

昭和56年度  
バングラデシュ園芸研究計画  
計画打合せチーム報告書

昭和57年2月

国際協力事業団



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 Bangladesh 園芸研究計画  
 計画打合せチーム報告書

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## ま え が き

Bangladesh 園芸研究計画は、討議々事録 ( R / D ) に基づき、延長期間も含め昭和 5 2 年 1 1 月 3 日より 6 ケ年の予定で、柑橘の品種改良、栽培改善及び野菜種子生産を目的として研究協力が実施されています。

本報告書は、昭和 5 7 年 1 月 2 3 日より 2 月 3 日まで、西田氏を団長として Bangladesh 共和国へ派遣された「 Bangladesh 園芸研究計画打合せチーム」の報告をとりまとめたものです。

本チームは昭和 5 5 年 1 1 月に吉沢氏を団長とする第 2 次エバリュエーションチームによって協議された内容に基づき実施されている試験研究の進捗状況の確認を行ない残された 2 ケ年間の実行計画の打合せを行ないました。

本研究計画は、 Bangladesh 国内でも期待され、かつ注目を集めている計画であり、この度の報告を基として、この計画が完遂されるよう期待するとともに、今回調査団並びにプロジェクト関係者の努力に感謝します。

昭和 5 7 年 2 月

国際協力事業団  
農業開発協力部長  
村 田 稔 尚



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## I 計画打合チームの派遣

### 1. 実施の背景及び目的

本プロジェクトはR/Dに基づき当初昭和52年11月3日より昭和55年11月2日まで協力事業が実施されたが、55年5月、10月に2次に渡るエバリュエーションチームを派遣した、その結果協力目標を重点課題に絞り、3年間延長する旨のR/Dを第2次チームが署名した。

署名に先だち、5月に行なわれた第1次エバリュエーションチームの報告、提言について検討の結果、

試験研究課題については当初計画において柑橘部門23項目、野菜部門20項目があげられ、その内容は長年月を要する課題を含み、協力期間内では実施不可能と見込まれる課題もあった。以上の確認に基づき10月～11月に実施された第2次エバリュエーションチームにおいては、①長期的課題と短期的課題、②BARI園芸部の研究課題と本プロジェクトの課題。以上の課題の整理を行ない、柑橘部門15項目、野菜部門4項目(9項以後参照)にしばり、長期的課題についてはバングラデシュ研究者が独力で研究開発体制を維持できることを目標とした。

以上のように縮小された基本計画に基づき約1ヶ年協力が実施されてきたが、柑橘においては①芽接、切接技術の実用化、②主要病害(そうか病、樹皮病、黒点病)の確認、③葉分析、土壌分析(簡易分析法)により樹木の栄養障害の分析等の基礎的分野において一部成果が見られるものの、野菜に比べ長期的にならざるを得ない研究項目も多く、虫害防除等についてほとんど未着手の分野も見られる。一方野菜においては①導入種の雨期野菜(カンコン、タイサイ、カイラン、サイシン、ワケギ、ラブラブ)がバ国の雨期生産に適応することが確認され同野菜の導入、選抜、淘汰、採種に関する試験研究は一応終了し現在増殖用種子生産を行なっている。②日本種ダイコンの種子低温処理による採種が可能である事が確認された。③ナス青枯病抵抗性品種の確認等が成果としてあげられる。

以上の状況をふまえ、本チームにおいては基本計画に基づいて実施されている試験研究の進捗状況の確認を行ない、特に計画の遅れていると見られる柑橘部門の現状、問題点等を把握し残された2年間の実行計画の打合せを行うものである。

## 2. 調査団員構成

担当業務	氏名	所属
(1) 団長(総括)	西田光夫	農林水産省果樹試験場 育種部長 (Tel 02975-6-6461)
(2) 団員(業務調整)	早瀬隆昌	国際協力事業団農業開発協力部畜産開発課

## 3. 調査団員日程

		日 程 表
1月23日(土)	10:30	成田発(JL717)16:30バンコック着
24日(日)	11:00	バンコック発(TG321)12:20ダッカ着
	15:30	派遣専門家日程等打合せ
	19:00	日本専門家チーム主催 夕食会(於SONARGAON HOTEL)
25日(月)	9:40	JICAダッカ事務所(村越事務所長)表敬
	10:30	①Jaintiapur(サブセンター)のAkbarpurへの移転問題 大使館表敬(新野一等書記官)
	11:40	①新野氏よりAKbarpurの立地条件等について質問があった。 農林省表敬(農業次官 Mr. BARUA)
	13:15	農業技術研究所(BARI)、柑橘及び野菜研究センター(C.V.R.C)表敬、現地調査(プロジェクトインチャージ Dr. Hossain)
26日(火)	9:00	日本人専門家チームと進捗状況等について打合せ
	(全日)	①研究課題の整理、②永年性作物である柑橘の今後の対応
27日(水)	10:00	バ国側と課題別協議(野菜)
	12:15	“(柑橘)
	(午後終日)	
28日(木)	10:20	第4回合同委員会
	14:30	専門家打合せ
29日(金)	7:45	ダッカ発(BG401)Dr.Hossain同行、8:30 Syhlet着
	10:30	Jaintiapur視察(所長Mr. Md. Abul Bashar)
	15:00	近郊農家視察 農業普及員養成所(AETI)
30日(土)	8:00	AETI会

	12:00	AKbarpur 着
	21:00	ダッカ着
1月31日(日)	10:00	報告書作成
	14:00	専門家打合せ、報告書作成
	19:00	団長主催夕食会(ホテルインターコンチネンタル)
2月 1日(月)	9:00	報告書作成、タイピング (全日)
	19:00	BARI 所長主催夕食会(ホテルブルバニー)
2日(火)	9:00	BARI 所長(Dr. Kazi M. Dadruddoza)に調査報告及び表敬
	10:00	BARI(ジョイデプール)に調査報告及び表敬 (Dr. M. H. Mondal、Dr. M. Raslnid)
	11:00	C. V. R. C 調査報告(Dr. Hossain)
	13:30	大使館主催昼食会(新野一等書記官)
	19:15	ダッカ発(TG-304) 22:25 バンコク着
3日(水)	9:30	バンコク発(JL-472) 16:35 成田着

#### 4. バングラデシュ国面会者リスト

氏 名	職 位
1) Mr. Barua	農業省次官
2) Dr. Kazi M. Badruddoza	バングラデシュ農業技術研究所(BARI) 所長
3) Dr. Mohammad H. Mondal	BARI 次長(研究)
4) Mr. A.F.M. Hafizar Rahman	BARI 次長(企画)
5) Dr. Masharraf Hossain	BARI 次長(サポート・サービス)
6) Dr. Mamunur Rashid	BARI 園芸部長
7) Dr. Ameerul Islam	BARI 昆虫部長
8) Mr. A. Mumin	BARI 企画部長
9) Mr. Saiful Haque	大蔵省、ERD 代表(C.V.R.C)
10) Dr. A.K.M. Amzad Hossain	柑橘及び野菜研究センター所長
11) Mr. Md. Abul Bashar	ジャンティアプール支場長
12) Mr. Abu Mohammed Abdullah	C.V.R.C. 柑橘主任
13) Mr. Abdul Ahad Mial	C.V.R.C. 野菜主任
14) そ の 他	カウンターパート等

## II 計画打合せ内容

### 1. 要 約

本調査団は、1982年1月24日から2月2日まで(10日間)1980年11月3日に合意されたR/Dに基づいて実施されている協力事業の実施状況を調査し、終了時までの実行計画についてバ国政府関係者と協議するためバングラデシュ国を訪問した。その間主センターであるジョイデプール、及びサブセンターの1つであるジャインティアプールにおいて調査検討を行ない次の結論に達した。その概要は以下の通りである。

