Japanese Technical Cooperation

The activities under Japanese Technical Cooperation are as follows:

(1) Research Program in the following fields

- Agronomy
- Genetics and Plant Breeding
- Plant Pathology
- Soil Science
- Horticulture
- Entomology
- Crop Botany
- Others

a) To give technical advice for survey, planning and implementation of practical research and experimental activities conducted by IPSA teaching staff.

(2) Academic Program

a) To give technical advice to IPSA teaching staff in order to improve the teaching and advising methods for student research and experimental activities in M.Sc. or Ph.D. program.

b) To give technical guidance for preparing teaching materials including writing of the textbook.

c) To give technical guidance and advice on lectures to IPSA

teaching staff.

d) To give technical guidance and advice for arranging curriculum, especially related to experimental activities.

e) Others.

(3) Outreach Program

a) To give technical guidance and advice to IPSA teaching staff on training of agricultural researchers, extension personnel and teaching staff of agricultural institutions.

b) To hold seminars for agricultural researchers and IPSA students, etc.

c) To hold seminars and field days for disseminating the results of the Project to agricultural extension personnel and farmers.

Ⅱ. JAPANESE EXPERTS

1. Team Leader

2. Coordinator

3. Specialists in the fields of:

Agronomy
Genetics and Plant Breeding
Plant Pathology
Soil Science
Horticulture
Entomology
Crop Botany
Others

Note: 1) Long term specialists in the above mentioned fields will stay at IPSA for more than one year in the duration of the Project.

2) Short term specialists in the above mentioned fields may be dispatched when necessity arises for smooth implementation of the Project.

Ⅲ. LIST OF EQUIPMENT

1. Equipment, instruments, materials, and spare parts for laboratory and field research activities.
2. Agricultural machineries and materials for the teaching/experimental farm.
3. Audio visual equipment.
4. Books and other printed materials.
5. Vehicles.
6. Other necessary equipment.

Ⅳ. LIST OF BANGLADESH COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Head of the Project (Director of IPSA)
2. Counterpart personnel (teaching staff) in the fields of:
   - Agronomy
   - Genetics and Plant Breeding
   - Plant Pathology
   - Soil Science
   - Horticulture
   - Entomology
   - Crop Botany
   - Others
3. Administrative personnel
   (1) Administration
   (2) Accounting
4. Supporting staff
   (1) Manager of teaching/experimental farm
   (2) Librarian
   (3) Engineers
   (4) Other staff
5. Laborers

V. LIST OF LAND, BUILDINGS AND FACILITIES

1. Land

Land for Campus of IPSA including teaching/experimental farm.

2. Buildings and facilities

(1) Office(s) for Japanese Team Leader, Coordinator and Specialists

(2) Laboratories

(3) Class rooms and practice rooms

(4) Library

(5) Dormitory

(6) Other necessary buildings and facilities

VI. THE COORDINATION COMMITTEE

1. Functions

The Coordination Committee will meet at least once a year and whenever the necessity arises, and review:

(1) the Annual Work Plan of the Project in line with the Tentative Schedule of Implementation formulated under the framework of this Record of Discussions;

(2) the overall progress of the technical cooperation program as well as the achievements of the above mentioned Annual Work Plan;

(3) major issues arising from or in connection with the technical cooperation program.

2. Composition

(1) Chairman;

Secretary, MOA or his designee

(2) Bangladesh Side;

a) Director General, BARI, MOA

b) Director General, BRRI, MOA

c) Executive Vice-Chairman, BARC, MOA

d) Division Chief (Agriculture), Planning Commission
e) Personnel concerned to be nominated by MOA

(3) Japanese Side;
a) Team Leader
b) Coordinator
c) Resident Representative of Bangladesh Office, JICA
d) Personnel concerned to be dispatched by JICA

(4) Member-Secretary;
Director, IPSA, MOA

Note: 1) The US advisor nominated by the Japanese Team Leader and the Representative of USAID Mission to Bangladesh will attend the Coordination Committee as members.

2) Official of the Embassy of Japan in Bangladesh and specialist nominated by the Japanese Team Leader may attend the Coordination Committee as observers.

Abbreviations:

MOA = Ministry of Agriculture
BARI = Bangladesh Agricultural Research Institute
BRRI = Bangladesh Rice Research Institute
BARC = Bangladesh Agricultutal Research Council
USAID = United States Agency for International Development

EXPLANATORY NOTES ON THE RECORD OF DISCUSSIONS FOR TECHNICAL COOPERATION TO IPSA BY THE GOVERNMENT OF JAPAN

The Record of Discussions is in very general terms. The total size of the project in financial terms would be discussed among all concerned agencies/organizations/Ministries including the donor agencies and submitted as Project Proforma for clearance by PEC/ECNEC.

II. DISPATCH OF JAPANESE EXPERTS

Dispatch of experts will be based on specific terms of reference for each expert developed in consultation with concerned IPSA faculty and Japanese Team Leader.

III. PROVISION OF MACHINERY AND EQUIPMENT

In the process of selecting equipment, more consultaiton is required among the concerned parties for proper assessment of suitability from the viewpoint of program need and maintenance.

IV. TRAINING OF BANGLADESH PERSONNEL IN JAPAN

Since improvement of capacity and performance of the teaching staff of IPSA in providing a high quality research base at the postgraduate level is of critical importance, it is suggested that JICA will propose to the Ministry of Education of the Government of Japan to reserve at least one Ph.D. scholarship offer per year for IPSA during the project period.

VII. MEASURES TO BE TAKEN BY THE GOVERNMENT OF BANGLADESH

1. Transportation facilities to be provided for official travel of Japanese experts will, in most cases, be through the use of vehicles under this project. JICA will provide the travel allowances for Japanese experts whenever possible.

2. JICA also will assist in funding suitably furnished accommodation for the Japanese experts and their families.

XI. TERM OF COOPERATION

IPSA Project Phase II as referred to in the Record of Discussions will be treated as a spill-over project during the Fourth Five Year Plan period from the Government of Bangladesh side.

Ⅲ．日米共同協力

１．日米共同協力の継続

ＩＰＳＡに対するフェイズＩの日本の協力は、1985年７月４日に開始され、1986年４月にＵＳＡＩＤが本プロジェクトに参加した。共同協力の内容は、自然科学分野については日本が、社会科学分野については米国がそれぞれ担当し、一つの専門家団として、日本のリーダーシップの下に協力が行なわれた。

昨年７月に実施されたバングラデシュ、日本、米国の三ヶ国による合同評価において、日米共同協力は高く評価され、フェイズⅡにおいても、その良好な関係を継続発展させることが、本プロジェクトの活動にとり不可欠であると提言された。

実施協議調査団は、６月６日ＵＳＡＩＤ事務所を表敬し、本調査団の目的を説明し、日本は、合同評価の提言を受け、1990年７月から５ヶ年間のフェイズⅡの協力を行うこととしたが、ＵＳＡＩＤのフェイズⅡに対する協力の基本的な考えを聞いた。はじめに、ＵＳＡＩＤのフェイズⅠに対する協力につき、謝意を述べるとともにＵＳＡＩＤのフェイズⅡに対する協力がＩＰＳＡの発展に不可欠であることを強調し、1990年４月に発表されたミニプロジェクトペーパーについての確認を行なった。ＵＳＡＩＤ. Dr. Purvis (Acting Director)が出張中のため、Dr. Brown （農業担当Director）が応対し、ＵＳＡＩＤとしても、本ＩＰＳＡプロジェクトは、日米共同協力の唯一の事例として、その協力を重要視しており、継続して協力していくことを約束した。

調査団より、日米共同協力の合意に関して文書をとり交したい旨申し入れたところ、ＵＳＡＩＤはその旨同意し、Draft は日本側が作成することとし、６月14日に署名することとした。

６月14日、再度、ＵＳＡＩＤを表敬し、Dr. Purvisと和田団長の間で、日米共同協力に関する覚書が署名交換された。

附　１）日米共同協力覚書

　　２）ＵＳＡＩＤ、ミニプロジェクトpaper

2. 覚 書

Memorandum of Understanding
between
USAID Mission to Bangladesh and the Japanese Implementation Survey Team on the Joint Technical Cooperation for the Institute of Postgraduate Studies in Agriculture Project (Phase II) in Bangladesh

With regard to the recommendation of the Joint Tripartite Evaluation on the Technical Cooperation for the Institute of Postgraduate Studies in Agriculture Project, dated July 24, 1989 the Japanese Implementation Survey Team ("hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") visited Bangladesh from June 5, to June 15, 1990 for the purpose of working out the details of the technical cooperation program concerning the IPSA Project (Phase II).

During its stay in Bangladesh, the Team exchanged views and had a series of discussions with the authorities concerned of USAID as well as those of Bangladesh for the successful implementation of the project.

As a result of discussions, the USAID Mission to Bangladesh and the Team have agreed that Joint Technical Cooperation in the IPSA Project should be continued during the Phase II of the Project subject to a formal request by the Government of Bangladesh to USAID. The USAID Mission and the Team have confirmed that the relations between USAID and JICA for the Joint Technical Cooperation for the IPSA Project Phase II will remain the same as those of the current phase. The USAID mission and the Team have further agreed that official letters should be exchanged between USAID Mission to Bangladesh and JICA Bangladesh Office before the beginning of Phase II of the IPSA Project.

Professor Dr. Koji Wada
Leader
Implementation Survey Team
Japan International Cooperation Agency
Japan

Date: June 14, 1990

Dr. Malcolm J. Purvis
Director (Acting)
USAID Mission to Bangladesh
Dhaka

Date: June 14th, 1990.

DRAFT

June 1990

Dr. Malcolm J. Purvis
Director (Acting)
USAID Mission to Bangladesh
Dhaka

Dear Dr. Purvis:

It is a great pleasure for me to issue this letter in accordance with the Minutes of the Understanding between USAID Mission to Bangladesh and the Japanese Implementation Survey Team on the Joint Technical Cooperation for the Institute of Postgraduate Studies in Agriculture Project (Phase II) in Bangladesh.

For the Implementation of the project, Japanese activities will be based on the Record of Discussions signed on June 14, 1990. The U.S. activities will be based on the mini project paper of IPSA Project Phase II USAID/Dhaka Bangladesh subject to its review and approval by USAID, dated ..... which was agreed to in principal by the Government of Bangladesh, as indicated in the ERD Letter No....., dated .....

The relations between USAID and JICA specialists/experts concerning their activities for the project were principally agreed to as enclosed herewith.

I heartily hope that the project will be successfully completed through our cooperation and will contribute to raising the standard of postgraduate level education and research in agriculture in Bangladesh.

Sincerely,

Norio Matsuzawa
Resident Representative

Enclosure:

"Understanding Between USAID and JICA
For Joint Technical Cooperation for IPSA".

Contd....2

cc:

1. Mr. M. A. Syed
   Secretary
   Ministry of Agriculture
   Government of Bangladesh
   Dhaka

2. Dr. S. H. Khan
   Director
   Institute of Postgraduate Studies in Agriculture (IPSA)
   Salna
   Gazipur

3. Mr. K. Okada
   First Secretary
   Embassy of Japan
   Dhaka

4. Dr. Y. Hirashima
   Team Leader
   IPSA Project
   Dhaka

Understanding Between USAID and JICA For Joint Technical Cooperation for IPSA

1. As part of USAID/JICA technical team, USAID experts will conduct their activities under Japanese leadership. All team members will obtain the signature of the Japanese team leader before submitting reports or documents to Bangladesh authorities.

2. The USAID and JICA experts will be working closely as a single team. In working toward common project objectives, USAID and JICA team members will also be observing reporting procedures as per regulations of their respective agencies.

3. Each member of the USAID/JICA team will put forth their best effort to resolve any problem that may arise.

4. All overseas participant training proposals and candidates will be submitted through the Japanese team leader.

5. Use of official vehicles, provided by the Japanese Government, will be approved by the Japanese team leader in close consultation with USAID, JICA and IPSA.

6. Project commodities to support the IPSA Project will be indentified in close coordination with USAID, JICA and IPSA members concerned.

7. For the effective and successful implementation of the Project, USAID, JICA and concerned Bangladesh authorities will establish the Coordination Committee and meet at least once a year and whenever necessity arises, and review:

(1) the Annual Work Plan
(2) the overall progress of the technical cooperation program, and
(3) major issues.

3. USAID, ミニ・プロジェクト・ペーパー

Mini Project Paper

INSTITUTE OF POSTGRADUATE STUDIES IN AGRICULTURE

(IPSA Project, Phase II)

USAID/Dhaka
BANGLADESH

March 1990

TABLE OF CONTENTS

INSTITUTE OF POSTGRADUATE STUDIES IN AGRICULTURE

(IPSA Project, Phase II)

I. SUMMARY

The IPSA Project (Phase I) is a tripartite project and was initiated to assist agricultural development in Bangladesh through postgraduate education and basic (but problem oriented) research in agriculture. Through USAID cooperation with the Government of Japan (project major donor) and the Government of Bangladesh, a new campus and experimental farm were constructed and equipped, a faculty assembled and trained, and a course based M.Sc. curriculum developed that is being considered for adoption by the Bangladesh higher agricultural education system.

A tripartite evaluation team recommended in July 1989 that the IPSA Project be extended into a second phase (Phase II, July 1990 through June 1995). The Ministry of Agriculture has requested the Bangladesh Government (BDG) that the two donors be invited to continue their cooperation in the Project.

This mini project paper proposes a project extension by USAID through June 1995 (to coincide with the project cycle of the BDG and the Japan International Cooperation Agency, JICA). Project extension is to be accomplished in three stages. Stage I is a 15-months (4/90-6/91) no-cost project extension, primarily designed to complete Phase I objectives. Stages II (7/90-12/92) and III (1/93-6/95) are designed to introduce limited new initiatives and to assure sustainability upon completion of Phase II. One new initiative is based on the need in Bangladesh for an organized and continuing effort for technology assessment in the broadest sense. Thus, it is proposed to assist in the establishment of a capability to evaluate research forthcoming from a well functioning Bangladesh agricultural research system, to asses future research needs, and to support existing and new linkages with research systems outside Bangladesh. Another new initiative is to increase effectiveness of resource use, in particular of faculty time, by establishing faculty residences on the IPSA campus. Finally, in support of sustainability, cooperative teaching and research programs will be undertaken. Emphasis will be on agricultural economics and related social sciences.

Project outputs will include:

* Basic research capability to serve the needs of Bangladesh.
* Faculty trained in research planning and prioritization.
* Improved technology transfer and better communication between scientists and farmers regarding research needs.

* Department of Agricultural Extension staffed with teaching, research and outreach programs developed.

* Department of Agricultural Economics established and teaching, research and outreach programs functioning.

* Course-based M.Sc. and Ph.D. program adopted with 180 M.Sc. graduated and 120 enrolled but not yet completed; in addition 20 Ph.D.'s graduated and 30 enrolled but not yet completed. and 60 Ph.D. students enrolled or graduated.

* Students better trained to serve the agricultural development needs of Bangladesh.

* Endowed scholarship program to assist high quality students, particularly female students, to undertake postgraduate education.

* Functioning computing centre for statistical analysis, project management, modeling, and word processing in English and Bengali. Faculty and staff trained in use of micro computers, including desktop publishing.

* Microcomputer courses established and offered on a regular basis to students.

* Complete library collection in relevant fields with modern catalogue system and interlibrary loan service available.

* Residential housing for 170 families and a school building constructed.

Inputs required for the proposed program include, over the life of the Project, 10 long-term (doctoral) participant trainees (five of them started during Phase I of the Project), 56 PM short-term participant training, 4 PY long-term technical assistance, and 3 PY of short-term technical assistance. In addition, procurement of commodities (books, journals, computers, audio-visual equipment) as well as construction (of residential facilities) are proposed. The establishment of an endowed scholarship program is also envisioned. The life of Project budget is approximately 2.9 mill USD. Of those, 700,000 USD are previously committed funds (for Stage I), with 1.4 mill. and 899,000 USD for new initiatives in Stages II and III, respectively. Approximately 5.2 mill. USD in PL 480 III funding are estimated for construction (of residential facilities and a school building) and the establishment of an endowed scholarship fund.

II. PROJECT DESCRIPTION

A. Background

1. Brief History

The Government of Bangladesh (BDG) established the Institute of Postgraduate Studies in Agriculture (IPSA) in 1984 in order to meet the need for higher quality postgraduate training in agriculture. IPSA was charged to offer courses leading to Masters and Doctoral degrees in various disciplines in agriculture, conduct research in the crop sciences and related fields, and develop an outreach program.

The BDG turned to the Government of Japan (GOJ) with a request to assist in the establishment of IPSA. The IPSA Project (in cooperation with the Japan International Cooperation Agency, JICA) began on July 4, 1985. The U.S.A. (through USAID) joined the Project in April 1986 (see "Working Paper for the Review Team," July 1989, for more details about the history of IPSA and the IPSA Project).

2. Progress and Accomplishments 1/

Since the beginning of technical cooperation in 1985 and 1986, respectively, the following were accomplished:

a. Research Program: A research program which addresses important national issues and which has already resulted in significant output has been implemented (see Annex B for more information on the IPSA research program).

b. Academic Program: Three classes of M.Sc. students have already graduated, the fourth class has completed all course work, and the fifth class has been admitted. A substantially improved masters degree curriculum was developed. A doctoral program is under development.

c. Outreach Program: A community based outreach program is being established for selected locations in the vicinity of IPSA. A number of continuing education programs were organized for agricultural professionals, community leaders, and farmers.

d. Institutional Development and Support: A new campus (including classrooms, laboratories, dormitories, library, faculty and administrative offices) was established and equipped. Three faculty members are currently completing their doctoral degree requirements in Japan, and another four are in the U.S.A. for the same purpose. Two short-term participant trainees completed their programs in the U.S.A., as did five in Japan. Three additional faculty are in short-term training in Japan. An institutional framework (administrative and management structure, committee system, and governance procedures) was established to assure the orderly development and steady growth of the Institute.

1/ See Annex A for a more detailed statement of progress and accomplishments.

3. Current Status

While big strides forward were made since the beginning of technical cooperation in 1985 and 1986, respectively, much remains to be done. The Tripartite Evaluation Team (TET) noted the progress that was accomplished; but it also noted as a "lesson learned" that institutions of this type cannot be established to the level of sustainability within four to five years. Thus, the TET recommended unanimously that the project be extended for an additional five years.

The Secretary of the MOA concurred with the TET recommendations and has already made a request to the External Resources Division (ERD) of the Ministry of Planning to the effect that the governments of Japan and the U.S.A. be invited to extend their technical cooperation in the IPSA project as per the recommendations of the TET (see Annex G for a copy of letter of request).

B. Reviewers' Recommendations

1. Recommendations by the Tripartite Evaluation Team (TET)

A Tripartite Evaluation Team (TET) reviewed the IPSA Project in July of 1989 and made the following recommendations (see also Annex G for key recommendations; also see "Joint Tripartite Evaluation of the Institute of Postgraduate Studies in Agriculture Project in Bangladesh," July 24, 1989):

a. A five-year extension of the project should be implemented, based on the favorable results of the first phase of the project.

b. To achieve recruitment of the best available faculty, construction of residential housing at IPSA must be given high priority.

c. Academic flexibility and authority must be attained as early as possible to permit IPSA to grow towards its potential.

d. Additional laboratories and library facilities should be constructed.

e. The successful tripartite cooperation should be continued and strengthened.

2. Additional Recommendations

Other reviewers offered the following additional recommendations:

a. Immediately begin implementation of a Ph.D. program in selected disciplines.

b. Include additional fields, such as fisheries, livestock, agricultural engineering, food science and technology, and home economics into the IPSA program.

C. Rational

Agriculture is the most important economic sector in Bangladesh, producing 65 percent of the GDP and employing 61 percent of the labor force. Eightyfive percent of the population live in rural areas. Yet, the agricultural and rural population has below average incomes due, at least in part, to production rates which are substantially below their potential.

Agricultural development occupies a prominent role in the Mission's Country Development Strategy Statement (CDSS) for several reasons: 1) the importance of agricultural development to the economy Bangladesh; 2) the continuing poverty of agricultural and rural people; and 3) the possible increases in agricultural production and efficiency resulting from agricultural development. Furthermore, agricultural research and the improvement of human capital in agriculture are viewed as important components of the development strategy. The development of IPSA plays a vital role both in the generation of agricultural research results as well as the creation of human capital through post-graduate training.

IPSA has an explicit charge to conduct problem oriented basic research and has been equipped with faculty and facilities to accomplish this goal, with resources that will not be duplicated elsewhere in Bangladesh. The research conducted by IPSA is intended to fill a need for basic research which is required by the more applied NARS institutions to solve immediate problems. Support is needed to develop a problem oriented basic research program at IPSA to capitalize on the major investment in equipment and facilities made by donors during phase one. A well planned research program will meet the agricultural development and human capital needs of Bangladesh by focusing on emerging problems, including environmental issues. Support of this thrust will not only build a innovative research program but will assure subsequent sustainability of IPSA as an institution. It will also permit it to continue a strong leadership role in the development of a viable higher agricultural education system in Bangladesh while playing a unique role within the educational/ /research system.

Research and experimental facilities of nearby institutions can and are being utilized to augment the excellent facilities at IPSA. This has the advantage of providing on-the-job training for students, broadens the scope of expertise available to the IPSA program, establishes valuable linkages, and substantially improves the cost effectiveness of the IPSA program.

The unique research orientation of IPSA is also reflected in the choice of thesis research topics for its students as well as in classroom teaching. Therefore, IPSA graduates receive training and have qualifications which are different from those graduating from BAU and provide the breadth of training needed to solve the agricultural problems of Bangladesh.

IPSA gives priority to admission of in-service candidates (admission of in-service candidates is, however, by no means restricted to the nearby campuses of BARI and BRRI, but includes candidates also from the regional stations and other institutes, such as the SRTI, the JRI, etc.). In turn, IPSA relies to a substantial degree on scientists from BRRI, BARI, CERDI, and Dhaka University for guest lecturers and students' thesis supervisors.

Considerable progress has been made towards achieving the phase one technical objectives of the Project. A modern facility was developed, a qualified faculty assembled, a degree granting (M.Sc.) program started, and a Ph.D. program to be announced in Summer 1990 is under development jointly with BAU. Significant progress also was made in the assessment of the feasibility of improvement in the higher agricultural education system in Bangladesh, setting a direction for change, and initiating steps for such change. Additional time is needed to finish program objectives started during phase one and to carry out outreach activities which were planned in phase one.

USAID initially entered into technical cooperation in the IPSA Project for reasons beyond those defined in the Project. One of these reasons was to test the feasibility of a broader intervention in the Bangladesh higher agricultural education system. At issue were the receptivity of BAU for change to improve higher agricultural education and the interest of the BDG to encourage and support change. The IPSA Project has played a very crucial and constructive role in stimulating action. As a result, a number of positive steps were taken on the part of BAU and the BDG, suggesting that a good potential for improvement in higher agricultural education exists.

Another reason, broader than the IPSA Project itself was to test the feasibility and to assess the advantages of joining another major donor in a technical cooperation project, in this case Japan. Here again, the IPSA Project made contributions which have implications far beyond the Project and which merit continuation.

Cost effectiveness for the USAID contribution to the IPSA Project is particularly high, as the U.S.A. participated in the first phase of the Project with a small amount of funds relative to the major donor, Japan. This approach permitted the U.S.A. to participate in a technical cooperation project of an overall scope much larger than would otherwise have been possible - if it had been possible at all.

The effective tripartite cooperation in the IPSA Project and its continuation for a second phase is expected to make possible a similar relationship in a potential BAU Project. Such a relationship would not only enhance the scope and cost effectiveness of both projects but will also assure close cooperation in development of the higher education system without foregoing independent innovations.

D. Issues

1. Are IPSA and BAU duplicating each others programs?
IPSA is one of only two institutions in Bangladesh offering postgraduate training in agriculture (the other being Bangladesh Agricultural University, BAU). IPSA is currently offering only masters degree programs but is actively preparing to implement a doctoral program in 1990. BAU offers masters as well as doctoral programs. Although enrollment in Ph.D. programs at BAU has increased during the past few years, BAU has, in fact, produced only six Ph.d.'s since its establishment in the early sixties. Thus, effective doctoral programs which produce a predictable supply of graduates in agricultural fields are yet to be developed for Bangladesh. Because of its research-teaching orientation and proximity to other research institutes, IPSA more so than any other institution in Bangladesh has the prerequisites for the development of quality doctoral programs in selected agricultural fields.

The programs at the two institutions (offering agricultural postgraduate training in Bangladesh) are complementary to a far higher degree than they are duplicative. IPSA is extremely well equipped to emphasize the crop and allied sciences. IPSA offers no programs in such fields as livestock, fisheries, veterinary science, and agricultural engineering and technology. These are available at BAU.

2. Will IPSA Produce Graduates For Whom There Will Be No Jobs?
There is an adequate job market for the postgraduates produced by BAU and IPSA. Unless production of masters degree holders is increased significantly this situation is not expected to change. Such expansion is not likely. In the case of masters level training, the two institutions together lack the capacity and intent to admit all qualified applicants for postgraduate training at higher than present levels. In the case of BAU this is due to limitations in faculty authorized for postgraduate training and in facilities. At IPSA, an explicit decision was made to limit enrollment of masters students to sixty in order to assure adequate laboratory space, adequate experimental plots, adequate academic supervision, and in general to assure a high quality program.

3. Should USAID/Dhaka Have Two Higher Agricultural Education Projects?
The fact that USAID may have two higher agricultural education projects in Bangladesh is unusual but very reasonable. The fundamental issue is not whether there are one, two, or more projects, but whether the projects are justified based on their contribution to meet the needs of Bangladesh. The IPSA Project has already demonstrated a strong capability to contribute to the development process, both in a technical and policy sense. Properly supported for a second phase, IPSA will grow in its role and help build the agricultural education system needed in Bangladesh. The classical model for project administration would call for one project which addresses the development of both institutions. However, the structure of two independently administrated projects, which coordinate and cooperate in implementation, fits the circumstances and history of the projects.

E. Project Goal and Purpose

1. Project Goal

To improve rural incomes, the quality of life of rural residents, and to enhance agricultural development through training of postgraduates. Emphasis will be given to improved knowledge and skills, through conduct of problem oriented basic research, and through concomitant outreach programs with applications in all fields of agriculture but with particular emphasis on environmental issues.

2. Project Purpose

To establish a sustainable institution which integrates agricultural postgraduate education and problem oriented basic research, improves the quality of agricultural postgraduate education offered in Bangladesh, and which has strong linkages and outreach programs with educational/NARS institutions. The Project will achieve its purpose by:

a. Supporting a problem oriented basic research program at IPSA with a strong long term research needs assessment and an economic component analysis capability;

b. Completing the implementation of a course based postgraduate curriculum and the M.Sc. and Ph.D. levels;

c. Completing the development of a community needs based institutional outreach program; and

d. Strengthening institutional support in library resources, computing capability, scholarships, and residential housing.

F. Strategy

1. Overall Strategy(BDG, Japan, U.S.A.)

a. Organizational/Administrative: Donor cooperation is a keystone in the IPSA Project strategy (see "Annex C: Tripartite Cooperation" for additional information on the history and nature of donor cooperation in the Project). During the first phase of the Project, a successful tripartite cooperation between Bangladesh, Japan, and the U.S.A. was implemented. Of the donors, Japan was the "senior partner" and played a much larger role, both with respect to program responsibility as well as size of technical assistance and grant aid funds, than the U.S.A. The TET noted that "preliminary assessment of this pioneering arrangement permits the conclusion that the tripartite cooperation is successful. This conclusion is based on the fact that there is evidence that the IPSA Project, as a result of tripartite cooperation, benefited in ways which it would not have benefited had there been only bipartite cooperation. This is due to budget limitations, various and differing institutional constraints facing donors, and comparative advantage amongst the donors."

Part of the strategy for the extension of the IPSA Project is to continue with tripartite cooperation, with Japanese continuing as the senior partner. The division of labor and clear identification of responsibilities, which has served the Project well in the first phase, will continue. Likewise, the close interaction and integration of technical cooperation efforts will receive continued attention.

b. Programmatic: Phase II of the IPSA Project follows naturally on the first phase of the project, which dealt with all aspects of developing an entirely new multi-faceted institution. The Project Extension will continue toward the purpose of developing such an institution. However, the relative weight of activities will shift with some new activities undertaken to accomplish the project purpose. Thus, completion of construction of the physical infrastructure, acquisition of machinery, equipment, computers, and instruments, development of improved academic programs, improvement of library holdings, establishment of a research program, technology transfer by the experts, and shaping of an administrative structure all are receiving attention.

Project strategy is to impact on the following major components:

aa. Research Program:

* Continue the development and expansion of problem oriented basic research which cannot be conducted by other institutions (because of their applied orientation or because of lack of facilities). Research will address important emerging national issues, particularly environmental issues, identified by national planning bodies.

bb. Academic Program:

* Implement the competency based masters curriculum developed under the first phase of the project.

* Develop and implement a doctoral program to produce graduates with improved skills and knowledge for the research, teaching, government, and private sector.

cc. Outreach Program:

* Continue development of a community oriented outreach and outreach methodology program under the Department of Agricultural Extension and initiate an outreach program on the assessment of research relevance and emerging research needs.

dd. Institutional Development and Support

* Continue with the development of the experimental farm, expansion of the library, upgrading of student laboratories, enlargement of the computing centre, and the construction of residential quarters and related infrastructures.

* Strengthen faculty, administrators, officers and staff through short- and long-term participant training.

* Establish a comprehensive scholarship program to attract and retain the most qualified students, in particular qualified female students.

* Implement new and revise existing administrative structures, processes, and strategies to assure efficient and relevant teaching, research, and outreach programs.

* Establish formal linkages with educational/NARS institutions to enable and sustain joint research programs, exchange of scientists and faculty, efficient exchange of research results, research coordination, and feedback on academic program requirements.

2. USAID's Strategy

a. Organizational/Administrative: The IPSA Project is a tripartite project. During the first phase of the project, the Bangladesh and Japanese project cycles were from July 1985 through June 1990; the project cycle for the U.S. side was from April 1986 through March 1990. For the Project Extension, the Bangladesh and Japanese cycles are expected to run from July 1990 through June 1995. In order to better synchronize the activities of all three parties and at the same time recognize administrative policies and constraints that exist for USAID, it is proposed that the USAID component be divided into three stages. The first will cover the period of April 1990 through June 1991 (no-cost extension of Phase I), the second from July 1990 through December 1992, and the third from January 1993 through June 1995 (See Figure 2.1. Sequencing of Activities and Funding, IPSA Project, Phase II). This approach is sensitive to the desirability of having a project plan which is synchronized with those of the other two parties of the tripartite effort. At the same time it takes into account technical and funding constraints encountered by USAID and provides flexibility to deal with them.

This mini project paper is developed prior to similar planning and design efforts by the BDG and JICA. The latter are not expected to engage in such exercise until May or June (1990). While in a tripartite project all parties would ideally engage in a simultaneous joint planning exercise, this is not possible due to the different planning cycles and other considerations. Therefore, a no-cost extension of the USAID component is proposed for the period 4/90-6/91. During that time period (Stage I of Phase II) activities which were initially planned under Phase I but could not be carried out due to unavoidable circumstances will be carried out. Also during that time, activities proposed in this mini project paper for Stage II ((7/90-12/92) and Stage III (1/93-6/95) can be jointly discussed, modified, planned, and approved for implementation.

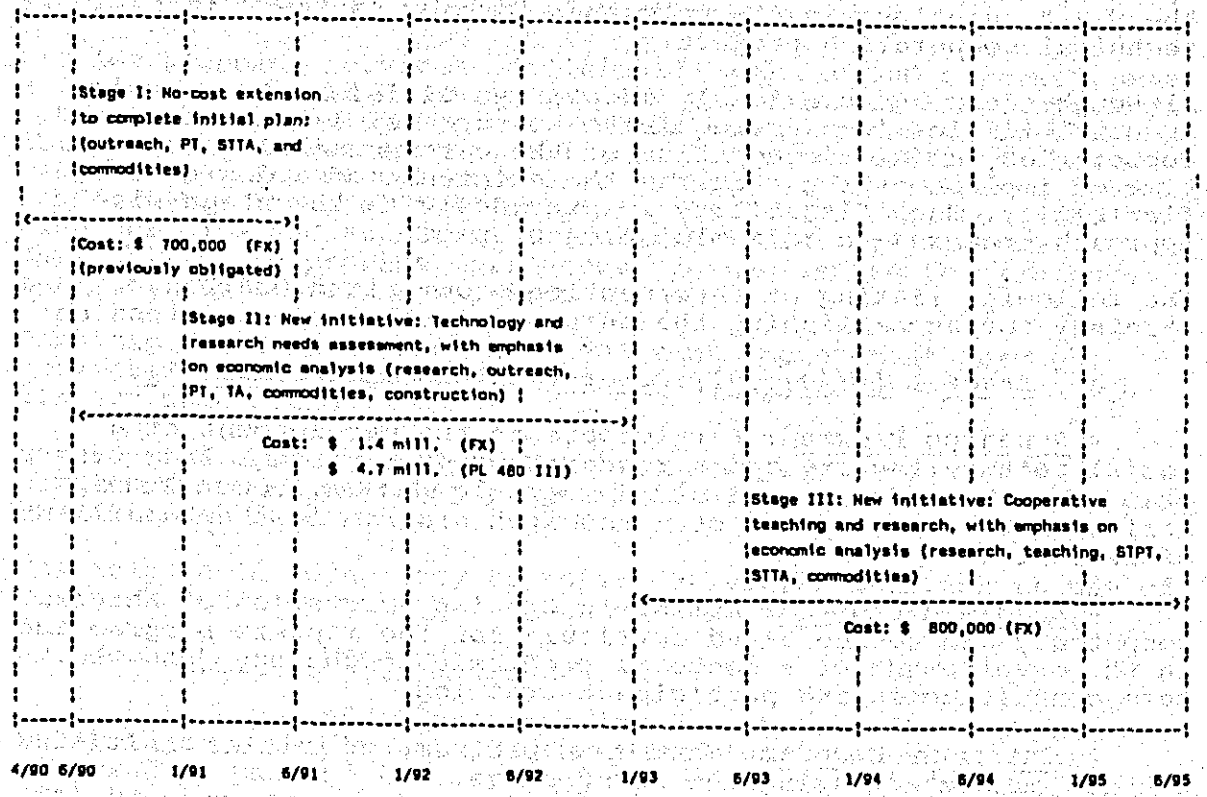


Figure 1. Sequencing of Activities and Funding

b. Programmatic: The major portion of the above program components will be the responsibility of and will be carried out by the Governments of Bangladesh and Japan. It is proposed that the U.S.A. continue in its role as a "junior partner" in this technical cooperation project.

Although clear and previously identified division of responsibilities is a prerequisite to successful tripartite cooperation, a full integration of these responsibilities at the time of implementation requires the existence of a degree of flexibility. Such flexibility is provided with the stage-wise approach proposed in this mini project paper.

The following listing of interventions summarizes USAID's strategy for accomplishing the purpose of the project extension:

aa. Stage I (4/90-6/91, no-cost extension of Phase I):

* Research Program: Participate in the development of a social science faculty and a research program through long-term participant training and short- and long-term consultancies. Assist in the development of a research program in the Department of Extension.

* Academic Program: Assist in the implementation of the new competency and course based curricula for the masters program and in the development of a doctoral program through long- and short-term consultancies and participant training.

* Outreach Program: Continue program activities initiated but not completed during the first phase:

Assist in the development of a research program for the Department of Agricultural Extension, including joint programs with CERDI, DEA and BAU.

Support the development of a strong teaching program in the Department of Agricultural Extension.

Assist in the establishment of a community oriented outreach program for IPSA.

Develop a community needs based extension program model and field testing in cooperation with the DAE.

Support the continued development of computing capability at IPSA, including desk top publishing.

Following the term of the extension advisor, the IPSA extension and outreach program will be continued by IPSA faculty and strengthened in mid-1991 by the return of a faculty member now in the U.S. on a Ph.D. program.

* Institutional Development and Support: Support the development of improved administrative structures and processes through participant training and short-term consultancies (including those for library administration).

Provide planning services, additional hardware and software, and a limited amount of training for the expansion of the computing centre. The Computing Centre established under the first phase of the project is functioning well. However, the centre is being used to capacity much of the time. This is the case even though students have been allowed only very limited access to date. With definite and substantial increase in faculty and the desirability to provide more access to the centre for students, the facility should be expanded.

Participate in facilities and equipment improvement through provision of computers and audio-visual equipment, and through library acquisitions.

Develop the administrative structure and guidelines for a comprehensive scholarship program for attracting and retaining qualified students.

Participate in technology transfer activities relating to use of research and computational equipment and administration.

bb. Stage II (7/90-12/92):

Subject to recommendations emerging from tripartite planning activities in May/June 1990, the following interventions are proposed as part of the strategy for USAID for Stage II of the IPSA Project, Phase II:

* Research Program: A new activity will be started based on the need in Bangladesh for an organized and continuing effort for technology assessment, with emphasis on economic analysis. The scope of such activity is broad and involves:

Evaluation ("reality check") of research forthcoming from a well functioning Bangladesh agricultural research system;

Supporting existing linkages and establishment of new ones with international and other research systems outside Bangladesh and evaluation of their research with respect to its potential usefulness in Bangladesh, and

Assessing future research needs to address emerging issues (such as sustainable agriculture, environmental degradation, biotechnology, toxicology, seed technology, integrated pest management, food processing). The primary outreach focus will be researchers, research administrators, educators (including extension agents), and policy makers. The role, either existing or potential, of the private sector in technology transfer will be explicitly recognized. Furthermore, analyses and recommendations will take account of the role and research needs of

off-farm institutions (e.g., banks, suppliers of agricultural inputs) in agricultural and rural development.

At present, there is no organization in Bangladesh which has identified resources and a long-term program in this essential area. Because of its stronger emphasis on research (relative to other agricultural educational institutions) and its spatial proximity to and close institutional relationships with major research and educational institutions, IPSA is in a unique position to play an important role in filling an emerging critical need which is not otherwise met.

Given its explicit charter in research, post-graduate teaching, as well as outreach, IPSA is in a position to conduct research on methodology in support of the proposed research outreach activity. In addition, IPSA provides the opportunity for imparting an appreciation of the need for research and technology assessment to its graduates, the future scientists, educators, and policy makers of Bangladesh. To assist IPSA in developing such a program, one long-term (for a two-year period) research outreach adviser (for a two-year period) is proposed. Additionally, 3 PM of short-term technical assistance are envisioned.

* Academic Program: One of the objectives of the USAID cooperation during Phase I of the Project was to assist in strengthening of the social science capability at IPSA. The scope of the objective was limited to assisting in the development of the Department of Agricultural Extension (and related programs) and the provision of two doctoral scholarships in agricultural economics and/or rural sociology. It is proposed that during the second phase of the Project USAID continue its support toward the development of a social science component at IPSA through participant training and 4 PM of short-term consultancies in agricultural economics.