#### (1) 研究課題の実施状況

##### 1) 柑 橘

木本(永年性)作物であるという性格上、短期間に最終的結論を得ることは原則として不可能である。従って1983年11月2日の本プロジェクトの終了時まで(1980年11月3日の基本計画に基づく課題の完結は困難と思われる。そこで個々の課題について進捗状況を調査し以下のように判断整理した。(但し、番号については本報告書「試験研究課題別年次計画」及び「試験研究課題別進捗状況及び到達見通し」、詳細については昭和55年12月、計画打合せチーム報告書を参照のこと。)

a) 協力期間終了時にはほぼ終了と思われるもの。

1-1      1-5      1-10      1-11

b) 協力期間終了時において中間的成果しか期待できないがバ国で継続し、完結できると思われるもの。

1-2      1-3      1-4      1-6      1-7      1-8      1-9

c) バ国研究者が現在研究しており今後もバ国で継続し完結できると思われるもの。

1-12      1-13      1-14      1-15

##### 2) 野 菜

ナス、ダイコン、スイカ、雨期葉菜において選抜、採種試験が行なわれているが、概ね順調に進捗している。しかしスイカにおいては若干の遅れが見られるものの協力期間終了までにはほぼ目的を達成できるものと思われる。またさらにバ国における重要野菜であるキャベツの台湾系品種の採種の可能性が確認された。

##### 3) 助 言

以上の実施状況調査の結果に基づき次の問題解決が必要であると思われる。

a) 試験研究課題の個々の小項目については整理、簡素化が必要である。

b) カウンターパート等の配置においては、技術・移転がスムーズに行なわれるようバ国政府関係者の十分な配慮が必要である。

c) 研究体制及び圃場管理体制強化のため、要員増加が必要である。

2. 試験研究課題別進捗状況及び到達見通し

◎ほぼ終了 △半分以下  
○半分終了 ×着手せず

区分	試験研究課題	進捗度	終了した事項	進行中の事項	今後計画されている事項	到達見通し、問題点
1. 柑橘	1-1 バングラデシュにおける柑橘栽培の実態調査	△	<ul style="list-style-type: none"> <li>調査要領の作成</li> <li>100普及所への調査表配布</li> <li>国内からの幼木、苗木の種付</li> </ul>	<ul style="list-style-type: none"> <li>調査表の回収</li> </ul>	<ul style="list-style-type: none"> <li>調査表の分析</li> </ul>	<ul style="list-style-type: none"> <li>調査表に対する普及所職員の理解度</li> <li>調査表の回収の困難性</li> <li>柑橘圃場が未整備</li> <li>ポットにおける試験が必要</li> </ul>
	1-2 ローカル品種の蒐集と研究	○	<ul style="list-style-type: none"> <li>日本からの導入種の植付けと芽接ぎ</li> <li>タイ、近隣諸国よりの種子及び苗木の導入</li> </ul>	<ul style="list-style-type: none"> <li>優良品種の栽培</li> </ul>	<ul style="list-style-type: none"> <li>優良品種の薈花</li> <li>品種の同定</li> </ul>	<ul style="list-style-type: none"> <li>柑橘圃場が未整備</li> <li>ポメロ、レモン類は結実しない</li> <li>突するがマンダリン類は結実しない</li> <li>継続試験必要</li> </ul>
	1-3 外国品種の導入とバングラデシュにおける地域適応性試験	△	<ul style="list-style-type: none"> <li>ユズ、ポメロ、カラタチ類は増殖の段階である。</li> </ul>	<ul style="list-style-type: none"> <li>導入種の栽培</li> <li>接木の活着を促進するための苗木適期試験</li> </ul>	<ul style="list-style-type: none"> <li>導入種の薈花</li> <li>土壌改良</li> </ul>	<ul style="list-style-type: none"> <li>ポメロ、レモン類は結実するがマンダリン類は結実しない</li> <li>継続試験必要</li> </ul>
	1-4 柑橘台木の育苗管理技術	○	<ul style="list-style-type: none"> <li>芽接、切接の異用化</li> <li>「とり木」「さし木」「芽接ぎ」「接木」の比較試験</li> </ul>	<ul style="list-style-type: none"> <li>技術者への技術移転</li> </ul>	<ul style="list-style-type: none"> <li>種子選てい法</li> </ul>	<ul style="list-style-type: none"> <li>終了見込み</li> </ul>
	1-5 柑橘の繁殖法試験	◎				
	1-6 諸環境条件に適合する柑橘台木の検索	△		<ul style="list-style-type: none"> <li>「カラタチ」「ユズ」「ポメロ」に関する試験</li> </ul>		<ul style="list-style-type: none"> <li>台木の性質上長年月を要する</li> <li>細かい品種試験より大きな品種グループによる比較試験が必要</li> <li>ミストハウス、ネットハウス等での試験が必要</li> </ul>

区分	試験研究課題	進捗度	終了した事項	進行中の事項	今後計画されている事項	到達見通し、問題点	
2. 野菜	1-7 肥料試験	○		<ul style="list-style-type: none"> <li>・施肥基準に関する試験</li> </ul>	<ul style="list-style-type: none"> <li>・カウターパートへの技術移転</li> </ul>	<ul style="list-style-type: none"> <li>・有機物が不足している(入手も困難)</li> <li>・継続試験が必要</li> </ul>	
	1-8 葉分析	○		<ul style="list-style-type: none"> <li>・葉分析と土壌成分との関係試験</li> </ul>	<ul style="list-style-type: none"> <li>・栽培試験を通じ、生理的原因が病発の原因なのかを明確にする。</li> </ul>	<ul style="list-style-type: none"> <li>・栽培試験には長年月を要する。</li> <li>・サブセクターにおいて発生が著しい。</li> <li>・熱帯性病害であるグリーンニングは解明できない。</li> </ul>	
	1-9 柑橘の立ち枯病の原因と防除法	△					
	1-10 一般病害の調査	○	<ul style="list-style-type: none"> <li>・そうか病、樹皮病、黒点病の発生調査</li> </ul>	<ul style="list-style-type: none"> <li>・防除試験</li> </ul>			
	1-11 耐病性品種の選択	○	<ul style="list-style-type: none"> <li>・国内導入種の耐病性品種の発見</li> </ul>	<ul style="list-style-type: none"> <li>・耐病性試験</li> </ul>			
	1-12 害虫発生調査	△					<ul style="list-style-type: none"> <li>・B.A.R.I本部虫害部との共同研究</li> </ul>
	1-13 カイガラムシの生態及び季節的発生数調査	△				<ul style="list-style-type: none"> <li>・防除しやすい時期、習性、被害度発生数、その捕食動物などの調査</li> <li>・効果的防除法の確立</li> </ul>	<ul style="list-style-type: none"> <li>・</li> </ul>
	1-14 ヨコバイの発生密度調査と防除法	△				<ul style="list-style-type: none"> <li>・圃場における殺虫剤効果の比較試験</li> </ul>	<ul style="list-style-type: none"> <li>・</li> </ul>
	1-15 レモンバタフライの殺虫剤効果の圃場試験	△					<ul style="list-style-type: none"> <li>・</li> </ul>
	2-1 品種導入、選抜育成に関する試験						
	2-1-1 ナス由来品種及び導入品種の特性調査並びに選抜育成	○	<ul style="list-style-type: none"> <li>・系統分離</li> <li>・在来品種(35種)の蒐集</li> </ul>	<ul style="list-style-type: none"> <li>・特性調査と系統球種</li> </ul>	<ul style="list-style-type: none"> <li>・在来品種の純化</li> </ul>	<ul style="list-style-type: none"> <li>・特性調査は82年末</li> </ul>	