The IPSA faculty has completed the development of a new curriculum and in the process has become sufficiently conversant with curriculum development to continue largely on its own. Also, interaction with the BAU faculty regarding curriculum development has grown, and it is expected to continue to do so throughout the remaining tenure (ending in June 1990) of the curriculum adviser. There will likely be some further need to make minor modifications in the future and for assistance in the implementation of the curriculum. Such necessary assistance can be provided by the long-term adviser, through short-term consultancies, or through a combination of these. It is, therefore, proposed that the position of the long-term curriculum adviser be terminated as per current schedule (June 1990). Future needed technical support will be provided through 3 PM of short-term technical assistance and additional existing resources (e.g.,.extension adviser) as indicated above.

*Institutional Support: At IPSA as well as at BAU drop-out rate during the masters program is high. This is primarily due to the fact that students will take jobs, as soon as offered, rather than complete their programs, particularly the thesis research portion of their programs. Some potentially qualified students, in particular female students, may not undertake postgraduate studies in the first place due to limited funds. It is judged that this factor will play a particularly important role for doctoral program students. Therefore, it is proposed that a comprehensive scholarship program be developed and endowed. The alternative to locally provided (adequate) scholarships are scholarships provided for overseas study or failure to train scientists at the doctoral level. Cost effectiveness of local scholarships is high, and it is beneficial to have more people trained locally at the doctoral level. Thus, a comprehensive scholarship program provides an attractive opportunity for investment in the improvement of human capital.

It is expected that library facilities will be substantially expanded through Japanese grant assistance. The U.S.A. should continue its support of library development through support of off-shore journal and book acquisitions and improvement of library management through short-term consultancies, establishment of linkages with nearby institutions (not only for the purpose of improving availability of library resources for IPSA but also to increase ease of access to the IPSA library resources for off-campus scientists), and computerization of the catalogue and reference services (the latter as part of the development of the computing centre).

At present, only a small fraction of IPSA faculty and staff can live on the IPSA campus due to limited facilities. The majority of the faculty has to commute, and some faculty spend up to four hours per day in the process. This is clearly wasteful and detrimental to the best use of trained manpower and existing IPSA facility. This situation will be exacerbated when a substantial number of new faculty will join IPSA in the near future. USAID can contribute to the alleviation of this problem by providing funds for the construction of residential quarters and associated facilities for IPSA faculty and staff.

cc. Stage III (1/91-12/92):

The program proposed for Stage III of the IPSA Project (Phase II) is based on the premise (a) that IPSA will have reached a substantial degree of maturity in its research, academic, and outreach programs, (b) that a strong institutional support base has been established, (c) that a number of long-term Japanese technical advisers will remain at IPSA during Stage III, and (d) that all long-term participant trainees will return to IPSA prior to or sometime during Stage III. Therefore, emphasis during Stage II will be on cooperative research, teaching, outreach and institutional support programs designed (a) to assist in shoring up remaining weak program areas, filling still existing gaps, and assisting those recently returned from their doctoral training

abroad to establish strong programs, and (b) to develop cooperative programs which link the institutions beyond the duration of the Project. Emphasis of the USAID contribution and effort will continue to be in the social sciences area. However, technical cooperation and institutional support may be provided in other areas upon tripartite consent. No additional long-term technic assistance is envisioned during this time period, and all long-term participant training will completed during or prior to this period.

Subject to recommendations emerging from tripartite planning activities in May/June 1990, the following interventions are proposed as part of the strategy for USAID for Stage III of the IPSA Project, Phase II:

* Research Program: Through short-term participant training and short-term technical assistance, develop cooperative research in the social sciences area with emphasis on environmental economics, technology assessment, and cost benefit analyses.

Provide short-term technical assistance in selected and limited areas outside the social sciences area as per tripartite consent.

* Academic Program: Provide technical assistance for the continued improvement of the curricula in all agricultural disciplines present at IPSA and at both the masters as well as doctoral levels.

Teach courses, or portions of courses, on a team-basis with a Bangladeshi counterpart, in subject matter areas which can not yet be adequately covered by existing staff.

* Outreach Program: Continue support of outreach programs with emphasis (a) on community based outreach in the vicinity of IPSA for feedback to IPSA's research and teaching program, and (b) on outreach programs to the research community and policy makers regarding research needs, research impact, and research priority setting.

* Institutional Support and Development: Strengthen library, computer, and audio-visual facilities and their utilization through short-term technical assistance, short-term participant training, and commodities.

c. Program Change from the First Phase: The program of the proposed IPSA Project Extension (IPSA Project, Phase II, 4/90-6/95) differs from Phase I (4/86-3/90) of the Project as follows:

* Increase emphasis on the development of a social science component, emphasizing agricultural economics, at IPSA.

* Greater emphasis on library management as opposed to acquisition of library holdings.

* Participate in construction (of residential quarters and school, K-8).

* Reduced emphasis on curriculum development; more emphasis on establishing an on-going scholarship program.

* Begin phase-out of technical cooperation in rural community based outreach and start-up of research community oriented outreach.

G. Outputs

The proposed project extension is for a five year period. To take into account existing technical and procedural constraints, a three stage programming and funding plan is proposed. Accordingly, outputs are below presented by stages (within Phase II of the Project). Only outputs which are to a substantial degree due to USAID cooperation are listed.

1. Stage I (4/90-6/91)

a. Research Program:

* A sustaining research program established in the Department of Extension.

* Additional faculty trained at the Ph.D. level to conduct more rigorous research (in extension education, genetics, and weed science).

* Faculty trained in the use of scientific equipment, including the use of computers.

b. Academic Program:

* New curriculum and examination system implemented, jointly with BAU, at the M.Sc. level in all of the presently existing Departments at IPSA.

* Doctoral program initiated in selected Departments.

* Students better trained for existing and anticipated job market.

* Postgraduate education available for women and financially deprived due to implementation of limited scholarship program.

c. Outreach Program:

* Department if Extension established, and teaching, research, and outreach programs functioning.

* Formal linkages established with other educational and research institutions, and with DAE.

* Community-based extension training laboratory established for student training, research, and policy guideline development.

d. Institutional Support:

* Library holdings improved and library use efficiency increased.

* Computer centre for faculty, staff and students established.

* Limited scholarship program, with emphasis to attract qualified women to IPSA, established and an administrative framework for an expanded scholarship program and alumni tracking established.

2. Stage II (7/90-12/92)

a. Research Program:

* A basic, but problem oriented, research program addressing major national, including environmental issues, implemented.

* Capability to conduct research needs assessments, with emphasis on economic analysis, established.

* Faculty trained in research planning and prioritization.

* Additional faculty trained at the Ph.D. level.

* All faculty trained in the use of scientific equipment, including the use of computers.

b. Academic Program:

* Agricultural economics program initiated.

* Postgraduate program available for women and financially deprived due to implementation of a comprehensive scholarship program.

c. Outreach Program:

* A policy oriented outreach program on research needs and prioritization established.

d. Institutional Support:

* Library holdings further expanded and library management improved.

* Comprehensive scholarship program with emphasis to attract qualified women to IPSA established.

* Alumni tracking system functioning.

* Residential housing and related community infra structures for 80 percent of faculty and staff constructed.

3. Stage III (1/93-6/95)

a. Research Program:
* A substantive social science research program with emphasis on agricultural economics implemented.

* Cooperative research (between IPSA and OSU) ongoing.

b. Academic Program:
* Social science program with emphasis on agricultural economics implemented.

* Faculty better trained in teaching and examination methodology.

* Graduates better trained to meet demands of job market.

c. Outreach Program:
* Neighboring community based outreach program functioning.

* Community oriented outreach program functioning.

d. Institutional Support:
* Library holdings further expanded and library management further improved.

* All faculty returned from doctoral training (total of 10 for Phases I & II).

H. Inputs (USAID)

Over the (5-year) life of the Project (Phase II), the proposed program calls for a total of 10 long-term (doctoral) participant trainees (five of them started during Phase I of the Project), 56 PM short-term participant training, 4 PY long-term technical assistance, and 3 PY short-term technical assistance. In addition, procurement of commodities (books, journals, computers, audio-visual equipment) as well as construction (of residential and related facilities) are proposed. The establishment of an endowed scholarship program is also envisioned.

Inputs for the three stages of the IPSA Project (Phase II) are summarized in Table 2.1.

Table 2.1. Summary of Inputs for the IPSA Project (Phase II), USAID Component

Input type	Stage I (4/90-6/91)	Stage II (7/90-12/92)	Stage III (1/93-6/95)	Total (Phase II) (4/90-6/95)
1. Techn. assistance				
a. Long-term	3 PM (cur. adv.) 15 PM (ext. adv.)	30 PM (resch.adv.)	-	48 PM
b. Short-term	4 PM (ext., libr., comptg., cur.)	8 PM (soc. sci., comptg., cur., libr., ext.)	24 PM (soc.sci., comptg., cur., libr., ext., other)	36 PM
2. Participant training				
a. Long-term	5 (doctoral) 1/	5 (doctoral) 2/	3/	10 4/
b. Short-term	8 PM (acad.&inst. mgmt., soc.sci.)	24 PM (acad.&inst. mgmt., soc.sci.)	24 PM (soc.sci., comptg., cur., libr., ext., other)	56 PM
3. Commodities	Journals, books, computing and audiov. equipmt.	Journals, books	Journals, books, computing and audiov. equipmt.	Journals, books, computing and audiov. equipmt.
4. Construction	---	Residential housing & community fac.	---	Residential housing & commty. fac.
5. Scholarships	Ltd.scholarship program (PL 480 III)	Endowment for comprehensive program (PL 480 III)	Scholarships from endwmnt.	Ltd. then comprehnsive scholarship program

1/ Of these, one is in genetics, one in weed science, one in extension, and two in agricultural economics. The first three are expected to complete their programs by the end of Stage I. The latter two are beginning their studies in 1990. Funding is from ARP II (extension).

2/ Begin studies (in the social sciences and/or statistics) early in Stage II, complete in Stage III.

3/ Completion of programs started in Stages I & II.

4/ Five of these started in Phase I, the other five in Stage II of Phase II.

III. FINANCIAL PLAN

The proposed total IPSA Project, Phase II, is for a five-year period beginning in July 1990. Due to various technical and procedural conditions on the USAID side, the USAID component of Phase II is presented in three stages. Stage I covers the period 4/90-6/91. Projected cost for this stage is USD 700,000 (see Table 3.1). This stage represents a no-cost extension of Phase I of the IPSA Project.

Table 3.1: Summary of Project Budget, USAID Component, by Stage

Item	Stage I 4/90-6/91	Stage II 7/90-12/92	Stage III 1/93-6/95	Total
		(thousand USD)		
Salaries	153	204	127	484
Benefits	50	72	52	174
Allowances	33	46	0	78
Logistic support	55	108	0	163
Travel,transport.	56	90	220	366
Supplies,equipmt.	4	39	8	51
Books,computers	65	50	103	218
Participants	143	550	60	753
Evaluation	0	25	25	50
Other direct	28	28	23	79
Indirect	114	203	171	489
Total	700	1,415	790	2,904

Stages II and III are new initiatives. Stage II overlaps Stage I, and it runs from 6/90 through 12/92. Projected costs are USD 1.4 million.

Stage III extends over the period 1/93-6/95, with projected costs at approximately USD 800,000. Over the life of the three stages, projected costs for the USAID component of the Project (Phase II) are USD 2.9 million.

Estimated costs to the three governments (BDG, Japan, and U.S.A.) for the overall project are approximately USD 17.6 million (see Table 3.2). Of this total amount, USD 9.5 million originate with the BDG, USD 5.2 million with Japan, and USD 2.9 million from the U.S.A. (The estimates for the funds from the BDG are based on the budgets as approved by the PP for Phase I of the Project. The budget estimates are adjusted for salary and allowance adjustments approved since. The Tripartite Evaluation Report served as the source for the Japan budget estimate. The entire budget is reported under "other" as no equivalent budget break-down is available).

Table 3.2: Summary Project Budget, by Government

Item	U.S.A.	BDG	GOJ	Total
		(thousand US dollars)		
Salaries	484	795	0	1,279
Benefits	174	0	0	174
Allowances	78	562	0	640
Logistic support	163	0	0	163
Travel,transport.	366	0	0	366
Supplies,equipmt.	51	0	0	51
Books,computers	218	0	0	218
Participants	753	0	0	753
Scholarships	0	500	0	500
Construction	0	4,213	0	4,213
Evaluation	50	0	0	50
Other direct	79	3,841	5,187	9,107
Indirect	488	0	0	488
Total	2,904	9,911 1/	5,187 1/	18,002

1/Equal to budget approved by the PP for Phase I of project, adjusted for salary and allowance adjustments approved since plus scholarship endowment and cost of construction of residential quarters and school.

2/Source: Tripartite Evaluation Report. The entire budget is reported under "other" as no equivalent budget breakdown is available.

Table 3.3: Summary Project Budget, Showing Foreign Exchange and Local Currency Expenditures

Item	U.S.A.(FX)		BDG		Total
	FX	LC	LC	PL 480 III	
	(thousand US dollars)				
Salaries	484	0	795	0	1,279
Benefits	174	0	0	0	174
Allowances	78	0	562	0	640
Logistic support	0	163	0	0	163
Travel,transport.	295	71	0	0	366
Supplies,equipmt.	9	42	0	0	51
Books,computers	179	39	0	0	218
Participants	753	0	0	0	753
Scholarships	0	0	0	500	500
Construction	0	0	0	4,213	4,213
Evaluation	40	10	0	0	50
Other direct	56	23	3,841	0	3,920
Indirect	410	78	0	0	488
Total	2,478	426	5,198	4,713	12,815

ANNEX A: PROGRESS AND ACCOMPLISHMENTS

Since the early 1980's, IPSA has developed into a vital functioning postgraduate institution in what was until then a rural forested area north of Dhaka. This facility, with close institutional links with the near-by facilities of the national agricultural research and training centers, BARI, BRRI, and CERDI provides an ideal location for advanced research training in Bangladesh. IPSA is now offering programs leading to M.Sc. degrees in the agricultural sciences.

Underpinning the overall success of IPSA are a number of specific accomplishments in the various ares essential to the development of a strong and well rounded institution of higher education. These specific accomplishments are briefly described below.

Facilities
Before high quality research and teaching could be launched at IPSA, it was necessary to provide the necessary physical infrastructure and associated equipment and instruments for field and laboratory research.

* **Computing capability:** A computing centre was constructed and equipped with five microcomputers and necessary peripheral equipment. The centre is used for faculty research and student training. The capability for desktop publishing is being developed. 1/

* **Field research laboratory:** As recently as 1986/87, there was no functioning experimental farm at IPSA as the farm was then under construction. Since then, two seasons of experiments conducted by faculty and students have been completed on the 8 ha experimental farm and a third season's experiments are under way.

* **Laboratories:** Laboratory facilities were remodeled and upgraded. State of the art equipment and instruments were installed, making IPSA the best equipped agricultural education and research facility in Bangladesh.

* **Library:** A good library is a prerequisite for a high quality postgraduate research and teaching. Consequently, IPSA has given emphasis to library development. At present, IPSA has a collection of about 70 foreign and nearly 20 domestic journal titles, each available for the past 10 years. The IPSA book collection includes about 2500 volumes. These collections available to faculty and students are viewed as the most up-to-date and complete collections in Bangladesh in the respective area of specialization.

1/ Underlined sections highlight results were USAID cooperation was of particular significance.

Cataloguing of all library holdings has been completed. Library management has been improved with respect to improving loan procedures and facilitating access to library holdings. Plans to computerize the collection and to develop an inter-library loan program are under development.

Institutional infrastructure

IPSA has made strong progress in institutionalizing an effective internal administrative structure. Through joint efforts between the three cooperating partners and their respective experiences, a functional governance and committee structure has evolved. This structure permits broad involvement of all concerned parties, specifies responsibility for initiating discussion and action, provides a process for coming to conclusions, and determines the party responsible for implementation. The system has demonstrated that it can cope with simple day to day issues as well as complex and sensitive ones.

Significant strides have been made toward institutionalizing effective and appropriate use and maintenance of facilities and equipment. To accomplish this, numerous training programs have been held, primarily by expatriate advisors. In the area of computer use alone, over fifteen shortcourses were held over the past fourteen months for faculty, staff, and students. The result is an effectively used computing centre with few maintenance and management problems. Similar statements hold true for other laboratories and facilities.

The external administration of IPSA has been streamlined and been made more effective. Placement of IPSA directly under the Ministry of Agriculture (MOA) and creation of its own Management Committee (equivalent to the syndicates of the universities) focused and simplified the decision process over the previous arrangement. Additional measures for improving the external administrative structure for IPSA are under active consideration.

Curriculum development

IPSA has taken the leadership in identifying and correcting weaknesses in higher agricultural education in Bangladesh (e.g. outdated curricula, irregular methods and timing of examinations). Because of IPSA's efforts, several high level committees in government and higher education are currently examining ways of improving the agricultural curricula. This evaluation will, not only, improve the educational program at IPSA but in all of Bangladesh's higher agricultural education.

A major problem for higher education in Bangladesh is the outdated curriculum. The IPSA faculty has taken the initiative to develop an entirely new, course based curriculum. The value of the proposed curriculum has been recognized by other institutions and is presently the basis for discussions between BAU and IPSA. There is a possibility that both institutions will jointly implement a new curriculum, based on IPSA's pioneering efforts, by June 1990.

Student training
Since 1985, IPSA has admitted and graduated 416 M.Sc. students. It is currently admitting the fifth class of students which will bring the total of M.Sc. students admitted to nearly 500. The efficiency ration of students to teachers at IPSA compares favorably to that at BAU, where there are a larger number of M.Sc. students but a proportionally much larger faculty. In contrast to other agricultural education institutions in Bangladesh, each faculty member at IPSA has an explicit research responsibility for which he is held accountable, in addition to teaching and advising.

The quality of training received by students at IPSA is demonstrably high. This is evidenced as follows:

* IPSA students perform above average in the M.Sc. and the civil service examinations.

* One major employer of M.Sc. graduates informed the Tripartite Evaluation Team that he judged the quality of training received at IPSA to be superior to that received at BAU.

* A major donor agency, after reviewing the programs at IPSA and BAU, specified in its grant document that M.Sc. studies funded under the grant must be carried out at IPSA.

* At least two regional educational institutions collected information about the IPSA program, attesting to a growing regional reputation of IPSA.

Research
All faculty have an explicit charge to conduct research. Accordingly, each of the eight departments has formulated a research program (see Annex A for more information about the IPSA research program). Plans for the coming year are subjected to a rigorous peer review each fall and research results are presented at a professional meeting with other agricultural scientists from Bangladesh in the early summer. Two such reviews have been held at IPSA to-date and these are expected to continue to be annual events.

A significant amount of research conducted at IPSA is in cooperation with scientists from BARI, BRRI, SRTI, BAU, Dhaka University, the Bangladesh Institute for Nuclear Agriculture (BINA), and others. This interinstitutional approach permits access for other scientists to the modern scientific equipment and excellent laboratory facilities available at IPSA, encourages collaborative research, and facilitates dissemination and utilization of research conducted at IPSA.

Outreach and extension
The long-term extension advisor (from the U.S.A.) arrived at IPSA in July 1989 to assist the youngest department, the Department of Agricultural Extension, to develop a research and teaching

program. The advisor will also assist in the development of the outreach program. Since his arrival, a research program has been developed and implemented and an active outreach program in the community is planned.

IPSA has conducted outreach programs on an informal basis, such as annual research reviews with agricultural scientists from off-campus, meetings with BAU faculty and others on agricultural curricula, and conduct of professional society meetings on the campus.

Scholarships and financial assistance to students
IPSA has explored various alternatives for the development of a comprehensive scholarship program to attract the most qualified male and female students and make it possible for them to complete their programs. As part of this effort, IPSA has secured ten scholarships (from PL 480 funds). IPSA took the initiative to identify this opportunity and develop the implementation procedures. The program gives primary emphasis to qualified female students. The first set of scholarships under this program was recently awarded, three of the ten awarded to women.

Faculty training and development
On-going professional improvement and upgrading of faculty is viewed as an important factor for continued high caliber institutional performance. Therefore, considerable attention is paid to faculty training and development. In addition to on-campus seminars, participation in professional meetings, and interaction with other scientists, professional improvement takes the form of short- and long-term training overseas.

At present, three faculty members are in doctoral training in Japan, and three have also been placed in doctoral training in the U.S.A. An additional two have been selected for doctoral training there, and lack only the GO before they can depart for their program. The IPSA librarian and IPSA engineer have undertaken short-term training in the U.S.A. in library and institutional management, respectively. Three faculty members have completed post-doctoral training in Japan, and three more are in various stages of completion of their post-doctoral training. One additional faculty member will begin training in Japan prior to the end of 1989.

In order to permit regional dissemination of research results and to permit exposure of IPSA scientist to the scientific community of the region, JICA and USAID each established a modest regional travel scholarship for IPSA scientists. One scholarship was recently used to present IPSA research results at an international conference in Thailand.

The IPSA faculty has recently completed preparatory work to publish the "Annals of Bangladesh Agriculture," the first issue to appear in spring of 1990. Although sponsored by IPSA, articles on agricultural research, teaching, and outreach issues

in Bangladesh will be accepted from scientists in other institutions. The Japanese Team Leader and the U.S. long term advisors participated in the planning activities and are members of the Board of Directors.

Technical support
While the U.S. side has provided only one short-time consultancy to IPSA to-date (the next planned for January/February 1990), numerous short-term consultancies have been provided through JICA. By and large, these short-term consultants were specialists in their respective scientific fields or specialists in facilities and equipment. Consequently, they have worked with faculty on well defined topics, given faculty seminars, and presented guest lectures. These activities have contributed greatly to the quality of research, teaching, faculty improvement, and research output.

Since the beginning of technical cooperation project in 1985, there have been from three to five long-term Japanese cooperators at IPSA. These include scientists, the Team Leader, and the Project Coordinator. On the U.S. side, a long-term advisor arrived at IPSA in July 1986 and was joined by another long-term advisor in July 1989. While these advisors have their respective specific responsibilities, they have cooperated and assisted in other activities as requested by IPSA administration or faculty in order to enhance the overall development of IPSA.

Institutional linkages
During the past two years progress has been made in formalizing and expanding formal ties with other agricultural research and education institutions. Arrangements for utilizing scientists from other institutions as teachers and thesis supervisors at IPSA have been clarified and formalized. The IPSA Director is now formally a member of some key BAU committees, and some BAU/IPSA joint committees have been formed.

International cooperation
The tripartite relationship under the IPSA project is unique amongst technical cooperation projects. While tripartite cooperation, like any more complex organization, is not without cost, the cooperative effort under the IPSA project is a success in the opinion of all who evaluated the arrangement. The complementarity of the activities, their successful integration, and the resulting synergistic effects has resulted in a more successful project than would have been the case otherwise.

ANNEX B: IPSA RESEARCH PROGRAM

IPSA has an explicit charge to conduct basic and applied research. This research program is of particular importance as IPSA is a postgraduate institution and a high quality postgraduate training and education program cannot be established and maintained without significant research activity, both on the part of the faculty as well as the students. Accordingly, a substantial amount of research is being carried out at IPSA.

The main research themes in each department are as follows:

Agricultural Extension Education

1. Rapid Rural Assessment (RRA) of constraints to agricultural development in selected villages
2. Effectiveness of alternative extension methods for removing constraints to agricultural development

Agronomy

1. Ecophysiological aspects of crop yield
2. Manipulation of soil and physical environment for increasing crop yield

Crop Botany

1. Varietal improvement of Kakrol (Momordica dioica)
2. Varietal improvement of Potal (Trichosanthes dioica)

Entomology

1. Ecological studies of cowpea borers and evaluation of yield loss of cowpea due to cowpea borers
2. Role of honey bee in seed production

Genetics and Plant Breeding

1. Screening of Bangladeshi rice varieties for endosperm storage protein by SDS-PAGE analysis
2. Treatment of rice varieties with MNU (N-Methyl-N-Nitroso-Urea)

Horticulture

1. Regional trials of lablab beans
2. Rainy season performance of 15 F1 tomatoes obtained by crossing wild and cultivated ones during the winter of 1989

Plant Pathology

1. Study of nematode parasites on rice, sugarcane and groundnut
2. Studies on Sclerotium spp.

Soil Science

1. Effects of different inoculum on the growth and nitrogen fixing ability of cowpea
2. Physical properties of soils of main upland crop areas in Bangladesh

Planning of research at IPSA is formalized to the extent that all research plans are discussed with and reviewed by a meeting of the IPSA Teachers' (Scientists') Council before experiments are commenced. Also, regular reviews of research findings are being instituted. These are attended by all IPSA faculty as well as by scientists from other research and educational institutions. The first such review was held in June of 1987. The next review was held in June, 1989. It is the intent to have annual research reviews thereafter.

Research results are also being disseminated to other scientists and extension teachers through publication and through presentations at professional meetings. A number of these publications and presentations are joint between Bangladesh and Japanese scientists, and indications are that an impact on the type and quality of agricultural research in Bangladesh has already been achieved.

In order to provide and enhance international dissemination of IPSA research results and to provide opportunity for international exposure to IPSA staff, travel grants for participation in professional meetings have been provided by JICA and USAID. A faculty member of the Agronomy Department was awarded such a grant and has attended the International Mungbean Seminar held in Bangkok in 1987.

JICA and USAID have provided a substantial amount of sophisticated equipment to IPSA for the conduct of high-level research work. Benefits from this equipment can only accrue if the equipment is properly used and properly maintained. Accordingly, training programs in the use and maintenance of the available equipment were implemented. Expatriates played an important role in the following training programs:

1. A course was held on the operation and use of the electron microscopes.
2. Several short-courses were held to train faculty in the use of various types of sophisticated laboratory equipment.
3. A substantial amount of one-to-one training in the use of specialized laboratory equipment has taken place.
4. Short-courses on the use of micro-computers were conducted, including five courses on Wordstar, two on Lotus, and one on MStat.

ANNEX C: TRIPARTITE COOPERATION

The first phase of the IPSA Project involves a joint effort supported by the GOJ, United States Government (USG) and the BDG. Reportedly the IPSA Project is the only existing project in which tripartite cooperation (as compared to tripartite parallel efforts) is practiced. It may be too early to make a complete assessment of this pioneering arrangement, but a preliminary assessment permits the conclusion that the tripartite cooperation is successful. This conclusion is based on the fact that there is evidence that the IPSA Project, as a result of tripartite cooperation, benefited in ways which it would not have benefited had there been only bipartite cooperation. This is due to budget limitations, various and differing institutional constraints facing donors, and comparative advantage amongst the donors.

Clearly, all projects, regardless of source of funding eventually face budget limitations. By pooling resources from the GOB and two donors in a fully integrated manner, the IPSA Project not only had more funds than if only one donor had been involved, but the funds are committed to a fully integrated program which enhances the effectiveness of the available funds with respect to development objectives.

Tripartite cooperation also made it possible to better cope with institutional constraints and to emphasize comparative advantage. Commodity procurement is a case in point. Import of machinery and equipment from Japan rather than the U.S.A. is more practical under the current institutional setting; but the situation is the reverse when it comes to books and journals (in English) and computer software.

As structured under the IPSA Project, there is considerable exchange with respect to management procedures and philosophy between all cooperating partners. The result is that ideas come from a rich and diverse cultural background, and indications are that this is of benefit to IPSA as it develops its own procedures and philosophy.

Tripartite cooperation will not solve all problems and remove all bottlenecks. Indeed, it may have its own unique drawbacks. For instance, tripartite cooperation, if it is to be successful, will require more discussion and more meetings than bipartite cooperation if concerns and views of all partners are to be taken into account adequately. However, in the case of the IPSA Project whatever drawbacks exist with tripartite cooperation, they appear to be easily outweighed by its advantages.

The Tripartite Evaluation Team (TET) judged the unique tripartite cooperation at IPSA to be successful and has recommended that it continue throughout the duration of the project extension. The Program Review Committee (PRC) of USAID/Dhaka concurs with the Evaluation Team regarding the value of the experience at IPSA as well as with respect to the potential usefulness of that experience for a model elsewhere. However, the PRC is of the

opinion that tripartite cooperation must be viewed from a more strategic perspective, both as regards activities in Bangladesh as well as internationally.

In Bangladesh, it is essential for the two donors to take a comprehensive view rather than an IPSA or BAU view only. Given USAID's strong commitment of some duration to the agricultural research system and its interest in potential support to BAU, and given the known difficulties in relationships between BAU and other parts of the agricultural support system (including IPSA and the NARS), there is clearly a danger that donors will be drawn into a position of becoming advocates for their respective "clients" rather than supporters of a more comprehensive solution. The important issue is not that the donors might be inclined to work against each others interests but that they might fail to support more comprehensive approaches when such comprehensive approaches would be in the best interest of Bangladesh. Therefore, the donors and the government of Bangladesh should view tripartite cooperation in the broader framework of more comprehensive solutions to problems of agricultural research and education. Tripartite cooperation at particular institutions and on particular projects should provide the forum for moving support beyond the anchor institutions towards more comprehensive cooperation and solutions.

Beyond Bangladesh, cooperation between Japan and the U.S.A. clearly enjoys strong political support in both countries. This political support has its roots in the conviction that better cooperation between the two countries, better understanding of the respective cultures, histories, and resulting approaches to problem solution, and complementary use of resources will be beneficial not only to the two countries but other countries as well.

When tripartite cooperation was initially discussed as early as 1984 at the highest levels in Bangladesh, Japan, and the U.S.A., it was with a strategic vision in mind. This vision continues to be relevant."

ANNEX D: BUDGET INFORMATION

Summary budget information is provided in Tables 3.1-3.3. This Annex provides additional budget information.

Annex Table D.1: Foreign Exchange Budget, by Major Category, Stage, and Type of Expenditure

	Stage I 3-6/91			Stage II 7/90-12/92			Stage III 1/93-6/95			Total
	Total	FX	LC	Total	FX	LC	Total	FX	LC	
	(thousand US dollars)									
Salaries	153	153	0	204	204	0	127	127	0	484
Benefits	49	49	0	71	71	0	52	52	0	173
Allowances	32	32	0	45	45	0	0	0	0	78
Logistic support	55	0	55	108		108	0	0	0	163
Travel,transport.	55	33	22	90	67	23	220	195	25	365
Supplies,equipmt.	4	4	0	39	2	37	8	3	5	51
Books,computers	65	44	21	50	43	7	103	92	11	218
Participants	143	143	0	550	550	0	60	60	0	753
Evaluation	0	0	0	25	20	5	25	20	5	50
Other direct	28	19	9	28	20	8	23	17	6	79
Indirect	114	94	20	203	155	47	171	160	10	488
Total	700	572	127	1,415	1,179	235	790	726	62	2,904

Note: Space and cost estimates provided in Tables D.2-3 are based on the results of the "Needs Assessment for the Establishment of a Residential Infrastructure at the Institute of Postgraduate Studies in Agriculture," March 1990.

Table D.2: Cost Estimate for Constructing Residential Quarters at IPSA
(estimated on the basis of 750 Tk/sqft and 1 USD = 32 Tk)

Housing type by size (sqft)	Number of units	Cost per unit (Lakh Tk)	Cost per unit (USD)	Cost per housing type (Lakh Tk)	Cost per housing type (USD)
2,000	2	15	46,875	30	93,750
1,500	8	11	35,156	90	281,250
1,300	40	10	30,469	390	1,218,750
900	48	7	21,094	324	1,012,500
700	72	5	16,406	378	1,181,250
Totals	170	---	---	1,212	3,787,500

Table D.3: Cost Estimate for Constructing a School (K-8) at IPSA
(estimated on the basis of 750 Tk/sqft and 1 USD = 32 Tk)

Facility type	Size (sqft)	of units	Cost per housing type (Lakh Tk)	Cost per housing type (USD)
Class room, A-type	1,000	10	70	219
Class room, B-type	625	10	43	134
Laboratory	800	2	11	35
Office	300	1	2	6
Common room, A-type	600	1	4	12
Common room, B-type	400	1	3	9
Common room, C-type	300	1	2	6
Common room, D-type	80	4	2	6
Totals		30	137	427

Table D.4: Budget Estimates for an Endowed Scholarship Fund, IPSA, 7 Years 1/

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7
FUNDS AVAILABLE, BEG.OF YEAR (Lakh Tk)	160	175	184	188	189	188	187
FUNDS AVAILABLE, BEG.OF YEAR (USD)	500,000	548,031	574,057	587,043	589,359	587,288	583,386
EARNINGS RATE (%)	13	13	13	13	13	13	13
INFLATION ADJSTMNT.(%)	0	0	0	0	0	0	0
MONTHLY SCHLRSHP. (Tk) FOR M.SC. STUDENTS	1,200	1,200	1,200	1,200	1,200	1,200	1,200
MONTHLY SCHLRSHP. (Tk) FOR PH.D. STUDENTS	3,000	3,000	3,000	3,000	3,000	3,000	3,000
RESEARCH ALLOWANCE(Tk) FOR M.SC. STUDENTS	15,000	15,000	15,000	15,000	15,000	15,000	15,000
RESEARCH ALLOWANCE(Tk) FOR PH.D. STUDENTS	20,000	20,000	20,000	20,000	20,000	20,000	20,000
THESIS ALLOWANCE (Tk) FOR M.SC. STUDENTS	2,500	2,500	2,500	2,500	2,500	2,500	2,500
THESIS ALLOWANCE (Tk) FOR PH.D. STUDENTS	3,100	3,100	3,100	3,100	3,100	3,100	3,100
NUMBER OF M.SC. STUDENTS ADMITTED	20	20	20	20	20	20	20
NUMBER OF PH.D. STUDENTS ADMITTED	5	10	10	10	10	10	10

(continued on next page)

1/ Although budget estimates are presented here for seven years only, they have been calculated for 20 years. The endowment will sustain itself for that period of time at stated scholarship levels.

Table D.4:(contd) Budget Estimates for and Endowed Scholarship Fund, IPSA, 10 Years

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7
NUMBER OF M.SC. STUDENTS IN PROGRAM	20	30	30	30	30	30	30
NUMBER OF PH.D STUDENTS IN PROGRAM	5	15	25	30	30	30	30
TOTAL AMOUNT OF M.SC. SCHLRSHPS. PAID OUT	3	4	4	4	4	4	4
TOTAL AMOUNT OF PH.D. SCHLRSHPS. PAID OUT	2	5	9	11	11	11	11
TOTAL AMOUNT OF M.SC. RESEARCH PAID OUT	0	3	3	3	3	3	3
TOTAL AMOUNT OF PH.D. RESEARCH PAID OUT	0	1	2	4	6	6	6
TOTAL AMOUNT OF M.SC. THESIS PAID OUT	0	1	1	1	1	1	1
TOTAL AMOUNT OF PH.D. THESIS PAID OUT	0	0	15,500	31,000	31,000	31,000	31,000
RECRUITING AND TRACKING	75,000	75,000	75,000	75,000	75,000	75,000	75,000
TOTAL AMOUNT PAID OUT (Lakh Tk)	5	14	20	24	25	26	26
EARNINGS (Lakh Tk)	21	23	24	24	25	24	24
FUNDS AVAILABLE, END OF YEAR (Lakh Tk)	175	184	188	189	188	187	185
FUNDS AVAILABLE, END OF YEAR (USD)	548,031	574,057	587,043	589,359	587,288	583,386	578,976

ANNEX E: SCHOLARSHIPS FOR EXCELLENCE

A. Situation and Proposal

At IPSA as well as at BAU drop-out rate during the masters program is high. THis is primarily due to the fact that students will take jobs, as soon as offered, rather than complete their programs. Some potentially qualified students, in particular female students, may not undertake postgraduate studies in the first place due to limited and inadequate funds. It is judged that this factor plays a particularly important role for doctoral program students and helps explain why to-date there is no viable doctoral program in the agricultural sciences in Bangladesh.

The alternative to locally provided scholarships of adequate magnitude and consistent availability are scholarships provided for overseas study or failure to train scientists at the doctoral level.

Cost effectiveness of locally provided scholarships is high. It is estimated that an investment equivalent to five fellowships for doctoral studies in the U.S.A. will permit the establishment of an endowment which will provide scholarships for 20 new M.Sc. and 10 new Ph.D. students annually for an indefinite period of time for study in Bangladesh. In addition, training more scientists locally at the doctoral level is in the best interest of enhancing research productivity in Bangladesh. Thus, implementation of a comprehensive scholarship program, using PL 480 III funds, provides an attractive investment in the improvement of human capital.

It is proposed that under the IPSA Project Extension an endowment be established, using PL 480 III funds, which will annually fund approximately 20 new M.Sc. and 10 new Ph.D. scholarships annually. The endowment will fund this number of scholarships for an indefinite period of time, although the rate of inflation and concomitant increases in scholarship rates will reduce the number of years over which the endowment can sustain scholarships (see Annex D for budget details and key assumptions). It is further proposed that the scholarships be so structured as to give preference to qualified female students.

IPSA already has experience in the administration of scholarships which are designed to attract and retain superior students, in particular qualified female students (see "B. Present IPSA Scholarship Policies and Procedures" below). This experience and established policies and procedures will serve as the basis for developing and implementing a more comprehensive scholarship program. Among other aspects, it is proposed that the comprehensive scholarship program contain an explicitly identified and budgeted activity for seeking out qualified female candidates and for tracking all graduates.

B. Present IPSA Scholarship Policies and Procedures

May 7, 1988

(Revised October15, 1989)

(Revised October 15, 1989)

INSTITUTE OF POSTGRADUATE STUDIES IN AGRICULTURE
(IPSA)

POLICIES AND PROCEDURES
for
SCHOLARSHIPS FOR EXCELLENCE

1.PURPOSE

The purpose of this scholarship program is to attract highly qualified students, in particular highly qualified female students, to IPSA's M.Sc. programs and to enable these students, once matriculated at IPSA, to give full attention to their studies and their research.

II. DESCRIPTION OF SCHOLARSHIPS

The scholarships provide the students with Tk 1,200 per month. The scholarship will initially be granted for 12 months, subject to the conditions stated under "V. Continued Performance". The scholarship may be extended for a maximum of additional six (6) months depending on the student's past progress and performance, the nature of his thesis research, as well as on other factors. Any extension of the scholarship beyond the initial twelve months needs to be approved by the selection committee. In addition to the monthly payments to the students, Tk 15,000 will be available to the scholarship holder's Department for research costs and TK 2,500 for thesis preparation. The monthly sum of TK 1,200 will be paid directly to the student; funds for research expenditures and thesis preparation (total of Tk. 17,500) will be disbursed by the Institute directly as costs arise. These funds will not be paid out to the student.

The number of scholarships awarded will vary from year to year, depending on availability of funds and qualifications of students. In keeping with the principle of recognizing and rewarding superior performance, scholarships will not be awarded unless there are qualified students.

III. QUALIFICATION REQUIREMENTS

A bachelors degree in any of the fields in which the Institute provides postgraduate degree training is the basic educational requirement. Students with a "third class/division" in their bachelors program are not eligible. In addition, the students must have a minimum of eleven (11) qualifying points, calculated as follows:

Certificate/degree	Points for division/class		
	1st	2nd	3rd
S.S.C.	5	3	2
H.S.C.	5	3	2
Bachelor	5	3	-

Candidates who have completed their degree examination and are awaiting results are eligible, provided they have at least eight (8) points from previous examinations.

It is desirable, but not essential, that students who wish to be considered for a scholarship submit two letters of recommendations from their former university teachers or from their employers.

These scholarships may be held in addition to continuing salaries paid to in-service students or in addition to stipends. However, they cannot be held jointly with another scholarship, regardless of whether such other scholarship is awarded through IPSA or another agency.

Foreign students are not eligible to apply for this scholarship.

IV. SELECTION PROCEDURE

1. There will be a public announcement of available scholarships and qualification criteria. The announcement will be made two months prior to the closing date for application for admission to the Institute's M.Sc. program.

2. All students who meet the minimum qualification requirements (see "II. QUALIFICATION REQUIREMENTS") will automatically be considered.

3. Selection of the scholarship recipients will be by a selection committee with the following membership:

a. Executive Vice Chairman, BARC (chairman),
b. Director General, BARI
c. Director, IPSA
d. Director (Training), BARC
e. Donor representative

4. Female students who meet qualification requirements will be awarded scholarships first. If there are more qualifying female students than there are scholarships, the selection committee will select the recipients based on qualifying points, professional experience, letters or recommendations, and other relevant information.

5. If there are fewer qualifying female students than there are scholarships, the scholarship recipients will be selected by the committee from the remaining applicants based on number of qualifying points, professional experience, letters of recommendations, and other relevant information.

6. The scholarship recipients will be promptly notified in writing.

V. CONTINUING PERFORMANCE

Scholarship holders must demonstrate adequate continuing performance in order to remain eligible. They must receive at least passing grades/marks, must attend at least 85 percent of their classes, and must make satisfactory, progress in their thesis research. The scholarship holders advisors must, on a monthly basis, certify in writing to the Director, IPSA, that the scholarship holder meets the aforementioned minimum criteria for continuing performance. If these minimum criteria are not met, the student will lose his/her scholarship, and the scholarship funds so released may be awarded to another student of the class for the remainder of the course (or up to the end of the initial 12 months - whichever comes first), following the procedures specified in IV.3-6 above.

VI. REVISIONS

The Institute reserves the right to modify and update from time to time the guidelines, procedures and purposes which govern the management of scholarships at IPSA. Any modifications are subject to prior approval by BARC.

ANNEX F: THE NEED FOR RESIDENTIAL HOUSING

In its **RECOMMENDATIONS FOR IMMEDIATE RESOLUTION AND ACTION** the Tripartite Evaluation Team (TET) offers recommendations on three issues. One of these issues relates to residential housing, and the TET's recommendation is as follows:

> **The rationale for provision of residential housing has been emphasized in a number of sections in this report [the Tripartite Evaluation Report]. Steps required for resolving this matter appear to be indicated and must be placed on the agenda of the Management Committee for action. The Management Committee should be able to push forward the process for resolution and implementation.**

While the TET identifies the construction of residential housing as one of three high priority items for immediate resolution and action, the critical need for residential housing at IPSA has been previously identified in key documents and at key meetings. For instance, the Project Proforma authorizes the construction of 170 units of residential housing. At a Coordinating Committee Meeting on December 27, 1988, with the Secretary of Agriculture in the chair, the need for residential housing was again confirmed and agreement was reached that the three Governments would jointly work towards a solution. At that meeting it was also indicated that, if the BDG would wish to do so, PL 480 III funds could be utilized for the construction of residential housing at IPSA. BDG government officials present at the meeting indicated their support for this approach. Further, at the wrap-up meeting of the tripartite evaluation on July 24, 1989, the Secretary of Agriculture accepted all recommendations of the TET, including the recommendation for immediate action with respect to construction of residential housing.

The need for construction of residential housing is, indeed, critical, as it is a significant part of the solution to another high priority action item, namely, the filling of the vacant positions at IPSA. To fill these vacant positions is, along with construction of residential housing, one of the three items recommended for immediate action. These two items are highly interdependent, as the Institute's ability to fill the vacant positions in a timely and effective manner depends to a significant degree on the availability of residential housing for the faculty and staff hired to IPSA. There is no adequate alternative for removal of the bottleneck created by lack of residential housing at IPSA.

At present, less than one third of all professors, officers, and staff live on or near the IPSA campus, and only 14 percent of the professors do so. Almost all staff living at IPSA are staying at

temporary housing. Fortyone percent of the professors and thirty percent of the staff are commuting between Dhaka and IPSA daily and are spending an average of four hours per day enroute. Unless residential quarters are constructed at IPSA, 78 percent of the professors and 86 percent of the staff will be commuting between Dhaka and IPSA when all vacancies at IPSA are filled.

Commuting between Dhaka and IPSA is wasteful in several ways. The long commuting times drain the energy of faculty and staff and detract from the faculty's major responsibility. The faculty's inability to observe flexible hours for research and teaching due to fixed bus schedules impoverishes academic life at IPSA and diminishes research performance. The cost of providing transportation is high (it is estimated at over 3 lakh Tk per year for a medium sized bus), and the resources used for transportation are not available for support of teaching, research, and outreach programs at IPSA.

In addition to the burden of long hours in route for many faculty and staff, IPSA's employees who cannot find accommodations at IPSA carry the burden of high rents in Dhaka. It is reported that it is not uncommon for employees to spend up to 60 percent of their monthly salaries on rent.

In line with the recommendations in the IPSA Project Proforma (PP) it is proposed that 170 residential units be constructed at IPSA under this Project Extension. Construction of these units will provide housing for 80 percent of the faculty, officers, and staff currently sanctioned for IPSA. The proposal is not only in line with the recommendations of the PP, but also accounts for possible vacancies and the desire on the part of some employees to live off-campus. It does not, however, take into consideration the possibility of growth in positions at IPSA over time. Finally, the proposal is in line with existing ratios of housing units to sanctioned positions at nearby institutes (BARI, BRRI), although it should be noted that additional units are either under construction or consideration at those institutes.

The above points are sufficient to indicate the fundamental and critical need for residential housing at IPSA. However, in order to provide more detailed justification and to provide guidance for an architectural design team, it is proposed that a needs survey (to be completed on or around March 1, 1990) be undertaken. Such a needs survey should take into account the infra structure (post office, bank, shops, community centre, school, etc.) needed to complement residential housing and should indicate alternatives for creating such infra structure. 1/

1/ Efforts are already underway for the development of such infra structure. Some of these efforts have been productive and are expected to result in the establishment of a bank and a post office at IPSA in the near future.

ANNEX G: RECOMMENDATIONS AND LETTERS PERTAINING TO PROJECT EXTENSION

The following items are included in this Annex:

a. Minutes of the Meeting of the Coordination Committee (December 27, 1988);
b. Key recommendations by the Tripartite Evaluation Team;
c. Minutes of the Wrap-Up Session of the Tripartite Evaluation;
d. Letter from the Ministry of Agriculture to the External Resources Division of the Ministry of Finance, requesting that the latter seek cooperation of the Governments of Japan and the U.S.A. in the extension of the IPSA Project (in Bengali);
e. English translation of the above letter;
f. Letter (dated December 28, 1989) from the Embassy of Japan to the External Resources Division of the Ministry of Finance, BDG, regarding - among other things - construction of staff housing; and
g. Minutes of a meeting between the Embassy of Japan and USAID.
h. Letter from Dr. S. H. Khan, Director, IPSA, to Ms. P. Boughton, Director, USAID/Dhaka, supporting the MOA decision to extend the IPSA Project.

MINUTES OF THE MEETING OF THE COORDINATION COMMITTEE

HELD ON DECEMBER 27, 1988

A meeting of the Coordination Committee on IFSA was held on December 27, 1988, at 11:30 a.m. in the conference room of Ministry of Agriculture under the Chairmanship of Mr. Abul Hashem, Additional Secretary, Agriculture Division. The list of participants is attached as Annex A.

At the request of the Chairman, Dr. S. H. Khan, Director, IFSA, initiated discussion referring to various issues related to the development of IFSA. He also informed the Committee of the actions already taken by the Ministry separating IFSA from BARI, setting up a Management Committee, and authorizing the Director, IFSA, with the necessary financial and administrative powers for smooth functioning of IFSA. Agendawise (cf. "Working Paper for the Coordination Committee Meeting, December 27, 1988") discussions and decisions are as follows:

i) Academic Autonomy:

It was decided to explore further the possibility of improving relationships with BAU and to obtain required flexibility so very essential for improvement of the standard of education at IFSA.

ii) Curriculum Development:

The Coordination Committee recommended that a draft of the proposed revised curriculum for IFSA be distributed to Heads of research, extension, and educational Institutions, including BAU, as well as to other potentially interested parties with a request for their comments and suggestions. The Director, IFSA, will subsequently compile the responses received and will present them to the Management Committee for consideration and further action.

iii) Enrollment of Students:

The enrollment of MS and PhD level students at IFSA will be limited and previous decisions of the Coordination Committee and PEC will be strictly adhered to.

iv) Procurement of Equipment and Machinery:

As per decision of the last Coordination Committte meeting, IPSA will provide BARC and Planning Commission with a list of equipment and machinery required (but not yet procured) with the request to find out if any or some of these could be obtained from Institutes where these are not being utilized.

v) Construction Activities at IPSA:

The urgent need for construction of residential quarters, a library building, and other physical infrastructures was pointed out. It was further indicated that construction of residential facilities is the most crucial of the construction needs.

Considering that GOB funds for construction are very limited, the possibility of obtaining funds for construction from the GOJ as well as the US government was discussed. The Committee was informed that the GOJ is considering the proposal of the GOB for providing funds for construction. However, decisions regarding this matter cannot be made until after March, 1989. It was also pointed out that PL-480 funds can be used for construction of residential quarters if the GOB wishes to do so and if the GOJ can provide the design survey and supervision of construction. The Director, IPSA, will send a proposal to MOA for obtaining PL-480 funds for construction of residential quarters.

vi) Land Development:

Since acquisition/purchase of private pocket lands is a prerequisite for any land development effort and since funds so far have been short of requirements, the Director, IPSA, should submit a proposal for acquisition of pocketland commensurate with fund availability as soon as possible.

vii) Extension of Technical Cooperation Projects:

General consensus was expressed about the need to extend the technical cooperation projects beyond their current termination dates (April 1990 for the USAID portion, July 1990 for the JICA portion). However, a joint (tripartite) evaluation of the IPSA Project will be undertaken (in June/July 1989) prior to making a formal determination regarding extension of the technical cooperation projects as well as regarding the specific nature and quantum of the extension.

viii) Equipment Repair and Maintenance:

The critical importance of equipment maintenance and repair was recognized by all members of the Committee. Since this problem is of a general nature, a general facility may be established to cater to such requirements of various agricultural research and educational institutions. PARC may take the initiative in this regard and submit a TAPP to the Planning Commission through the Ministry of Agriculture.

Because of the importance of this matter to IFSA, it is expected that this issue will be raised at the upcoming JICA Team Leaders' meeting in January, 1989.

A partial solution to the maintenance and repair problem may also be to evaluate the possibility of in-country procurement so as to benefit from after-sale and warranty service.

ix) Customs Duty Tax Exempt Status for IFSA:

The Director, IFSA, will initiate a proposal to the MOA to obtain the tax exempt status as is given to other research and educational Institutions.

x) Establishment of Scholarships at IFSA:

The Director, IFSA, was requested to initiate a proposal to the IFSA Management Committee, giving funding status, source and requirement of additional funds, if any, for a comprehensive scholarship program.

xi) Clearance of Experts:

The Director, IFSA, will be an ex officio member of the Selection Committee on those occasions when experts for IFSA are under consideration. MOA will take necessary steps in this regard.

xii) Ordinance for IFSA:

The Coordination Committee provided its concurrence to the Management Committee's request to the Director, IFSA, that an ordinance be prepared for IFSA as per guidelines provided by the PEC.

(iii) BAU Membership on the Coordination Committee:

In order to make the Coordination Committee more effective, a member (preferably the Dean of Faculty of Agriculture) will be drawn from BAU into the Coordination Committee. MOA will take necessary action in this respect.

The Meeting ended with a vote of thanks from the Chair.

sd/- 11/1/89
(Abul Hashem)
Additional Secretary
Agriculture Division

Government of the People's Republic of Bangladesh
Ministry of Agriculture
Agriculture Division

No. PMU (E&R) - IPSA - 9/85 /08 Date: 12.01.89

Copy forwarded for information and necessary action to:

Dr. Ludwig M. Eisgruber,
USAID Expert/ IPSA, Dhaka.

(A. Waheed Khan)
Agricultural Economist

ANNEX A: LIST OF PARTICIPANTS

1. Dr. Altaf Ali, Division Chief (Agriculture), Planning Commission
2. Dr. Mohammad H. Mondal, Director General, Bangladesh Agricultural Research Institute
3. Dr. S. H. Khan, Director, IFSA
4. Mr. Waheed Khan, Agricultural Economist, Agriculture Division
5. Dr. Koji Wada, Team Leader, JTGT, JICA
6. Dr. Takeshi Omura, Member, JTGT, JICA
7. Dr. Sumio Tojo, Member, JTGT, JICA
8. Mr. Satohi Asano, Member, JTGT, JICA
9. Mr. Nobuhito Hobo, Embassy of Japan, Dhaka
10. Mr. Norio Matsuzawa, Resident Representative, JICA
11. Dr. Yoshio Yamada, IFSA Team Leader, Dhaka
12. Mr. Jitsuo Takasugi, IFSA Coordinator, JICA, Dhaka
13. Dr. Kazuro Ohno, JICA Expert/IFSA, Dhaka
14. Dr. C. T. Hash, Director, Food and Agriculture, USAID, Dhaka
15. Dr. Ludwig M. Eisgruber, USAID Expert/IFSA, Dhaka
16. Mr. Md. Latifur Rahman, USAID, Dhaka

KEY RECOMMENDATIONS BY THE TRIPARTITE EVALUATION TEAM

The following key recommendations by the Tripartite Evaluation Team are abstracted from the Evaluation Team's report, dated July 24, 1989.

1. Phase II of the Project should be implemented for the purpose of strengthening postgraduate level education and research, based on the favorable results from this [the first phase] of the project. The period of cooperation shall be for five years (1990-1995).

2. It is recommended that highest priority be given to filling vacant positions in the faculty. Further, the associated facilities and residential housing be accomplished as soon as possible.

3. It is necessary for IPSA to construct additional laboratories, library and residential quarters to attain more development. Residential quarters are indispensable to enhance research and education activities at IPSA by reducing the considerable amount of time lost in commuting by staff for work at IPSA. It is recommended that provisions be made in the next phase of the IPSA project to construct these urgently needed facilities.

4. Because the academic program is central to success of IPSA, it is strongly recommended that a sustained effort be undertaken to resolve issues so that some essential academic freedom is given immediately to IPSA, such as, adoption of revised curricula, holding of examinations at IPSA campus, and selection of students. These aspects are critical for IPSA now in its fourth year of existance.

5. It is recommended that whatever action required, whether an Act, Statute and Ordinance or other arrangement needed to establish a suitable administrative structure for IPSA be followed up immediately. In this matter the Management Committee has a key role. Consideration may be given also to expand the Management Committee to include the Director General BRRI, a representative of the University Grants Commission, Director General, Department of Agricultural Extension, and finally an eminent agricultural scientist.

6. The team recommends that issues relating to clarification of the academic status of IPSA be resolved immediately so that IPSA can join collaboratively in building the essential relationship within the educational system.

It is further recognized that consideration be given for better integration of relationships to include the following actions:

* The Director of IPSA become a member of the Academic Council of BAU

* Other senior officers of IPSA be included in relevant committees of BAU

* Faculty of BAU be represented on IPSA Committees

In addition to the above, it is recommended that formal linkages with other institutions be established, possibly through Memoranda of Understanding authorizing the Management Committee to appoint or arrange for their senior and other scientists as ex-officio professors at IPSA for thesis direction and other services.

7. IPSA has already been provided with most of the sophisticated equipment. However, some types of equipment including equipment for student laboratories and some farm machinery, may be needed to make IPSA more effective. In the process of selecting equipment more consultation is required among the concerned parties for proper assessment of suitability from the viewpoint of program need and maintenance. Furthermore, equipment should be selected on the basis of being practical and simple so that their maintenance is not a burden on the country. In the future, a partial solution to the maintenance problem is the local purchase of equipment, if available, especially when supply of spare parts and maintenance services are ensured.

8. It is necessary to consider the maintenance of each piece of equipment. It is critical that an effective maintenance system including daily maintenance and care by the staff and students be established immediately. The GOB should allocate a larger budget for maintenance of equipment and facilities at IPSA in the future. It recommended that full consideration be given to this aspect. And since this problem is of general nature in various agricultural research and education institutes in Bangladesh, it is recommended that BARC take the initiative to develop an appropriate solution to this issue immediately.

9. It is recommended that full support be given by the GOB to the outreach program. Further, that actions required, should be identified soon so that full advantage of the expatriate expert and his counterpart can be fully utilized in the short period of time available.

10. It is recommended that a streamlining of the selection process be done to lead to a more efficient and timely clearance of experts. However, this may not solve all the problems which have plagued the project in the area of clearance of experts. The number of ministries and agencies involved in the approval process should be reduced and minimized. The bottleneck in misfit of interest between experts and counterparts may be resolved through increased efforts by the Bangladesh and Japanese sides.

11. It is recommended that improvements in the preparation and timely placement of participants to receive overseas training should be accomplished in order to progress in this program. Furthermore, the procedures essential to timely selection of qualified candidates for participant training should be improved.

12. It is recommended that the present good tripartite relationships be continued and become more explicit during the project period. Tripartite cooperation is so important and effective that an effort should be made to see that it is continued.

13. It is recommended that the three governments together prepare a combined operational summary, or perhaps a Memorandum of Understanding which brings together in one document based on the three separate authorizations, the relevant aspects of objectives, the support elements, etc. This is needed so that there is complete understanding and guidance for resident expert staff and local staff in carrying out project objectives.

14. In order to obtain a viable and sustainable institutional capability it is recommended that the Management Committee undertake intensive efforts through regular and frequent meetings to resolve those constraints that impinge on achievement of institutional sustainability. It is possible also that an oversight committee of high level representatives of the GOB Ministries and PC involved can give force to prompt executing of actions needed.

Minutes of the Wrap-up Meeting held on July 23,1989 on IPSA Project

A wrap-up meeting on IPSA project was held on July 23,1989 at 1130 hours in the Conference Room of MOA to discuss the Draft Evaluation Report prepared by the tripartite evaluation mission. The meeting was presided over the Mr. M.A. Syed, Secretary,MOA and attended by the persons listed in annexure-A.

2. After welcoming the participants Secretary thanked the Evaluation Mission for their hard work in the preparation of an interesting and excellent report. In his opening remark, Secretary mentioned that the recommendations of the report were very clear and specific. He then requested the Team Leader of the Evaluation Mission to present the report. Dr. Keiso Tsuchiya, Team Leader of the Tripartite Evaluation Mission, briefly explained their findings and recommendations in relation to project objectives. Secretary then invited comments on the report by others concerned.

3. Threadbare discussion then took place on the key issues in the report. Among others comments were made of by Mr. Abul Hashem, Additional Secretary,MOA; Dr.S.Z.Mozumder,Division Chief(Agri.),Planning Commission;Dr. M.A. Mannan, Director General,BRRI; Dr. M.H. Mondal, Director General, BARI; Dr. Kazi Badruddoza and Dr. Kiehl, Member of the Evaluation Mission. In the course of discussions, the following key points emerged:-

(a) Need for extension of the IPSA project was strongly felt by all in order to develop the Institute as a centre of excellence.

(b) Emphasis was given on the recruitment of faculty members without any further delay. It was also noted that positions would be filled through open competition, and no compromise would be made with respect to the quality of the candidates.

(c) Proper utilization of the sophisticated equipment and machinery was emphasized, and the concern for effective repair and maintenance of the costly machines was deeply felt.

(d) Issues relating to academic freedom of IPSA should be resolved immediately. Full participation of IPSA in the academic council and other committees of BAU was considered essential. It was also observed that IPSA, for academic purposes, should temporarily function on the arrangements between IBA and DU, but ultimately IPSA should have complete freedom and authority for formulating the syllabus, conducting examinations and granting degrees.

Contd/P-2.

(e) IPSA's efforts should be directed towards providing intellectual leadership; it should have the capability of producing high quality postgraduates. For that purpose, emphasis was given to revision of the curriculum of IPSA to suit the purpose and for its continuous updating. It was mentioned that IPSA curriculum, in addition to cereal crops and horticulture, should consider including subjects like livestock, irrigation, agronomy and farm mechanization. It was also observed that teaching of agricultural science alone was not enough to address farmers problems. The need for inclusion of allied social sciences in the curriculum was felt necessary.

(f) Recommendation for improving relationships and formal linkage between IPSA and other educational and research institutes was very much appreciated. It was felt that relationship could further be strengthened through signing of MOUs between IPSA and concerned organisations. In this connection it was also emphasized that IPSA should have strong linkage with extension agencies. Collaborative arrangements between IPSA and other similar institutes abroad should also be established.

(g) The need for construction of residential quarters, additional laboratory and library facilities was considered essential. The issue is now under active consideration by the GOJ. It emerged during discussion that USAID might consider financing residential construction out of PL-480 funds earmarked for the agriculture sector.

(h) Like other research institutes, IPSA needs to have tax exemption facilities for smooth importation of teaching aids, equipment, machinery, etc.

5. In the concluding remarks Secretary mentioned that continued support by the donors and others concerned would really be needed for sustainability of IPSA. In this connection referring to his discussion with the Honourable Minister for Agriculture, Secretary told that all necessary actions would be taken from the GOB side to make IPSA a Centre of excellence. The following decisions were then taken:-

(i) All recommendations of the Evaluation Report have been accepted in general and follow-up actions would be taken accordingly(Action by: Director, IPSA).

Contd/P-3.

(ii) IPSA project would be extended in the form of Phase II for a further period of five years beyond June 30,1990 (Action by: MOA,PLCCH and ERD).

(iii) Recruitment of all faculty members would have to be completed within next two months(Action by: Director, IPSA).

(iv) The issue of providing academic freedom to IPSA with all the options as recommended in the Evaluation Report along with IPSA-BAU relationship would be taken up with Ministry of Education for an immediate solution(Action by:Director, IPSA and MOA).

(v) USAID would be approached formally for financing the construction of IPSA residential quarters out of PL-480 funds if GOJ cannot provide funding for the purpose (Action by: MOA and ERD).

(vi) NBR would be moved for providing tax exemption facilities to IPSA (Action by: Director, IPSA and MOA).

6. The meeting ended with a vote of thanks from the chair.

Sd/- 4.8.89
M.A.Syed
Secretary
Ministry of Agriculture

LIST OF PARTICIPANTS

1. Mr. Abul Hashem, Additional Secretary, MOA
2. Dr. S.Z. Mozumder, Division Chief(Agri.), Planning Commission
3. Dr. M.A. Mannan, Director General, Bangladesh Rice Research Institute
4. Dr. M.H. Mondal, Director General Bangladesh Agricultural Research Institute
5. Prof. Bhuyan N. Islam, Dean, Faculty of Agriculture. Bangladesh Agriculture Univercity
6. Dr. Sharafat Hossain Khan, Director Institute of Post-graduate studies in Agriculture
7. Mr. Md. Nasim, Deputy Secretary, External Resources Division
8. Mr. A. Waheed Khan, Agricultural Economist, MOA
9. Mr. S.M. Golam Ali, Research officer, MOA
10. Ms. Priscilla Boughton, Mission Director ,USAID
11. Mr. Hideo Fujita, First Secretary, Embassy of Japan
12. Mr. Hiroshi Umezaki Deputy Resident Representative, JICA
13. Dr. Keizo Tauchiya Team leader, Tripartite Evaluation Mission
14. Dr. Elmer Kiehl, Member, Tripartite Evaluation Mission
15. Dr. Hideaki Kai Member, Tripartite Evaluation Mission
16. Dr. Hidetoshi Kishikawa, Member, Tripartite Evaluation Mission
17. Mr. Takeshi Watanabe Member, Tripartite Evaluation Mission
18. Dr. Kazi M. Badruddoza, Member, Tripartite Evaluation Mission
19. Dr. A.H.M. Altaf Ali Member, Tripartite Evaluation Mission
20. Dr. Yoshio Yamada, Team Leader, IPSA Project
21. Mr. Jitsuo Takasugi, Coordinator, IPSA Project
22. Dr. L.M. Eisgruber, Curriculum Advisor, IPSA Project
23. Mr. Allen Hankins, Food & Agriculture, USAID
24. Mr. Ikuo Miyajima, Expert, IPSA Project
25. Dr. Kazuro Ohno, Expert, IPSA Project
26. Dr. Takuya Marumoto, Expert, IPSA Project

গণপূর্ত মন্ত্রণালয়
বিদ্যুৎ উইং(পাঃ) শাখা

স্মারক নং- বিদ্যুৎউইং(পাঃ)-ইবপা-১/৮১/))) তারিখঃ ১০/৮/৫/৫/ ১৯--

বিষয়ঃ ইপ্না প্রকল্পের জন্য অতিরিক্ত আর্থিক সহায়তা সংক্রান্ত প্রসঙ্গে।

সম্প্রতি বাংলাদেশ সরকার, আপান সরকার ও ইউএনডিপি'র প্রতিনিধি সমন্বয়ে ইপ্না প্রকল্পটির দ্বিতীয় মূল্যায়ন করা হয় এবং গত ২৩-৭-৮৯ তারিখে অত্র মন্ত্রণালয়ে অনুষ্ঠিত ত্রাপ-আপ সভায় মূল্যায়ন প্রতিবেদনটি পর্যালোচনা করা হয়। মূল্যায়ন প্রতিবেদন এবং ত্রাপ-আপ সভার কার্যবিবরণীর কপি গত ৩-৮-৮৯ তারিখের সদয় সংবাদ মন্ত্রিপরিষদ বিভাগ সংক্রান্ত সকলের নামে পাঠানো হয়েছে।

২। মূল্যায়ন প্রতিবেদনের সুপারিশ অনুযায়ী ত্রাপ-আপ সভায় সিদ্ধান্ত নেয়া হয় যে, ইপ্না প্রকল্পটি দ্বিতীয় পর্যায়ে ৪র্থ পঞ্চম বার্ষিকী পরিকল্পনা মেয়াদকাল (১৯৯০-৯৫) মধ্যে বাস্তবায়নের জন্য সম্প্রসারিত করা হবে (কার্যবিবরণীর অনুলিপি সংযোজিত)। চলতি প্রকল্পের আনু মানিক ব্যয় সংস্থানসহ দ্বিতীয় পর্যায়ের ইপ্না প্রকল্পের জন্য বৈদেশিক সহায়তার প্রয়োজন। উল্লেখ্য, ১৯৯০ সালের ৩০ শে জুন সমাপ্তিতব্য চলতি প্রকল্পটি আবাসী ও ইউএনডিপি'র কারিগরী সহায়তায় বাস্তবায়িত হচ্ছে।

৩। বর্ণিত অবস্থায় দ্বিতীয় পর্যায়ের ইপ্না প্রকল্পটির জন্য এইভাবে বৈদেশিক সহায়তা সংগ্রহের প্রয়োজনীয় ব্যবস্থা গ্রহণ করার জন্য নিম্ন স্বাক্ষরকারী আদিষ্ট হয়ে বলিঃ সম্পদ বিভাগকে অনুরোধ জানাচ্ছে।

(এ আবদুল ওয়াহিদ খান)
যুগ্ম সচিব

সচিব
বলিঃ সম্পদ বিভাগ
(দৃষ্টিঃ জনাব মোঃ আইনুল কাদের)
যুগ্ম-সচিব

অনুলিপিঃ

১। বিভাগীয় প্রকাশে কৃষি ও পানি সম্পদ)
পরিকল্পনা সচিবগণ।

২। পরিচালক, ইপ্না, পাবনা, পাবনা।

People's Republic of Bangladesh
Ministry of Agriculture
PMU(P:) Section.

Memo No. : PMU(P:) - IPSA - 1/89/122 Dated: 20 - 08 - 89 Eng. / 05 - 05 - 96 Bng.

Subject: Future Financial Assistance for the IPSA Project.

Recently, the tripatite Committee consisting of the members from Bangladesh Government, Japan Government and USAID, evaluated the IPSA Project. And on July 23, 1989, the evaluation report was reviewed at the wrap-up meeting held at this ministry. The evaluation report and the minutes of the wrap-up meeting was sent on August 05, 1989 from the same file, by letter No. 108 to all concerned persons.

2. On the basis of the recommendation of the evaluation report, the decision has been taken at the wrap-up meeting that the IPSA project will be extended for a 2nd phase during the next 4th Five Year Plan (1990 - 95) (the copy of minutes attatched). Such foreign assistance is necessary for the next 5 years of the second phase of the project as in the current phase. In this connection it may be mentioned here that the project is currently being implemented with Technical Assistance from JICA and USAID which will be finished on June 30, 1990.

3. Under the circumstances, the undersigned has been instructed to inform ERD to take the necessary steps to arrange the foreign Assistance in the same way for the second phase of IPSA Project.

(Abdul Waheed Khan)
Agricultural Economist.

Secretary
External Resources Division
(Attention to: Mr. Md. Ayub Kadri)
Joint Secretary.

C.C. TO:

1. Divisional Chief (Agriculture & Water Resources)
Planning Commission.

2. Director, IPSA, Salna, Gazipur.

57

COPY

EMBASSY OF JAPAN
DHAKA

No.1135-GL(5)/89

December 20, 1989

Mr. Ayub Quadri,
Joint Secretary,
External Resources Division,
Ministry of Planning,
Government of the People's
Republic of Bangladesh,
Dhaka.

With reference to the annual consultion of economic cooperation between Bangladesh and Japan which took place in April 1989 in Dhaka, I wish to inform you that the Government of Japan has duly considered the request of Japanese grant assistance for the Institute of Post-graduate Studies in Agriculture and I am pleased to reply as follows:

1) The Government of Japan will extend grant assistance for construction of a laboratory and a library of IPSA with its budget of FY 1990.

2) However, the construction of residential quarters for IPSA staff does not fit to the scheme of Japanese grant assistance and therefore the Japanese Government would highly appreciate if IPSA staff housing could be built with PL 480 III funds through negotiation between the Bangladesh Government and USAID in Dhaka.

3) The Japanese Government will dispatch a basic design team probably in March 1990 to make a survey on construction of the library and laboratory of IPSA, and the survey will be followed by E/N on the Japanese grant aid in anytime between October 1990 and March 1991, and the detail design work.

4) The Government of Japan considers that design and construction works of both the staff quarters and the library and laboratory should be

2/-

carried forward under a total picture of IPSA extention programme, and both constructions should complete, prefarably, at same time. Therefore, in proceeding the IPSA project the Embassy will keep closely in touch with USAID in Dhaka as well as authorities concerned of the Bangladesh Government and IPSA.

Yours truly,

H. Fujita
First Secretary
For Mr. T. Ito, Minister,
Embassy of Japan.

c.c. to :

1. Mr. M.A. Syed,
   Secretary, of MOA,
   and Chairman of IPSA
   Management Committee
2. Dr. S.H. Khan,
   Director,
   IPSA
3. Dr. R.H. Norton,
   Project Officer,
   USAID
4. Mr. Norio Matsuzawa,
   Resident Representative,
   JICA,
   Dhaka.

UNITED STATES OF AMERICA
AGENCY FOR INTERNATIONAL DEVELOPMENT
Dhaka, Bangladesh

MEMORANDUM OF MEETING

GOVERNMENT OF JAPAN & USAID/DHAKA

NOVEMBER 14, 1989

Present: Mr. Hideo Fujita, First Secretary, Embassy of Japan
Mr. H. Umezaki, Deputy Resident Representative, JICA
Dr. R.H. Morton, Project Officer, USAID/Dhaka
Dr. E. Price, Director, International Programs in Agriculture, Oregon State University, USA

Purpose: To discuss the progress of the design of the Project Paper for the USAID Higher Agricultural Education Project(BHAEP) and its relationship to the IPSA tripartite project.

Major Points of the Meeting:

1. All present expressed satisfaction with the progress achieved to date in the tripartite technical cooperation project at IPSA. All present expressed their desire for continued joint cooperation in the GOJ project at IPSA.

2. In response to Mr. Fujita's question about the possibility of utilizing PL480 III funds for IPSA staff housing, Dr. Morton stated that it is possible to use PL480 III local currency funds of the Ministry of Agriculture for planning, design and construction of staff housing and community facilities on the IPSA campus if: (1) A housing needs assessment is completed that provides sufficient evidence that staff housing and certain community facilities are needed to encourage staff scientists and technical support staff and their immediate families to reside on the IPSA campus (USAID/Dhaka requirement); (2) The Government of Bangladesh and USAID agree on the type of housing to be provided, the budget, and the procedures for the contracts to be let for the architecture and engineering(A&E) construction design activities and the construction of the buildings and other structures included in the design.

Dr. Morton stated that he thought that it was in the best interests of the GOJ, the Government of Bangladesh, IPSA and USAID to ascertain if a need for staff housing and supporting community facilities did exist and to determine the type and amount of construction needed.

There was confusion in the past regarding the responsibility of the GOJ to design structures to be constructed and to prepare the

architecture drawings and the construction drawings and specifications. To set the record straight, Mr. Morton stated that the GOJ and JICA are not responsible for preparing the A&E drawings and construction specifications or the budget for construction. If a budget for construction using PL480 III funds is approved by the Government of Bangladesh and USAID it would probably include provisions to award one contract for A&E activities and another contract for construction. These contracts would use normal Government competitive procedures and would be subject to USAID audit and inspection procedures.

3. The participation of the Government of Japan to cooperate in all stages of the needs assessment, the design and planning of the construction is very desirable. If the GOJ Design Team comes to IPSA in March, 1990 to design other teaching and research facilities it would be helpful to have them work with any local A&E firm selected to insure that the design of all campus facilities are complimentary and harmonious.

4. The responsibility to complete the housing needs assessment belongs with IPSA administration. The USAID representative stated that the use of PL480 III funds from the BARC account was permitted under the provisions of Project Implementation Letter(PIL) No. 15 to hire local consultants or firms to conduct a housing needs assessment. IPSA needs to prepare a proposal, submit it to the Executive Vice Chairman of BARC and await approval from BARC and concurrence from USAID. Alternatively, IPSA could conduct a needs assessment with its own funds. It would be a good idea for the GOJ, USAID, IPSA and BARC to cooperate in the design of the needs assessment, but the final responsibility for the survey and its recommendations belongs to IPSA. The needs assessment should be completed by mid-January, 1990. This would insure that a proposal for an A&E contract was reviewed and approved by BARC in time to award a contract to a local firm to work at the same time that the Japanese A&E Team from Tokyo is at IPSA.

4. Dr. Price discussed the two major outstanding issues of the Project Paper of the BHAEP, i.e., the employability of BAU graduates and the need for an expansion of the outreach module of the draft PP into a outreach plus continuing education program. Dr. Price explained that the expansion of the outreach and continuing education module of the PP could provide much needed training for past graduates already employed with public, nongovernmental and private sector organizations. The tentative schedule of events for the completion of the PP was presented. Dr. Morton will provide two copies of the draft PP approximately December 15, 1989. Comments from GOJ will be appreciated; they should reach USAID/Dhaka approximately January 1, 1990.

5. Drs. Price and Horton stated their desire to collaborate with the Japanese government in the Bangladesh Higher Agricultural Education Project at BAU, Hymensingh. Dr. Horton explained the outstanding opportunities for possible Japanese government involvement in this proposed project: the operation of the central research laboratory, the telecommunications system and the transportation system.

Mr. Fujita responded by restating his interest in continued USAID and JICA technical cooperation; this included the continued cooperation at IPSA and the possibility of cooperation at BAU.

The meeting was concluded in about one hour.

cc. Mr. Hideo Fujida, First Secretary, Embassy of Japan
Mr. H. Umezaki, Deputy Resident Representative, JICA
Mrs. Priscilla Boughton, Director, USAID
Dr. M. Purvis, DD, USAID
Mr. P. Young, Director, Program Office, USAID
Mr. D. Brown, Director, Office of Food and Agriculure, USAID
Dr. L. Eisgruber, Curriculum Advisor, OSU/IPSA
Dr. E. Price, Director, International Programs, OSU, USA
Mr. M.A. Syed, Secretary/MOA and Chairman, Management Committee/ IPSA
Dr. M.M. Rahman, Executive Vice Chairman, BARC
Dr. S.H. Khan, Director, IPSA
Dr. S. M. Farouk, Director of Research and Chairman of BHAE Project Committee

Prepared by: Raymond H. Morton
OFA

Date : November 21, 1989

INSTITUTE OF
POSTGRADUATE STUDIES IN AGRICULTURE

স্নাতকোত্তর কৃষি শিক্ষা ইনস্টিটিউট

SALNA GAZIPUR BANGLADESH TELEPHONE 2518 সালনা গাজীপুর বাংলাদেশ টেলিফোন : ২৫১৮

Memo No. 1426 December 14, 1989

Ms. P. Boughton, Director
USAID/Dhaka

Dear Ms. Boughton,

We, at IPSA, were most pleased when the Tripartite evaluation Team recommended unanimously last July that, based on accomplishments to date and on future potential, the IPSA Project be extended for another five years beyond its current termination date (March 31, 1990, for the USAID component of the Project, and July 3, 1990, for the JICA component). You are aware that the Secretary of Agriculture, with prior concurrence by the Minister, accepted all recommendations made by the Evaluation Team. Since then, the Secretary of Agriculture has sent a letter to ERD with the recommendation that JICA and USAID be requested to continue their cooperation in the IPSA Project as per recommendations by the Evaluation Team. It is anticipated that ERD will issue such requests in the very near future, and it is our strong hope that you will give such request your favorable consideration.

We are further pleased to know that USAID has prepared a "mini project paper" in anticipation of continuing cooperation in the IPSA Project beyond March 1990 which I have had an opportunity to examine. I am in full support of the program components contained in the mini project paper and recommend approval. In the interest of continuity of the efforts under the Project, it is requested that you give your early approval to the mini project paper and to continuation of USAID cooperation.

Tripartite cooperation in the IPSA Project has significantly contributed to the successes achieved by IPSA to-date. It has also been an important factor in setting the stage and making possible technical cooperation with the goal of improving the entire higher agricultural education system. Tripartite cooperation, and USAID's role in it, will continue to be important for development of IPSA and in the development of higher agricultural education in the broader sense. Therefore, we are looking forward to your continued support.