区分	試験研究課題	進捗度	終了した事項	進行中の事項	今後計画されている事項	到達見通し、問題点
	2-1-2 ダイコン	○	・在来、外国品種の蒐集	・南中国系ダイコンの優良母本選択による第3代系統分離	・固定種の確立が可能	
	2-1-3 スイカ	△	・在来、外国品種(69種)の蒐集	・導入品種の土壌適応性、早生、耐暑性に関する表用性検定と選抜	・日本固定種の導入	・R/D終了までに可能
	2-1-4 雨期葉菜類の品種特性調査並びに選択育成	◎	・広葉、立性タイプの系統選抜	・第2代系統分離	・82年中に終了予定	
	2-1-4-1 カンコン(ヨウサイイ)導入品種の特性調査並びに選択育成	◎	・作期、収量性の検索	・第2代系統分離	・インドネシア種は82年に公開	
	2-1-4-2 タイサイ	◎	・雨期における育成調査	・第2代系統分離	・ほぼ終了	
	2-1-4-3 カイラン	◎	・早生系の育成	・茎用、兼用タイプの系統分離	"	
	2-1-4-4 フケギ	◎	・茎食用、葉茎食用タイプの分離育成	・茎用、兼用タイプの系統分離	"	
	2-1-4-5 サイシン	◎	・種球の大小、植付数と収量との関係調査	・耕耘基準	"	
	2-2 採種のための栽培改善に関する試験		・適応性の確認	・系統採種	・土壌肥料試験	・82年乾期までに終了
	2-2-1 ナス	○		・追熟日数と発芽率の関係試験		
	2-2-1-1 標準栽培法の設定に関する試験			・雨期ナス着果不良の要因調査		

区分	試験研究課題	進捗度	終了した事項	進行中の事項	今後計画されている事項	到達見通し、問題点
	2-2-2 ダイコン 2-2-2-1 南中国系ダイコンの地域と播種期の採種量に及ぼす影響について	◎	・センターにおいては81年終了 ・ポット播種において採種に成功	・サブセンターにおける試験 ・採種の経済的実行性試験 ・徒長抑制剤比較試験	・露地試験	・ほぼ終了 ・R/D終了時まで終了
	2-2-2 スイカ 2-2-3-1 標準育苗法の設定に関する試験	△		・接木	・土糞肥料試験 ・草勢維持対策に関する試験	・進捗は遅れているが短期間で終了可能 "
	2-2-4 雨期野菜 2-2-4-1 カンコン(ヨウサイ) 2-2-4-1-1 花芽分化に及ぼす日長の影響並びに生殖様式に関する試験	○	・日長の影響に関する試験	・生殖様式に関する試験		・終了見込み
	2-2-4-1-2 採種適期の設定に関する試験	◎	・採種適期の設定に関する試験			・81年9月に終了



区分	試験研究課題	進捗度	終了した事項	進行中の事項	今後計画されている事項	到達見通し、問題点
	2-2-4-2 タイサイ、サイシン					
	2-2-4-2-1 花芽分化と日長、温度との関係に関する試験	○	<ul style="list-style-type: none"> <li>播種適期</li> <li>採種栽培</li> </ul>	<ul style="list-style-type: none"> <li>地域と播種期</li> </ul>	<ul style="list-style-type: none"> <li>花芽分化と日長、温度との関係</li> </ul>	<ul style="list-style-type: none"> <li>終了見込み</li> </ul>
	2-2-4-3 カイラン					
	2-2-4-3-1 播種と抽台	◎	<ul style="list-style-type: none"> <li>播種と抽台、開花並びに播種量に関する試験</li> </ul>			<ul style="list-style-type: none"> <li>ほぼ終了</li> </ul>
	2-3 主要病害虫に関する試験					
	2-3-1 病害防除対策に関する試験					
	2-3-1-1 ナス					
	2-3-1-1-1 ナス青枯病対策としての抽台に関する試験	◎	<ul style="list-style-type: none"> <li>日本と同じ台木で可能</li> </ul>			<ul style="list-style-type: none"> <li>"</li> </ul>
	2-3-1-1-2 在来品種、系統の青枯病抵抗性検素試験	○	<ul style="list-style-type: none"> <li>青枯病抵抗性品種の確立</li> </ul>	<ul style="list-style-type: none"> <li>圃地試験</li> </ul>		<ul style="list-style-type: none"> <li>R/D終了までで終了見込み</li> </ul>
	2-3-1-2 スイカ					
	2-3-1-2-1 スイカつる割病対策としての抽台に関する試験	○	<ul style="list-style-type: none"> <li>スイカつる割病に対する幼苗検定法</li> </ul>		<ul style="list-style-type: none"> <li>つる割病抵抗性品種育成に関する試験</li> </ul>	<ul style="list-style-type: none"> <li>"</li> </ul>

区分	試験研究課題	進捗度	終了した事項	進行中の事項	今後計画されている事項	到達見通し、問題点
	2-3-2 害虫防除対策に関する試験					
	2-3-2-1 ナスノメイガの生活史の調査	◎	<ul style="list-style-type: none"> <li>。成虫の確認</li> <li>。ナスノメイガの固定</li> </ul>			。ほぼ終了
	2-3-2-2 ナスノメイガの野外における発生消長調査と防除対策	◎	<ul style="list-style-type: none"> <li>。被害程度の品種間差異の検討</li> <li>。防除法</li> </ul>			。 ”
	2-4 種子簡易貯蔵法の開発に関する試験	○		<ul style="list-style-type: none"> <li>。塩を使用した各種種子保存容器</li> </ul>		<ul style="list-style-type: none"> <li>。次回の雨期までに終了見込み</li> </ul>

3 試験研究課題別年次計画

区分	試験研究課題	81/11			備考
		1年次	2年次	3年次	
1. 柑橘	1-1 バングラデッシュにおける柑橘栽培の実態調査			→	
	1-2 ローカル品種の蒐集と研究			→	
	1-3 外国品種の導入とバングラデッシュにおける地域適応性試験			→	
	1-4 柑橘台木の育苗管理技術			→	
	1-5 柑橘の繁殖法試験			→	
	1-6 諸環境条件に適合する柑橘台木の検索			→	
	1-7 肥料試験			→	
	1-8 葉分析			→	
	1-9 柑橘の立ち枯病の原因と防除法			→	
	1-10 一般病害の調査			→	
	1-11 耐病性品種の選抜		×	→	
	1-12 害虫発生調査			→	
	1-13 カイガラムシの生態および季節発生数調査		×	→	
	1-14 ヨコバヤの発生密度調査と防除法		×	→	
	1-15 レモンバタフライの殺虫剤効果の圃場試験		×	→	
2. 野菜	2-1 品種導入選抜育成に関する試験				
	2-1-1 ナス在来品種および導入品種の特性調査並びに選抜育成		○		
	2-1-2 ダイコン			→	
	2-1-3 スイカ			→	
2-1-4 兩期葉菜類の品種特性調査並びに選抜育成			○		

区分	試験研究課題	82/11			備考
		1年次	2年次	3年次	
	2-1-4-1 カンコン(ヨウサイ)導入品種の 特性調査並びに選抜育成		○		
	2-1-4-2 タイサイ		○		
	2-1-4-3 カイラン		○		
	2-1-4-4 フケギ		○		
	2-1-4-5 サイシン		○		
	2-2 採種のための栽培改善に関する試験				
	2-2-1 ナス				
	2-2-1-1 標準栽培法の設定に関する試験			○	
	2-2-2 ダイコン				
	2-2-2-1 南中国系ダイコンの地域とは種期 の採種量に及ぼす影響に関する試験			○	
	2-2-2-2 日本品種(固定種)の種子バナー リゼーションによる採種に関する試 験			○	
	2-2-3 スイカ				
	2-2-3-1 標準育苗法の設定に関する試験				
	2-2-3-2 草勢維持対策に関する試験				
	2-2-4 雨期野菜				
	2-2-4-1 カンコン(ヨウサイ)				
	2-2-4-1-1 花芽分化に及ぼす日長の影 響並びに生殖様式に関する試 験				