Very truly yours,

14.12.89

Dr. S. H. Khan, Director
IPSA

cc: Mr. M. A. Sayeed, Secretary, Agriculture
Mr. M. A. Hashem, Additional Secretary, Agriculture
Dr. Y. Hirashima, Team Leader, IPSA
Dr. L. M. Eisgruber, Adviser, IPSA
Mr. D. Brown, OFA, USAID
Dr. R. Morton, OFA, USAID
Mr. L. Rahman, OFA, USAID

63

Ⅳ．フェイズⅡ実施上の問題点

1．教官のリクルート

a）現状：定員37（教授８、助教授14、助手15）　現況20（教授０、助教授５、助手15）であり、教授、助教授のリクルートが早急に必要である。現況、学科別、付表のとおり、

b）教官選考委員会（Selection Committee）

ⅰ）1990年１月４日、教官応募受付が締切られ

ⅱ）各学科に３～４名の応募があった。

ⅲ）現在、最終選考中であり、現在の助教授から３～４名の教授への昇格が期待されている。

付表　学科別教官配置状況

ＩＰＳＡ教官リクルート状況

1990. 6. 14 現在

現況／定員		作物	育種遺伝	植物病理	土壌	園芸	昆虫	応用作物	統計生物測定	農業普及
0/8	教授									
5/14	助教授	(Dr)		(Dr)		(Dr)		Dr		Dr
	助手	○ D.C. (米)	○ D.C. (九大)	○ D.C. (九大)	Dr	Dr	Dr	Dr	Mr	○ D.C. (米)
15/15	助手	○ D.C. (九大 応募中)	○ D.C. (九大)	○ D.C. (慶大)	○	○ D.C. (法大)				
	講師		○ D.C. (米)							

(Dr) : Dr. 既に取得ずみ

○ D.C. : コース在学中（国または大学名付記）

○ : 日本での研修終了

２．ＩＰＳＡの自治

ＩＰＳＡの管理上の自治権は1988年に承認されたが、カリキュラム等教育上の自治権はいまだ承認されず、完全なる自治権の確立がなされていない。

a）University Grants Commission (UGC)の中にNational Agricultural Expert Committee (NAEC) を組織して、バングラデシュ農業高等教育に関する各種の問題について審議答審している。

b）ＮＡＥＣが1990年５月17日にＩＰＳＡを視察し、ＩＰＳＡの管理面と教育面の両面における完全な自治を与えるよう答審した。

c）自治権の現況

i）管理上は、農業省内においてほぼ自治権が確立され、ＢＡＲＩ、ＢＲＲＩと同格の組織となった。

ii）教育上はＢＡＵの関係で、いまだ自治はない。

d）自治の将来

i）ＩＰＳＡとＢＡＵとの関係が今後の問題であり、ＵＳＡＩＤのＢＡＵに対する援助プロジェクトがこの問題に関し、微妙な影響をおよぼすことが予想される。
このため、ＵＳＡＩＤとの友好な協力関係を今後とも継続していく必要がある。

３．機材の維持管理

a）恒久的な機材維持管理体制の確立

i）全般的には、いずれの供与機材も良好な状況に維持管理されている。

ii）透過型電子顕微鏡が再度故障し使用不能となっている。

iii）葉面積計が不調である、等。

iv）又すべての供与機材が十分に活用されている状況とはいいがたく、フェイズⅡでは、教官のリクルートと現地教官による研究活動の活性化に伴う機材の活用が望まれるとともに恒久的な管理機構が是非とも必要とされる。

４．農場管理

インフラ整備事業にて、8 haの農場が拡張され、1990年６月末に建設完工予定であり、農場は合計 16 haとなる。このため、

a）農場の全体的な利用計画を半恒久的なものと、年次的なものとに分けて立てる必要がある。

b）土壌改良の必要性

c）圃場整備
灌漑排水の施設維持管理、及び適切な水管理が必要とされる。

５．機材の無税通関

現状は、チッタゴン港からプロジェクトサイドまで、引取に機材到着後、数カ月～１年程要している。抱括的な無税通関を行なうとともに、機材取引を早急に行なうことが望まれる。

６．国内支援体制の強化

フェイズⅡのスタートにあたり、プロジェクトサイドから各分野の長期専門家の派遣について強い要望があった。

ａ）長期専門家として停年退職後の研究者（農林水産省、試験場研究者等、大学教官に限らない）のリクルートを強くすすめる。

ｂ）現地教官の派遣が長期にできるよう、九大熱帯農学研究センターの充実が望まれる。

ｃ）九大が中心となり、佐賀大、鹿児島大、宮崎大、琉球大等、支援大学から積極的に専門家のリクルートを行う。

附属資料

実施協議調査団がバングラデシュに派遣されるにあたり、プロジェクトが準備した資料を参考までに添付する。

１．要約
２．フェイズⅠプロジェクト概要
３．フェイズⅡプロジェクト展望
４．概算予算計画

附属

１．内部による自立継続性調査
２．外部による自立継続性調査
３．フェイズⅡ、各学科別活動計画
４．フェイズⅡ、各学科別要望計画
５．バングラディシュ農業研究システム
６．提出資料リスト

付属書

プロジェクト，ワーキングペーパー

INSTITUTE OF POSTGRADUATE STUDIES IN AGRICULTURE

WORKING PAPER
for the
RECORD OF DISCUSSIONS TEAM

June 5 - 15, 1990

WKP.RD

TABLE OF CONTENTS

INSTITUTE OF POSTGRADUATE STUDIES IN AGRICULTURE

WORKING PAPER
for the
RECORD OF DISCUSSIONS TEAM

June 5 - 15, 1990

I. SUMMARY

The Government of Bangladesh (BDG) established established the Institute of Postgraduate Studies in Agriculture (IPSA) in 1984. IPSA was charged to offer courses leading to Masters and Doctoral degrees in various disciplines in agriculture, conduct research in the crop sciences and related fields, and develop an outreach program.

The BDG turned to the Government of Japan (GOJ) with a request to assist in the establishment of IPSA. The IPSA Project (in cooperation with the Japan International Cooperation Agency, JICA) began on July 4, 1985. The USA (through USAID) joined the Project in April 1986.

Since the beginning of technical cooperation in 1985 and 1986, respectively, the following were accomplished:

a. Research Program: A research program which addresses important national issues and which has already resulted in significant output has been implemented.

b. Academic Program: Three classes of M.Sc. students have already graduated, the fourth class has completed all course work, and the fifth class began its session on June 3, 1990. A substantially improved masters degree curriculum was developed. A doctoral program is under development.

c. Outreach Program: A community based outreach program is being established for selected locations in the vicinity of IPSA. A number of continuing education programs were organized for agricultural professionals, community leaders, and farmers.

d. Inatitutional Development and Support: A new campus (including classrooms, laboratories, dormitories, library, faculty and administrative offices) was established and equipped. Seven faculty members are currently completing their doctoral degree requirements overseas. Ten short-term participant trainees either completed their programs overseas or are presently in training. An institutional framework (administrative and management structure, committee system, and governance procedures) was established to assure the orderly development and steady growth of the Institute.

While much was accomplished since the beginning of tripartite cooperation (i.e., during Phase I of the project), much remains to be done. The Tripartite Evaluation Team (TET, July 1989) noted the progress made; but it also noted as a "lesson learned" that institutions of this type cannot be established to the level of sustainability within four to five years. Thus, the TET recommended unanimously that the project be extended for an additional five years (Phase II). The Secretary of the MOA concurred.

Whereas emphasis during Phase I was on the establishment of the basic infrastructure of an entirely new institution, emphasis during the second phase will be to build on the basis established during Phase I and to develop IPSA into a sustainable "Centre of Excellence" by the end of Phase II. Programmatic emphasis of the "Centre of Excellence" will be on (research, teaching, and outreach programs in subject matter areas which (a) require well equipped laboratories and well trained teacher/researchers, (b) which are not already covered by other institutions, (c) which are of significant national interest, and (d) which provide results which can be transferred to other institutions and the private sector. These subject matter areas may include areas such as biotechnology, soil/water/plant relationships, integrated pest management, environmental studies, and post-harvest physiology.

Project outputs will include:

1. Research Program
   * A sustaining research program (a) which capitalizes on IPSA comparative advantage, (b) which focuses on significant national issues not addressed elsewhere, (c) which has linkages to other research institutions and (d) which fits into the national agricultural research plan.
   * Faculty trained in research planning and prioritization.
   * Capability to conduct research needs assessment, with emphasis on economic analysis, established.
   * Formal linkages and cooperative research programs established with major research institutions in Bangladesh and elsewhere.

2. Academic Program
   * New curriculum and examination system implemented at the M.Sc. level in all of the departments and doctoral program implemented in most of the existing departments at IPSA.
   * Faculty better trained in teaching and examination methodology.
   * Students better trained for existing and anticipated job market.

3. Outreach Program
   * Department of extension established and teaching, research, and outreach program functioning.
   * Formal linkages established with other educational institutions and with the DAE.

* Community-based extension training laboratory established for student training, research, and policy guideline development.

* Neighboring community based outreach program functioning.

* Outreach programs for scientists, extension agents, etc. held on a regular basis.

4. Institutional Development and Support

* Library holdings improved and library use efficiency increased.

* Computer centre for faculty, staff and students established.

* Expanded scholarship program implemented and recruitment and alumni tracking office established.

* Residential housing and related community infra structures for 80 percent of faculty and staff constructed.

* An organizational structure established to meet the needs of academic, research, outreach, administrative, support and physical plant requirements of the Institute.

Preliminary estimates of inputs required for the proposed program include, over the life of Phase II, 10 long-term (doctoral) participants (5 each through JICA and USAID), 109 PM short-term participant training (25 from the BDG, 60 from JICA, and 24 from USAID), 448 PM of long-term technical assistance (400 from JICA, 48 from USAID), and 136 PM of short-term technical assistance (100 from JICA and 36 from USAID). In addition, procurement of commodities and construction (experimental farm development, construction of library and student facilities by JICA, residential housing and school (from PL 480 III funds) as well as functional buildings by the BDG) are proposed. The establishment of an endowed scholarship program (using PL 480 III funds) is also envisioned.

The Phase II budget is estimated to be 6,250 lakh taka. Of this total amount, 2,437 lakh taka are expected to come from JICA, 987 lakh taka from USAID, with the remainder (2,827 lakh taka) from BDG funds. Of the latter, PL 480 III funds will be the source for 1,570 lakh taka.

II. PROJECT DESCRIPTION: PHASE I

A. Background

1. Brief History

The Government of Bangladesh (BDG) established the Institute of Postgraduate Studies in Agriculture (IPSA) in 1984 in order to meet the need for higher quality postgraduate training in agriculture. IPSA was charged to offer courses leading to Masters and Doctoral degrees in various disciplines in agriculture, conduct research in the crop sciences and related fields, and develop an outreach program.

The BDG turned to the Government of Japan (GOJ) with a request to assist in the establishment of IPSA. The IPSA Project (in cooperation with the Japan International Cooperation Agency, JICA) began on July 4, 1985. The U.S.A. (through USAID) joined the Project in April 1986.

2. Project Goal and Purpose: Phase I

a. Project Goal: The project goal is to increase agricultural productivity, to raise rural incomes, to improve the quality of life of rural residents, and to enhance agricultural development through training of postgraduates. Emphasis is on improving knowledge and skills, conducting problem oriented basic research, and developing outreach programs with applications in all fields of agriculture.

b. Project Purpose: The project purpose during Phase I was to "strengthen postgraduate level education and research, thus contributing to the improvement of the practical research system in Bangladesh" (see "Record of Discussions Between the Japanese Implementation Survey Team and the Authorities Concerned of the Government of Bangladesh," July 4, 1985). It was, further, the purpose that IPSA should be developed to serve as a "Centre of Excellence" for postgraduate studies leading to Masters and Ph.D. degrees in all disciplines of crop science and including agricultural extension, agricultural economics, and social sciences (see "Project Proforma").

3. Strategy to Achieve Goal and Purpose

To achieve its purpose of strengthening postgraduate level education, problem oriented research, and outreach programs, the project (Phase I) dealt with all aspects of the development of a new, multifaceted institution. Thus, construction of the physical infrastructure, acquisition of machinery, equipment, computers and instruments, development of improved academic programs, improvement of library holdings, establishment of a research program, knowledge/technology transfer by the experts, and shaping of an administrative structure all received attention.

4. Institutional Setup

At the beginning of the project IPSA was under the administration of the Bangladesh Agricultural Research Institute (BARI). Since October 1988 IPSA is an administratively autonomous institution under the Ministry of Agriculture (MOA). As far as academic authority is concerned, IPSA continues under the Bangladesh Agricultural University (BAU). BAU, in turn, is under the Ministry of Education (MOE).

a. Organization: The chief administrative officer of IPSA is the Director. He is administratively responsible to the Management Committee (MC) which plays a role vis-a-vis IPSA equivalent to that of the syndicates vis-a-vis the universities.

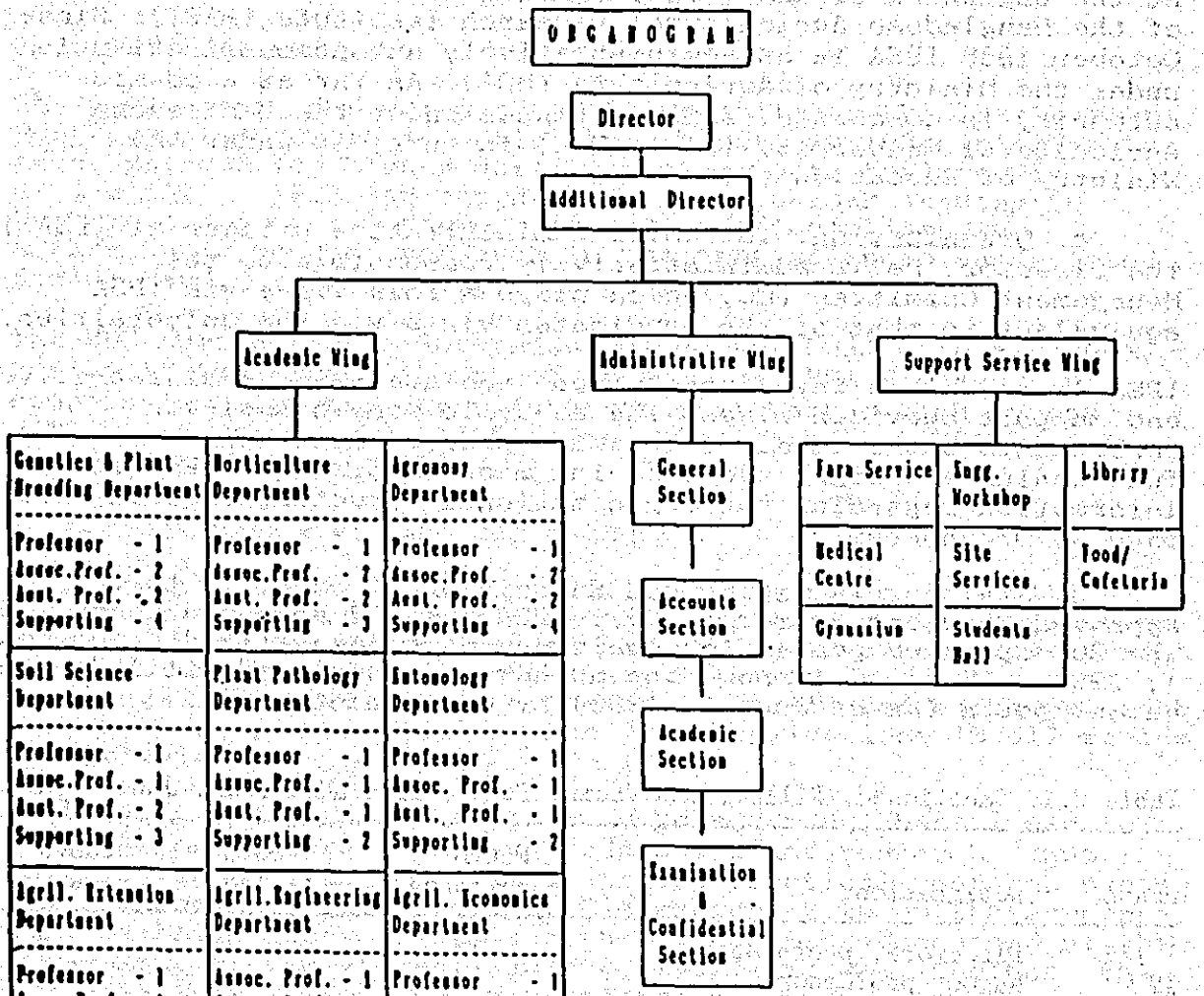
IPSA is organized into three wings: the academic, administrative, and support services wings. The academic wing has eleven departments authorized. Of the eleven department, nine are functioning and eight are offering masters programs. For more information regarding the organizational structure of IPSA, see page 4, Organogram.

b. Staffing (Existing and Recruiting): According to the approved Project Proforma (PP), IPSA has 207 approved posts. Of the 207 approved posts, 157 positions have been filled as of June 1, 1990. - Table 2.1 shows the number of sanctioned, filled, and vacant posts (as of June 1, 1990) by employment grade.

Table 2.1. Sanctioned, Filled, and Vacant Posts, by Grade, IPSA, June 1, 1990

Grade	Designations	Posts sanctioned	Posts filled	Posts vacant
I-III	Directors, professors	10	1	9
IV	Assoc. professors	14	5	9
V	Deputy directors	2	2	-
VI	Asstt. professors, SSO, engineer	17	16	1
IX	Librarian, med.off., asst. eng.	6	6	-
X	Supervisor, overseer, caretaker	11	10	1
XI	Asstt.Security supvr., stenogr.	4	2	2
XIII	Cafeteria mgr., accountant	4	2	2
XIV-XV	Mechanic, cashier, draftsman	11	10	1
XVI	Clerks, technicians, drivers	41	31	10
XVIII	Library, laboratory assistants	18	14	4
XIX	Cooks, attendants	11	6	5
XX	Mali, guards, sweepers	58	52	6
	Totals	207	157	50

Institute of Postgraduate Studies in Agriculture



Because of the pivotal role of the academic faculty to the success of IPSA, additional information on sanctioned, filled, and vacant posts for the ranks of professor, associate professor, and assistant professor is provided in Tables 2.2 and 2.3. From these tables it can be seen that of the total of 37 sanctioned posts 20 are presently filled. 1/

Table 2.2. Sanctioned, Filled, and Vacant Academic Posts, by Rank, IPSA, June 1, 1990

Rank	Posts sanctioned	Posts filled	Posts vacant
Professor	8	-	8
Assoc. professor	14	5	9
Assist. professor	15	15	-
Totals	37	20 (22) 1/	17 (15)

1/ Although technically only 20 positions are filled, de facto 22 positions are filled, as two individuals who are classified as "trainees" are in doctoral training overseas. Upon successful completion of their Ph.D's, they are expected to occupy two of the presently (technically) vacant posts.

Table 2.3. Sanctioned, Filled, and Vacant Academic Posts, by Department and Rank, IPSA, June 1, 1990

Department/Rank	Posts sanctioned	Posts filled	Posts vacant
Agricultural Econ.			
Professor	1	-	1
Assoc. prof.	1	-	1
Asst. prof.	1	-	1 +
Agricultural Eng.			
Assoc. prof.	1	-	1 **
Asst. prof.	1	-	1 ***
Agricultural Ext.			
Professor	1	-	1
Assoc. prof.	1	1	-
Assist. prof.	1	1	1
Agronomy			
Professor	1	-	1
Assoc. prof.	2	1	1
Assist. prof.	2	2	-

Continued on next page

Table 2.3. (continued) Sanctioned, Filled, and Vacant Academic Posts, by Department and Rank, IPSA, June 1, 1990

Department/Rank	Posts sanctioned	Posts filled	Posts vacant
Crop Botany			
Assoc. prof.	1	1	-
Assist. prof.	1	1	-
Entomology			
Professor	1	-	1
Assoc. prof.	1	-	1
Assist. prof.	1	1	-
Genetics and Plant Breeding			
Professor	1	-	1
Assoc. prof.	2	-	2
Assist. prof.	2	2	-
Horticulture			
Professor	1	-	1
Assoc. prof.	2	1	1
Assist. prof.	2	2	-
Plant Pathology			
Professor	1	-	1
Assoc. prof.	1	1	-
Assist. prof.	1	1	1
Soil Science			
Professor	1	-	1
Assoc. prof.	1	-	1
Assist. prof.	2	2	-
Statistics			
Assoc. prof.	1	-	1
Assist. prof.	1	1	-
Totals	37	18 (22)	19 (15)

* On person has been selected for Ph.D. training against a position of assistant professor. The second one will shortly go abroad for Ph.D. training against a similar vacancy.

** One person serving as assistant professor in plant pathology is drawing salary against this position.

*** One lecturer in genetics and plant breeding is slated against this position.

c. Budget: The initial phase of the project began in 1980/81 as the Bangladesh College of Agricultural Sciences (BCAS) and lasted until 1984/85. Japanese Grant in Aid was made available to this project for a period of two years, namely, in 1981/83. The BCAS was then converted to IPSA through an administrative decision by the MOA.

The present phase (Phase I) of technical cooperation assistance from Japan started from July 1985. USAID was formally involved in this program from April 1986. Table 2.4 indicates the approximate financial contributions made available by Japan, U.S.A., and BDG during both the initial phase and the present phase (Phase I).

Table 2.4. Grant and Technical Assistance Expenditures in Support of BCAS and IPSA, 1980/81 to 1989/90

Source	Initial phase 80/81 to 84/85 (Grant-in-aid assistance)	Phase I 85/86 to 89/90 (Technical cooperation assistance)	Total assistance, 1980/81 to 1989/90
Japan	1888.99 Tk* (2.0 Yen**)	1660.00 Tk* (0.87 Yen)	3548.99 Tk* (2.87 Yen)
U.S.A.	------	755.20 Tk (2.36 USD***)	755.20 Tk (2.36 USD)
GOB****	713.13 Tk	1590.82 Tk	2303.95 Tk
Total	2602.12 Tk	4006.02 Tk	6606.44 Tk

* Taka in lakh
** Yen in billions
*** U.S. Dollars in millions (of the 2.36 mill. USD authorized, 1.54 mill were expended during Phase I, .62 mill are carried forward into Phase II, and .2 mill. where de-obligated).
**** It should be noted that the allocation of GOB, both for the initial and first phases, were shown per project provision. Actual releases were approximately 455.00 and 742.00, for the initial and first phase, respectively.

d. Administration of Project:

aa. Overall: IPSA is a government organization and as such receives funds for its operation and developmental activities in the form of Annual Development Plan (ADP) allocations. Revenue expenditures, such a salaries of staff and cost of operation of the Institute's activities, are met from BDG funding. Development activities are largely funded through technical assistance by the Government of Japan (GOJ) and the U.S.A.

bb. Tripartite and Cooperative Relations: The IPSA Project involves a joint effort supported by the GOJ, United States Government (USG) and the BDG. Reportedly this is the only existing project in which tripartite cooperation (as compared to tripartite parallel efforts) is practiced. There is evidence that the IPSA Project, as a result of tripartite cooperation benefited in ways which it would not have benefited had there been only bipartite cooperation. This is due to budget limitations, various and differing institutional constraints facing donors, and comparative advantage amongst the donors.

5. Progress and Accomplishments

Since the beginning of technical cooperation in 1985 and 1988, respectively, the following were accomplished:

a. Research Program: A research program which addresses important national issues and which has already resulted in significant output has been implemented (see Annex III for more detailed information on the research programs by department).

b. Academic Program: Three classes of M.Sc. students have already graduated, the fourth class has completed all course work, and the fifth class began its session on June 3, 1990. A substantially improved masters degree curriculum was developed. A doctoral program is under development.

c. Outreach Program: A community based outreach program is being established for selected locations in the vicinity of IPSA. A number of continuing education programs were organized for agricultural professionals, community leaders, and farmers.

d. Institutional Development and Support: A new campus (including classrooms, laboratories, dormitories, library, faculty and administrative offices) was established and equipped. Three faculty members are currently completing their doctoral degree requirements in Japan, and another four are in the U.S.A. for the same purpose. Two short-term participant trainees completed their programs in the U.S.A., as did five in Japan. Three additional faculty are in short-term training in Japan. An institutional framework (administrative and management structure, committee system, and governance procedures) was established to assure the orderly development and steady growth of the Institute.

6. Constraints Encountered

Major constraints encountered During Phase I include the following:

a. Major controlling documents, such as the PP, the Records of Discussions, and the USAID contract, were in significant respects inconsistent with each other. This required considerable after the fact negotiations. It was not always possible to arrive at solutions which satisfied all the parties involved from the point of view of what is in the best interest of the parties.

b. The PP was approved very late (at the beginning of the last year of Phase I of the Project). As a consequence, time consuming special approvals had to be obtained for many activities under the Project.

c. Administrative autonomy was accorded to IPSA very late (at the beginning of the fourth year in the Project), and academic autonomy or any kind of flexibility is yet to be granted. As a result, administrative innovations could not be made until late in the Project, and academic innovations are still not possible at the end of the Project.

d. Partially due to late granting of administrative authority and partially due to conflicting recruitment rules, 40 percent of all academic posts and all senior academic posts (professors) have remained vacant to date. The negative impact from this situation on project performance are many.

e. Clearance of experts to come to Bangladesh and clearance of counterparts to commence training overseas has proven to be enormously cumbersome and time consuming, resulting in significant program inefficiencies.

f. Customs clearance of commodities has on frequent occasions been delayed excessively long. Lack of timely clearance not only had negative effects on Project performance due to non-availability of equipment but also due to loss of time that had to be devoted to the clearing process.

7. Current Status

While big strides forward were made since the beginning of technical cooperation in 1985 and 1986, respectively, much remains to be done. The Tripartite Evaluation Team (TET) noted the progress that was accomplished; but it also noted as a "lesson learned" that institutions of this type cannot be established to the level of sustainability within four to five years. Thus, the TET recommended unanimously that the project be extended for an additional five years.

The Secretary of the MOA concurred with the TET recommendations and has already made a request to the External Resources Division (ERD) of the Ministry of Planning to the effect that the governments of Japan and the U.S.A. be invited to extend their technical cooperation in the IPSA project as per the recommendations of the TET.

B. Reviewers' Recommendations

1. Recommendations by the Tripartite Evaluation Team (TET)

A Tripartite Evaluation Team (TET) reviewed the IPSA Project in July of 1989 and made the following recommendations (see also

"Joint Tripartite Evaluation of the Institute of Postgraduate Studies in Agriculture Project in Bangladesh," July 24, 1989):

a. A five-year extension of the project should be implemented, based on the favorable results of the first phase of the project.

b. To achieve recruitment of the best available faculty, construction of residential housing at IPSA must be given high priority.

c. Academic flexibility and authority must be attained as early as possible to permit IPSA to grow towards its potential.

d. Additional laboratories and library facilities should be constructed.

e. Formal linkages should be established with other research and educational institutions, particularly with BARI and BRRI.

f. The successful tripartite cooperation should be continued and strengthened.

2. Additional Recommendations

Other reviewers and various governmental bodies offered the following additional recommendations and guidelines:

a. Immediately begin implementation of a Ph.D. program in selected disciplines.

b. Include additional fields, such as fisheries, livestock, agricultural engineering, food science and technology, and home economics into the IPSA program.

c. The Executive Committee of the National Economic Council (ECNEC) at its September 6, 1989, meeting decided that the Member (Program), Planning Commission, Member (Agriculture), Planning Commission and Secretary, Ministry of Agriculture will jointly examine the curriculum (proposed by IPSA) for finalization. At the same meeting, ECNEC requested that the concerned Ministry prepare a "Charter" to make the Institute an autonomous body and a degree awarding institution and will submit the same to ECNEC.

d. The Country Study Group (organized by JICA), in its February 1990 "Country Study for Development Assistance to Bangladesh" makes several recommendations of particular relevance to IPSA. The Group's assessment is that steps should be taken to improve productivity of agriculture by technology most appropriate to the unique character of the country's agriculture. Towards that end, existing research centers and higher educational facilities should be strengthened. The Group recommends that IPSA should continue its goal of assisting in increasing agricultural productivity in Bangladesh on a continuous, long-term basis in the future. Technical and financial cooperation should be

extended with due consideration of the complementarities of the institutions located in the "agricultural research and education complex" consisting of IPSA, BARI, BRRI, and CERDI.

e. At the Tripartite Meeting on April 8, 1990, the need for construction of residential housing at IPSA was reiterated. All parties present agreed to the need for construction of residential housing and related community facilities and indicated support for use of PL 480 III funds for this purpose.

f. After visiting IPSA and reviewing faculty qualifications, facilities, programs and related aspects, the UGC Committee of Experts on Higher Agricultural Education is preparing a recommendation that IPSA should, subject to certain conditions, immediately be given university status with degree giving authority.

C. Actions Taken or Initiated in Response to Recommendations and Directives

The following actions have been taken or have been initiated in response to recommendations and directives:

1. In preparation for Phase II of the Project, the three parties to the IPSA Project have collaborated closely in the development of integrated documents.

2. A housing needs assessment was prepared by IPSA and submitted to the MOA. The MOA has forwarded the needs assessment to ERD who, in turn, contacted USAID regarding funding of construction of residential housing and some community facilities from PL 480 III funds.

3. Recruitment of faculty is underway. All applications received have undergone at least one screening.

4. A basic design team for additional library and laboratory facilities was fielded by JICA and has completed its initial tasks.

5. MOU's have been drafted for the establishment of formal linkages with BARI and BRRI.

6. A Ph.D. program is under development, and announcement of a the program is expected in July or August 1990.

7. A proposed course based curriculum developed by the IPSA faculty was submitted to the Committee established by ECNEC for that purpose and has been approved.

8. A charter and ordinance for IPSA were submitted to the MOA.

III. PROJECT DESCRIPTION: PHASE II

A. Rational for Phase II

Agriculture is the most important economic sector in Bangladesh, producing 65 percent of the GDP and employing 61 percent of the labor force. Eighty five percent of the population live in rural areas. Yet, the agricultural and rural population has below average incomes due, at least in part, to production rates which are substantially below their potential.

IPSA has an explicit charge to conduct problem oriented basic research and has been equipped with faculty and facilities to accomplish this goal, with resources that will not be duplicated elsewhere in Bangladesh. The research conducted by IPSA is intended to fill a need for basic research which is required by the more applied NARS institutions to solve immediate problems. Support is needed to develop a problem oriented basic research program at IPSA to capitalize on the major investment in equipment and facilities made by donors during phase one. A well planned research program will meet the agricultural development and human capital needs of Bangladesh by focusing on emerging problems, including environmental issues. Support of this thrust will not only build a innovative research program but will assure subsequent sustainability of IPSA as an institution. It will also permit it to continue a strong leadership role in the development of a viable higher agricultural education system in Bangladesh while playing a unique role within the educational/ /research system.

Research and experimental facilities of nearby institutions can and are being utilized to augment the excellent facilities at IPSA. This has the advantage of providing on-the-job training for students, broadens the scope of expertise available to the IPSA program, establishes valuable linkages, and substantially improves the cost effectiveness of the IPSA program.

The unique research orientation of IPSA is also reflected in the choice of thesis research topics for its students as well as in classroom teaching. Therefore, IPSA graduates receive training and have qualifications which are different from those graduating from BAU and provide the breadth of training needed to solve the agricultural problems of Bangladesh.

IPSA gives priority to admission of in-service candidates (admission of in-service candidates is, however, by no means restricted to the nearby campuses of BARI and BRRI, but includes candidates also from the regional stations and other institutes, such as the SRTI, the JRI, etc.). In turn, IPSA relies to a substantial degree on scientists from BRRI, BARI, CERDI, and Dhaka University for guest lecturers and students' thesis supervisors.

Considerable progress has been made towards achieving the phase one technical objectives of the Project. A modern facility was developed, a qualified faculty assembled, a degree granting (M.Sc.) program started, and a Ph.D. program to be announced in Summer 1990 is under development. Significant progress also was made in the assessment of the feasibility of improvement in the higher agricultural education system in Bangladesh, setting a direction for change, and initiating steps for such change. Additional time is needed to finish program objectives started during phase one and to carry out outreach activities which were planned in phase one, and to develop IPSA into a sustainable institution.

The combination of IPSA characteristics, which include close proximity to two major agricultural research institutions, emphasis on in-service students, excellent physical facilities, a favorable socio-political campus climate, and explicit responsibility for teaching, research, as well as outreach, provides IPSA with a unique opportunity for leadership in coordination, multidirectional feedback, development of state-of the-art curricula, and research problem identification. Development of the institutional framework for sustaining such leadership requires more than the initial 5-year period.

The Tripartite Evaluation team concluded that "sustainability of IPSA in term of intended objectives is, as of now, questionable without continuing support of the GOB and external donor assistance." The Team, based on its and others' experiences elsewhere, also expressed that sustainability of a project of the type in question should not be expected after only 5-years. Therefore, the project should be extended to assure sustainability.

The IPSA Project has played a very crucial and constructive role in stimulating action towards the improvement of higher agricultural education in Bangladesh. As a result, a number of positive steps were taken on the part of BAU and the BDG, suggesting that a good potential for improvement in higher agricultural education exists. IPSA needs to continue to play this broader role and needs further technical assistance in order to permit it to play this role.

Another reason, broader than the IPSA Project itself, was to test the feasibility and to assess the advantages of joining another major donor in a technical cooperation project. Here again, the IPSA Project made contributions which have implications far beyond the Project. These types of contributions will continue to be forthcoming with an extension of the Project into Phase II.

H. Issues

1. Will IPSA have attained sustainability by the end of Phase II? The issue of whether, and under what conditions, IPSA will be able to achieve sustainability by the end of the proposed Phase II is clearly of overriding importance. Therefore, three reports - one by an internal team and one each by two outside consultants - were prepared to assess this question. Their analyses and conclusions are summarized as follows (for the full reports see Annexes I&II):

a. A strong academic program must be developed. This will involve the development of high standards of admission, an up-to-date curriculum which is sensitive and responsive to employer's requirements, and high standards of teaching.

b. Development and maintenance of scientific manpower must receive priority attention. This includes the staffing of vacant posts with the best talent available as well as the establishment of opportunities for continuous professional improvement.

c. IPSA, in order to fit the role research/teaching institution of national repute, must develop a teacher and student research program which fits into the national priority areas of research as stated by the National Research Master Plan.

d. Much state-of-the art research and teaching equipment is available at IPSA. To assure continued functioning of this equipment, IPSA must acquire a capacity to maintain and update equipment. This will include establishing or assuring access to repair facilities as well as training users in the proper day-to-day care of the equipment.

e. Library facilities should receive attention for continued upgrading, including inter-library linkages, computerized bibliographical searches, and the like.

f. In order to make IPSA a cost effective organization, its academic, research, administration and fiscal management system must be structured so as to permit timely decision making and unhindered flow of funds in support or IPSA's strategic programs.

g. Linkages to other institutions, particularly BARI, BRRI, BARC, JRI, and the appropriate faculties of Dhaka University will enable IPSA to augment its scientific manpower and will provide access to additional laboratories and experimental fields. In turn, it will provide other institutions access to the physical and human resources at IPSA, thus improving the efficiency of the entire system.

h. IPSA's research program should have relevance to existing or emerging agricultural problems. To achieve this, IPSA must establish feedback systems with the extension services, non-government organizations, and the private agribusiness sector.

i. In order to accomplish much of the above, IPSA should act to obtain academic autonomy as soon as possible.

j. To assure continuing high standards in its activities, IPSA must institute a monitoring and evaluation system for the Institute as a whole, for its program components, and for its employees, particularly for its academic faculty.

k. Finally, there must be sufficient commitment from the GOB to the extent that sufficient financing will be provided to cover operating, maintenance, and some modernization funds on a regular basis.

The fundamental conclusion by all three reports is that sustainability of IPSA can be achieved by the end of Phase II. To accomplish this, however, some important steps must be taken at the very beginning, if not prior, to implementation of Phase II.

2. Are IPSA and BAU duplicating each others programs?
IPSA is one of only two institutions in Bangladesh offering postgraduate training in agriculture (the other being Bangladesh Agricultural University, BAU). IPSA is currently offering only masters degree programs but is actively preparing to implement a doctoral program in 1990. BAU offers masters as well as doctoral programs. Although enrollment in Ph.D. programs at BAU has increased during the past few years, BAU has, in fact, produced only six Ph.D.'s since its establishment in the early sixties. Thus, effective doctoral programs which produce a predictable supply of graduates in agricultural fields are yet to be developed for Bangladesh. Because of its research-teaching orientation and proximity to other research institutes, IPSA more so than any other institution in Bangladesh has the prerequisites for the development of quality doctoral programs in selected agricultural fields.

The programs at the two institutions (offering agricultural postgraduate training in Bangladesh) are complementary to a far higher degree than they are duplicative. IPSA is extremely well equipped to emphasize the crop and allied sciences. IPSA offers no programs in such fields as livestock, fisheries, veterinary science, and agricultural engineering and technology. These are available at BAU.

3. Will IPSA Produce Graduates For Whom There Will Be No Jobs?
There is an adequate job market for the postgraduates produced by BAU and IPSA. Unless production of masters degree holders is increased significantly this situation is not expected to change. Such expansion is not likely. In the case of masters level

training, the two institutions together lack the capacity and intent to admit all qualified applicants for postgraduate training at higher than present levels. In the case of BAU this is due to limitations in faculty authorized for postgraduate training and in facilities. At IPSA, an explicit decision was made to limit enrollment of masters students to sixty in order to assure adequate laboratory space, adequate experimental plots, adequate academic supervision, and in general to assure a high quality program.

C. Project Goal and Purpose: Phase II

1. Project Goal

As in Phase I, the project goal for Phase II is to increase rural incomes, to improve the quality of life of rural residents, and to enhance agricultural development through training of postgraduates. Emphasis is on improving knowledge and skills, conducting problem oriented basic research, and developing outreach programs with applications in all fields of agriculture.

2. Project Purpose

Project purpose during Phase II of the project continues to be to contribute to increased agricultural productivity

(a) by strengthening of postgraduate level education at the M.Sc. and Ph.D. levels,
(b) through the development of a problem oriented research program with a strong long-term research needs assessment and an economic component analysis capability, and
(c) by the implementation of a community based institutional outreach program.

Whereas emphasis during Phase I was on the establishment of the basic infrastructure of an entirely new institution, emphasis during the second phase will be to build on the basis established during Phase I and to develop IPSA into a sustainable "Centre of Excellence" by the end of Phase II. Programmatic emphasis of the "Centre of Excellence" will be on (research, teaching, and outreach programs in subject matter areas which (a) require well equipped laboratories and well trained teacher/researchers, (b) which are not already covered by other institutions, (c) which are of significant national interest, and (d) which provide results which can be transferred to other institutions and the private sector. These subject matter areas may include areas such as biotechnology, soil/water/plant relationships, integrated pest management, environmental studies, and post-harvest physiology.

D. Strategy to Achieve Phase II Goal and Purpose

To achieve its purpose of establishing a sustainable "Centre of Excellence" in agricultural postgraduate training, research, and outreach, the project has as its strategy the following components:

a. Programmatic: Phase II of the IPSA Project follows naturally on the first phase of the project, which dealt with all aspects of developing an entirely new multi-faceted institution. Phase II will continue toward the purpose of developing such an institution. However, the relative with of activities will shift with some new activities undertaken to accomplish the project purpose. Thus, completion of construction of the physical infrastructure, acquisition of machinery, equipment, computers, and instruments, development of improved academic programs, improvement of library holdings, establishment of a research program, technology transfer by the experts, and shaping of administrative structure all are receiving attention.

Project strategy is to impact on the following major components:

aa. Research Program

* Continue the development and expansion of problem oriented research which cannot be conducted by other institutions. Research will address important emerging national issues such as biotechnology, soil/water/plant relationships, integrated pest management, environmental studies, and post-harvest physiology.

bb. Academic Program

* Implement the competency based masters curriculum developed under the first phase of the project.

* Develop and implement a doctoral program to produce graduates with improved skill and knowledge for the research, teaching, government, and private sector.

* Establish a system which permits rapid transfer of the Institute's and others' research findings into the classroom.

cc. Outreach Program

* Continue development of a community oriented outreach and outreach methodology program under the Department of Agricultural Extension and initiate an outreach program for research results, research methodology, and on the assessment of research relevance and emerging research needs

dd. Institutional Development

* Continue with the development of the experimental farm, expansion of the library, upgrading of student laboratories, enlargement of the computing centre, and the construction of residential quarters and related infrastructures.

* Strengthen faculty, administrators, officers and staff through short- and long-term participant training.

* Establish a comprehensive scholarship program to attract qualified students.

*Implement new and revise existing administrative structures, processes, and strategies to assure efficient and relevant teaching, research, and outreach programs.

* Establish formal linkages with educational/NARS institutions to enable and sustain joint research programs, exchange of scientists and faculty, efficient exchange of research results, research coordination, and feedback on academic program requirements.

* Develop and implement an ongoing evaluation and monitoring system for faculty performance, institutional performance, programmatic content, and sustainability.

b. Organizational/Administrative: Tripartite cooperation is a keystone in the IPSA Project strategy. During the first phase of the project a successful tripartite cooperation between Bangladesh, Japan, and the U.S.A. was implemented. Of the donors, Japan was the "senior partner" and played a much larger role, both with respect to program responsibility as well as size of technical assistance and grant aid funds, than the U.S.A. The Tripartite Evaluation Team noted that "preliminary assessment of this pioneering arrangement permits the conclusion that the tripartite cooperation is successful. This conclusion is based on the fact that there is evidence that the IPSA Project, as a result of tripartite cooperation, benefited in ways which it would not have benefited had there been only bipartite cooperation. This is due to budget limitations, various and differing institutional constraints facing donors, and comparative advantage amongst the donors."

Part of the strategy for Phase II of the IPSA Project is to continue with tripartite cooperation, with Japan continuing as the senior partner. The division of labor and clear identification of responsibilities, which has served the Project well in the first phase, will continue. Likewise, the close interaction and integration of technical cooperation efforts will receive continued attention.

E. Activity (Output) Plan During Phase II Cooperation

The following outputs are expected to have been accomplished by the end of Phase II:

1. Research Program

* A sustaining research program (a) which capitalizes on IPSA comparative advantage, (b) which focuses on areas such as biotechnology, soil/water/plant relationships, integrated pest management, environmental studies, and post-harvest physiology, (c) which has linkages to other research institutions and (d) which fits into the national agricultural research plan established in all Departments.

* Additional faculty trained a the doctoral level to conduct more rigorous research.

* Faculty and officers trained in the use of scientific equipment, including the use of computer.

* Faculty trained in research planning and prioritization.

* Capability to conduct research needs assessment, with emphasis on economic analysis, established.

* Formal linkages and cooperative research programs established with major research institutions in Bangladesh and elsewhere.

* Annual research review and planning conference institutionalized.

2. Academic Program

* New curriculum and examination system implemented at the M.Sc. level in all of the academic departments at IPSA.

* Doctoral program implemented in most of the existing academic departments at IPSA.

* Agricultural economics program implemented.

* Faculty better trained in teaching and examination methodology.

* Students better trained for existing and anticipated job market.

3. Outreach Program

* Department of extension established and teaching, research, and outreach program functioning.

* Formal linkages established with other educational institutions and with the DAE.

* Community-based extension training laboratory established for student training, research, and policy guideline development.

* Neighboring community based outreach program functioning.

* Farmer days at IPSA institutionalized.

* Outreach programs for scientists, extension agents, etc. held on a regular basis.

4. Institutional Development and Support

* Library holdings improved and library use efficiency increased.

* Computer centre for faculty, staff and students established.

* Expanded scholarship program implemented and recruitment and alumni tracking office established.

* All authorized departments fully, or nearly fully, staffed and functioning.

* Residential housing and related community infra structures for 80 percent of faculty and staff constructed.

* An organizational structure established to meet the needs of academic, research, outreach, administrative, support and physical plant requirements of the Institute.

F. Request (Input) Plan During Phase II Cooperation

Inputs proposed for Phase II do not always separate neatly into the categories of research, academic program, outreach program, and institutional support, as inputs frequently impact more than one of the program areas. For instance, subject matter experts will be involved in research, teaching, and outreach. Similarly, development of the library is basically an institutional development activity, but it also impacts the academic and research program. Because of these joint relationships, the description of the proposed inputs during Phase II is approached in several ways. First, immediately below is a qualitative description of the inputs by major program area (research, academic, outreach, and institutional development). In Table 3.1 a summary by input type and source is provided. Tables 3.2 and 3.3 provide a break down of the proposed use of short- and long-term experts. Finally, Annex IV gives the field-wise request plan for Phase II.

1. Research Program
Proposed inputs for the research program include technical experts on a long- as well as a short-term basis. There will be continued efforts towards upgrading the faculty through both long-term (degree) as well as short-term training. The research program will also be enhanced through further acquisition of books and journals, laboratory equipment, computers and an expanded experimental farm. Finally, a new library building will be provided for housing the improved library holdings and for more effective to library holdings on the campus as well as library networks.

2. Academic Program
Similar to the research program, proposed inputs for the academic program include technical experts on a long- as well as a short-term basis. Continued efforts towards upgrading the faculty through both long-term (degree) as well as short-term training will contribute to an improved academic program. The academic program will also be enhanced through further acquisition of books and journals, laboratory equipment, computers and an expanded experimental farm. Construction of student laboratories will increase the students' access to laboratories for classroom work as well as for thesis research. An endowed scholarship program will attract better students and will serve as an inducement for students to complete all degree requirements before accepting employment. Finally, a new library building will be provided for housing the improved library holdings and for more effective to library holdings on the campus as well as library networks.

3. Outreach Program
Similar to the research and academic programs, proposed inputs for the outreach program include technical experts on a long- as well as a short-term basis. Continued efforts towards upgrading the faculty through both long-term (degree) as well as short-term training will contribute to an improved academic program. The academic program will also be enhanced through further acquisition of books and journals, laboratory equipment, computers and an expanded experimental farm. Laboratories, the improved library and computing centre, the audio-visual centre, and the expanded experimental farm will be increasingly used for conducting outreach programs.

4. Institutional Development
Inputs proposed for institutional development include filling of existing and newly allocated positions on the IPSA faculty and the construction of residential housing (with concomitant infrastructure) for the incumbents. A student recruitment and alumni tracking office will be established in conjunction with the implementation of an endowed scholarship fund. Library facilities and holdings and the computing facilities available to faculty and students will be upgraded.

Table 3.1. Summary of Preliminary Requests (Inputs) for the IPSA Project, Phase II

Input type	BDG	JICA	USAID	Total
1. Technical cooperation				
a. Long-term	2,700 PM	400 PM	48 PM	3,148 PM
b. Short-term	-	100 PM	36 PM	136 PM
2. Participant training				
a. Long-term (Ph.D.)	-	5	5	10
b. Short-term	25 PM	60 PM	24 PM	109 PM
3. Commodities	Supplies, equipment, spares, land, books, journals	Laboratory equipment, vehicles, farm machinery	Journals, books, computing &audiovis. equipment	Supplies, equipment, land, books, journals, laboratory equipment, vehicles, computing &audiovis. equipment
4. Construction 1/	Residential housing, school (K-10) functional buildings	Library, student laboratories	-	Resid. housing, school, functional buildings, library, student laborats.
5. Scholarships	Scholarships from endowment 2/			

1/ Source of funds for residential housing and school is PL 480 III.
2/ Source of funds is PL 480 III.

Table 3.2. Tentative List of Experts, their Fields and Person Months During Phase II (1990-95) of IPSA Project to be Funded by JICA

Fields	Long-term Expert	Short-term Expert	Total
A. Current Fields			
Team Leader	1 P x 12 M/Y x 5 Y = 60 PM	0 PM	60 PM
Coordinator	1 P x 12 M/Y x 5 Y = 60 PM	0 PM	60 PM
Agronomy	1 P x 12 M/Y x 2.5 Y = 30 PM	1 P x 2 M/Y x 5 Y = 10 PM	40 PM
Entomology	1 P x 12 M/Y x 2.5 Y = 30 PM	1 P x 2 M/Y x 5 Y = 10 PM	40 PM
Genetic & P.B.	1 P x 12 M/Y x 2.5 Y = 30 PM	1 P x 2 M/Y x 5 Y = 10 PM	40 PM
Horticulture	1 P x 12 M/Y x 2.5 Y = 30 PM	1 P x 2 M/Y x 5 Y = 10 PM	40 PM
Plant Pathology	1 P x 12 M/Y x 2.5 Y = 30 PM	1 P x 2 M/Y x 5 Y = 10 PM	40 PM
Soil Science	1 P x 12 M/Y x 2.5 Y = 30 PM	1 P x 2 M/Y x 5 Y = 10 PM	40 PM
Sub-total (A)	300 PM	60 PM	360 PM
B. Possible Key F			
Crop Botany	1 P x 12 M/Y x 2.5 Y = 30 PM	1 P x 2 M/Y x 5 Y = 10 PM	40 PM
Equipment Mtn'ce	1 P x 12 M/Y x 2.5 Y = 30 PM	1 P x 2 M/Y x 5 Y = 10 PM	40 PM
Farm Management	1 P x 12 M/Y x 2.5 Y = 30 PM	1 P x 2 M/Y x 5 Y = 10 PM	40 PM
Sub-Total (B)	90 PM	30 PM	120 PM
C. Other Related (C)	10 PM	10 PM	20 PM
TOTAL (A+B+C)	400 PM	100 PM	500 PM

Note : 1. P.M and Y stand for Person(s). Month(s) and Year(s) respectively.
2. 2.5 Y means the average of 2 to 3 years.
3. Other Related includes experts for installation of (and training for) sophisticated equipment and for meeting unexpected necessities.

Table 3.3. Tentative List of Experts, Their Fields and Person Months During Phase II (1990-95) of IPSA Project to be Funded by USAID

Fields	Long-term Expert	Short-term Expert	Total
1. Research Plang./ Assessment	1 P x 12 M/Y x 2.5 Y = 30 PM	1 P x 1 M/Y x 2 Y = 2 PM	32 PM
2. Ag. Extension Education	1 P x 12 M/Y x 1.5 Y = 15 PM	1 P x 1 M/Y x 4 Y = 4 PM	19 PM
3. Curriculum Development	1 P x 3 M/Y x 1 Y = 3 PM	1 P x 1 M/Y x 3 Y = 3 PM	6 PM
4. Library Development	-	1 P x 1 M/Y x 3 Y = 3 PM	3 PM
5. Computer program operation maintenance	-	1 P x 2 M/Y x 3 Y = 6 PM	6 PM
6. Social Sciences	-	2 P x 2 M/Y x 4 Y = 16 PM	16 PM
7. Others	-	1 P x 1 M/Y x ½ Y = 2 PM	½ PM
TOTAL	48 PM	36 PM	84 PM

Note : 1. P.M and Y stand for Person(s), Month(s) and Year(s) respectively.

2. 2.5 Y means the average of 2 to 3 years.

IV. PRELIMINARY FINANCIAL PLAN

Estimated total cost for Phase II of the project is 6,250.80 lakh taka. Of that amount, 1,570 lakh are from PL 480 III funds, and 3,424 lakh taka are foreign exchange/project assistance funds.

Table 4.1 provides information about annual phasing of the expenditures by source of funds. Table 4.2 gives information on major expense categories by source of funds.

Table 4.1. Annual Phasing of Expenditures, by Source of Funds

Funding source	1st year	2nd year	3rd year	4th year	5th year	Total
			- lakh taka -			
JICA (Grant)	1530.22	385.76	188.00	168.00	164.66	2436.65
USAID (Grant)	201.60	247.94	181.60	166.60	189.62	987.36
BDG	249.32	250.40	251.30	252.37	253.40	1256.79
PL 480 III	170.00	800.00	600.00	-	-	1570.00

Table 4.2. Financial Plan, by Major Expense Categories and Source of Funds

Expense category	Source of funds PA	BDG	Total
		- lakh taka -	
Pay	-	219.78	219.78
Allowances	-	253.63	253.63
Contingencies	158.78	487.50	646.28
Construction (JICA)	222.22	-	222.22
Experimental farm development	-	83.15	83.15
Land purchases	-	12.21	12.21
Residential quarters (PL 480)	-	1400.00	1400.00
Functional buildings	1000.00	-	1000.00
Machinery/equipment (JICA, USAID, BDG)	329.11	20.00	349.11
Transport/vehicle/travel (JICA/USAID)	224.44	-	224.44
Books/journals/periodicals (BDG, USAID)	74.12	18.31	92.43
Consultants/experts/teams (JICA, USAID)	1009.32	-	1009.32
Training (BDG, JICA, USAID)	406.02	12.31	418.23
CDST	-	150.00	150.00
Scholarships (PL 480 III)	-	170.00	170.00
Totals	3424.01	2826.79	6250.80

ANNEX 1: INTERNAL SUSTAINABILITY STUDY REPORT

Report on the Internal Sustainability of IPSA

The Institute of Postgraduate Studies in Agriculture (IPSA) was established in 1983 with the following goal and objectives :

Goal: to provide intellectual leadership in the technical fields supporting economic development of Bangladesh through agriculture.

Objective: IPSA's immediate objective is to 'strtengthen posgraduate level education and research thus contributing to the improvement of the practical research system in Bangladesh'.

For achieving the goal and objectives IPSA needed to be a unique institution providing graduate instruction and carrying out basic research in agriculture. Through evolutionary processes education, extension and research organizations in the field of agriculture are now lying dispersed; and effective linkage among the organizations is either lacking or minimum. IPSA aims to play its role in bringing them closer through its graduate instruction, research and outreach programs. IPSA is unique in the sense that it is mandated to perform multiple roles. Based on its explicit role and mandate IPSA compares favorably with the Land Grant universities of United States. BAU was also supposed to take on similar role; but its academic activities remained confined mainly within undergraduate and MS level teaching. Compared with BAU, IPSA has an advantage of being closer to research complex. While IPSA can draw on the scientists of the neighboring research organizations for operating its academic program, IPSA's faculty also can benefit being involved in research programm planning and evaluation; and even having collaborative research activities. The graduate students benefit not only by attending lectures of the scientists; but also having opportunities of working under direct supervision of research scientists of those institutions.

IPSA has completed seven years of its operation. The first phase of Bangladesh-Japan-USA Technical Cooperation Progran on IPSA is also nearing completion. About a year ago a 'Tripartite Evaluation Team' visited IPSA and other governmental organizations and recommended an extension of the Cooperation program'; but questioned about the sustainability of IPSA once the donor assistance is withdrawn. In the following paragraphs we attempt to describe briefly the accomplishment IPSA has so far made and the key elements that IPSA should take care of for its growth, development and sustainability.

Accomplishments

Physical facilities: In the Preliminary Project Proforma (PPP) of IPSA it was rightly stated that 'the first phase (of development)

was primarily geared to acquisition and establishment' It goes further saying that 'the pase II can be considered as the consolidation and action'. During phase I IPSA has acquired most of the needed rquipment and supplies to build up laboratories to carry out multidisciplinary research in agronomy, crop physiology, entomology, genetics & plant breeding, horticulture, plant pathology, soils and tissue culture. To facilitate research and teaching programs five micro-computers have also been obtained. An experimental farm of 8.0 ha with modern irrigation facilities has been developed. Land development work on another 8.0 ha area for the extension of the farm is in progress. Green house and two glass house and net house provided offer an opportunity for conducting experiments under controlled or semi-controlled environment. Judging the quantum and quality of equipment, machinery and appliances, and other physical facilities obtained so far, IPSA is second to none in the country.

It is expected that the Second Phase will concentrate on building infrastructures like staff housing, library and additional laboratories, class rooms and faculty offices; and acquisition of equipment, library materials and teaching aid materials.

Autonomy for IPSA: Since the beginning of its operation there has been a continual effort of making IPSA into an independent degree granting institution. Originally IPSA being an affiliated institution of BAU, it was under the administrative control of BARI. In October 1988 IPSA was delinked from BARI. It is expected that winning academic freedom for IPSA is forthcoming.

While approving the new Project Proposal (PP) of IPSA, ECNEC approved that IPSA would be working as a fully autonomous institution with authority of granting degree at MS and PhD levels in the field of agriculture and forestry. A charter in this connection is waiting for approval.

A committee appointed by the UGC recently visited IPSA to study the feasibility of awarding degree granting authority. The report of the committee is forthcoming and indications are there that the recommendation will be in favor granting autonomy to IPSA.

Library: IPSA library, though far from satisfactory, made steady progress in acquisition of books and journals. IPSA library now owns some 400 titles of most updated titles of books and subscribes 127 standard journals covering wide spectrum of crops, soil and social sciences.

Academic activities: IPSA being an affiliated institution of BAU, no separate curricula could be established so far. However, since beginning three classes of MSc(Ag) students have graduated, the fourth one is taking final examinations. Regular classes of fifth batch of students (60) will start June 3, 1990. Despite tremendous efforts change in course contents or improvement of curricula was not possible so far; but there were attempts to improve the quality of graduates providing better research

facilities and supervision, offering extra courses and arranging hands-on training for the students thus creating some discernible differences between the IPSA graduates and that of BAU. In the past years IPSA graduates demonstrated their superiority in the public examinations and recruitment tests.

Improved curriculum for IPSA: During the past three years IPSA faculty, under the leadership of Dr. L.M. Eisgruber, spent considerable time and efforts designing improved course-based curricula for MS students of IPSA. The proposed curriculum has drawn attention and appreciation from many quarters. The high powered committee appointed by the ECNEC to examine the proposed curricula has recently approved it (in collaboration with UGC). IPSA intends to implement the new course-based curriculum without delay.

Research: In order to accomplish IPSA's immediate objective 'to strengthen postgraduate level education and research, thus contributing to the improvement of practical research system in Bangladesh' long term research programs of eight academic departments have been established. Research programs are developed based on peer reviews. Collaborative research projects have also been established with other research organizations and academic institutions. As an outcome of research efforts about 100journal papers have been published by the IPSA faculty during the past two years.

Sustainability

The strategic plan of the Institute stresses sustainability in research, educational efforts and outreach programs. Nevertheless establishment of an academic institution like IPSA is time consuming and needs persistent efforts for a period of time. The IPSA project paper states that its consolidation phase is about to begin now. While growth and sustenance of IPSA will depend largely on the intellectual capability, commitment, dedication and concerted efforts of the faculty under strong leadership, sustained support of the GOB and technical assistance from donors are also most imperative.

IPSA is a governmental organization and GOB provides sufficient funding for operation of the Institute. It is expected that GOB support for IPSA will continue to grow in future. However, sustainability concerns whether academic standard, and research capacity attained by the end of Phase II can be maintained and continual growth and ability to adapt to changing environment assured. Sustainability involves the ability of the academics and the management, to maintain the institute function at a certain level, despite financial and external issues tend to plague the activities of IPSA. In fact sustainability should be viewed as multidimensional. A lack of sustainability may be due to internal processes (organizational and operational activities, administrative bureaucracy etc.) that cumulatively undermine the growth and productivity of the Institute. On the other hand an institution can lack sustainability under the external influences

such as government policy, conditions, restrictions and limitations imposed by affiliating university or by policy planners.

High quality of graduates, research and outreach (not necessarily larger output) can be associated with higher sustainability provided that high quality graduates can fill the voids or supercede the requirements of larger number of inferior quality graduates. But it is essential that a minimum number of students are enrolled and retained to make teaching-learning process more effective and out turn remains fairly stable. Higher production may be negatively associated with sustainability in that a larger number of graduates produced one year creates a glutt in the job market recurrent of which may eventually threat sustainability.

In the following paragraphs we analyze some key issues relating to the sustainability of IPSA. Our limited experience along the development of IPSA may not be adequate to make an assessment of the role and shape that IPSA may take on in future, it is our understanding that the following analysis will provide some thought for improving the programs and activities that will eventually help sustain the Institute.

Strengthening of agricultural education and research is necessary: Agriculture being the most important economic sector in Bangladesh contributing 65% of the GDP and employing 61% of the country's labor force, overall economic development depends largely on the increased and sustained productivity of agricultural sector. Bangladesh has been trying to achieve self-sufficiency in food; but the annual food deficit seems to have stabilized at about 3.0 million tons. It is estimated that by the year 2000 AD 138.2 tons of food grains would be needed. The projected food requirements together with growing demands for feed and fiber for the year 2000 AD and beyond dictate expansion and strengthening of public institutions for the sustained growth in agricultural productivity. Agricultural development processes indicate that the growth in capacity to produce agricultural produts depends on improved technology, better institution to serve agriculture, improved human capital, and increased biological physical capital base of agriculture.

The technological base in agriculture sector in Bangladesh is poor, the institutions supporting the agriculture sector are either less effective or ineffective. The envisaged expanding program of activities will necessitate an increase in scientific manpower and technical manpower needed to achieve increased crop productivity. Institutional support for improving the human capital is also inadequate or inappropriate. The lone agricultural university - BAU, with its three affiliating colleges provide instruction at undergraduate and postgraduate levels but the quality of the graduates, with exceptions, is questionable. Necessary healthy competition in the field of higher agricultural education being absent, BAU remains stagnated with outdated curricula which has little relevance to the contemporary agriculture in Bangladesh.

As expected, GOB attaches much importance to the development of country's largest production sector - agriculture, for which increased investment is being encouraged. For the national economic development Govt has no other option but to increase and sustain agricultural productivity. It is thus imperative that for building and strengthening the institutions and services in order to achieveing sustainable growth in agriculture sector, more attention would be needed for improving the human capital. This indicates that in the face of growing demand IFSA will take on a greater role with stronger Govt. support in the years to come provided IFSA's academic program continues to improve and expand and research capability increases or at least remains stable.

Academic Program for IFSA: The explicit goal of IFSA is to provide intellectual leadership in the field of agriculture providing quality graduates and disseminating research results. And for doing so, IFSA will be a 'Center of Excellence' for postgraduate studies in agricultue meeting 'world standard' of agricultural educvation and research. The ECNEC - highest planning body in the country - also emphasized that IFSA attains international standard in the field of agricultural education and research. Nevertheless attainment of high standard of education requires a good academic program with appropriately qualified, capable, experienced and dedicated faculty, and adequate resources. Also development of a strong, practical oriented academic program that addresses major and critical issues relating to contemporary agriculture is a key element for the growth and sustenance of IFSA. As opposed to BAU's existing one-year MS program, IFSA proposes a course based curriculum requiring at least three to four semester terms extending over a period of 18-24 months. The proposed curriculum focuses on multidisciplinary approach with greater emphasis on thesis research. Apparently it seems that the proposed 18-months MS program may not attract the students in the case BAU's MS program remains one year of duration. We imagine that because of the inherent weaknesses in the BAU's graduate studies program and considering the following reasons and propositions, 18-months program of IFSA will gain popularity:

- although BAU's MS program is scheduled for 1 academic year but it hardly finishes even in two years;

- MS level graduates coming out of BAU encounter much difficulty in getting admission into PhD program in any standard foreign university. MS program is normally of 2-years duration in standard universities. Introducing 18-months Masters program IFSA will bring parity in higher agricultural education comparable to US system.

- IFSA's MS program is multidisciplinary in nature and students will have freedom of choice while taking courses depending on his/her aptitude, requirement and intellectual capability.

- IPSA stresses much on admitting in-service students. It is necessary that academic program finishes on time so that the inservice candidates can join the parent organizations on time.

-IPSA's courses based graduate program will be modulated in such a fashion that enrollment of students will be done at least twice a year and semester is concluded in five months. This way IPSA will have no session jamm. It is expected that if the academic program runs smoothly, there will be tremendous demand for enrollment in IPSA. This will occur because during the past years opportunity of doing graduate studies by the researchers in foreign universities under donor assistance program has gone down considerably. Prospects of improving the situation in immediate future seems unlikely. Therefore, in the face of rapidly changing agricultural technology, the researchers will feel strongly about doing graduate studies in future. Obviously IPSA can play a role in improving the capability of the research institutions by imparting graduate instruction to the in-service candidates.

- IPSA basically stands for quality. Once graduate instruction program established and employers know about the superirity of IPSA graduate, demand for enrollment in IPSA will continue to grow.

- There has been a growing demand for higher agricultural education in the less developing countries like Bhutan, Maldives and Nepal. Educational institutions in those countries are not yet capable of offering graduate program in agriculture. Arrangement can be made to attract students from those countries under SARC framework or bilateral agreement.

A doctoral program is under development. As IPSA attains academic independence the faculty will switch over to newly improved MS and PhD curriculum.

ECNEC recommended autonomy for IPSA with independent degree awarding authority. The Institute should be a Center of Excellence by offering improved courses and facilities not available in other institutions in the country. The physical facilities that IPSA has and will acquire by 1995 will be far superior to that available in BAU or elsewhere in the country. It is therefore expected that academic program of IPSA is also of high standard. When developing the academic programs it might be necessary to reorganize the academic departments for effective management and better utilization of resources, not necessarily duplicating those available in BAU.

<u>However, introduction, improvement and sustenance of IPSA's independent academic program depends almost entirely on the administrative and academic autonomy of IPSA.</u>

Improved academic program will require additional manpower: Implementation of new curriculum will entail increased manpower

and resources. So far 20 teachers have been recruited out of sanctionted strength of 37. Eight of the faculty members in position are currently working for PhD or on professional training abroad. The proposed MS curriculum provides for 65 courses covering 187 credit hours to be offered individually or jointly by nine academic departments. It is imperative that implementation of the newly developed MS curriculum will require substantial increase in faculty. IPSA has recently taken steps in filling up the vacant professorial positions, But it is quite certain that even if all the sanctioned 37 faculty are in position, this strength will not be adequate to implement the proposed curriculum. Inadequate number of teaching staff in IPSA seems to be the weakest point hindering the winning of academic feedom and gaining authority to offer degrees by IPSA.

However, it is also be noted that IPSA has been operating its academic program in active collaboration of the scientists of the neighboring research institutes. Even when developing improved course-based curriculum, the organic linkage between IPSA and BARI or BRRI was taken into consideration. Memorandum of understanding between IPSA and the cooperating research institutes or extension organization is in process which will provide for official recognition of participating scientists as visting faculty in IPSA. This will also provide for sabbaticals for the scientists and faculty. These arrangements will facilitate the collaborating scientists in offering courses in IPSA on full time basis for a given term. On the otherhand, faculty will also have updating research knowledge, at least applied research, working with scientists in the research organizations. However, this does not rule out the necessity of increasing faculty positions in IPSA. It is essential that IPSA recruits sufficient number of teachers so that at least basic and core courses are offered regularly by the IPSA faculty.

Updating Curricula: Development of curricula is a dynamic process. The improved curriculum while in operation should be subjected to a regular peer review. Such reviews will assess the need for continuity of courses, identify weaknesses and opportunities for improvement and interdepartmental collaboration. In addition the instructors will periodically review and update the course materials including the laboratory courses in order for updating through incorporating the most recent advancement of science in a given discipline.

Improvement and Maintenance of Teaching Standard: The success of academic program depends primarily on the quality of teaching. Selection of teachers and students is of prime importance in maintaining high academic standard. In rapidly changing technology driven field like agriculture, there is ever present problem of stagnation of individual scientific expertise. To acquire and maintain high standard of teaching, oportunities for professional improvement should be explored and utilized. Bilateral collaboration between IPSA and Japanese universities and US universities may assure such qualitative improvement of faculty. System of promotion, recognition and reward for teachers

following periodical evaluation will also help maintain academic standard.

Attracting best teachers in IPSA will depend largely on the salary, service conditions and academic environment of the Institute. Normally the salary, service conditions and other opportunities of university teachers are relatively better compared with corresponding positions in other govt. services in the country. The democratic and healthy environment of the university also attracts many teachers.

Status, service conditions, salary structure and other facilities of IPSA faculty are inferior compared to that of university teachers. In order to facilitate hiring better teachers, this disparity needs to be removed. Needless to say that without proper financial support and professional incentives in education and research, IPSA cannot prosper. It is the intent of IPSA to provide for instruction and research of 'international standard' in the field of higher agricultural education and to accomplish the goal some challwenging people are needed whose enthusiasm should not be allowed to be eroded because of lack of incentives and or institutional support.

Enrollment of students: Admission of graduate students has been deliberately limited to 60 annually. It is suggested that such restriction had been imposed for the sake of maintaining quality instruction. IPSA offers MS program in eight departments. Some of the departments admit less than 5 students per class. For making the teaching-learning process more effective (in the clas room lecture system), it is essential that a minimum number of students is admitted per class. Similarly maximum upper limit of admission per class should also be set. However, when IPSA becomes fully independent academically and administratively, the scenerio will change. Student enrollment will be course-wise rather than department-wise. But the maximum and minimum ceilings for enrollment per course/class should also be worked out.

Students Drop-out:The major issue plaguing IPSA's academic program is the greater percentage of dropouts. The extent of dropouts in BAU is also equally high but the magnitude of the problem is not quite discernible there because of lesser or no dropoutsin the undergraduate program. Dropouts occur primarily because of employment opportunity. Upper age limit for entering the govt services being 27; and since majority students finish BSc(Ag) at closer to that age, the students are tempted to take up the job. Job market is alarmingly dwindling and students cannot afford waiting for uncertainity. Poor economic conditions also compels many of the students to take up job before completing MS degree. The financial assistyance provided to each student is too inadequate to live on. Our experience in IPSA suggests that many of our graduate students come to IPSA for convenience of searching for job only. Majority students are found busy preparing for recruitment test rather than working for the class assignments. Obviously the situation is far from condicive for effective teaching. The opportunities to

'contributing to the improvement of practical research system in Bangladesh' through upgrading human resources can be possible only when good academic environment is created. Very often it was observed that the best students were attracted and admitted in IPSA but they, with exception of a few, deserted the program earlier.

This undesirable situation can be avoided and more capable students retained if adequate financial assistance can be provided. A proposal for establishment of an endowment fund of sufficient amount for generating scholarship on annual basis is now under active consideration. However, this will not be sufficient to solve the dropout problem. In addition to annual salary increase (increment), by early employment students benefit gaining seniority which in most cases is considered essential for on-the job promotion.

Two arrangements, not mutually exclusive, may help solve much of the problem. (1) If the proposed scholarship/fellowship offered by IPSA (generating through endowment fund) is comparable to the salary of entry level position (i.e. Scientific officer), IPSA can recruit the students on temporary basis as a research assistant (or research associate in case of PhD candidate) upon graduation the student can capitalize the appointment as service experience which may help him/her avoid over age problem. (2) Employers (at least the research organizations) may be pursuaded so that MS and PhD level graduates are given salary incentives (in the form of advanced increments, qualification pay etc) at first appointment. It is our understanding these arrangements together with attractive scholarships/assistanship will make the 'capable' students more 'dedicated' and reduce dropouts significantly. Emphasis on admitting in-service candidates into graduate program should continue. To usher a qualitative change in the extension arena, extension officers of DAE should be encouraged to undergo higher education in IPSA. This can be institutionalized through a separate MOU between IPSA and DAE.

Research Programs: Research activities will continue to be the dominating part of the overall activities of IPSA. IPSA is mandated primarily to undertake such research programs that will solve or give clue to the solution of the problems the researchers in the applied research organizations are currently facing. IPSA's research program should place emphasis on fundamental aspects of agricultural science to expand the knowledge base for the future application and technology development. However, the relevance of research results should not be overlooked. IPSA was created to extend facilities for graduate studies on 'local problems so that the subject of research would be directly helpful for the development of Bangladesh agriculture'.

IPSA's research capability in terms of manpower, equipment and other physical facilities has grown considerably. During Phase II additional manpower would be recruited and facilities acquired. The capability can be further improved through training and

technology transfer. Over 50% of the faculty has earned PhD and advanced training on specialized field. By next three years all of the faculty members will earn PhD. All of the faculty members are capable of doing research independently. It is assumed that expatriate Professors and scientists will be available in IPSA during Phase II, and research and teaching capability will be greatly improved. However, in the case deficiencies still remain, it might be necessary to hire, through bilateral cooperation, some capable and experienced academics in order to strengthen the capabilities in some selected disciplines or programs. It is expected that over time the capability will grow provided that opportunities exist for perodical updating knowledge and skill of the faculty.

Each academic department has established long term research program addresing some basic issues relating to Bangladesh agriculture. However, the research programs seems to be fragmentory rather than holistic. This has been so primarily because of lack of manpower. (Delay in recruiting academic staff during the past several years hindered developing and carrying out research programs). Most of the programs have been developed based on individual's capability, research interest and expertise. A broadbased, long term and sustainable research program addressing the national needs should be developed when all the faculty are in position. It is also necessary that when an expatriate scientist or academic joins the program he or she works on the approved program or brings about substantial improvement keeping the objectives unchanged. However, before undetaking any excercising on the development of long term program a policy statement indicating the goals and strategy of IPSA's research program should be made by appropriate authority in order to provide complimentarity between IPSA and other research and academic institutions.

So far no separate budget allocation is made for research activities. It is essential that a regular budgetary provision is made for each research program which might be department- or programwise. This will help estimate future financial involvement in research and academic programs.

Rerearch results are reviewed periodically where peer groups and interested scientists from various organizations join. Emphasis should also be given to organize similar peer review before launching resrearch programs. Similar emphasis should be placed on the publication of research results. A built-up mechanism should be developed so that the faculty of IPSA take part in planning and review of research programs of other research and academic institutions. This will provide an effective feed back mechanism.

During Phase II considerable efforts will be made to establish outreach program. However, the nature and strategy of the program and its clientele should be well defined.

Laboratory Equipment: A substantial quantity of modern equipment has been obtained for IPSA. Proper use of the equipment in research and graduate instruction in the coming years should be assured. In view of rapid adbancement of agricultural and biological sciences, some of the equipment will be outmoded and new equipment would be coming in the market. Electronic technology with greater precision is growing very rapidly and it is expected that in near future much of the labor intensive, less accurate techniques would be replaced by modern electronic equipment. Moreover, when more people join as faculty and research program expands there would be increased demand for newer equipment. It is therefore imperative that aid flow should continue also for providing equipment and supplies.

Maintence of Equipment: Maintenance of equipment for keeping them under working condition pose a threat if technical cooperation is ceased to exist. Usually Banglasdeshi scientists and faculty are not used to handle equipment vulnerable to damage. The service facilities for most of the equipment are non existent in Bangladesh. It is therefore essential that adequate provision is made for repair and maintenance of equipment. During Phase II an equipment expert may be hired on long term basis who will be responsible for building up of the repair and maintenance capability by way of teaching and demonstration to the users and technicians. The prime user of each major equipment may be assigned the responsibility of maintenance of that equipment. The SSA's may be trained on general electronic equipment. (UGC is offering such course). Overall management and operation of the laboratory may be entrusted with a Laboratory Committee consituted for that purpose. As a long term measure, one graduate electronic engineer or MSc in Applied Physics may be appointed for repair and maintenance of the lab equipment. It is our understanding that effective management and opweration of the laboratory can ensure good maintenance of the equipment and it should not be a big problem for IPSA.

Library: To support high standard of education and research at MS and PhD level, IPSA library needs to be developed to a level that the faculty and students can draw heavily on its materials and services. The library through its collections of materials will help the faculty maintain currency in their own subjects and glean what they need from other related disciplines. It is essential that library collects the most recent textbooks and reference materials and subscribes sufficient quantities of journals relating to agricultural and natural sciences. Backfiles of the journals are the valuable source of information for the faculty and students.

IPSA library plans to subscribe about 600 journals regularly from 1995 and onward. This proposition seems appropriate for IPSA, but the high cost of journals, especially those of foreign origin, will remain a serious burden on IPSA unless donor assistance is available.

Administrative Structure for IPSA: Being under the administrative

control of MOA, in true sense, IPSA has not grown as an academic institution. When IPSA attains full administrative autonomy and academic freedom as provided in the proposed charter, it is essential that the administrative structure for IPSA is developed comparable to that of a university. IPSA should not be overburdened with administrative and supporting staff. Once the donor assistance is withdrawn sustenance of the academic and research activities will have to be supported totally by GOB funding. It is essential that the expansion and strengthening of IPSA is based on its academic and research activities only.

Funding: Regular funding for operating the activities of the Institute (academic, administrative and research) has an overriding importance in sustenance of IPSA. Most of the infra-structure and commodities needed for operating imstructional and research programs have been procured under generous assistance by big donors - JICA and USAID. During Phase I an estimated amount of 323.7 million taka has been spent out of which 82.2 million taka (i.e. 25%) was provided under technical assistance program. It is expected that the quantum and proportion of external assistance for the development of IPSA during Phase II will remain almost similar. But the withdrawal of donor assistance after the expiry of Phase II will put serious stress on the IPSA's capability. Even if the GOB funding increases beyond 1995, funding for research activities and library development will face much difficulty. Assuming that IPSA would have sufficient equipment by the end of Phase II, the cost of chemicals and other consumable items required for maintaining research activities will be high and obviously GOB funding may not be adequate. Similarly, acquisition of books ans subscribing foreign journals without donor assistance will pose big problem. Thus it seems that IPSA, like other projects, may eventually face budget limitations.

======
file:Hamid4/INTERSUS

ANNEX II: EXTERNAL SUSTAINABILITY STUDY REPORT

REPORT ON THE SUSTAINABILITY OF IPSA

by

Dr. S. D. Chowdhury

A. Sustainability of IPSA

It is now recognized that short term improvement on agricultural production currently available e.g. H.Y.V.'s, irrigation and other improved inputs will not solve the problem of long term sustainable growth in agriculture. Now second and third generation problems that will arise will need new approaches to research and efforts of high caliber research scientists to solve them. Sustainable increase in agricultural production will come about only if agricultural scientists and professionals are equipped with problem-solving skill based on sound fundamental knowledge of agriculture.

- IPSA's sustainability will hinge on its ability to continue at current or higher level of activity in terms of research and teaching after the project life or after donor assistance phase out.

- It should be able to institute new pioneer areas of research such as biotechnology, crop physiology, plant ecology etc. which are fundamental to generating new technology in agriculture and which are not being adequately tackled elsewhere.

- It must develop internal self assessment and evaluation system which will help to continuously update its Staff and improve its administrative and fiscal management system making it a cost effective organisation.

- It will have effective and formal linkage with other research and academic institution so as to enhance its own capability.

B. Scientific Man-Power Development

Reputation of an academic and research institution depend not much on its infrastructure or even sophisticated equipment etc. as on the quality and competence of its research and professional Staff.

Scientific man-power development of IPSA, therefore assumes great importance in its effort to become a sustainable Institute of higher agricultural education and as a 'Center of Excellence'. The team feels that IPSA should aim at the following objective in the next phase and beyond.

- To develop academic and research Staff of high conceptual skill with highest qualification and competence. The number of such Staff should be consistent with its research and technology programme. It should aim at an optimism number and should avoid getting loaded with unproductive, poorly qualified Staff.

- Its supporting administration and other staff should be minimized, consistent with efficient operation of IPSA administration, fiscal system, farm and laboratory plant.

- It should be able to enhance scientific man power resource by enlisting the services of top Scientist of BRRI, BARI, JRI etc. IPSA is ideally located for the Scientists of these institute to have easy access.

-Continuous upgrading and developing of IPSA's Scientific Staff in different disciplines through Short and long term training, postdoctorate training, attendance of Seminars and Symposium by its Staff and visits of foreign experts under special programme, all of which should go to keep IPSA Staff in good shape.