区分	試験研究課題	81/11 82/11			備考
		1年次	2年次	3年次	
	2-2-4-2 タイサイ、サイジン 花芽分化と日長、温度との関係に 関する試験		↑		
	2-2-4-3 カイラン 播種期と抽台、開花並びに採種量 に関する試験		↑		
	2-3 主要病害虫に関する試験				
	2-3-1 病害防除対策に関する試験				
	2-3-1-1 ナス				
	2-3-1-1-1 胄枯病対策としての台木に 関する試験		○		
	2-3-1-1-2 在来品種、系統の胄枯病抵 抗性検索試験		○		
	2-3-1-2 スイカ スイカつる割病対策としての台木 に関する試験		↑		
	2-3-2 害虫防除対策に関する試験				
	2-3-2-1 ナスノメイガの生活史の調査		○		
2-3-2-2 ナスノメイガの野外における発生 消長調査と防除対策		○			
2-4 種子簡易貯蔵法の開発に関する試験			↑		

#### 4. 専門家派遣計画

昭和56年度専門家派遣実績及び昭和57年度専門家派遣計画は第1表の通りであるが内容等については以下の通りとする。

##### 1) 長期専門家

現在リーダーの派遣期間は昭和57年6月21日までであり、終了期間までの後任者の人選が早急に必要である。

##### 2) 短期専門家

###### ① 果樹栽培(2ヶ月)

柑橘栽培においては、レモン、ポメロ類等は導入種においても結実しているが、その他のマンダリン、ライム類では着花不良のため結実を見ていない。このため着花条件、特に花芽分化について専門家が必要である。

###### ② 野菜育種(3ヶ月)

スイカの品種選抜及び台木試験について、

###### ③ 野菜栽培

ナス、スイカの草勢維持対策に関する試験、特に土壤肥料試験

###### ④ 農業機械(3ヶ月)

野菜及び柑橘圃場の維持管理を図るため供与した農業機械の保守管理を行う。同時にセンターの機械技術職員の訓練を行う。

###### ⑤ 実験材料

研究協力に必要な実験機械の保守管理を行う。

###### ⑥ 果樹病理及び果樹昆虫

この分野の短期専門家については、日本に適任者が不在であり、当面具体的派遣計画はたたない。

第 1 表 延長後の専門家派遣実績及び計画

---> 派遣計画

→ 実績

専門分野	協 力 期 間				
	80/10	11 81/1	82/1	83/1	11
(長期) リーダー	相原四郎				
果 樹	大東 宏				
野 菜	田崎正光				
植物病理					
調 整 員	中川隆志				
(短期) 果樹病理					
野菜病理	1----->4 2----->4 梅川 学				
野菜昆虫	9-->12 10----->1 川瀬英爾				
野菜栽培	9-->12 12----->3 岩永喜裕				
果樹栽培	7--->8				
実験器具	9-->10 12->1 山田輝次				
農業機械	9->11 10----->2 竹岡保雄				
野菜育種	12----->3 12----->3 飛驒健一				
果樹昆虫					

← 協 力 期 間 →

← 56年度 → ← 57年度 → ← 58年度 →

## 5. 研修員受入計画

昭和55年度以後の研修員受入実績及び受入計画は第2表及び第3表の通りである。

バングラデシュ側は昭和57年度に柑橘分野の研究者の研修を強く希望したが、昭和56年度に同分野のカウンターパートを2名受け入れること、また昭和55年度第2次エバリュエーションチームにおいて受入れ数と分野を決めているため、昭和57年度は野菜分野のカウンターパートを受入れることとした。

また、専門家との打合せにおいて、野菜分野のカウンターパートについては、JICAの集団コース枠にて受け入れることとした。また、種子生産分野については、種苗会社への研修も考慮することとした。



第 2 表 研修員受入実績 (昭和 55 年度以降)

年度	氏 名	区分	分野	研修期間	研修場所	現 職
55	Dr. Md Ayubur Rahman	視察	全般	56. 1. 22~ 56. 1. 31	農林水産省 果樹試験場 野菜試験場 ほか	Associate Director BARI
"	Mr. Najim Uddin	個別	柑橘	56. 3. 26~ 56. 9. 30	農林水産省 果樹試験場 興津支場ほ か	(S.O) C.V.R.C
"	Mr. Abdur Rashid	集団	野菜	56. 3. 19~ 56. 11. 23	筑波研修 センター	(S.O) C.V.R.C
56	Dr. Mohammad Mamunur Rashid	視察	全般	56. 10. 5~ 56. 10. 27	農林水産省 果樹試験場 野菜試験場 久留米支場	Head, Hortical Division, BARI
	Mr. Ad. Ashraf Khan	個別	柑橘	57. 1. 7~ 57. 12. 15	農林水産省 果樹試験場 興津支場口 之津支場安 芸津支場ほ か	(S.S.O) C.V.R.C
"	Mr. Md. Abdul Hoque	"	"	57. 2. 4~ 57. 12. 15	"	(S.O) C.V.R.C

第 3 表 研修員受入実績及び計画

-----> 計 画  
 -----> 実 績

専門分野	協 力 期 間																		
	80 /9	80 /11	81 /1	3	5	7	9	11	82 /1	3	5	7	9	11	83 /1	3	5	7	9
柑 橘	Mr. Nazim Uddin																		
	3 -----> 9																		
	Mr. Khan																		
1 -----> 12																			
Mr. Hoque																			
2 -----> 12																			
野 菜	Mr. Abdur Rashid																		
	3 -----> 11																		
	3 -----> 11																		
視 察	Dr. Rahman																		
	1 <-----> 1																		
	Dr. Rashid																		
	10 -----> 10																		
9 -----> 10																			
7 -----> 8																			

## 6. 機材供与計画

供与機材に対して関税（最低で100%以上）がかけられており、それに必要な予算の執行がバングラデシュにおいて、円滑に行なわれず、引き取りに1年以上も要し、雨ざらしになるなど、港（チッタゴン）における保管も悪く、プロジェクト事業運営に支障をきたしている。

昭和56年度においては、これら問題を解決する一手段として、現地調達を行ない事業運営の円滑化を計った。

今後は、バングラデシュ側へ通関手続の円滑化及びそれに必要な関税に対する予算の迅速な執行を強く求めると共に現地調達の促進化により、プロジェクトの円滑な運営に努める必要がある。

昭和57年度計画については、プロジェクト終了も近いことから現地調達を中心に供与機材リストを作成することとした。

參考資料

1. SUMMARY REPORT
2. SCHEME FOR STRENGTHENING OF THE ON-GOING CITRUS AND VEGETABLE SEED RESEARCH CENTRES AND ESTABLISHMENT OF A REGIONAL CITRUS AND VEGETABLE STATION AT AKBARPUR, SYLHET AND A NEW CENTRE AT PAHARTOLI, CHITTAGONG

## SUMMARY REPORT

The Survey Team for Citrus and Vegetable Seed Research Project in Bangladesh ( herein after called " The Survey Team") have been visited the People's Republic of Bangladesh commenced from Jan. 24, '82 to Feb. 2, '82 for ten(10) days with a view to observe and study the progress of work in Citrus & Vegetable Seed Research Centres in Bangladesh, under Bangladesh Agricultural Research Institute ( BARI ).

In accordance with the Agreement of " Record of Discussion" ( herein after called " R/D ") signed on 3rd Nov. 1980 the Survey Team has made a fruitful discussion with the Bangladeshi Counterparts and the authority concerned, and on the basis of R/D it was also discussed the improvement of research activities and how to reach the desired goal.

During the period of stay the Survey Team, they have visited the Main Centre of C.V.R.C. at Joydebpur, Dacca and also the Sub-Centre at Jaintiapur, Sylhet district of Bangladesh.