- Similarly frequent visits by research Staff to field Station, on farm trials sites, etc., will improve their 'hands-on' skill.

- To accelerate the process of enhancement of capabilities and competence of teaching staff for IPSA facilitate for intensified training for teachers in Japan and U.S.A. may be increased to at least 12 per year.

- IPSA can employ on contract at very high salary some outstanding researches with the country and also a those Bangladeshis serving in Universities abroad.

C. Research and Teaching Programme

The team did not have time to go into details of research activities. It did however, had a look at the research themes of various departments. The team would like to make following comments with regard to the themes, keeping in view the issue of sustainability of the institute as it relates to its role in solving national agricultural problems.

The themes selected under research programme in most cases do not seem to fit into the national priority areas of research as listed in the National Master Plan drawn up under the auspicious of Bangladesh. Agricultural Research Council (BARC) and IPSA in order to fit into the role of a national research institute must get into the national research network as proposed by BARC and must tackle priority problem areas as a part of its teachers and students research programme. The selection of themes of research may be done jointly by IPSA and BARC planning committee based on man-power availability and prospect of continuity and fruitful results. BARC is responsible for Co-ordination of all agricultural research. IPSA will ensure annual review of research projects (in which outside experts will be included) and three yearly an effective research programme as seen by the team are:

- Absence of a long term research plan based on the National Research Master Plan as noted above ;

- Absence of staff quarters for scientific staff who at the moment have to commute from the city and waste valuable time in the process which they could otherwise spend on research in the campus.

-Experimental fields have not attained uniformity in terms of soil fertility and are very poor in organic matter. The experimental plot will need lot of investment.

A short term training programme by Expatriate experts on research planning, implementation, interpretation, evaluation etc. could be productive for young teachers as also senior M.sc. students. Similarly short course training on the use of sophisticated equipment may be conducted and intensified so as to bring most researches familiar with their operation and maintenance. Some applies to micro-computers to be introduced in the second phase.

D. Teaching

Adoption of IPSA of a course-based Semester system and higher level of M.sc. and PH.D. degree will call for a more advanced course material appropriate to problem solving needs of agriculture in Bangladesh. Optional and non-core subjects will mean teachers versed in newer disciplines and more in number. Teachers will have to redesign course out-line incorporating new subjects and with contents more relevant to Bangladesh agriculture.

- Teachers to prepare lecture material and text book supplements incorporating materials and data from work done in Bangladesh.

- Encourage teachers it write text books and provide necessary incentives. Teachers knowledge and teaching skill should be updated with short-term and long-term training.

- Modern teaching equipment (including use of VCR) should be freely used to make teaching more interesting.

- Provide more opportunities to teachers to exchange role with other teachers of academic institutions.

- Evaluation of teachers to be done at appropriate intervals which should form the base for promotion and rewards.

Guest teachers from BRRI, BARI, BAU and other linked institutions may fill up the shortage of teachers on the short run or until adequate number of competent teachers are recruited or return from training abroad. The expanded and advanced level of course system require careful restructuring of entire teaching programme.

E. Admission-Standard and Curriculum development etc.

To develop and sustain IPSA as an institution of higher learning and to convert IPSA into a 'Center of Excellence' will call for certain essential measures during Second phase and beyond. Some of these are:

a) IPSA's standard of admission of students at post graduate level should be based on merit and rigorous test and preferably should be higher than those of other institutions in the country. Irrespective of its affiliation or independent Status, its admission requirements must not be lowered. In case of in-service candidates past performance should be a major criterion in selection.

b) IPSA has already taken steps to shift from yearly to course system and its upgrading its curriculum and examination and grade system, all of which will allow IPSA to turn out better products comparable with those of Universities in advanced countries. This, however, cannot be done overnight but would call simultaneously for other measures such as upgrading its faculty staff, better linkages with other institutions, structure monitoring of teaching research of M.sc. and PH.D. Students and a continuous self-evaluation and assessment system.

c) IPSA intends to offer scholarship, stipend and assistantship at a high level in its attempts to attract more talented and Qualified students. IPSA's proposal to have 18 months course for M.Sc and 3 years curse for PH.D. students is step in the right direction. However, the enhanced stipend/scholarship to be effective must be adequately monitored for cost effectiveness and proper performance by students.

- IPSA could also have collaborative arrangements with some Universities in Japan and U.S.A so that under exchange programme teachers from such Universities can supervises PH.D. student on a short term basis.

- To act as a 'Center of Excellence' IPSA should take steps to open some new pioneering areas of Science which are being neglected in the country at the moment (e.g. genetic engineering, Plant ecology relating to environment) agribusiness and some others, so that IPSA can have a cutting edge on these subjects and will ensure that it gets G.O.B. and no not support in these areas. Getting experts (Bangladeshi and Expatriates) under Technical Assistance programme may enable IPSA to initiate the new departments while making arrangement for training of local Staff at doctorate level abroad.

Such measures as noted above will enhance the scientific man-power capabilities IPSA and will make an immediate impact on its research and teaching programme.

F. Management

In order to make IPSA a cost effective organization its academic, research, administration and fiscal management system requires a rational allocation of resources between different components and programs and appropriate decentralization to enable researchers to get unhindered flow of fund for conducting experiments, field visits etc.

The management of IPSA whether as an affiliated institution or completely independent entity should ensure proper representation from all relevant institutions/organization e.g. public representative, Scientists, professional, educationists and farming community.

To enable IPSA to adjust to changing socio economic environments it must develop ability to formulate strategic plans based on requirements of the clientele it is supposed to serve. For this purpose a perspective plan (10 years horizon) may be appropriate.

Proper management system will also ensure mobilization of limited resources including mobilization of limited resources including mobilization of its land resources. IPSA can treat the entire campus a horticultural base with high valued fruit trees and other economic tree crops, all of which can give some return.

G. Linkage

IPSA's central location will make it ideally fit to establish formal and organic linkages with BARI, BRRI, BARC, JRI and relevant faculties of Dhaka University. As indicated under man-power development IPSA should attempt to utilize high caliber top scientists of these institutions in its M.Sc. and PH.D. Programme. Secondment of teachers and scientists on reciprocal basis will benefit both IPSA and these institutions.

Such linkage will allow scientists of IPSA to make use of Central Station, sub-station facilities and thus reduce the cost of outreach programme. Besides, IPSA and these institutes can take advantage of Short Course training conducted by foreign experts on reciprocal basis as also utilize sophisticated equipment of one another.

IPSA should formalize linkages through M.O.U.'s and other means, so that these linkages are sustained beyond project life and made more meaningful through collaboration programme.

H. Extension feedback

IPSA should establish more closer linkage with extension department, and farmers at farm level, non-govt. organizations, commercial agribusiness and others to enable IPSA to get a feel of the real life situation in rural areas. IPSA's research

programme should be guided by the reality of farming situation and information flow from the field verification trails, on-farm trials etc. in farmer's plots, all of which will take IPSA teachers and students to farmers who are the ultimate source of all information. The two way flow of information will keep teachers and students on the front line of research problems of farmers and will thus improve their practical orientation. Similar linkage should be established with N.G.O.'s, commercial agri business, agro industries etc. to increase the information flow.

It is in technology testing and packaging that Scientists and extension agents must work together for mutual benefit, the scientist to obtain feed back from the extension agents and extension agents from researchers about technological requirements. These field based linkage could be further strengthened through seminars, workshops etc.

I. Procurement and maintenance of Capital equipment

In order to ensure effective teaching and research, IPSA will create central repair facilities with instrument mechanics electronic engineering etc. and also have a central facility for sophisticated instruments and Equipments that are required by more than one department. The procurement of high valued equipment must be linked with research programme and management capacities of research and teaching departments.

As far as possible equipment should be standardized to facilitate procurement of spare parts etc. and an efficient inventory control system should be made operative. The relevant Staff in charge of equipment must be made accountable.

Short course training on maintenance and repair for relevant Staff would be productive. The team understand this being done at present.

J. UPGRADED LIBRARY FACILITIES

- To encourage extensive and intensive use of library facilities to be expanded through establishment of documentation center, retrieval facilities, accession to all key current research journals (with wide publicity to new accession), additional books related to text books.

- Subscription to key scientific journals is the biggest constraints for lack of F.E. Five years programme for such journal can be provided under the project by U.S.A.I.D.

- IPSA library if linked with computer terminal with SAARC regional library it will make information gathering on scientific data much easier. Project may provide computer facilities to IPSA for this purpose.

K. Autonomy

IPSA project was started in 1985 with the main purpose of strengthening post graduate level of education and research in agriculture. Administratively it was linked with BARI but academically affiliated with BAU. Currently it is delinked from BARI and is directly administered by M.O.A while academically it is still affiliated with B A U.

IPSA has completed 5 years of existence with the technical assistance and funding from Japan (JICA) and also U.S.A (USAID) and has completed the First Phase of an institution building process including building of infrastructure, experimental fields, Staff Quarter etc. It is now poised to get into the Second phase of its institution building stage with the central focus on making IPSA a completely autonomous institution.

Rationale behind such a plan stems from the fact that IPSA's immediate objective is to build itself up as a "Centre of Excellence' producing M.Sc. and PH.D. Student of highest competence comparable with those coming out of the Universities in the West. Such an objection can only be achieved if IPSA follows a different approach from other universities, particularly BAU, in its academic matters. Such an approach include:

i) High admission criteria with rigorous test.
ii) Shifting to a 18 months improved and advanced Course based semester system from yearly system.
iii) Setting up advanced examination standards and different timing in examination standards and different timing in examination and starting of academies Sessions.
iv) A field oriented system that will keep students and teachers well versed on problems of farmers and those of rural community.

IPSA should action at getting its ordinance passed by Govt. as quickly as possible. However, the ordinance is passed, may ask BAU to quack autonomy to IPSA a another relating to students of admission, examination and test students, assistants flexibility in starting of academic session.

IPSA in order to prepare itself for full autonomy should do the following :

- It must fill up immediately all academic vacant posts with highly qualified and competent teachers.

- It must reorient its management system in administration, examination and fiscal sections to take care of the added load and responsibility.

- It should employ/deploy competent personnel on examination matters (such as Controller of Examination) engage or deploy teachers in areas of student admission, session schedule etc.

The team does not consider desirable or advisable for IPSA to add disciplines like animal husbandry, fishery or social sciences etc. except agricultural economies at this stage. New agricultural fields like genetic engineering, plant ecology, agro forestry, agri business could give new dimension to IPSA's teaching and research programme.

A

BRIEF REPORT ON THE SUSTAINABILITY OF IPSA DURING SECOND PHASE

BY

DR. A. H. M. Altaf Ali

Senior Core Consultant

A BRIEF REPORT ON THE SUSTAINABILITY OF IPSA DURING SECOND PHASE

CONTENT

A. BACKGROUND

In Bangladesh, agricultural education, research, training and extension has undergone quite a substantive changes in order to adopt to advances in science and technology and to meet the needs of the nation. The demand by these changing institutions for highly skilled man power grew appreciably. In the month of December, 1983, GOB recommended that BCAS (Bangladesh college of Agriculture science) established earlier be transformed into a postgraduate school named the "Institute of Postgraduate Studies in Agriculture (IPSA) with the responsibility to offer courses leading to Masters and Doctoral degrees in various disciplines in agriculture. It was further decided by GOB that the institute should limit its annual intake of postgraduate student to 60, with the initiation of PH.D., programme the admission will be approximately 50 M.Sc. student with the rest being PH.D. students. Further more of the total seats available up to 40 seats will be reserved for qualified inservice candidate. The students are presently pursuing M.Sc (Ag.) degrees in eight major disciplines namely, agronomy, crop botany, entomology, extension education, genetics and plant breeding, horticulture, plant pathology and soil science. The department of statistics, agricultural economics and rural sociology have not yet commenced to offer degree programme.

On the recommendation of tripartite evaluation team in July 1989, GOB has agreed that the IPSA project be extended in to a second phase (July 1990 through June 1995). It is learnt that a large number of professional positions approved by GOB are yet to be filled up. To put the magnitude of the problem into perspective it can be pointed out that at present more that 50 percent of faculty position are vacant. This understaffed situation is hampering the development of IPSA to its full potential. The core staff of IPSA as of now are 21 full time teaching and research staff. 6 positions are filled at the associate professor level, 14 at the assistant professor level and one at the level of lecturer. In addition professors from Kyushu and Oregon University are working both on full time and part-time basis.

B. PROGRAMME

During the second phase IPSA is to provide intellectual leadership in the technical fields supporting the socio-economic development of Bangladesh through the country's most important sector: Agriculture. For attaining this objective IPSA should provide research results, man power trained at the post graduate level and outreach programme designed to improve the economic being of rural Bangladesh and to speed up the rural development process. IPSA should also take proper initiative not only in producing large number of M.Sc. and PH.D. graduates but simultaneously also by graduating a limited number of appropriately trained advanced degree holders through well designed research and outreach programme of modest size but of

high relevance and quality. It is should therefore be so planned and designed that IPSA can serve as a "Center of Excellence" for postgraduate studies leading to Master and PH.D. degrees in all disciplines of crop science and also agril. extension, agril. economics and social science.

IPSA being a postgraduate institution, and as such a high quality of postgraduate education and training Programme cannot be established and maintained without significant research activity both on the part of the faculty as well as students. Accordingly a substantial research effort should be induced at IPSA preferably to the extent possible in line with National research Programme formulated by BARC (Bangladesh Agriculture Research Council).

During the Phase II IPSA 's programme should have a clear and well defined impact on the following major components.

(a) Academic Programme : Implement the competency and effectiveness of the curriculum developed under the first phase.

(b) Research programme: Continue the development and expansion of problem oriented basic research. Research should address important emerging national issues, identified by national planning bodies.

(c) Out reach programme: Continue development of a community oriented out reach and out reach methodology programme assessing the research relevance and research needs.

(d) Institutional Development and Support: Continue with the development of experimental farm, expansion of library, up grading of student laboratories, construction of residential quarters and other related infrastructures.

C. SUSTAINABILITY

The question of Sustainability of IPSA can be addressed mainly in three broad aspects : (i) Institutionalization (ii) Funding and (iii) demand for its products.

In regard to the institutionalization the following important aspects should carefully be considered during the second phase of the porject.

(a) Immediate recruitment of qualified faculty.

(b) Establishment of an administrative structure based on an Act, ordinance and Status suitable for an independent institution entrusted with the responsibilities of agricultural research, postgraduate education and out-reach programme.

(c) Efforts to raise the research and teaching ability of faculty members.

(d) Develop formal effective linkage with BRRI, BARI, BAU and other related institutions to improve teaching and research.

(e) Construction of essential infrastructure to permit the faculty members and students to spend more time in laboratories, library and experimental fields.

(f) Establishment of a systematic maintenance and repair system for its scientific instrument, equipment and machinery.

(g) Development and implementation of a strong commitment by GOB to permit and thereby enable IPSA into the kind of institution which it is intended to become and for which it has the potential.

(h) IPSA faculty have prepared a new curriculum and syllabus which should be implemented quickly provided permission to do so is granted. Even such permission are to be forth coming soon, the academic flexibility and authority needed for implementing an improved programme has a broader basis than only the curriculum. What is needed is the capability for self determination in announcing programme, in setting up the admission standard, in implementing a curriculum, in setting the examination standard and in administering the examinations and in certifying the students for degrees.

(i) A system of internship for final year students can be proposed in the second phase as a vehicle for providing the students with the practical experience, they now lack. Its implementation would benefit IPSA, extension and research institutions through providing graduates better equipped to meet their particular requirement and also encourage productive linkage and relationship.

(j) Postgraduate studies in agriculture should be research oriented. In view of this IPSA faculty should devote considerable portion of their time to various aspects of agricultural research. Each dept should have an articulated core research programme both short and long term objectives.

(k) From the past experience it transpires that to sustain the process of progress, the insights, different perspectives and independence of both long-term and short term expertise will be desirable and essential for at least another project period to assure the SUSTAINABILITY.

To maintain the Sustainability it may concluded that (i) although the postgraduate educational, research and outreach programme is more or less took some shape in the first phase, but there is much left to be done and to strengthen in terms of quality, relevance and sensitivity to the needs of the country.

D. POLICY ISSUES

A number of policy issues can be identified that could impact in varying degrees upon the major programme to strengthen the academic and research system of IPSA. Included among some issues are :

a) Planning, development and conduct of academic and research programme of IPSA should not be done on an ad hoc basis without clean knowledge as to the extent and the nature of employment opportunities or the type of the graduates and advanced degree holders needed by potential employers.

b) Future planning and development of IPSA should be based on some realistic estimate of i) present and future job opportunities in the various disciplines of agriculture and ii) the content and the nature of training required to meet the needs of potential employers.

c) Roles of IPSA in research, extension training and out reach programme should be clearly defined and accepted by allied educational and user institution and in conformity with national developmental programme.

d) Appropriate linkage and interrelationship should be identified and developed between the educational system and institutions involved in research, extension, development to fulfill the responsibilities and effective utilization of the potentials of IPSA.

e) Education, Research, outreach and training programme of IPSA should be linked to actual farming practices in farming conditions. It must contribute effectively to the requirement of a dynamic agriculture sector. Major attention must be given to improve the quality of the teaching and training and related student output so that the over all response of the system is sufficient to underpin the development of human resources and the science base for agricultural modernization.

f) Finally resolution of these issues will require joint and a concerted efforts by IPSA and all other related institutions involved. It will require time and steps to be taken to avoid premature action, but it is of high priority and should be taken immediately.

E. ISSUES FOR EFFECTIVE UTILIZING OF THE POTENTIALS OF IPSA

To improve the quality of faculty programme, IPSA should work with all the other related agricultural educational and research institutions to further develop its capabilities so that it can :

- produce graduates with practical skills needed to enhance agricultural productivity.

- improve the quality of its applied and advance research and tie the researches more directly in to rural practice.

- strengthen it out reach activities at the point that they provide an immediate link between the technology available at IPSA and the needs of the rural Bangladesh.

- Appropriate measures to narrow down the research gap in research interest of the expert and the counterpart.

- IPSA has a explicit mandate to conduct out-reach programme. Because of the many other prosing issues and limitations in the early stage of development of IPSA, the dimensions of IPSA's over all mandate has not received much attention. The out-reach programme should receive high priority in the second phase.

- Existing tenure of short term experts was rather insufficient for transfer of technology. As such during the second phase experts of long duration at least one for each department would be extremely beneficial for the transfer of technology and also the sustain the programme in an efficient and effective manner. In addition short term senior experts will also be very much required to guide, formulate and implement appropriate programme for agricultural education, research and outreach programme. This programme should get priority for the effective transfer of technology and sustainability.

F. ISSUES FOR MAINTAINING THE SUSTAINABILITY

(a) Granting of Academic flexibility.

(b) A strengthened research management system.

(c) An educational and research agenda which ties IPSA's capabilities to the national master plan and also educational and research coordination system.

(d) A number of Bangladesh institutions are concerned with crop technologies -- it is therefore suggested that IPSA should emphasize advanced technologies in plant genetics and bio-technology to build up on its strength and to complete other national programme.

(e) Memoranda of understanding between individual department of IPSA and specific research organization.

(f) Advanced training in educational and research techniques appropriate to Bangladesh.

(g) A personnel evaluation system that stresses education, research, planning, quality and out put.

(h) A library development plan that upgrades holdings and increase availability.

(i) Participation in local, national, and regional seminars and symposia.

(j) Recruitment of appropriate and qualified teaching faculty.

(k) Provision of necessary support to IPSA counterpart personal.

(l) Provision of residential quarters and appropriate living facilities and supports which are urgently require for effective functioning of IPSA.

(m) Establishment of a system for continuous monitoring by appropriate and high level authority.

ANNEX III: FIELD-WISE ACTIVITY PLAN DURING PHASE II

DEPARTMENT OF AGRICULTURAL EXTENSION

Work plan for phase II Cooperation (1990-95)

1. Education programs

a. How are you going to train students better than at the University?

* Training postgraduate students on a limited scale rather than a mass scale, allows maximum attention to the students compared to the BAU program.

* At IPSA the academic program is more closely associated with faculty research activities offering opportunity for student involvement.

* IPSA Extension Department has an on-going community-based research program where students are encouraged to participate "to learn by doing" in conjunction with the course-based training program.

* Faculty members' primary responsibility is postgraduate training and research.

* Favorable teacher-student ratio offers strong student support.

* In addition to study of theory, students have an opportunity to receive practical training in the IPSA outreach programs.

b. When does your department plan to start PH.D. program and what is the plan to guide and supervise PH.D. students?

* Instructors and advisors already available in the deptt. and also (through MOU) with neighboring institutions (e.g. CERDI, BRRI, BARI, BARC, DAE) could provide resources quite capable of teaching the improved course-based curriculum as well as starting the doctoral program in a limited scale with immediate effect.

c. Is your department ready to implement the improved curriculum anytime?

* Yes, of course, resources are available to start instruction of the improved course-based curriculum in the session following approval.

2. Research programs

a. Has your department already established a long-term research program, including direction, policy and design?

* Research program directions, including short-and long-

term research goals and objectives as well as policy guide lines have been developed and submitted to the IPSA Director for approval.

b. How will you develop effective linkages in research with BARI and BRRI, etc. in the next five years?

* Strong linkage have already been established with CERDI and DAE are under discussion.

* Efforts are underway to formulate similar arrangements with other organizations including BRRI, BARI, BARD and CIRDAP.

c. How will you conduct those long-term research programs most effectively?

* Community development and extension methodology research programs will be taken jointly with concerned cooperators and IPSA Department of Agricultural Extension faculty. Students will be involved in this process as part of their dissertation research whenever possible.

3. Outreach Programs

a. Please explain a plan for outreach programs of your deptt. during 1990-95.

* Both faculty and students will be exposed to outreach programs through seminars, symposia, conferences, farmers field days, as well as demonstrations (method and result).

* An extension methods demonstration project in the vicinity of IPSA will be developed to provide a laboratory for student experience and training as well as testing community development programs and testing technology transfer packages. This project will help bring all IPSA faculty into closer contacts with farmers' problems and concerns.

4. Support Activities :

a. Establishment of maintenance and management system for equipment.

* To date, the Department of AGriculture Extension has no equipment. A proposal has been submitted for the Department to provide IPSA faculty with an audio-visual equipment centre. The expertise of the Department and students can assist in the procuring, maintaining and providing instruction in proper use of A-V equipment.

DEPARTMENT OF AGRONOMY

(1) Education Programs

A. Until now we are following BAU curriculum and obviously the quality of students of IPSA and BAU is more or less same. However, IPSA has best available facilities and often we emphasize on research activities. This results in better output. In near future IPSA will introduce course based instruction. This will enable the students to choose courses from a wide array of disciplines. The graduate committee in consultation with the students will select the course of studies depending on the aptitude and academic background of the students.

B. Agronomy department plans to start Ph. D program beginning the current academic session. Initially we may enroll 2-3 PH.D. students per year.

C. Agronomy department can implement improved curriculum any time. But requirements of personnel is also important for effective implementation of the program.

D. The proposed course based curricula provides for 8 courses each of 3 credit hrs in agronomy. All the courses are not intended to be offered simultaneously in every semester. But projection depending on demands and student strength, usual time conflicts with other courses etc. suggest that at 2-3 courses would be offered every semester, substantial potion of the course involves laboratory works. In other words in offering 3 courses, the faculties of the department will have to spend about 18-27 hrs in the class room per week. In addition, faculty research, students advising, and related administrative activities will require substantial amount of faculty time. currently Agronomy Dept. has 3 teachers out of sanctioned strength of 5. One of us is in OSU for higher studies. Therefore, for two teachers it will be almost impossible to implement the proposed course based curriculum immediately without recruiting additional teachers.

However in collaboration with BARI and BRRI Scientists it might be possible to operate the program ; provided a visiting professor is available for at least a full semester in campus. This can be arranged effectively in the form of sabbatical or deputation. [Until recently we used to hire guest speakers from BARI & BRRI for covering some particular topic(s) of a course. But this practice would be very ineffective in the proposed course credit system].

E. As per existing M. Sc.(Ag.) - Agronomy curriculum, out of four papers, one paper covers practical works; but it does not entail any laboratory exercises. The practical course is about the presentation and interpretation of data relating to agricultural production, climate etc.

(2) Research Program :

A. We have established a long term research program for agronomy department. The program is as follows:

PROGRAM 1. SEEDLING EMERGENCE AND STAND ESTABLISHMENT

Program Objective:

to characterize seedbed for optimal seed germination, seedling emergence and stand establishment

Project 1:
Evaluation of soil water content and soil strength effects on the growth and root distribution of chickpea, rapeseed and wheat.

Objectives:

to evaluate the development of root systems of chickpea, rapeseed and wheat in heavy clay soil and also to evaluate the effects of the degree of soil tillage on the crop's root growth and yield performance.

Experiment 1.: Root growth of rapeseed in relation to variable soil strength and moisture regimes.

Experiment 2.: Tillage effects on root development, growth and yield performance of rapeseed and wheat.

Experiment 3: Study on the seeding depth on the emergence and stand establishment of wheat.

Experiment 4: Study on the seeding depth on the emergence and stand establishment of chickpea and lentil. (in collaboration with BARI).

Experiment 5: Effect of seed size on the stand establishment and early stage of plant growth of cowpea, chickpea, lentil and mungbean.

PROGRAM II. ECOLOGY AND PHYSIOLOGY OF CROPS

Program Objectives:

(i) to determine the environmental and biological constraints of yield improvement

(ii) to evaluate the physiological processes enhancing productivity of field crops.

Project 1.

Stand Structure, Growth Behavior and Productivity of Upland Crops

Experiment 1: Seedling mortality, plant competition, tillering and canopy structure of wheat at a wide range of population densities.

Experiment 2: Study on the canopy architecture and gas exchange characteristics of chickpea, cowpea, lentil and rapeseed in relation to population density.

Project 2.Pb

Patterns of flowering and seed development of grain legumes

Experiment 1. Aspects of flower and fruit production in mungbean plants.

Experiments 2&3.

Expt. 4. Influence of growth regulators on flowering, flower abscission and yield of mungbean.

Project 3. Plant Nutrition

Objectives: to evaluate the nutrient requirement, nutrient uptake and N fixation in relation to growth and development of grain legumes.

Expt. 1. N nutriention and the development and senescence of nodules on mungbean and lentil.

Project 4: Environmental stresses aspects on the growth and development of field crops.

Expt. 1.Water stress effect on the gas exchange characteristics, DM production and yield of wheat and millet.

Project 5. Agronomic evaluation and growing season analysis of upland crops.

Expt 1. Agronomic evaluation of 10 cowpea varieties.

Expt. 2. Effect of planting dates on the yield performance of cowpea.

Expt. 3. Physio-ecological studies on evaluation of crop growth performance under environmental stress situation in Bangladesh

Expt. 4. Analytical studies on monthly productivity and solar energy use efficiency of main upland crops for establishment of a reasonable cropping system in Bangladesh.

B. So far we have linkage with BARI, BRRI, SRI etc. on informal basis. Effective linkage can be established through MOU whereby the cooperating institutions will take part in academic and research activities of the institution on official basis.

C. From the long term research program, we take up experiments on annual basis. So the program is being executed progressively overtime.

3. Outreach Programs:

Agronomy department is ready to participate in the training programs of physiological and management aspects of crops if offered by IFSA.

4. Support Activities:

A. Maintenance of equipment has been a difficult issue in almost every institution in Bangladesh. The prime reason for lack of maintenance or poor maintenance of equipment is the lack of technical know-how. The researchers who operate the equipment are not generally familiar with the operational mechanism or technical details of the equipment. (There might, of course, be some exceptions!). On the other hand, support wing has engineer(s) but they are not familiar with the equipment even, not to speak of the design or operational mechanism of the equipment. Most of the equipment IFSA has obtained are electronic and handling & repair requires basic idea of electronics. Electron microscopes or HPLC are not motor vehicles. So, the question of maintenance of lab equipment should be separately dealt with and this should not be rest with the support wing engineering section.

A number of steps can be taken, not necessarily simultaneously.

(1) A laboratory committee should be appointed drawing members from each academic department involved in lab work.

(2) The SSA's should be trained on general electronic equipment maintenance. One such course is offered by UGC.

At a later date, the successful SSA's be sent abroad for higher training on specific equipment.

(3) An electronic engineer (either graduate electrical engineer or M.Sc. in applied physics) be appointed and attached to the lab management committee.

(4) Users, (i.e. faculty) at least one per discipline, should be trained on each major equipment like HPLC, N analyzer, electron microscope. This training may be arranged in IFSA or abroad.

The lab management committee should be overall responsible for the overall management, maintenance and repair of the equipment. However, the prime user of each sophisticated equipment may also be held responsible for smooth running of the particular equipment.

B. To run the experimental farm, there should be one strong farm management and development committee taking members from each academic department and farm.

With our experience at IPSA farm, we have observed a large soil fertility gradient. Working in this kind of soil reduces the efficiency of the experiment to a large extent and results in the disappointment of the researcher. So, we suggest that, the existing green manuring program should be continued and for the newly developed land extensive green manuring program should be taken up for the next 5 years and no other crops should be grown in those fields.

DEPARTMENT OF CROP BOTANY

A. Education Programs

At present IPSA is following the curriculum developed by BAU. In execution of the same curriculum IPSA has some special advantages over BAU. Due to absence of undergraduate courses the IPSA teachers can spare make time to students. Moreover, it has unique laboratory facilities for doing research. By this time course based curriculum has developed for IPSA. Considering the expected new course based curriculum, better laboratory facilities and educational atmosphere, IPSA has a bright scope to produce better graduates than BAU.

Our department is ready to implement improved curriculum from now. But for that we have to recruit at least two more faculty members.

B. Research Programs

a. The Department of Crop Botany has already developed long term research programs with specific objectives.

b. For effective linkage in research with BARI, BRRI and other Institutes, we have a plan to attend their research review and programme planning meeting and also invite them in our research programme meeting.

c. The long term research programme will be carried out phase wise. Part of the programme may be done by the MS and Ph.D. students.

C. Outreach Programme

In near future Dept. of Crop Botany can participate in out-reach program through farmers' field trials of its advanced materials.

D. Support activities

a. Department of Crop Botany requires specific laboratory and class room facilities for the students. We agree with the idea that maintenance and management of equipment are the responsibility of both academic and support wings. But the responsibility may be shared in the following ways:

-academic wing may take the responsibility of day to day look after of the equipments for smooth operation.

-supporting wing should be responsible for regular servicing and correction of minor/major defects of the equipments.

b. For effective farm management system at IPSA we have the following suggestions:

- For soil improvement green manuring at least for the next 5 years should be practiced.
- More emphasis should be given on experimental work than commercial cultivation.

DEPARTMENT OF ENTOMOLOGY

A. Education Program

a. Until now the quality of IPSA postgraduates M. Sc (Ag) in Entomology are comparable with those of B.A.U, because IPSA is still following the B.A.U. curricula. Nevertheless, IPSA has better research facilities and has strong thrust on research activities. Thus students studying at IPSA comes out as a better product. After the recruitment of its faculty members the department will introduce course based curricula in near future. These will help students of Entomology to choose courses from a wide range of areas. The Postgraduate Committee along with the students' will select the course of studies depending on students' academic background.

b. Department of Entomology plans to start PH.D. program beginning from the next academic session (1991) after the recruitment of its own faculty members. During that period the department will be able to enroll 1-2 PH.D. students per year.

c. Course-based improved curricula needs sufficient number of faculty members of the department. At present there is only one faculty member in the department. In this situation, introduction of course based curriculum will be difficult.

d. Implementation of the proposed course-based curricula will be possible up to 50% e even after the recruitment of the sanctioned faculty strength. Additional 50% strength has to be met by the guest teachers from BAU, BARI and BRRI.

e. Syllabus of the laboratory course has already been maile and included in the course-based curricula outlines. Text books are partially available with IPSA Library and the additional books can be procured easily.

B. Research Programs

a. Department of Entomology has established a long term research program. The programs are as follows :

1. Biological studies of pollination and utilization of insect pollinators for vegetable seed and oil seed production.

: A Comparative evaluation of different methods of pollination on sunflower seed production. (Accomplished and submitted for publication in Thai J. Agril. Sci.)

: Comparative evaluation of some pollinating methods on onion seed and subsequent bulb production. (Accomplished and submitted for publication in Bangladesh J. Bot.)

: Pollinating behaviour of honeybee, *Apis indica* F. and its influence on seed production of cauliflower (Accomplished and published in Bangladesh J. Hort. 15(1) : 25-30, 1987).

: Role of honeybee in fruit and seed setting of bottle ground, *Lagenaria siceraria* (Mol.) Stand). (Accomplished and published in Punjab Veg. Grower XXI, 32-34, 1986)

: Effect of bee pollination on Seed production of carrot, *Daucus carota* L. (Accomplished and published in Bangladesh J. Bot. 16 (2) 199-201, 1987).

: The effect of pollinating behaviour of honeybee (*Apis indica* F.) on yield of mustard as influenced by the placement of insecticidal treatments against aphid (Accomplished).

: The role of pollinating agents and their mode of pollination in local onion (Accomplished).

: Effect of positive selection of mother bulbs on seed and bulb yield of onion (collaborative research with Hort. Dept. Accomplished and published in Bangladesh J. Agril. 14(1) : 57-63, 1989).

: Effect of honeybee pollination on seed production of two species of mustard, *Napus* and *Campestris* (Accomplished).

2. Ecological and biological studies of insect pests including their natural enemies of important crops.

: Yield loss assessment of cowpea due to pod borer attack. (continuing).

: Ecological and biological studies of gall midge on mango (continuing)

: Determination of causal agents of "IEJPAIA" leaf gall and assessment of yield loss. (continuing).

3. Survey, collection, identification and preservation of insect specimens at IPSA as a standard insect collection of Bangladesh (continuing).

b. Department of Entomology have informal linkage with BARI and BRRI. Productive linkage can established through signing Memorandum of understanding (MOU) by which concerned institution will cooperate in both academic and research activities officially.

c. Long term research program should be directly handled by the faculty members through years to come. Students may be engaged to complete certain portion of the research program for their thesis but under the close supervision of his supervisor (within IPSA). Foreign experts can be included in this long term program.

C. Outreach Program

Entomology can undertake outreach program after the recruitment of its own manpower. By next year the department can start outreach program in the following fields :

: Rearing techniques of insect pests and their natural enemies including honeybee.

: Survey, collection and preservation of insect pests and their natural enemies.

D. Support Activities

Faculty member should be responsible for general maintenance of equipments. But for effective maintenance and management system IPSA should recruit a qualified graduate electrical engineer.

A powerful committee should be formed for the purpose of maintenance and management system of experimental farm. The committee will suggest and guide Farm Manager in due course. Monthly meeting of the committee is necessary for reviewing the performances and suggest improvement.

DEPARTMENT OF GENETICS AND PLANT BREEDING

1. What should be the major activities of your department for 1990-1995 in terms of Education, Research and Outreach.

A. Education Program

a. At present, IPSA is following the course-curriculum of BAU. IPSA has developed a course-based curriculum to implement in near-future for M.Sc.(Ag.) program. With the introduction of course-based curriculum IPSA can produce better M.Sc. student than the University.

b. The department of Genetics and Plant Breeding has a plan to start the Ph.D. program from 1990. Initially, the number of Ph.D. student may be up to three. Two Ph.D. supervisors for Genetics and Plant Breeding are now available at IPSA. One more faculty is expecting to get approval to supervise Ph.D. students.

c. It is difficult to implement improved curriculum right now.

d. At present, the department of Genetics and Plant Breeding has three faculty. Among these three, two are in abroad for higher studies. Practically, the department is running by only one faculty with the help of guest speakers from the internal resources and from BARI and BRRI. Two more faculty positions are still vacant in the department. After the recruitment of new faculty and the return of two other faculty from abroad, the department will be able to handle the improved curriculum effectively.

e. The syllabus for laboratory course has not yet been developed in detail. The text books for laboratory courses may not be available according to the syllabus. We may have to follow several text books for laboratory courses.

B. Research Program

a. The department has developed a long term program as follows:

A. Nutritional improvement of rice :

1. Screening of locally available rice germplasm for endosperm storage proteins.

2. Screening of mutant lines of rice for total protein and endosperm storage proteins.

3. Screening of local germplasms and mutant lines for high lysine content.

B. Mutation Breeding :

1. Development of mutant lines using MNU (N-methyl n-nitrosourea).

2. Development of mutants using other mutagens.

C. Haploid Breeding :

1. Development of homozygous lines using haploid breeding techniques.

D. Hybridization Program :

1. Development of trisomics using NI series.

2. Development of diallel cross combinations for genetic study.

E. Vegetable Breeding :

1. Development of hybrid onion using male-sterile lines.

2. Development of disease and insect resistant varieties in egg-plant and other vegetables using protoplast fusion.

Note : Some more programs to be included after the return of two other faculty.

---

b. Effective formal linkage was not established with BARI, BRRI and other Research Institutes. Though the department has a major research thrust on the nutritional improvement of rice (qualitative and quantitative improvement of rice protein), formal discussion with BRRI is essential. Informally, there was an interaction with BRRI scientists about the research program and it has drawn their much interest. With the cooperation of BRRI scientists through formal memorandum of understanding, more effective research program could be developed. Similar approach can be taken with BARI and other Research Institutes.

c. In every season, the experiments are taken from the long-term research programs.

C. Outreach Program

The department can handle the tissue-culture training program in cooperation with departments of Horticulture and Crop Botany during 1990-1995.

If new varieties are developed, demonstration programs can be taken for farmers.

D. Support Activities

a. An electrical engineer (or an M.Sc. in Physics) may be appointed for maintaining the equipments. For management, there should be a committee comprising members of the Academic wing and Support wing and the committee should take overall responsibility for maintenance and management.

b. For maintenance and management system for Experimental Farm, there should also be a committee comprising Academic members and the Farm supervisor. The Farm supervisor should maintain and manage the farm according to the suggestion of the committee.

DEPARTMENT OF HORTICULTURE

A. Educational Program

A. As long as IPSA is following the BAU curriculum and offers the same one-year M.Sc.(Ag.) course there is limited chance of improving the quality of the graduates. If we can introduce the course based curriculum at IPSA the students will be able to choose courses according to their need. Moreover, through the introduction of the new course curriculum teaching-learning and examination system will be very much improved resulting in better products (graduates) at IPSA than the BAU. As far as the research facilities are concerned IPSA students will have access to the highly sophisticated facilities which is superior to any other institute in Bangladesh.

B. This department is now able to start its Ph.D. program.

C. Horticulture department can implement the new curriculum any time but with little difficulties.

D. The new curriculum would impose a very heavy load on the existing teachers but it will ease up to a good extent when the sanctioned posts are filled up. If we can have one or two more teachers, in addition to the sanctioned teaching posts in the new FP we would need no outside help to effectively implement the course based curriculum.

E. We Don't have any lab course now

B. Research Program

A. Horticulture department has already developed long term research programs on improvement of Lablab beans, tomatoes and Onion. Long term programs on the improvement vegetables, fruits and ornamentals through tissue culture will soon be stated.

B. We have not established any research linkage with BARI or other institutes but we plan to do so once a memorandum of understanding has been signed between IPSA and other institutes.

C. We handle our long term research programs effectively by working as an interdepartmental research team.

C. Outreach Program

This department has not yet developed any such program.