In considering the exchange of views the Survey Team came to a conclusion which has shown below in details :

### 1. Progress of Research Programme

#### 1) Citrus :

In respect of Citrus it may be mentioned here that the period of R/D does not cover the particular result on Citrus Research as the Citrus is perennial woody plant, and it will take a certain period to get a good result. The period of R/D

contd.....P/2.

shall come to an end by Nov. 1983 and it seems to be difficult on the part of researchers/scientists to give a result on Citrus research. The survey team has taken a study on the progress of Citrus plants at the Main Centre and Sub-centre and the programme have been classified into three following category.

- a) It may be possible to finalize the programme by termination of R/D period. (1), (10), (11).
- b) It may not possible to finalize the programme completely, however, after the termination of R/D period it will be possible to continue the progress of research work by the Bangladeshi Counter-parts. (2), (3), (4), (6), (7), (8), (9).
- c) As the Bangladeshi Researchers are progressing their activities they will be able to finalize the research programme. (12), (13), (14), (15). ( is same as research programme title ).

2) Vegetable :

Selection and Seed production studies are being carried out in respect of egg-plant, radish, water-melon and leafy vegetables in rainy season and are considerably progressed.

Besides, it was confirmed that one heading cabbage strain introduced from Taiwan can produced seeds in Bangladesh.

3) Advice :

On the above mentioned various aspect of research programme, the Survey Team has made a following solutions:

contd.....P/3.

- a) The Survey Team observed that the individual research subject on both of Citrus and Vegetable should be simplified and rearranged.
- b) Bangladesh counterparts should be assigned in consideration of smooth transfer of techniques and methods, so that they can not only catch their respective activities but also develop their research activities.
- c) For the betterment of overall research system and Farm Management it is actually needed to increase the number of research members and field workers according to the project's capacity.

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2. Experts and Counter-part Training :

Regarding despatch of experts and receiving of Counter-parts training, we shall carry out as far as possible based on 'Note of Understanding.

3. Release of Material and Equipment :

In case of clearing the materials and equipments from customs usually it takes very long time to release those from customs authorities, In this regard the activities of the project is not going smoothly, So, it is a request to

contd.....P/4.

the Govt. of People's Republic of Bangladesh to provide with necessary fund in order to release those materials and equipments from customs as quickly as possible.

Finally, we wish to convey our lot of thanks to the Govt. of Bangladesh, to the authority concerned, to the Japanese Expert Team and other associated Organisations and we like to express our great pleasure for their kind co-operation in carrying out our Survey work and to complete it successfully.

Dacca, Bangladesh  
February 2, 1982.

*Teruo Nishida*

( Teruo NISHIDA )

Leader,

The Survey Team for

Citrus and Vegetable Seed Research Project,

J. I. C. A.



**SCHEME FOR**  
**STRENGTHENING OF THE ON-GOING CITRUS AND VEGETABLE**  
**SEED RESEARCH CENTRES AND ESTABLISHMENT OF A REGIONAL**  
**CITRUS AND VEGETABLE STATION AT AKBARPUR,**  
**SYLHET AND A NEW CENTRE AT PAHARTOLI, CHITTAGONG.**

**A Joint Venture of the Govt. of Bangladesh**  
**and the Govt. of Japan**  
**( 1977-85 )**

**Bangladesh Agricultural Research Institute**  
**Joydebpur, Dacca. September, 1981**

SCHEME FOR

STRENGTHENING OF THE ON-GOING CITRUS AND VEGETABLE  
SEED RESEARCH CENTRES AND ESTABLISHMENT OF A REGIO-  
NAL CITRUS AND VEGETABLE STATION AT AKBARPUR, SYLHET  
AND A NEW CENTRE AT PAHARTOLI, CHITTAGONG.

Proforma for Project Evaluation  
(Project Digest)

Citrus and Vegetable Seed Research Centre  
Bangladesh Agricultural Research Institute  
Joydebpur, Dacca.

PART - A

PROJECT DIGEST

1. (a) Name of the project : Strengthening of the On-going Citrus & Vegetable Research Centres and Establishment of a Regional Citrus and Vegetable Station at Akbarpur, Sylhet and a new Centre at Pahartoli, Ctg.
- (b) Objective of the project : To serve as a strong national Citrus and Vegetable Seed Research Centre through a wide spectrum of applied and adaptive research.
- (c) Cost of the project
  - i) Gross Cost : Taka - 752.26 lakh
  - ii) Net expenditure incurred up to June, 1980. : Taka - 328.26 lakh
  - iii) Net cost for the Second Five Year Plan. : Taka - 424.00 lakh (F.E.C 224.55 lakh)
2. (a) Is the project included in the current Second Five Year Plan: Yes.
- (b) If so, what allocation is provided (In lakh taka). : Not known
3. Administrative authority responsible for
  - i) Sponsoring : Ministry of Agriculture and Forest, Bangladesh.
  - ii) Execution : Director, Bangladesh Agricultural Research Institute.
  - iii) Operation and Maintenance : Principal Scientific Officer (C&V) Citrus and Vegetable Seed Research Centre.
4. Location of the project:
  - (a) Main Centre : Joydebpur, Dacca.
  - (b) Regional Station : Akbarpur, Sylhet.
  - (c) Sub-centres : i) Ishurdi, Pabna.  
ii) Mahigonj, Rangpur.  
iii) Pahartoli, Chittagong.
5. Proposed dates of
  - i) Commencement : 1.7.1980.
  - ii) Completion : 30.6.1985.

Revised on 8.12.80 and then corrected after cost rationalisation. Approved by ECNEC on 23.7.1981.

6. (a) Investment Cost of the project  
(In lakh taka)

	Already incurred	To be incurred	Total
i) Local Currency	94.74	115.28	210.02
ii) Foreign Exchange	220.84	224.55	445.39
<b>Total</b>	<b>315.58</b>	<b>339.83</b>	<b>655.41</b>

(b) Foreign assistance, if any : The entire amount of F.E.C will be provided by Japan Government in cash or kind as grant.

7. Annual operating/recurring expenditure on completion of the project (In lakh taka). : Local F.E.C.  
22.00 0.50

8. (a) Have any preliminary survey, investigation, feasibility reports etc. been prepared. (Tick one) If Yes, attach copies of such reports.

Yes
No

Report attached in the original scheme.

(b) Indicate expenditure incurred on such studies, survey, etc.

Local Currency : Nil  
Foreign Exchange : Nil  
Total : Nil

9. If any other contractor/consultant is involved in the project, give the following details.

(a) Name of consultant:

i) Local : Nil

ii) Foreign : Japanese consultants

(b) Expenditure incurred on

: Local Foreign Total  
currency exchange

i) Local consultant : Nil Nil Nil

ii) Foreign consultant : Nil Nil Nil

(c) Name of construction contractors

i) Local : Construction Division of the Bangladesh Agricultural Research Institute.

ii) Foreign : Japanese Contractors.

(3) :-

(d) Nature of contract: (Tick one)

: Turnkey

Otherwise

10. Names and Designation of the Officers responsible for the preparation of this project proforma.

: (i) Mr. Abdur Razzaque,  
Principal Scientific  
Officer.

(ii) Mr. A.M. Abdullah,  
Principal Scientific  
Officer.

*Kazi M. Badruddoza*  
DR. KAZI M. BADRUDDOZA,  
Director, B.A.R.I.

(Signature and Designation of Officers  
of the sponsoring authority)

PART - B

Project Description

Nature and purpose of the project:

Introduction: The people of Bangladesh suffer very much from the deficiency of different vitamins, viz.-Vitamin A and Vitamin C and minerals, viz, Calcium, Iron and Phosphorus. But such malnutritional problems could have been removed or reduced considerably if the people had the opportunity to eat more fruits, particularly citrus and vegetable of different kinds, rich in these vitamins and minerals. Moreover, rôle of fruits and vegetable in minimizing the present short-fall of food stuff in Bangladesh need not be over emphasized.

With this back-ground in view, a scheme entitled, "Citrus and Vegetable Seed Research Centre" was prepared with its main centre at Joydebpur, Dacca and three sub-centres located at Ishurdi, Pabna (10 acres), Jaintiapur, Sylhet (20 acres) and Rangpur (10 acres) and is now under implementation. The project is a joint venture of the Government of Bangladesh and the Government of Japan. The main centre is headed by a Principal Scientific Officer and the sub-centres by Senior Scientific Officers. In all, there are provisions of 2 (Two) Principal Scientific Officers, 6 (Six) Senior Scientific Officers and 4 (Four) Scientific Officers and 44 (Forty four) other supporting staff in the project. There also exists provision for 4 long term Japanese Experts and a number of short term Experts whose services may be requisitioned as and when felt necessary. The work of this project was started in September, 1977. But actual research work could not be taken up before July, 1979 when necessary infrastructure could be developed. A long period of about 2 years elapsed for the completion of physical facilities like construction of Research Laboratory, procurement of laboratory equipment, development of land and installation of deep tube-well etc.

The first meeting of the Joint Committee as constituted in the RECORD OF DISCUSSION signed between the Government of Bangladesh and the Government of Japan was held on 22.11.1979. The committee felt that the present term of technical co-operation and financial grant from the Government of Japan is to be extended for full benefit. It is felt that the existing farm facilities available under the scheme is highly inadequate to exploit the Japanese aid for the development of the research potentials required for evolving modern technology seed production in different regions of Bangladesh.

In view of this, there is urgent necessity of revising this scheme for another five year with the inclusion of establishing a regional station at Akbarpur (by merging Jaintiapur sub-centre), Sylhet and a new sub-centre at Pahartoli, Chittagong. Thus the project is revised for the following reasons.

(1) The construction of buildings, development of land and procurement of machinery, laboratory equipment etc. for the main centre at Joydebpur, collection of seeds and saplings of exotic citrus and vegetable varieties already taken up in a large scale, will take more time to get results out of them. Now, in order to complete the development work of the sub-centres as well as to continue the research work which has just started taking shape, the scheme needs extension for the 2nd Five Year Plan period to give emphasis on time consuming research programmes for productive out-come.

(2) The local scientists will take over the research work after the departure of the Japanese experts. It is, therefore, necessary that the local scientists must gain enough experience in association with their Japanese counterparts to shoulder the responsibilities. Most of the local scientist attached to the project do not yet have the necessary back-ground for this particular type of research work. They need also to be trained batch by batch in Japan to come up the level of competence necessary for the programme.

(3) It is expected that the "Record of Discussion" will be extended for another five years. The Government of Japan is willing to provide the entire amount of Foreign Exchange requirement for the project as grant to develop the sub-centres into full-fledged research station in a similar pattern as that of the main centre. The experts working in the project are also of the opinion to open a new regional station at Akbarpur, Sylhet and a sub-centre at Pahartoli, Chittagong.

(4) Establishment of a Regional station at Akbarpur near Maulvi Bazaar under this project and shifting of the existing Jaintiapur station there have been proposed only after obtaining experts' opinion from a number of foreign and local experts. Most of the experts opined that the soil of Jaintiapur is very heterogenous and not representative for citrus growing region and thus not suitable for conducting precise research work. More-over, it is located on the border which causes extensive damage to the plantation in case of any border incidence as has been encountered in the last war. On the other hand, Akbarpur is located at 5 miles off from Maulivi Bazaar town of Sylhet District. The land comprises of flat land, hills with both gentle and steep and as such is suitable for growing citrus as well as other horticultural crops. The soil is loamy and fertile. A stream which runs through this land has flow of water throughout the year which may be utilized for irrigation. There exist great differences in the climate and soil of our different regions and the difference is wide in case of the north eastern region particularly, in the district of Sylhet. In sharp contrast with the rest of the country, a major part of the land area in this region is made up of low hills, interspersed with small pieces of flat valleys. The soil of this region is heavily leached sandy loam laterite with acidic plot, a feature not found anywhere else in the country. The climate of this region is also characterised by heavy rainfall totalling more than 200" per year.



Certain places in Sylhet experience the lowest temperature of the country. Due to the combination of all these factors a cropping system completely different from the rest of the country has developed in this region. For obvious reasons, research findings obtained from the other sub-stations of the project will not hold good for this region specially in respect of vegetable crops. It is, therefore, a wise decision to establish a new regional station there by merging the existing Jaintiapur sub-centre. This will also enable the Institute to conduct research work on other fruits and vegetable in a large scale. The entire area of about 100 acres will be utilized for this purpose.

Different citrus fruits particularly, lemon grow well in Chittagong and Chittagong Hill tracts. So, to promote the cultivation of these fruits in that area the opening of a sub-centre for conducting research work in the existing BARI's farm at Pahartoli is felt necessary. The Japanese Experts working in the project are also in favour of opening this sub-centre. In the above context, the following proposal is made as described here after to continue the existing Citrus and Vegetable Research Centre under the BARI for the 2nd Five Year Plan period in an expanded form to meet the growing demand for research in this direction.

Achievement of the project:

A brief note on the activities of the on-going project is furnished in appendix - XI.

Objective:

Citrus: (i) To serve as strong national citrus research programme through a wide spectrum of applied and adaptive research, with emphasis on practical problems and production oriented activities;

(ii) To select and develop high yielding disease resistant widely acceptable varieties of orange and other citrus fruits

through a co-ordinated programme to be conducted in the experimental stations as well as on farms, gardens at various locations and ecological zone of the country.

(iii) To conduct studies on edible quality, nutritional value, storage and utilization.

(iv) To impart in-service training to workers and organize workshops, seminars and field days and publish research and extension literature.

Vegetables:

(i) To serve as a strong national vegetable seed research programme through a wide spectrum of applied and adaptive research, with emphasis on practical problems on production-oriented activities;

(ii) To breed or evolve high yielding disease resistant varieties with materials through a co-ordinated breeding programme;

(iii) To concentrate research on topics relating to seed production techniques including use of fertilizers and water and control of pests and diseases.

(iv) To conduct studies on storage, processing, packing, utilization and marketing of vegetable seeds;

(v) To impart in-service training to worker and organise workshops, seminars and field days and publish research findings and extension literature.

The organizational set up:

(a) Local technical personnel: The project will be headed by a Principal Scientific Officer(C&V) who will be assisted by 3 Principal Scientific Officers 8 Senior Scientific Officers and 9 Scientific Officers of different fields in order to cover specific fields such as breeding, Plant nutrition, Virology and Entomology. The regional station at Akbarpur will be headed by one Principal Scientific Officer while the sub-centre at Rangpur, Pahartoli and Ishurdi will be headed by Senior Scientific Officer.

Principal Scientific Officer (C&V)

( Main Centre - Joydebpur )

P. S. O. - 2

S. S. O. - 3

S. O. - 2

Regional Station Akbarpur.	Sub-Centre		
	Paharoti	Rangpur	Ishurdi
P. S. O. - 1	S. S. O. - 1	S. S. O - 1	S. S. O - 2
S. S. O. - 1	S. O. - 1	S. O. - 1	S. O. - 2
S. O. - 3			

(b) Foreign Experts: Considering that the services of some experienced foreign experts will be helpful for giving support to the local technical personnel, it is proposed to obtain the services of 4 long term experts, 4 JDCV and a number of short term experts, who will work as expatriate counterparts of the local scientists in the respective fields. These experts will be highly qualified and experienced in their respective fields with particular emphasis on breeding and production oriented research.

VII. Programme of Work

A. Summary of the research programme is briefly outlined below:

A. CITRUS:

1. A survey of the existing situation of citrus production in Bangladesh in all its aspects e.g; production areas, types (species), quality, yield uses etc.
2. Collection, classification (systemetic) and evaluation (growth and flowering habits, environmental adaptability and quality) of the local species and varieties of Citrus.