D. Support activities

A. The primary management aspects of the equipments should rest upon the users. But it may be better to recruit an electrical engineer for maintaining the equipments of IPSA.

B. Farm section should shoulder the responsibility of maintaining its equipments.

DEPARTMENT OF PLANT PATHOLOGY

A. Education Program

a. Under the present system of educational programs it is very difficult to improve the quality of IPSA students because we are just following the BAU curriculum. Modern research facilities have been established at IPSA to strengthen the research capabilities of IPSA students which will result in better output. As soon as IPSA will achieve academic freedom we will introduce improved curricula based on course credit systems. Courses will be composed of class lecture, laboratory exercise, field exercise, mini research projects. Courses for individual student will be selected according to his requirement determined by a supervisory committee. Interdisciplinary approach will be followed in selected coursed for the students for so that they will have wide exposure to solve diversified problems.

b. Plant Pathology department plans to start Ph.D. Program from the current academic session. At present the department is capable to start the Ph. D. taking not more than three students. Research projects of the students may be selected according to need of the organizations where they are working. However, we plans to solve important disease problems of some major crops of Bangladesh through Ph.D. student research projects for theses.

c. At present there is only one teacher in the department of Plant Pathology because other two teachers have been doing their Ph.D. in Japan. So the department have been suffering from shortage of faculty. However, the department can start to implement improve curriculum any time if guest teachers from BAU, BARI,BRRI etc. are invited.

d. With the sanctioned faculty strength IPSA can handle the proposed course based curricula with the help of guest teachers from BAU, BRRI, BARI etc. But for implementation of the proposed programs more effectively, faculty positions need to be increased in the next five years plan.

e. The proposed syllabus is still under process for final selection. Most of the text books required for the proposed courses have already been procured by the IPSA library. Rest of the books are expected to be procured very soon with the help of US-AID.

B. Research Program

a. We design a long-term research program for Plant Pathology, as follows:

The department of Plant Pathology will do research in various fields of plant pathology with special emphasis on the diseases caused by nematodes, viruses and fungi. Broad out line of long term research plant and mentioned below.

Plant Nematology:

(i) Survey and monitoring of nemic diseases of crop plants common in Bangladesh.

(ii) Estimation of losses due to nematode attack on major crops.

(iii) Management of major nematode problems in Bangladesh through cultural and biological methods and use of host resistance.

(iv) Studies on the possibility of controlling plant parasitic nematodes through chemical means under the socioeconomic conditions of Bangladesh.

(v) Studies on the infection process and host pathogens interaction.

(vi) Biological control of plant diseases and insect pests using antagonistic nematodes.

Virology:

(i) Survey and monitoring of virus diseases of crop plants.

(ii) Estimation of crop losses due to virus diseases.

(iii) Control of major virus diseases through host resistance, tissue and meristem culture.

(iv) Production of antisera of major virus diseases of crop plants in Bangladesh.

(v) Histopathological studies of virus diseases.

Plant Bacteriology:

(i) Survey and monitoring of bacterial diseases of crop plants in Bangladesh.

(ii) Studies on infection processes and histopathology of bacterial diseases of plants.

Study of diseases caused by fungi:

(i) Survey and monitoring of plant diseases caused by fungi.

(ii) Control of soil-borne and seed-borne diseases using host resistance and biocontrol agents.

(iii) Studies on the infection processes and host parasite relationship of plant diseases caused by fungi.

b. BARI, BRRI, SRTI, BAU, Dhaka University, Chittagong University and some other organizations have been expressing their interest to develop collaborative research programs with

the Department of Plant Pathology to solve some specific protems which need sophisticated equipments like EM and highly advanced technology which are available only at IPSA in Bangladesh. We already started such kind of collaborative research with BARI, SRTI, BAU and Dhaka University from 1986 and some of the research projects were completed.

c. We hope linkage with other research organizations will be strengthened in the next five years through collaborative research of similar nature.

C. Outreach Program

a. Many research organizations like BARI, SRII, BARI, IRI etc. need to strength research programs in the field of plant nematology. So, they like to improve the capabilities of their research through training in the field of plant nematology. Plant Pathology Department plans to organize a training programs in the field of nematology for the researcher working at various organizations. The programs will be consisted of methods in Plant nematology, taxonomy of Plant parasitic nematodes and monitoring and handling of nematode problems associated with important crops. The program can be started from 1991.

D. Support Activities

a. Maintenance and Management system for the equipment should be developed based on responsibilities of both wings, the ultimate users of the respective equipment and support wing. A committed consists of faculties and engineers of the support wing can be made. However, the responsibility of the equipments should be lying with the faculty who will use them most frequently. A log-book should be maintained to record the use and maintenace of every equipment.

b. The Farm section should be run by a committed headed by faculty. Less emphasis will be given to commercial production of any crop. Farm should be used for mainly research purposes. If the farm land is used for commercial production there will be shortage of resources for research.

DEPARTMENT OF SOIL SCIENCE

1. Education Programs :

a) By introducing course credit based curriculum.

b) Just after the recruitment of Senior Professor.

c) No, it is not possible now. At least three more senior teachers are required to implement the improved curriculum. At present, the Department has only two teachers (Assistant. Professors). It is not wise to depend on guest speakers (from other Institutes) to carry out a pre-scheduled course program smoothly because they have their own works (programs) and many bindings and limitations.

d) As I have mentioned earlier that with the sanctioned faculty strength it is not possible to implement the proposed course based curricula. recruitment of more senior professors will solve the problem. With guest speakers we can not expect permanent solution.

e) We do not have syllabus for laboratory course but we can make it. The regular routine works that we are doing in the field and in the laboratory for studying the soil may be included in the syllabus. We have text book or manual for laboratory courses.

2) Research Programs:

a) Yes, our department has already established long-term research programs.

These are:

i) Effects of manuring on physical properties of soil.

ii) Water requirement studies of different crops (wheat, maize, radish, carrot, mustard etc.) to develop irrigation schedules of these crops for Shallow Red-Brown Terrace soil of IPSA (Salna).

iii) Studies of the physical properties of eight different soils of Bangladesh.

iv) Estimation of microbial biomass of 18 different soils of Bangladesh.

v) The effectivity of nodule bacteria and their performance for nitrogen fixation in different legumes and oil crops (mung bean, cowpea, gardenpea, soybean and groundnuts)

Weather data are monitored regularly from the Metcorological center. Long- term weather data will be used for computing potential evapotranspiration (PET) that will serve as a basis for designing irrigation projects in Salna area.

Mineralogical studies of different soils of Bangladesh are in active consideration of the department. Procurement of X-ray diffraction machine has been proposed in this connection.

b) By developing collaborative research program with BARI and BRRI. At present the department is actively involved with a national project entitled, "Verification of the Land-Soil-Crop-Climatic database of the MPO drought estimate program" in which BARI and BRRI are involved.

c) By involving graduate students.

3) Outreach Programs :

a) By inviting teachers and scientists from different Universities and Research Institutes and train them about the use (handling) of different sophisticated equipments for soil analysis. the department was actively involved with the writing and publication of a nationally accepted manual, " a manual for determination of soil physical parameters" (Co-ordinated by BARC) in 1988.

4) Support Activities :

a) This is very important issue. We have one Senior Scientific Assistant in each department. I am citing the case of Soil Science department only. My department is holding the charge of Analytical, Chemistry and Soil Physics Laboratories. With the supervision of the faculty members, the Senior Scientific Assistant should be given the full responsibility of taking care of all equipments (handling & maintenance) in those three laboratories. The departments should not encourage handling of equipments by other persons even the untrained faculty members of other departments. Mishandling of equipment is a serious problem. In this connection I want to emphasize the importance of short training (6 months) of all Senior Scientific Assistant from Japan for analyzing, handling, repairing and maintenance of equipments in their respective fields.

b) Farm management committee should be set up consisting of members from faculty members, engineer and the SSO (farm). Long-term plan and program regarding the development of farm should be taken by the committee. Maximum importance should be given to the research programs.

DEPARTMENT OF AGRICULTURAL STATISTICS AND BIOMETRY

1. Major Activities

(1) Educational Programs:

* By introducing improved curriculum. This year HSA has already introduced Computer training program for the students that might help to produce quality graduates.

* This department provides support to all research programs for experimental design and statistical analysis. It could be possible to produce M.Sc. in Agril. Statistics providing qualified and experienced teachers might recruit first.

* Not yet. This department should need at least 4 more teachers to run the improved curriculum independently. It is not feasible to depend on Guest Speakers from BARI, BRRI and other Institutes because they have their own duties and bindings besides that it might not be possible for them to offer course if we introduced credit course system.

(2) Research Programs:

* Not yet.
* It will depend on the policy of the institute.

(3) Outreach Programs

* This department has already taken collaborative research program with Dept. of Agril. Extension.

FARM SECTION

The major activities of IPSA farm for 1990-1995 may broadly be categorized into the following :

A. Land development : IPSA has 16 ha of land to be used as experimental plots with annual crops. Out of this 16 ha, 8 ha have already been developed and are being used by the faculty and students for their research programs. The rest 8 ha is under development. The problem that comes up with the newly developed land is soil heterogeneity. This bothers the researcher very much when they conduct experiments on this kind of land. For certain types of experiments, uniform and fair growth of plant stand is necessary. Doing experiment in such poor and heterogeneous soil often frustrates the researchers.

To improve soil fertility and reduce the soil heterogeneity, IPSA farm section has already started long-term green manuring program in the existing 8 ha of land. The green manuring crop is grown intermittently when the land is vacated by the researchers during the lean period. This program will continue throughout 1990-1995.

With the rest 8 ha of land which is being developed now, IPSA Farm Development Committee strongly recommends that for the next five years no other crops except green manures should be grown in those fields to improve the soil conditions of those plots. For the purpose of improvement compost, cowdung and/ or poultry manure should also be used. This program should be supported by annual determination of the various soil nutrient and organic matter content by the soil science department of IPSA.

B. Establishment of genetic garden : There is a very good scope to establish a genetic garden with different floras available in different parts of the country. This may include plantation trees to annual crops both cultivable and wild. There is no single institute in the country, where such kind of genetic garden with a wide range of plant species of both economic and aesthetic values is available. So, such kind of garden will definitely be helpful to all sections of people including students.

C. Outreach programs : The farm section will help the academic departments in holding fields days and farm days where people from different walks of life will participate to know the latest development in the field of agriculture done by IPSA faculty and students.

D. Campus beautification : IPSA has taken up a campus beautification programme with shrubs and ornamental trees. This will improve the outlook of the campus. Farm section will implement the program phasewise depending on the quantum of fund available.

MAINTENANCE OF EQUIPMENT

Most of the laboratories of IPSA are provided with highly advanced and sophisticated equipment by JICA. High quality performance and longevity of them are dependent on their proper maintenance. It is obvious that the faculty who is using them are responsible for those equipment. However, initiative for maintenance must be taken by the faculty to whom it is assigned for a particular equipment. One electronic engineer or a technician having major in electronic physics needs to be recruited. The following procedures can be followed for proper maintenance of the equipment.

(1) A Laboratory committee will be formed with the following persons.

Convenor	- Research Coordinator
Member	- One faculty from each Academic Department
Member	- Head Engineering section
Member	- Electronic Engineer/Technician

(2) The committee will meet at least once a month to discuss about maintenance and to make necessary arrangement for the job. If any trouble arises, the committee should immediately take necessary action to shoot it. The committee will be liable to inform the Director all about maintenance of the equipment.

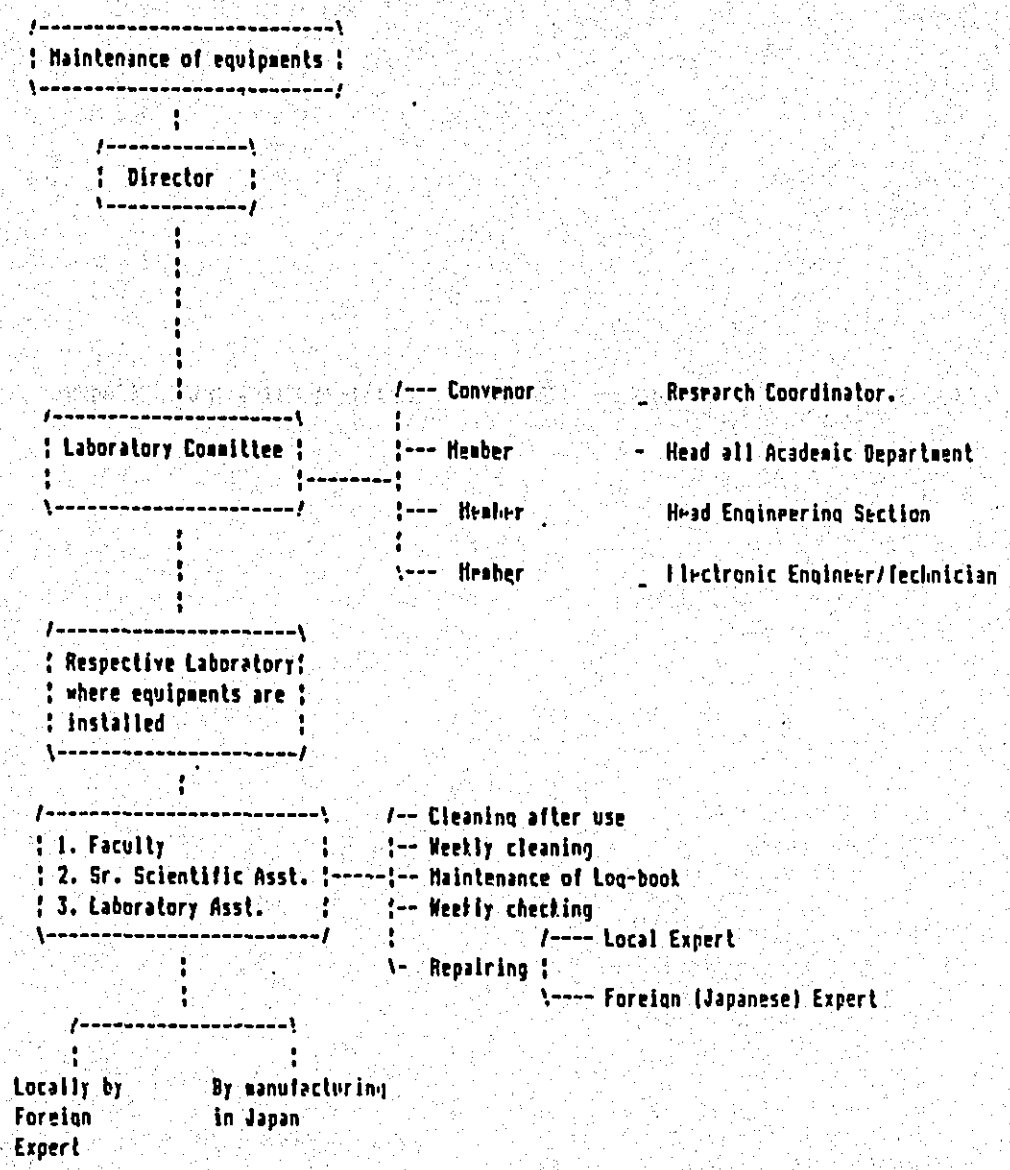
(3) Each Equipment should be cleaned regularly after use and at least once a week when it is not used. Faculty, Sr. Scientific assistant and Laboratory Assistant will responsible to do the job.

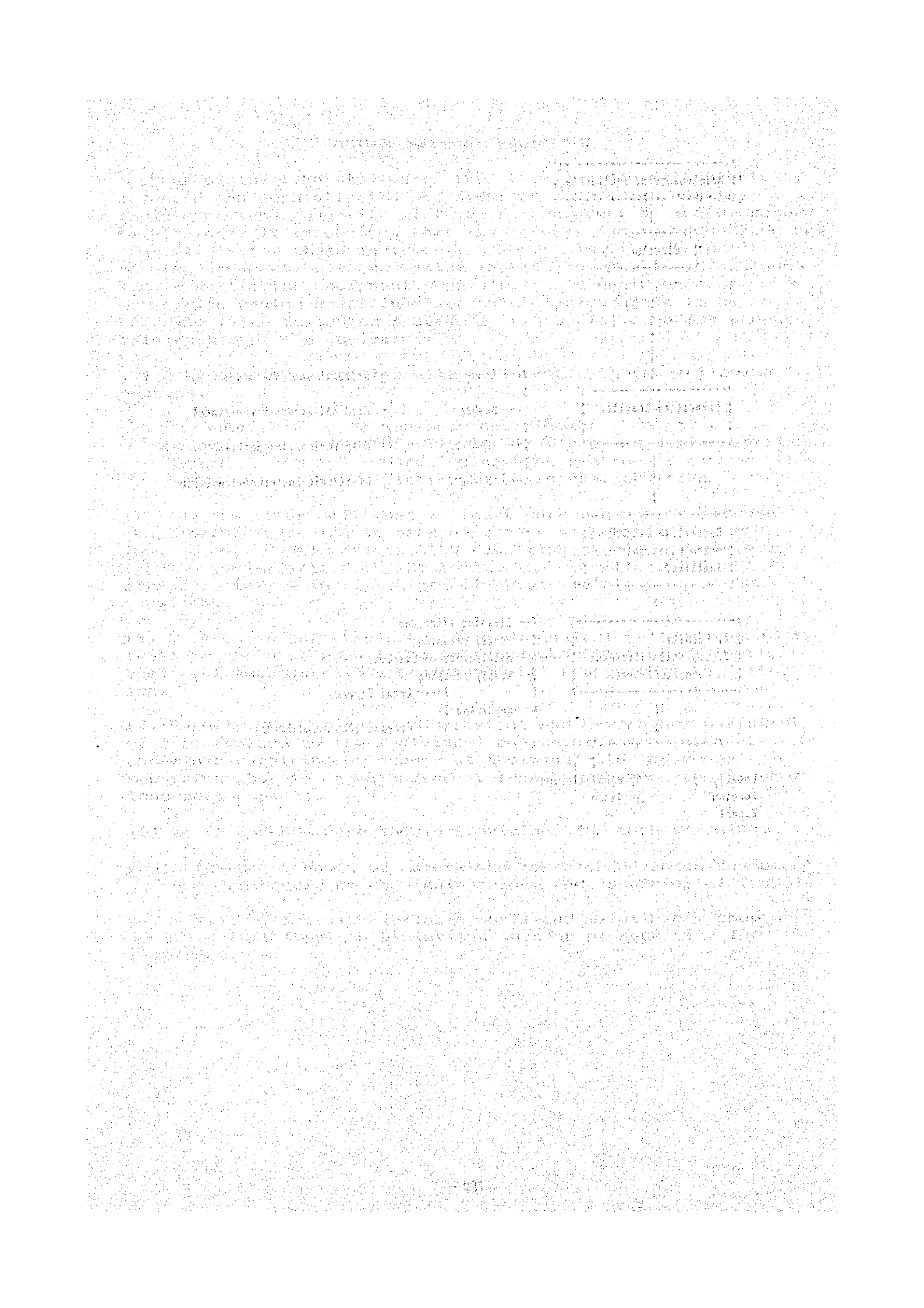
(4) Faculty, Sr. Scientific Assistant and Laboratory Assistant will be trained on the individual equipment for maintenance and minor repairing by expert at the manufacturing company/ repairing shop in Japan and/or at IPSA by Japanese short term/ long term experts.

(5) In PP and RD there should provisions for such training.

(6) A log-book should be maintained for each advanced equipment to note the record of use, maintenance and repairing of trouble.

(7) A list of locally available qualified maintenance shop may made, so that they can be invited in case of necessity for repairing.


Maintenance of equipments
Director
Laboratory Committee
Convenor
Member
Member
Member
Research Coordinator.
Head all Academic Department
Head Engineering Section
Electronic Engineer/Technician
Respective Laboratory where equipments are installed
1. Faculty
2. Sr. Scientific Asst.
3. Laboratory Asst.
Cleaning after use
Weekly cleaning
Maintenance of Log-book
Weekly checking
Repairing
Local Expert
Foreign (Japanese) Expert
Locally by Foreign Expert
By manufacturing in Japan



ANNEX IV: FIELD-WISE REQUEST PLAN DURING PHASE II

DEPARTMENT OF AGRICULTURAL EXTENSION

1. Dispatch of Experts

A. Long-term Experts

Field	Type	Period	Timing	Scope of Activities
a) Agricultural Extension/ Extension Education with some background in rural development, anthropology and agricultural economics	Senior	2 Years	7/91/-6/93	Teaching in Agric. Extension at the postgraduate level, supervising M.S. and Ph.D level student thesis research, developing outreach programs and establishing linkages with national and international agencies.
b) Agricultural Extension Extension Education/Rural Development/Development Economics	Senior	2 Years	7/93-6/95	Same as above.

B. Short-term Experts

a) Agricultural Extension/ Extension Education/ Development of Mass communication with background in audio-visual production, and training materials production.	Junior	6 months	1/91-6/91	Teaching in Agricultural Extension at the postgraduate level and training in audio-visual production, training materials production and outreach training programs, Short publication poster writing and leaflet development and printing.
b) Agricultural Extension/ Extension Education/ Communications Development/Agricultural Economics with background in rural development, particularly in livestock extension, social forestry management and fisheries extension and management, women in Agricultural development, women's nutrition and home economics management.	Junior	6 months	1/92-6/92	Teaching in Agricultural extension Extension at the postgraduate level, program development for women in agriculture, food and nutrition, livestock management, fisheries management, social forestry management, training materials production and development.

2. Counterpart/Ph.D. Training

a) Counterpart Training
At least 2 (two) counterpart training should be provided during the Phase II period (1990-95).

b) Ph.D. Training

At least 2 (two) Ph.d. training programs should be provided to strengthen the Department of Agricultural Extension's manpower.

3. Provision of Equipment

List of equipment already provided to JICA and the same be made available latest by July 1990 (list enclosed for reference).

4. Others

A small temporary structure is needed to provide training facilities to the farmers leaders and other extension officials involved in the social laboratory to be developed within the vicinity of IPSA for transfer of technology packages.

Submitted to the Director, IPSA, for his kind information and onward transmission to the JICA Record of Discussion team.

List of Equipment Needed for the Dept. of Agricultural Extension

Name of equipments:	Specification	Qty. Required
Slide Projector	35 m m, 220 V, with slide tray and zoom lens	2
Movie picture Projector	16 m m, 220 V	1
Overhead Projector	with Stand	2
Projection Screen	1.5m X 2m with Stand 2m X 2.5m with Stand	2
Flip chart	with Stand	4
Video Camera	VHS with battery pack	1
Video Cassette Recorder	VHS 220 V	1
Video Monitor	24" inch 220 V	1
Polaroid Camera	with micro lens and standard lens	1
Camera	35 mm with micro lens and standard lens	1
Flash Unit	For 35 mm camera	1
Loud speaker	Portable battery operated with rechargeable battery	1
Extension Cods		4
Air conditioner	18,000 BTU pet hour 220 V	2
Refrigerator	National, 2 doors (8.5 cft)	1
Adjustable Projector Stand	Medium size	1
Fannel Board	Standard size (10' x 5')	4
Portable loud Speaker	PA system bell horn type and Neck-hanging	2
Slide sorting Tray		2
Slide duplicating Unit		1

DEAPRTMENT OF AGRONOMY

Dispatch of Experts (1990-95):

Long term : (1) Senior level expert

Field : Stress Physiology.

Timing: July 1991

Period: 30 P M

Short Term : (4)

Field : (1) Analysis of primary productivity of crop plants.

Timing: December 1990-February 1991

Period : 2 P M

(2) Environmental effects on photosynthesis and respiration.

Timing : May 1991

(3) Soil water movement and root water uptake by crop plants.

Timing : October 1991 - January 1992

Period : 4 P M

(4) Biochemical aspects of photosynthesis.

Timing : November 1993-January 1994

Period : 3 P M

C/P and Ph.D training:

* C/P training : 4

* Ph.D training: 2

Field : Crop husbandry

3. Provision of equipment:

A. Equipments facilities needed for measuring photosynthesis and transpiration of crop plants under controlled environmental conditions.

Beside this a list of equipment is also attached herewith for the phase II cooperation project.

Equipment list for Agronomy Department
Phase II cooperation project

1. Controlled environment for measuring gas exchange in palnts.

   Photosynthesis experimental apparatus
   Model OSK 9876 or improved version
   Power source : 220 V AC (on request)

2. Photosynthesis measuring chamber
   Model OSK 9880 ; one each of A B C D E F G H J

3. Automatic Crop Absorption Recorder
   Model OSK 9877 B or C
   Power source : 220V AC (on request).

4. Auxananameter (for measuring plant growth)
   Model OSK 9846

5. Plant rotation apparatus
   Model OSK 9847

6. Respiration breath measuring apparatus
   Model OSK 9854

7. Atomizer (3 nos.)
   Model OSK 9836

8. Infrared thermometer
   AG-43 (Tel temp Corpn. USA)
   with CWS1 Data logger
   RR 400
   Battery Charger RR-130, Battery parts
   Serial computer interface cable RR-101M
   with all other accessories.

9. Root pressure apparatus
   Model OSK 9848

10. Root length scanner
    Comair Root Length Scanner
    (Manufacturer : Commonwealth Aircraft Corpn.)

11. Grain seives, round mesh type
    Model OSK 9883 Type 5
    Dia. of mesh : 2.0, 2.5, 3.0, 3.5, 4.0

12. Grain micrometer
    Model OSK 9888

13. Soil sampling cylinders (10 nos.)
    Model OSK 10017
    21 capacity,
    1600 mm x 100 (H) mm x 2000 (V) ml with covers.

14. Soil volume weight tester
Model OSK 10019

15. Unsaturated soil volume weight tester
Model OSK 10020

16. Plant cultivation set (2 sets)
Model OSK 9838

17. Digital readout analytical balance with printing facilities 1 no.

18. Seed germinators (thermostatic) with built in storage cabinet. Temperature range 3° to 50°C . Automatic 4 no

19. Extra large oven for accomodating huge amount of plant samples at a single time (50 - 100°C) 1 no.

20. Wiely mill 3 nos

21. Germinating dish 100 nos.

22. Label maker 4 nos.
LAB - 500 - X
Gallenkamp

23. Compaction testing apparatus. 2 nos.
KM 713 - B

24. Mechanical soil compactor 2 nos.
Motorized type
KM - SB - 146

25. Field permeability measuring instrument 2 nos.
Model 420, KM - 304 - C

Chemicals

1.	Dimethylsulphoxide (DMSO)	1000 ml.
2.	Acetone	2000 ml.
3.	IAA	100 g
4.	IBA	100 g
5.	GA_3	50 g
6.	Kinetin	50 g
7.	Cycocel	1000 ml
8.	Maleic Hydrazide	1 kg.
9.	PEG 6000	2 kg

DEPARTMENT OF CROP BOTANY

1. Dispatch of Experts

Long-Term Experts
Long-term Experts.....2
Field ..... Biochemistry.....1
Physiology.....1

Scope

Category.....Senior, at least Associate Professor

Period.....At least 12 months

Time.....January, 1991 - December, 1991
January, 1993 - December, 1993

Short-term Experts
Field.....Anatomy, Ecology and Embryology

Period.....2 months each

Time.....Jan. - Feb., 1992 (Anatomy)
Aug. - Sept., 1992 (Ecology)
July - Aug., 1994 (Embryology)

2. PH.D./Counterpart Training:
Counterpart:.....2
Field.....Postharvest Physiology (One)
Photosynthesis & Respiration (one)

Doctor of Philosophy (Ph.D.) 2
Field.....Anatomy (one)
Ecology (one)

3. Provision of equipments
Microtome 1
Electric Balance ..2
Oven.....2
Leaf area meter....1
Steriomicroscope...1

DEPARTMENT OF ENTOMOLOGY

1. Dispatch of Experts.

a. Long-term :

Field : Ecological and biological studies of major insect pests including their natural enemies of useful crops. Department prefers a junior expert for 2 years from the beginning of 1991.

b. Short-term : Fields are :

I. Ecological and Biological studies of gall making insects including their natural enemies.

II. Use of polyacrylamide Gel Electrophoresis (Page) in chemotaxonomic studies of different strains of brown plant hopper, green stick bug etc.

III. Survey, collection, Identification and preservation of insect pests specimens.

For each field, department needs a senior expert for at least three months in different times during phase II.

(2) C/P and Ph.D training

* C/P training : For current PP : At least two C/P training (1985-1990) is necessary for faculty members to be recruited soon.

For proposed PP : Will be proposed latter (1990-1995) according to new organogram

: One short-term C/P training lab. management is required for Sr. Scientific Assistant.

* Ph.D Training :

For current PP : One Ph. D Scholarship (1985-1990) will be necessary if newly recruited Assistant Prof. doesn't have Ph.D.

For proposed PP: Will be proposed latter (1990-1995) according to new organogram

(3) Provision of equipment :

* List of equipment wanted and timing :

Video camera (Pass port size) with sufficient number of films are needed in the beginning of the phase II.

(4) Others : According to proposed organogram (1990-1995) recruitment of new faculties will be made. At that time

additional proposal for equipment will be placed.

DEPARTMENT OF GENETICS AND PLANT BREEDING

(1) Dispatch of experts :

a. Long term : Senior level

Field : Nutritional improvement of rice

Timing : July, 1991

Period : 12 PM

b. Short term : Senior/Junior

i) Field : Mutation Breeding

Timing : Oct - Nov.,1990

Period : 2 PM

ii) Field : Haploid Breeding

Timing : Oct-Nov.,1992

Period : 2 PM

iii) Field : Vegetable Breeding

Timing : Oct.1992-Jan.,1993

Period : 4 PM

(2) C/P and Ph.D. Training

a. C/P Training : 2 C/P Training

b. Ph.D. Training : 2 Ph.D. Training

(3) Provision of Equipment :

i. HPLC - Amino acid analyzer

(4) Others (Remodelling work, Minor construction, etc.) :

For establishment of gene bank, a room of 9m x 12m may be required.

DEPARTMENT OF HORTICULTURE

A. Dispatch of Experts

Long term : The department of horticulture would need a junior or mid level expert for the entire five-year period of phase II, if possible, to do research on Biotechnology. It might be possible to create a significant impact on the improvement of fruits, vegetables and ornamentals in Bangladesh , but only if such a long term expert is made available. Should it not be possible to get one expert for that long a period at a time one such expert for every two or every one year may be arranged.

Short term : This department may not need short term experts other than the two scheduled to be dispatched in 1990. However, if we are to accept more short team experts the following schedule may be followed.

March - May '91 :- Orchid culture.
Jan. - Feb. 92 : Isozyme analysis and Somaclonal variation (through M.N.U. and X - ray)
Apr. - May '93:- Use of growth regulators for rooting, flowering and fruiting.
January '94 :- Cytogenetical and Cytological studies on horticultural plants.
January '95:- Bonsai techniques

C/P and Ph.D. Training:

A. C/P training - Two	The requirement of training would depend on the new recruitment.
B. Ph.D. Training - Two	

Provision of Equipments:

Provision of a sufficiently big (4 x 6 m) growth room with light, humidity and temperature control system would be needed for effective tissue culture research. Presently there are only three growth chambers (one with light and two without light facility) which would prove to be very much insufficient when a few faculties have started research on tissue culture aspects. A refigerator will also be needed for the tissue culture laboratory. In addition, the following equipments will be needed -

1. Low speed Centrifuse (for protoplast isolation)
2. Horizontal Gel Electrophorasis apparatus with Gel Drier
3. High Speed Centrifuse (For Eppendrop tube)

DEPARTMENT OF PLANT PATHOLOGY

(1) Dispatch of experts:

(a) Long-term		
(I)	Rearch plan on biological control of plant parasitic nematodes.	1 months from November, 1991
(ii)	Biological control of plant parasitic nematodes.	24 months from January, 1991
(iii)	Survey of soil-borne Streptomyces which are important for biological control of plant diseases.	6 months from May, 1993
(iv)	Testing of botanical fungicides against plant pathogens	2 months from November,1992
(v)	Study on bacterial grain spot of rice.	3 months from June, 1994
(vi)	Plant virologist	24 months from July, 1993
(vii)	Electron microscopre engineer	Every year one for at least 10 days.
(ix)	Oven, Incubator, Light microscope maintenance engineer	2 months from August 1993

2. C/P and Ph. D. Training

a. C/P Training: Short/long term training for three faculty, Senior Scientific Assistant and one Laboratory Assistant

b. Ph.D Training: Ph. D Training for three newly recruited faculty will be required if they do not have the degree.

Lists of equipments and consumable laboratory materials:

1. Ultramicrotome (LKV) with accessories
2. Ultracentrifuge with accessories
3. Vediocamera, Television with accessories
4. Spares for EM
5. Spares for Light microscope and other equipments
6. Glass wares
7. Laboratory chemicals
8. Culture cabinet
9. Other consumable articles
10. More equipments may be required for the newly recruited faculty.

DEPARTMENT OF SOIL SCIENCE

A. Manpower Development

1) Dispatch of Experts:

a) Long term : i) Soil Physics (senior) -12 years
ii) Soil Microbiology (senior) - 12 years

b) Short term : Soil Chemistry (junior) - 3 months

2) a) C/P training : 5

b) Ph.D training : 3

B. Equipment and Construction

Following instruments and construction works are essentially needed for precise research work and development of IPSA :

i) X-ray diffraction machine : For identification of clay minerals in soil.

Justification : This machine is not available in Bangladesh. So, no single research work has been initiated in this area. Very few of our soils were analyzed scatterdly in foreign countries. Long-term research program should be developed to identify the clay minerals of our soils. One of our faculty members in Soil Science department has included mineralogical studies in his Ph.D research work at Kyushu University. Higher training in this field from internationally reputed mineralogist from Kyushu will enable our faculty to achieve the techniques of identifying clay minerals independently by the use of X-ray diffraction machine.

ii) Neutron moisture meter : For monitoring soil moisture.

Justification : This instrument is not available in any educational institutes of Bangladesh. In our " Water Management Programs" we monitor soil moisture from hundreds of spots gravimetrically once in every week through out crop season. This crude procedure (gravimetric) of measuring soil moisture is very laborious, time consuming and destructive (to our land). So, neutron moisture meter would be the best method of measuring soil moisture. Moreover, procurement of this meter will enable us to introduce our graduate students with the sophisticated instruments of measuring soil moisture. One of our faculty members has a long training on the use of this radio-active instrument at Colorado State University, USA.

iii) Field lysimeters (construction) : For determining water requirement of crops.

Justification : At present crop water requirements are determined by "soil moisture depletion method". This method is disadvantageous because it is very difficult to maintain

controlled soil environment. Construction of field lysimeters (drainage type) will enable to maintain controlled environment to get an accurate estimate of water consumption of crops. This is a permanent device and can be used for several decades if properly constructed. Maintenance cost is negligible. One of the faculty members in Soil Science has worked with lysimeters in his M. Sc. Ag. research work at Bangladesh Agricultural University.

iv) All meteorological instruments (duplicate set) :

Justification : IPSA meteorological center came into operation on January 1, 1988 and has been working very smoothly since then. The center has been supplying monthly weather reports regularly and has published two annual weather reports (1988-89). For assuring the continued smooth work of the center it is necessary to have a duplicate set of all the instruments.

v) Vacuum-gaune tensiometer (different depths) --- 100 nos.

vi) Electronic balance (digital) --- 2 nos.

These two instruments are needed for our field and laboratory works respectively.

DEPARTMENT OF AGRICULTURAL STATISTICS AND BIOMETRY

(1) Dispatch of Experts

a. Long-term

* Agril. Statistics and Biometry, design of experiments, Senior, 1 year, beginning of the year.
* Computer Science, Computer Programming and maintenance, Senior, 1 year, any time of the year.

(2) C/P and Ph.D. Training

* C/P Training : At least 2 (below 3 months).
* Ph.D. Training : At least 2.

(3) Provision of Equipment

* Programmable Calculator (for teachers): 2
* Scientific Calculator (for students use in practical classes) : 60

FARM SECTION

2. (i) Dispatch of Experts :

a) Long term :

i) Farm management : Junior to mid -level expert. The expert will have background in management of experimental farm and impletion of land development activities preferably in tropical countries.

Period : 2 years.
Timing : January 1991 - December 1992.

b) Short-term : Landscape expert. The expert should preferably be a senior person having sufficient background in designing and developing the landscape of educational institutes or research station farms. The expert will have to design and help in the implementation of the programme in collaboration with his counter part at IPSA.

Period : 4 months. The program will be accomplished in two phases. The first phase will be of 3 months. In this phase, the expert will conduct the basic design of the program and initiate the program. The second phase will be of 1 month. At the end of one year of the program initiation, the second phase will start. In this phase, the expert will monitor the problems occured during the 1st year of the program and suggest improvements/ways to remove the difficulties.

Timing : August 1990 to October1990 (phase 1).
October 1991 to November 1991 (phase 2).

ii) C/P Training : 5

Fields : a) irrigation and water management
b) field crop production
c) landscape artichecture and planning
d) experimental farm management
e) flower production and management

C. Construction of farm facilities : To facilitate smooth management of the farm and cater to the needs of the researchers, the existing facilities are quite inadequate. During the phase I of co-operation the following farm facilities were built at IPSA.

i) One godown with an area of 235 m^2

ii) One repairing shop for farm machinery with an area of 182 m^2

iii) One open threshing floor with an area of 272 m^2

So, the IPSA farm section should be developed and fully equipped to facilitate in returning back fruitful research outputs. In the way of attaining this objective, the farm complex should have the following facilities:

Proposed farm facilities :

A. Godown 2 nos.

i) one for farm implements. Area -235 m^2

ii) one for insecticide, pesticide, etc. Area -150 m^2

B. Threshing floor 3 nos.

i) open threshing floor. 2 nos. Area -272 m^2 each

ii) covered threshing floor. Area -272 m^2

C. Garage for farm equipments and others. 1 no.

Area - 770 m^2

D. Field lab. 1 no.

Area: 420 m^2 + 50 m^2 for a room drier for plant samples

The field laboratory should include the following facilities :

1. drier (cabinet seed dryers)

2. blower (air compressor with hose etc.)

3. small thresher and grinder

4. cabinets for seeds (seed storage cabinets)

5. working tables

6. Balances for taking weight

7. Cool rooms for keeping experimental seeds/materials for next generation/next planting. .ls2

During the basic design team meeting at IPSA in March 1990 it was discussed that a part of field laboratory may be constructed from the Grant Assistance Program if fund is available and the rest may be requested from phase II of cooperation project. On the other hand if fund is not available the whole thing may be requested from the phase II of the cooperation project.

E. Farm office for officer and staff 1 no.

Area - 288 m^2

Justification :

At present only one godown is being used for storing our farm produce, plant protection and some of farm implements. But for an ideal farm this should not be the case. Moreover when all the lands will be developed and made available for cultivation, IPSA will be having problem in storing the farm produce. Aside from this for safety reasons also the plant protection materials should be stored separately. The farm implements presently are being stored in the repairing shop for farm machinery. While repairing work is being done outside.

IPSA has only one open threshing floor. During the wet season threshing, winnowing and drying activities becomes very difficult. As a result the researchers face problem with their harvested crops. IPSA does not have any garage for its farm vehicles. So, the vehicles are losing their life span from being kept outside under the open sky. IPSA does not have any field laboratory for the students. So they have to face a lot of problems with the harvested plant and soil samples which they can not take directly to the sophisticated laboratories. For the superintendent of farms and his staff, IPSA does not have any office building.