3. Introduction of varieties of different species of citrus from the neighbouring countries and other countries with similar climate and observe their adaptability and growth behaviour in Bangladesh. Mandarin Orange, Sweet Orange and root stock species will be given priority in introduction.
4. Identification of the causes and development of remedial measures for controlling die-back in citrus which has been a serious problem of sweet and mandarin orange in Bangladesh.
5. Finding out the most desirable root stocks for each type of citrus.
6. Identification of the common insects and diseases of citrus and development of their control measures.
7. Development and standardization of the methods of promotion of different types of citrus, special emphasis on the following aspects.
  - (a) Development of a standard nursery technique for Citrus.
  - (b) Standardization of the methods of propagation.
  - (c) Standardization of the methods of training and pruning.
  - (d) Formulation of an appropriate schedule for manuring, irrigation, spraying and other cultivation practices for citrus trees.
  - (e) Develop a precise method for the diagnosis of nutrient deficiency in citrus by leaf analysis.
  - (f) Identify the factors that influence the growth, yield and quality of citrus.
  - (g) Develop grading methods for each type of citrus.
8. On the basis of the experiences gathered, final package of recommendations will be prepared showing (1) the regions to be devoted to citrus (2) type of citrus that should be grown in the recommended regions (3) varieties of each type which should be recommended to the farmers for commercial production.
9. Impart training to the farmers on different aspects of the scientific methods of production of citrus.

B. VEGETABLES:

The number of vegetables grown in Bangladesh is quite large but the majority of the nutritious vegetables are presently grown only during the short winter season. During the period from May to October the supply of vegetables is very low and those that are available are inferior in food value. This situation is responsible to a great extent for the wide spread malnutrition in the country. The vegetable research programme of the CVSRC is basically oriented to solve this problem. The programme is shown below very briefly.

1. To develop improved varieties of vegetable which are primarily grown during the kharif season through selection, hybridization and introduction.
2. To introduce new vegetable that are suitable for growing during the kharif season and to develop standard methods of production of such vegetable.
3. To evolve new varieties of winter vegetable which can be grown very early and very late in the season with the purpose of extending the period of availability of the winter vegetable.
4. To develop standard method of production of seeds of those vegetable which are found to be useful in solving the problem of shortage of vegetable during the kharif season.
5. To identify the insects and diseases of the vegetable mentioned above and find their control measures.

The detailed work plan for implementing this programme is being chalked out gradually.

C. Training and Education.

(1) Three to Four scientists working in the project and two high ranking scientist of the BARI will be sent to Japn for individual training and study tour respectively every year under manpower development programme.

(ii) Local training of technical personnel will be assembled at the main centre from time to time to apprise them of the latest know-how and technique and for exchange of ideas among them.

(iii) Training of extension workers - Training programme will also be arranged for workers from the Directorate of Agriculture (Extension), Horticulture Development Board, Bangladesh Agricultural Development Corporation and other concerned extension agencies for exchange of information and ideas between the researchers and the extension personnels.

(iv) Training of gardeners and growers - For quick dissemination of knowledge among private gardeners and growers, a training programme will be conducted for a week duration on half-yearly basis at the main centre beginning from 1980-81. There will be 15 (fifteen) persons in each batch. If facilities can be improved, similar training programmes will also be conducted at the sub-centres. The trainees will be paid single second class fare and fifteen taka per day against food charges, so that they do not have to spend money of their own on account of the training imparted to them.

Physical work involved(targets).

The work involves:

- (i) The selection of site.
- (ii) Reclamation and levelling of land.
- (iii) Construction of buildings for the main centre at Joydebpur.
- (iv) Construction of functional and residential quarters at the sub-centres.
- (v) Recruitment of staff
- (vi) Engaging counterpart of the experts.
- (vii) Setting up of laboratories.

- (viii) Procurement of machinery.
  - (ix) Procurement of transport vehicle and equipments.
  - (x) Setting up of research works.
  - (xi) Foreign training of technical personnel.
  - (xii) Local training of research personnel as well as extension workers.
  - (xiii) Training of gardeners and growers.
  - (xiv) Holding of seminars, workshops and field days.
  - (xv) Publication of extension materials.
12. (a) Have various alternative ways and techniques of providing the facilities, goods and services in question been examined? (Tick one)  Yes  No
- (b) If yes, indicate the result of the study in support of the choice of the project presented here -  
Question does not arise.
13. (a) Is the project a revision of an earlier project in terms of scope and objective - (Tick one)  Yes  No
- (b) If yes, indicate the main feature of revision -  
As stated in part B (Page no. 5)
14. Justify the location of the project by giving details with respect of the following -
- (a) Surrounding and tie in with transportation facilities such as availability of raw materials and supplies, nearness to market, concentration of cheap labour, etc. - The various locations of the project have good transportation facilities so far as these points are concerned.
  - (b) Provision of service to special areas, et.-not needed.
  - (c) Any other - Not needed.

PART - C

COST ESTIMATES

15. (a) Total investment cost of the project (In lakh taka) : 

<u>Local</u>	<u>Foreign Exchange</u>	<u>Total</u>
115.28	224.55	339.83
- (b) Give date when the cost estimate was prepared. : January, 1980.
- (c) If prepared more than six months ago confirm that they are still valid. : Question does not arise.
16. Give annual break-down of investment cost over the entire period as per table (1) : Please see table I
17. Indicate conversion rate of foreign exchange cost : ¥ 13 per Taka.
18. In case of commercial/industrial projects give estimates of working capital requirement. : Question does not arise.
19. If the project is a revision of an earlier project, fill up Annexure - B. : Please see Annexure - B.
20. Give annual break-down of the operating costs for the life of time of the project as per table II: Please see table - II.



Table - 1

In Lakh Taka

Item of cost	Year 1 (1980-81)		Year 2 (1981-82)		Year 3 (1982-83)		Year 4 (1983-84)		Year 4 (1984-85)		Gross Total								
	Local P.A.	Total	Local P.A.	Total	Local P.A.	Total	Local P.A.	Total	Local P.A.	Total									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
<b>I. Pre-construction</b>																			
(a) Post construction																			
(a) Purchase of land		15.00																	15.00
(b) Land Development		5.00	5.00	5.00															10.00
(c) Temporary access road		2.00																	2.00
Sub-Total of I	17.00	5.00	22.00	5.00	5.00	5.00													17.00
<b>II. Construction Work</b>																			
(a) Functional Building: Residential Buildings	60.00	60.00	15.13	15.13	30.26	4.15	19.42	23.57											19.28
(c) Duties & Taxes on materials to be imported from Japan		15.00	15.00	12.00	12.00														27.00
(d) Transport cost from Ogt. to Joydebpur.		1.00	1.00	1.00	1.00														2.00
(e) Road Internal Fencing		5.00	5.00	5.00	5.00	25.00	25.00												10.00
(f) Road Internal Fencing																			25.00
Sub-Total of II	31.13	131.11	26	17.15	49.42	66.57													48.28
<b>III. Machinery and Equipment:</b>																			
(a) Duties & Taxes for machinery and equipment including transportation charge		20.00	20.00	20.00	20.00	20.00	10.00	10.00											50.00
Sub-Total of III	20.00	20.00	20.00	20.00	20.00	20.00	10.00	10.00											50.00

Continuation of Table - I

Item of cost	Year 1 (1980-81)	Year 2 (1981-82)	Year 3 (1982-83)	Year 4 (1983-84)	Year 5 (1984-85)	Gross Total
	Local P. A. Total	Local P. A. Total	Local P. A. Total	Local P. A. Total	Local P. A. Total	
IV. Machinery and Equipment	20.00	20.00	15.00	-	-	55.00
Sub-Total of IV	20.00	20.00	15.00	-	-	55.00
V. (a) Consultancy services	5.00	5.00	5.50	6.00	6.00	27.50
(b) Books, Journals, Spare parts, Implementation and miscellaneous cost	0.50	0.50	0.50	0.50	0.50	2.50
Sub-Total of V	5.50	5.50	6.00	6.50	6.50	30.00
Grand Total of I+II+III+IV+V.	68.13	110.63	178.76	37.15	79.21	553.39

\* Project Aid will be provided by the Japan International Co-operation Agency in kinds.