List of equipment :

1. Tractor 2 nos.
   70 HP, and 40 HP
2. Land Scrapper 1 no. to be attached with 70 HP tractor
3. Land leveller 1 no. to be attached with 60 HP tractor
4. Chisel plough 2nos. to be attached with 60 HP tractor
5. Rice transplanter 4 no. (4-8 rows)
6. Rice seedling box 50 nos.
7. Combined harvester 2 nos.
8. Seed drill 2 nos.
9. Thresher (Rrice/wheat) 2 nos.
10. Tractor trolley 1 no. 3 tonns
11. Hose pipe (5 cm diameter) 200 m
12. Spare parts for Irrigation system:
    a) sprinkler 50 nos. PT 3/4'
    b) pipe (5cm diameter) 140 peices.
       i)aluminum pipe with cuplet 4.5m long 40 nos.
       ii) aluminum pipe with cuplet 6m long 50 nos.
       iii) aluminum pipe with riser cuplet 6m long 50 pc
    c) hydrant extended valve (diameter 5 cm) 10 nos.
    d) gate valve to be attached with hudrant extended valve(diameter 5 cm) 50 nos.
    f) washer for sprinkler pipe (5cm diameter) 200 no
    g) sprinkler stand riser with cuplet (diameter 2 cm and 1m heigh) 50 nos.
    h) washer for sprinkler stand (2 cm diameter) 200 nos.

13. Diesel pump (7HP) with hose pipe 100m long (75mm diameter) 1 no.
14. Grass cutter 10 nos.
15. Rotavator 4 nos.
    1 nos. to be attached with 70 HP tractor
    1 nos. to be attached with 40 HP tractor
    1 no. Model LA 2300A
    1 no. Model MS 60
16. Rotavator Link 10 set.
    4 set Model LA2300A
    6 set Model MS 60
17. Spare cross bearing shaft for rotavator 4 nos.
    2 nos. for MS 60 rotavator
    2 nos. for LA 2300A rotavator
18. Spare cross bearing for rotavator 10 nos.
    for MS 60 rotavator
19. Disc plow 2no. to be attached with 70 HP tractor. and 60 HP tractor.
20. Steel wheel for tractor 4 nos.
    28*W11 186 2 nos.
    28*W15L 985 2 nos.
21. Bed binder for power tiller 3 nos.
    2 nos. YZ 8 M
    1 no. YZ P2M
22. Intact hose (5cm. diamater and 1m long) 10 nos.
23. Tees cuplet (5cm. diamater) 10 nos.
24. Bend cuplet (5cm. diameter) 20 nos.
    right 10 nos.
    left 10 nos.
25. End plug (5cm. diameter) 20 nos.

ANNEX V: AGRICULTURAL INSTITUTIONS AND SYSTEMS IN BANGLADESH

1. AGRICULTURAL EDUCATION SYSTEM
(Primary Level to Ph.D. Level)

Primary level:

Agriculture comes under science part of the subject study of environment, which has got another part in the social studies. In the science part there is a book for each of the classes from class III to V under the common title of environmental study.

It is found that a total of 35 pages only are devoted to agricultural topics out of a combined total 216 pages of the the subject.

Secondary and Higher Secondary levels:

From VI to X agricultural education is imparted through a course under the title general science in which only 7% of the subject are related to agricultural topics.

In secondary and Higher Secondary level two degree named S.S.C. in agriculture and H.S.C in agriculture, respectively, are offered by the Board of Intermediate and secondary education, Dhaka, Commilla, Rajshahi and Khulna.

Students at secondary level with major in agriculture, study a complete subject on agriculture which does not cover more than 10% of the required courses studied in IX and X. Students at Higher Secondary level in agriculture group study an elective subject related to agriculture which covers Crop science, Animal science and Fisheries in addition to other subjects in science such as chemistry, physics and biology/ mathematics.

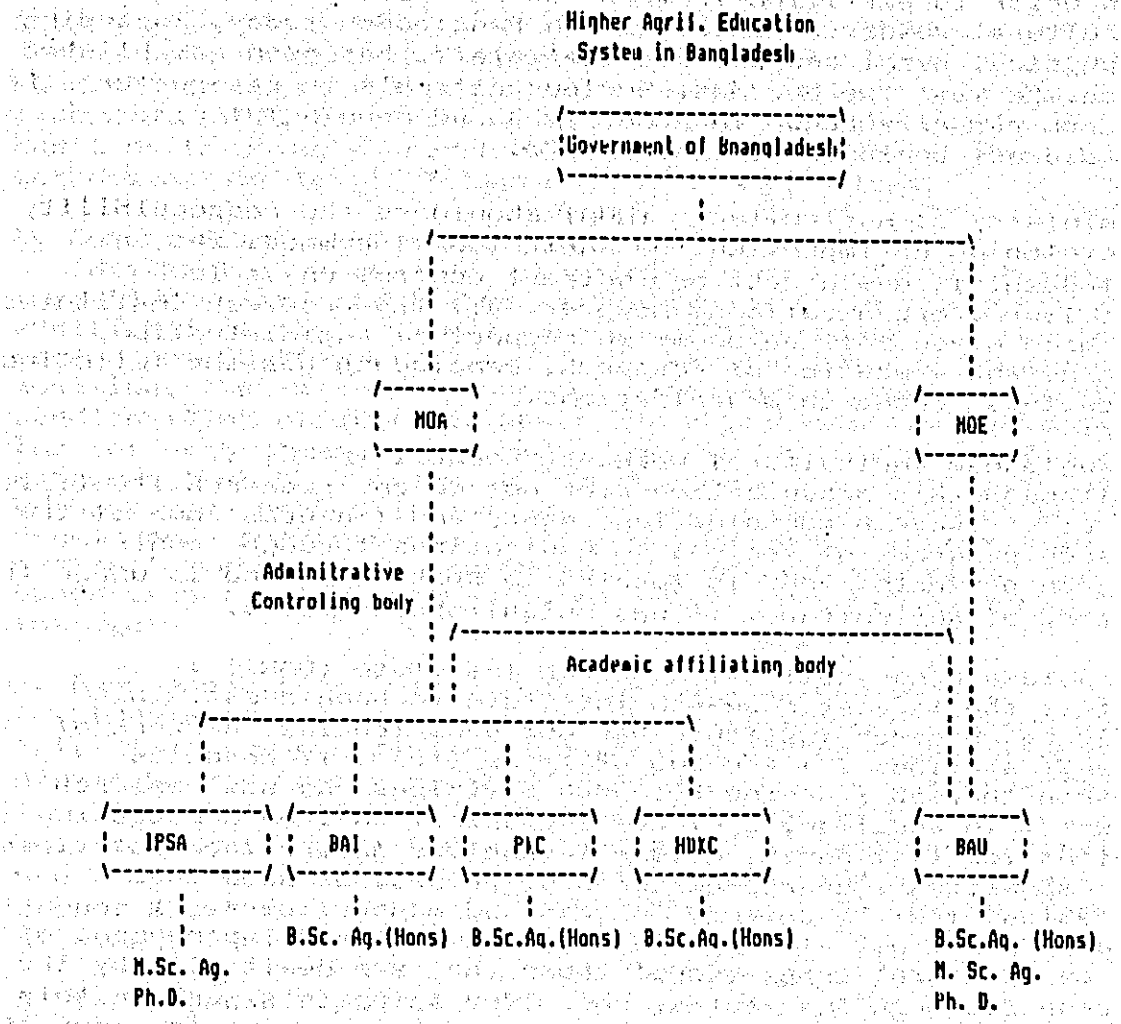
Diploma level:

With the objective of offering training on agriculture, the first agricultural school was established in 1919 at Tejgaon, Dhaka. Subsequently one school at Daulatpur and one at Gaibandha were established in the year 1944 and 1946 respectively. This program of training of boys in agriculture may be treated as the first step to agricultural education in a formal and institutional way. Duration of that course was one year. Later it was revised and modified into a 2 years course. Subsequently this course was treated as Diploma in Agriculture in the year 1957 but this diploma was not recognized as other diploma in engineering. More schools of same nature were established and renamed as Agriculture Training Institute (AETI) and at present as Agriculture Training Institute (ATI). At present there 11 ATIs in different locations of the country. Recently four of them started a 3-years course to offer a Diploma in agriculture which is equivalent to Diploma in engineering.

Higher Education in Agriculture:

Bangladesh Agricultural University (BAU) and its three affiliated colleges namely Bangladesh Agricultural Institute (BAI), Dhaka, Dhumki Agricultural College (DAC), PotuaKhali, and Haji Danesh Agricultural College (DAC), Dinajpur are being offering B. Sc Ag. (Hons.) degree in the field of crop science. Higher education in agriculture to offer graduation degree started in this country in 1939 with the establishment of Agricultural College (now BAI) at Tejgaon, Dhaka. BAU was established with the then East Pakistan College of Veterinary and Animal Husbandry as its nucleus. The University now produces six types of agricultural graduates from six faculties. The faculties are Agriculture, Animal Husbandry, Agricultural Economics & Rural Sociology, Agricultural Engineering & Technology and Fisheries. All these courses are 4 years duration after H.S.C. BAI and (PAC) produce Bachelors in Agriculture as affiliated colleges of BAU. DAC started B. Sc. Ag. program from 1988.

Offering of Master in Agriculture (M. Ag.) degree was started with the establishment of agricultural faculty under Dhaka University with Agricultural Research Station at Tejgaon as its nucleus. After establishment of BAU gradually the faculty of Agriculture under Dhaka University was abolished and BAU started offering M. SC. in agriculture degree in various fields of agriculture including crop science. M. Sc. Ag. program at IPSA was started from 1983 with the affiliation of BAU.



MOA = Ministry of Agriculture
MOE = Ministry of Education
IPSA = Institute of Postgraduate Studies in Agriculture
BAI = Bangladesh Agricultural Institute
PKC = Potuakhali Krishi College
HDKC = Hazi Danesh Krishi College

2. AGRICULTURAL RESEARCH SYSTEM

Agricultural research system in Bangladesh dates back to the years prior to partition from the Great Britain. But the agricultural research capability in Bangladesh today, including the physical plant and professional staff, has been established during the last two decades. Serious attempts to restructure the research capacity began in about 1973 and meaningful research work did not begin until around 1975.

The ministry of Agriculture (MOA) shoulders the responsibility of developing or improving the agricultural commodities in Bangladesh. It has direct or indirect control on various agricultural organizations. However, all the research institutes have been given full autonomy in respect of administration, planning and execution of research. Bangladesh has the following agricultural research organizations.

1. Bangladesh Agricultural Research Council (BARC) :
   Although this organization does not do any research itself it acts as a research coordinating agency and finances some of the research programs of various organizations through contract research projects. BARC is located in Dhaka city and is under the ministry of agriculture. It was established in 1973.

2. Bangladesh Agricultural Research Institute (BARI) :
   It is the largest research institute in Bangladesh. This multicrop research institute has got a nationwide network of regional stations (5) and sub-stations (15) . It conducts research through its nine research divisions and six research centers . In addition, BARI has 200 operational onfarm testing stations for testing the mature technology on the farmers' field. BARI emphasizes research on cereals, pulses, oilseeds, vegetables, fruits, spices, tobacco and minor fibers. It conducts research on almost all aspects of management and improvement of most agricultural crops except those that are dealt with by the monocrop research institutes. About 900 scientists work in this institute. BARI is located at Joydebpur, Gazipur and is under the ministry of agriculture.BARI became autonomous in 1976.

3. Bangladesh Rice Research Institute (BRRI) :
   This monocrop institute deals only with rice. It has a small network of regional and substations (5) and conducts research through its 15 research divisions . There is an additional division of rice cropping system. The number of scientists working in it is about 150. BRRI is located at Joydebpur, Gazipur and is under the ministry of Agriculture. It was established in 1970.

4. Bangladesh Jute Research Institute (BJRI) :
   This institute has the mandate of doing research on improvement and management of jute crops as well as on technology of the use of jute fiber. About 200 scientists are working in the

Headquarters and six substations. This is located in Dhaka city and is under the ministry of agriculture. The BJRI was established in 1973.

5. Sugercane Research and Training Institute (SRTI) :
Conducts research on management and improvement of sugarcane. About 90 scientists are working in SRTI. It was established at Ishurdi in 1951 and is under the ministry of agriculture. In addition to doing research it provides training in production methods at all levels from farmers to supervisors.

6. Forest Research Institute (FRI) :
This institute is under the ministry of environment and forests and was established at Chittagong. There are seven additional stations spread throughout the country in the forest regions of Chittagong, Sylhet, Khulna, Rangail And Dinajpur. In addition, the institute operates nine seed nurseries to provide seedlings for plantation. About 100 scientists are working there. The research is broadly divided into two categories: (1) forest management which deals with forest growth and production of primary wood products; and (2) forest product research which encompasses the technology of processed wood products. Major national concerns over reforestation and the management of the Sundarbans forests are reflected in the research strategy of the institute.

7. Bangladesh Institute of Nuclear Agriculture (BINA) :
BINA is one of the several such facilities around the world. Initially it was under the sponsorship of the International Atomic Energy Agency of the United Nations. It was organized in its current form in 1972. The institute has emphasized on mutation breeding of new crop varieties and efficient fertilizer use. Emphasis has been on cereals, fibers, legumes and oilseed crops. About 90 scientists are working in BINA which is located at Mymensingh.

8. Tea Research Institute (TRI) :
Located at Srimangal, Moulvibazar. About 40 scientists are working in it. This institute is under the ministry of Commerce. TRI is the scientific wing of the Bangladesh Tea Board. There are three substations associated with the main research establishment at Srimangal, Moulvibazar. The program encompasses a fairly broad and traditional scope of agronomic research. In addition, the introduction and selection of high yielding vegetative clones and seed lots and the rehabilitation of the older soils represent a significant effort. A major activity of the institute is the advisory service provided to the Tea Estates.

The universities, in general, and the Bangladesh Agricultural University, in particular, are also doing agricultural research to some extent. In addition to its teaching program BAU conducts both basic and applied research. Besides, there are some other research organizations like Fisheries Research Institute and Livestock Research Institute.

3. AGRICULTURAL EXTENSION SYSTEM

In Bangladesh, the reorganized Department of Agricultural Extension (DAE) under the Ministry of Agriculture (MOA) started functioning when six other agencies/organizations, namely, 1) Directorate of Agriculture (Extension and Management); 2) Directorate of Agriculture (Jute production); 3) Directorate of Plant Protection; 4) Horticulture Development Board; 5) Tobacco Development Board; and 6) Central Extension Resources Development Institute (CERDI) were merged in September 1982 (although it dates back in early 1908 in the then British India). This arrangement was done to avoid duplication of services and wastage of scarce resources, as well as to foster interagency coordination and monitoring at different levels of operation.

The major functions of the DAE are as follows:

1. To provide farmers with the latest results of research and scientific farm techniques for their socio-economic betterment;

2. To motivate and help farmers adopt improved production practices which would increase their farm production and thereby meet national consumption requirements, maximize export and minimize import;

3. To assist farmers to arrive at the most promoting course of action for maximizing production and income keeping in view of their own needs, resources and abilities;

4. To help develop self-reliance and cooperation by training local leadership for organized group action.

The institutional foci for the management of new extension services, according to DAE (1985), were the four-tier system such as Block (Union), Unit (Upazila), Zone (district) and the Headquarters (National level). At the national level, the DAE is headed by a Director General and assisted by a Director of each of the Division of Cash Crops, Food Crops, Plant Protection, Field Services and Training, and by an Additional Director of the Planning and Budget, and Personnel and Administration Wings. The Headquarters Specialist Division provide technical supervision over the field extension personnel through appropriate SMS's. They also maintain liaison with concerned national level research institutions. The line functions over the field extension services are exercised by the Field Services Division of DAE. Figure 1 shows the Organizational Chart of the DAE.

Zone (District)

The Zone is the most important focal point for managing the operations of the DAE. The managerial direction and administrative professional support for an average of 7 to 8 units (Upazilas) with a combined establishment of over 300 personnel is provided either by an Assistant Director (ADAE) or a

Deputy Director or DDAE (incharge of Zone or District), supported by a team of 2 to 5 specialists and a supervisory staff (Subject Matter Specialists and Training Officers).

Unit (Upazila)

The Unit is the nearest point of institutional service to farmers. Each Unit is under a Upazila Agricultural officer (UAO) who is supported by four supervisory and the first echelon subject matter officers (SMO).

Block (Union)

At the Block level there is a Block Supervisor who provides extension services to farmers or groups of farmers who are called "contact farmers" under T & V concept. A Block Supervisor covers 600 to 1200 farm families (an average of 900) depending upon the density of farm population and intensity of agriculture in a given area.

The total staff strength (professional and subprofessional) of the DAE is 23,842 including those involved in service and regulatory functions. Their distribution at each level is as follows (DAE, 1985).

Level	Number
Headquarters	709
Zone (District)	3,209
Unit (Upazila)	7,488
Block (Union)	12,436
Total	23,842

Role of Agricultural Extension in Bangladesh

The Concept

Agricultural Extension has been defined as "a service or system which assists farm people, through educational processes, in improving farming methods and techniques, increasing production efficiency and income, and ultimately improving the levels of living and quality of rural life". Ideally, an extension system has to maintain a close linkage and to serve as a bridge, in the two-way flow of information, between the change system (organization), client system (farmers) and resource system (research responsible for development of appropriate technology and other support-services agencies for delivery of farm inputs, credit, irrigation, marketing, etc.). This complementarity of efforts should be maintained if lasting success is to be achieved.

Agricultural Extension is mainly responsible for all kinds of motivational and promotional activities in the field for the

purpose of getting the known/proven agricultural innovations adopted by the clientele. Its main task, therefore, is to motivate, educate and help farmers to adopt those technologies for their ultimate benefits or increased productivity. This process of transfer of new technology requires the development of an effective delivery mechanism through which information can be disseminated to its end-users (farmers). One such example is the development of local institutions or farmers' organizations since majority of them are small and marginal, and individually they are unorganized to obtain those services and supports to sustain their agricultural productivity. To materialize this process, DAE has introduced Training and visit (T & V) System of Agricultural Extension throughout Bangladesh phase-wise since 1978. The essence of T & V system is the "Contact Farmers", a second-line extension workers through which improved technology are disseminated to general farmers of the community.

A Holistic View of Extension

The current development thinking suggests that participatory approach is helpful to any transformation of rural change. People can be motivated easily if they are allowed to participate in the development program designed for them the way they want it. This will help them arrive at a decision commensurate to their capabilities and resources rather than an outside interventation. The assumption is that it is their baby, they should know better than anyone else how best it should be taken care of.

Another aspect of the Agricultural extension is to "equalize the opportunity for access to national resources, information, skills and package of technology to those weak and disadvataged groups of clientele who without means, facilities or aggressiveness can have a substantial share in them". The DAE (1988) has cited three implications of such role of extension : first, linking extension with organized groups of farmers emphasizing the "group approach", second, making a conscious effort to involve farmers in the participatory planning and decision making process and third, a reorientation and training of staff which will lead to attitudinal changes towards extension work. Therefore, the extension system has to go beyond the traditional notions of technology diffusion which increase production and income, but they must be concerned with the overall development of the farm, the family and the community. This approach calls for a more synchronized and realistic view of the problems encountered and a better conceptualization of the farmers' socio-economic setting and resources available to them.

Why T and V system of Extension

For effective extension activities, there is a need to develop an appropriate organizational structure through which agricultural innovations and other production-related information could be disseminated to a larger number of farmers within a short span of time. This requires an organization-and-management

extension system that can be responsive to farmers' needs. Only a viable and effective organization can be capable of handling farmers' needs and interests through a sustainable system of technology diffusion and meaningful feedback.

Because of certain inherent weaknesses of the traditional extension system, a meaningful breakthrough could not be made. However, some of the important weaknesses were identified. According to DAE (1985) these were : a large area of operation made it difficult for an extension agent to provide extension services to as many as 2000-3000 farm families; absence of delineation of duties; imposition of work other than professional duties on extension agents, inadequate in-service training facilities, absence of physical facilities like official and residential accommodations, transports etc., lack of professionalism or technical backup of SMS services, lack of recognition in terms of salary, promotion, poor service conditions and absence of adequate linkage between extension and research and other professional organizations.

In order to get rid of those shortcomings and weaknesses of the earlier extension system, the new approach of the T and V model was put on trial as a pilot project, first in the northwest region of Bangladesh covering 16 districts of Rajshahi Division in 1978. Because of impressive results, as claimed by the DAE (1985), it was then further expanded to 30 districts of other regions, i.e. all districts of Dhaka Division, all but Khulna district of Khulna Division and Comilla district of Chittagong Division (Fig.2). By now it was introduced almost all over Bangladesh.

Some other organizations like BADC, BSFIC, CDB, BWDB in the public sector and BIC in the private sector also do the extension functions as well as some other regulatory jobs in their respective area of concerns, particularly on industrial crops such as sugarcane, cotton, tobacco etc., in addition to other private enterprises.

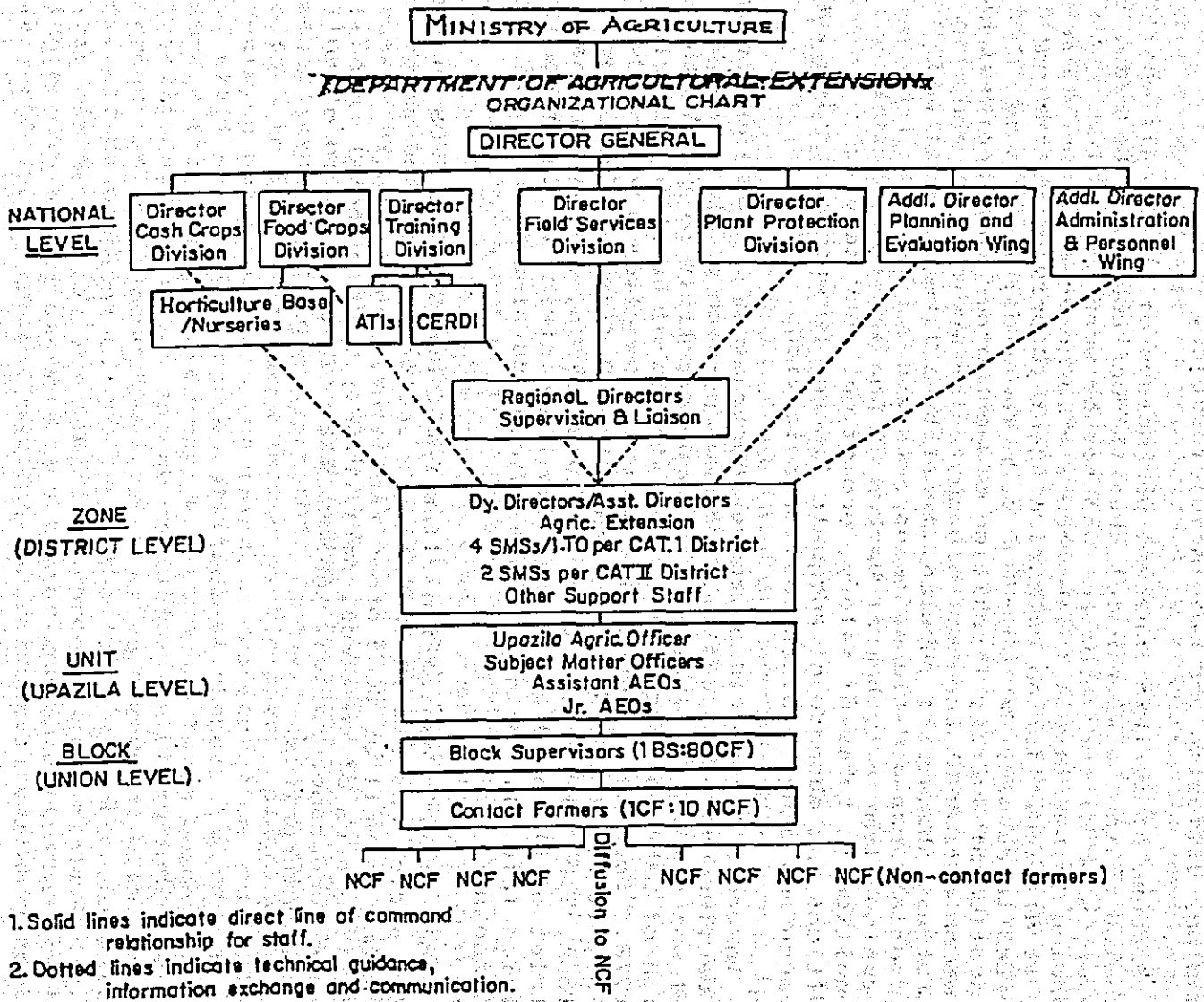


Fig. I. Organizational chart of Department of Agricultural Extension (DAE).
Source: Agricultural Extension Manual, DAE, Khamarbari, Dhaka (1985).

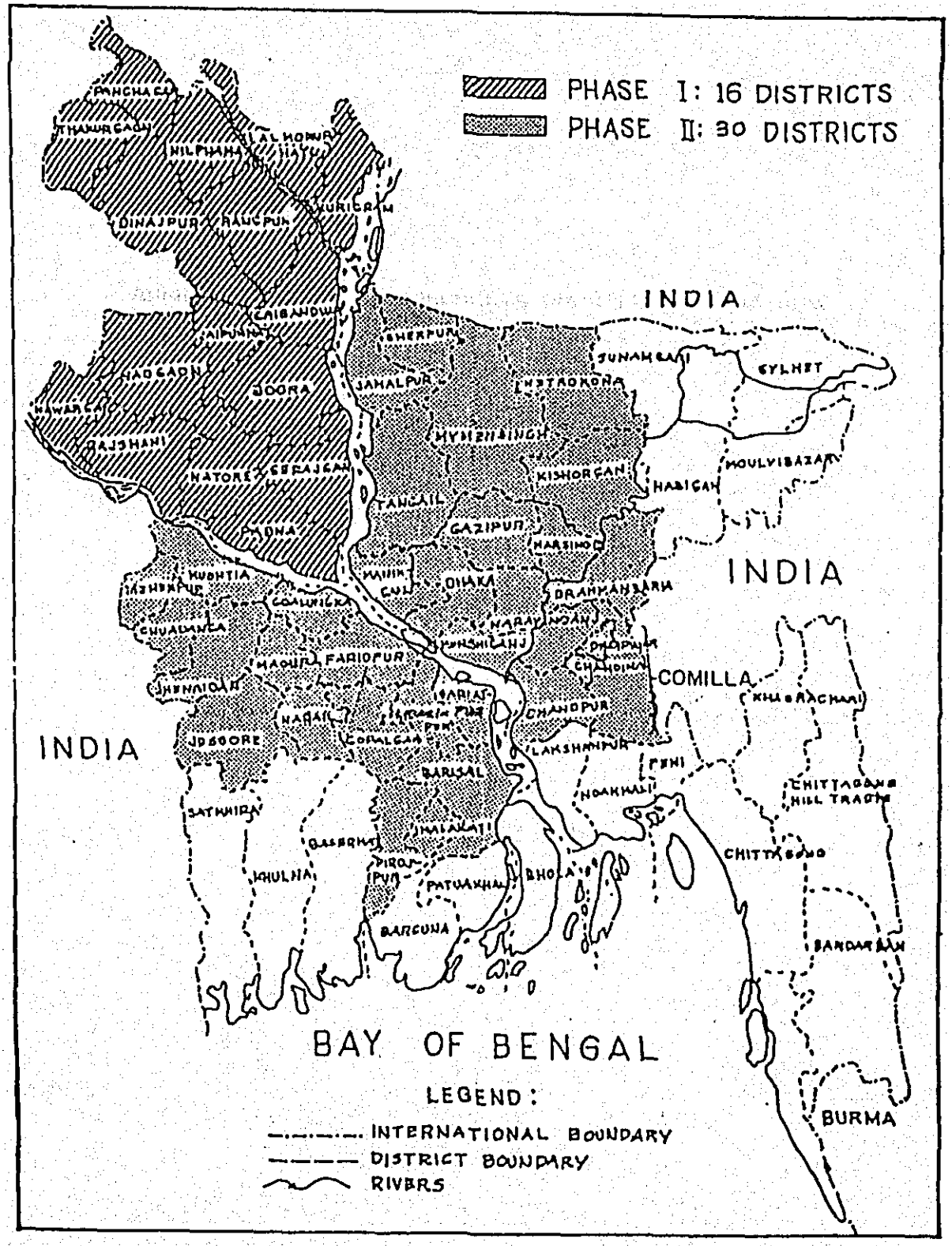
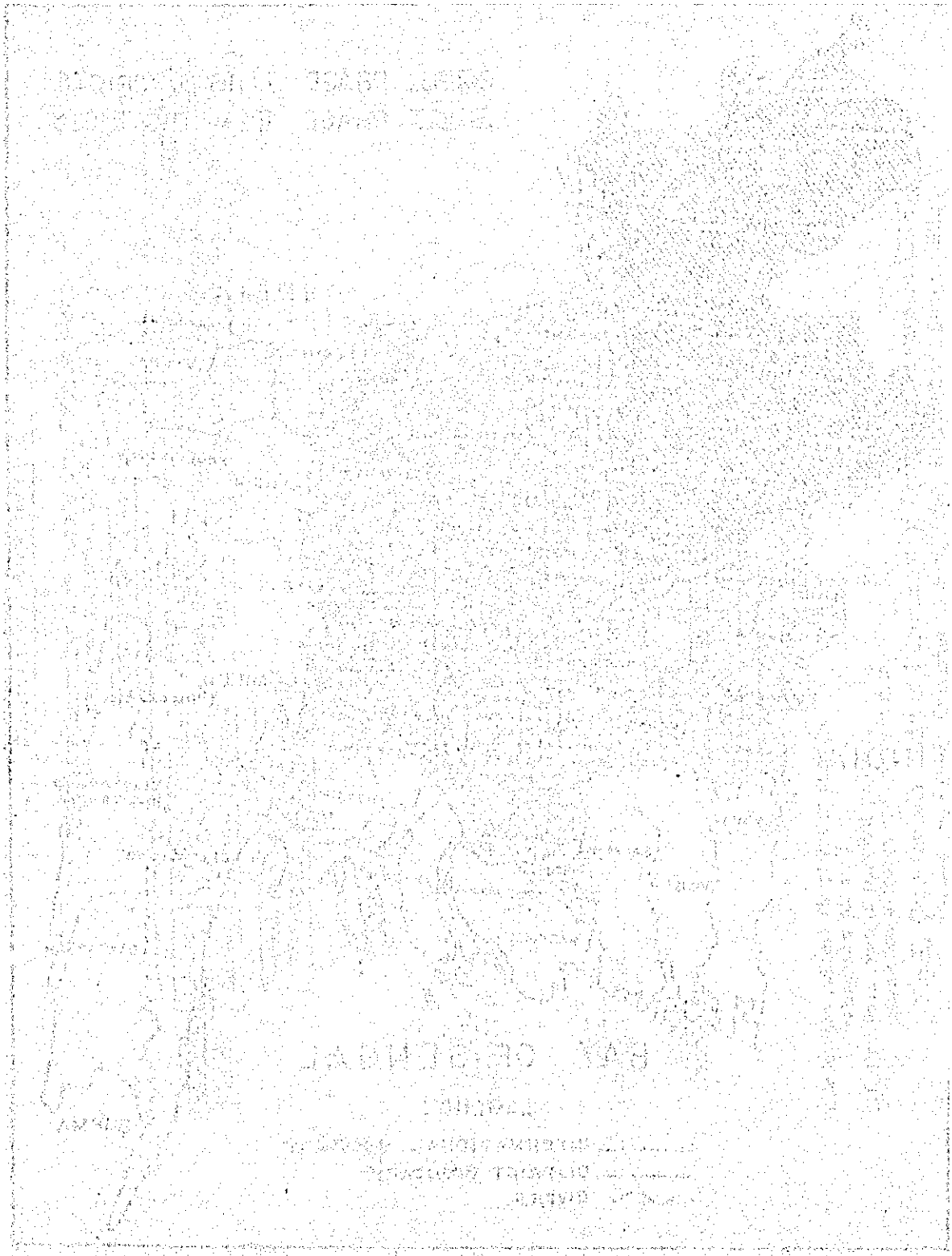


Fig. 2. Map of Bangladesh showing the T and V operated Districts under the ERP phase I and phase II.



ANNEX VI: LIST OF DOCUMENTS PROVIDED SEPARATELY

List of Documents Provided Separately

1. Joint Tripartite Evaluation of Institute of Postgraduate Studies in Agriculture in Bangladesh, July 24, 1989.

2. The Minutes of the Meeting of the Executive Committee of the National Economic Council held on September 26, 1989 (both original in Bengali and translated into English) dated October 12, 1989.

3. Discussion Paper: IPSA Project - Phase II Cooperation dated March 6, 1990.

4. Answers by the concerned faculties of IPSA to questionnaires included in the above-mentioned Discussion Paper dated March 6, 1990.

5. II PRELIMINARY PROJECT PROFORMA (PPP) (prepared by Director, IPSA and submitted to MOA in April, 1990).

6. Proposed Project-Type Technical Cooperation Project (prepared by Director, IPSA submitted to MOA in April, 1990).

7. Mini Project Paper: Institute of Postgraduate Studies in Agriculture (IPSA Project, Phase II). USAID/Dhaka, Bangladesh, March, 1990.

8. NEEDS ASSESSMENT for the ESTABLISHMENT OF A RESIDENTIAL INFRASTRUCTURE at the INSTITUTE OF POSTGRADUATE STUDIES IN AGRICULTURE submitted to MOA by Dr. S. H. Khan, Director, IPSA.

9. Letter of Dr. Y. Hirashima, Team Leader of IPSA Project, JICA-USAID addressed to Dr. M. A. Syed, Secretary, MOA regarding Recruitment of IPSA Faculty dated February 13, 1990.

10. DRAFT CURRICULUM for the MASTERS PROGRAM at the INSTITUTE OF POSTGRADUATE STUDIES IN AGRICULTURE, AUGUST 31, 1989.

11. MINUTES OF THE TRIPARTITE MEETING HELD ON APRIL 8, 1990 ON IPSA PROJECT signed by Mr. N. A. Syed, Secretary, MOA dated April 21, 1990.

12. MINUTES OF DISCUSSIONS ON DEVELOPMENT OF LIBRARY AND OTHER PHYSICAL INFRASTRUCTURES FOR THE INSTITUTE OF POSTGRADUATE STUDIES IN AGRICULTURE IN THE PEOPLE'S REPUBLIC OF BANGLADESH signed by Dr. Y. Yamada, Leader of Basic Design Survey Team and Dr. S. H. Khan, Director, IPSA dated April 8, 1990.

13. Key Conditions for Success of IPSA Project, May 5, 1990.

14. Preliminary Draft Charter of IPSA dated March 11, 1990.

15. Letter of Dr. Y. Hirashima to Dr. S. H. Khan regarding the coming Record of Discussions Team dated May 3, 1990.

16. The Record of Discussions for IPSA Project (Phase I) dated July 4, 1985 and its attached Explanatory Notes

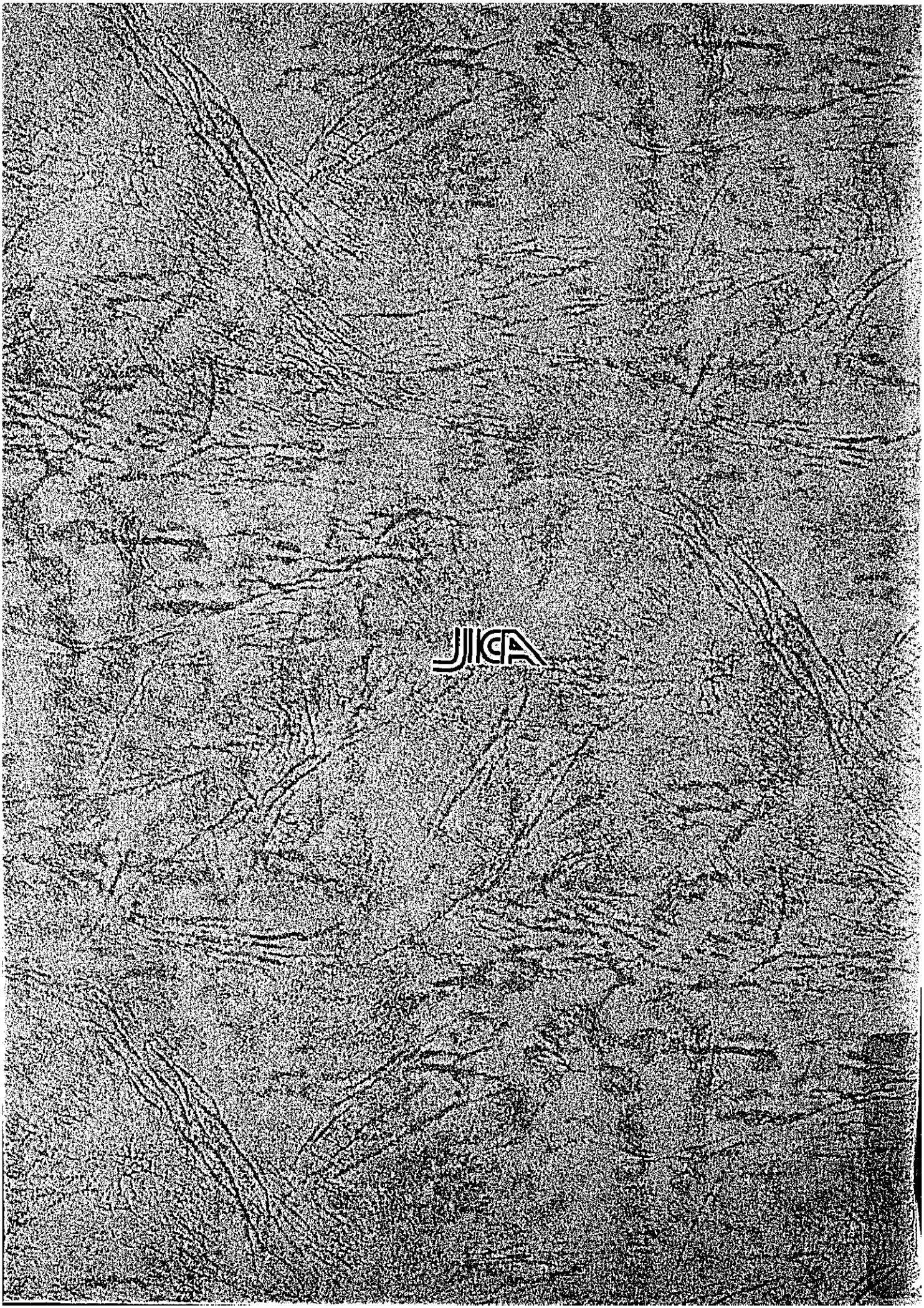
17. Understanding between USAID and JICA for Joint Technical Cooperation for IPSA. Letters exchanged between JICA Dhaka Office and USAID Dhaka, Bangladesh dated July 11, 1985.

18. Tentative Scheduled of Implementation for IPSA Project (Phase I) dated October 8, 1986.

19. Project Proforma (Scheme for IPSA, Salna, Gazipur) approved in September, 1989.

20. Draft MOU

21. Announcement of M.D. Program


JICA