Table - II

Operating/Recurring Cost.

Items	Year 1 (1980-81)		Year 2 (1981-82)		Year 3 (1982-83)		Year 4 (1983-84)		Year 5 (1984-85)		Gross Total	
	Local P.A.	Total	Local P.A.	Total	Local P.A.	Total	Local P.A.	Total	Local P.A.	Total	Local P.A.	Total
I. Raw materials and supplies.												
II. Fules and Power												
Sub-Total of I + II												
III. Labour Cost:												
Pat and allowances of local technical and administrative staff.	7.31	7.31	7.76	7.76	8.11	8.11	8.47	8.47	8.81	8.81	40.46	40.46
Sub-Total of III.	7.31	7.31	7.76	7.76	8.11	8.11	8.47	8.47	8.81	8.81	40.46	40.46
IV. Other Cost:												
Contingencies	6.95	6.95	8.80	8.80	9.26	9.26	9.32	9.32	9.38	9.38	43.71	43.71
Sub-Total of IV.	6.95	6.95	8.80	8.80	9.20	9.20	9.32	9.32	9.38	9.38	43.71	43.71
Grand Total of I+II+III+IV.	14.26	14.26	16.56	16.56	17.37	17.37	17.79	17.79	18.19	18.19	84.17	84.17

PART - D

FINANCING OF THE PROJECT

2. Is the project included in the current Second Five Year Plan? : Yes
- (a) If so, specify actual allocation : Not known
- (b) If not, how is it now proposed to be accommodated (Intra-sectoral adjustment in allocation or other resources may be indicated). : Question does not arise.
22. Was the project included in the previous Five Year Plan? If so, specify : No
- (a) Allocation in the Plan : Question does not arise.
- (b) Actual expenditure incurred : Question does not arise.
23. Indicate sources and amount taka cost of the project.
- (a) Government sources : ( In lakh taka )
- (i) Grant : 199.45
24. Indicate likely sources and amount of foreign exchange cost of the project
- (a) Source : Japanese Government.
- (b) Amount : 224.55
25. Is it proposed to recover cost of the project from beneficiaries? : No.
- It so, how ?

PART - E

BENEFITS OF THE PROJECT

26. Tow which the following groups does your project belong? (Tick One)

Group 'X'	...	...	...	<input type="checkbox"/>
Group 'Y'	...	...	...	<input type="checkbox"/>
Group 'Z'	...	...	...	<input checked="" type="checkbox"/>

27. Indicate:

- (a) The year when normal capacity : 1982-83  
output is expected to be reached.
- (b) Economic life of the project : At least a decade after  
completion of the project.

28. In case of a Group 'X' project,  
give annual value of output for  
the entire life period of the  
project in accordance with the  
model for one year as given in  
Table - III.

TABLE - III

NOT NEEDED FOR THIS PROJECT

29. Give details of any other direct : Question does not arise.  
or indirect benefits.

30. In case of a Group 'Y' project, give  
estimate of annual benefits of the  
project to other parties for the  
entire life period of the project  
as per model for one year given  
in Table - IV.

TABLE - IV

NOT NEEDED FOR THIS PROJECT

31. Give details of any other direct : Question does not arise.  
and indirect benefits.

32. For both 'X' and 'Y' Groups project,  
indicate Foreign Exchange Earnings  
of the project, if any as per table  
below.

TABLE - V

NCT NEEDED FOR THIS PROJECT

33. In case of Group 'Z' project, describe in details the nature of the service benefits, the number and type of people who will be benefited and the impact of the project on the economy. Give as such quantitative details as possible.

THE BENEFITS OF THE PROJECT

- (i) The successful execution of the project will strengthen research on fruits (particularly on citrus fruits) and vegetable. The selection and development of high yielding, disease resistant widely acceptable varieties of oranges and other citrus fruits will usher in a new era in the production of citrus fruits in the country. The adoption of varieties and new techniques of production by the farmers will help to expand cultivation of citrus fruits in the country towards ultimate attainment of self sufficiency in those valuable fruits.
- (ii) As quality seed is the foundation of all production activities in the field of agriculture, therefore, concerted research for evolving techniques to the production of quality seeds along with the programme of increasing the yield of vegetable in general, and during lean period in particular, will be fulfilled by this project which is a long felt need of the people.
- (iii) Research on storage, processing, packing, utilization and nutritional value in respect of both citrus fruits and vegetable will help both producers and consumers in general through streamlining the production process and post harvest utilisation of the various products in question.
- (iv) The general improvement in the production level, resultant from the services rendered by this project, will help reducing the general gap and nutritional deficiency of the people of the country.

PART - F

Manpower Requirement

34. Approximate number of people who will be trained per year and the kind of skilled to be learnt. There will be 10/three month and 15 six month training programme, 2 twenty four month M.S. degree programmes, 1 fourty month Ph.D. Programme and 15 study tours in Japan.

TABLE - VI.

35. (a) For Execution.

Type of employees	Number	Rate of Salary/wages per month	Annual salary/wages during the period	In thousand Taka
				Total salary/wages during execution
(i) Managerial (to be controlled by the P.S.O.(G&V).				
(ii) Technical/Professional				
P.S.O.	4	2.10	100.80	504.00
S.S.O.	8	1.40	112.00	672.00
S.O.	9	0.75	81.00	405.00
Other field Staff	6	0.50	36.00	180.00
(iii) Skilled workers:				
Grade XIV employees	1	0.40	4.80	24.00
-do- XV	2	0.40	9.60	48.00
-do- XVI	11	0.33	3.96	19.80
-do- XVII	20	0.30	72.00	360.00
-do- XX	2	0.24	5.76	28.80
-do- XXI	22	0.23	60.72	303.60
<b>Total</b>	<b>75</b>	<b>-</b>	<b>509.04</b>	<b>2,545.20</b>

TABLE - VII

35. (b) For operation (after completion)

Types of employees	Number	Rate of salary per month	In thousand Taka	
			Total wages after completion	
			Year-1 (1985-86)	Year-2 (1986-87)
1. Managerial				
P. S. O. (C&V)	1	2.55	30.60	31.80
2. Technical/professional				
P. S. O.	3	2.55	91.80	95.40
S. S. O.	8	1.78	170.88	178.08
S. D	9	1.00	108.00	113.83
Other field staff	6	0.56	40.32	42.48
Skilled workers:				
Grade XIV employees	1	0.50	6.00	6.30
-do- XV	2	0.50	12.00	12.60
-do- XVI	1	0.40	4.80	5.04
-do- XVII	20	0.35	84.00	87.60
-do- XX	2	0.30	7.20	7.49
-do- XXI	22	0.28	73.92	76.56
<b>TOTAL</b>	<b>75</b>	<b>-</b>	<b>629.52</b>	<b>657.18</b>

36. Describe briefly the proposed arrangements and programmes of training - Please see appendix no. 4.

37. In case of expected shortage of manpower, indicate what steps are proposed to be taken, assure availability of the required manpower - shortage is not expected.

PART - G

Physical and Financial. Schedule of work.

38. Proposed dates of:

- (a) Commencement of the project : July, 1980
- (b) Completion of the project : June, 1985.

39. (a) Give a procurement schedule of both foreign and local equipments and materials for the project, (attach a bar diagram showing the major item-wise procurement of the equipment and materials.

: Please see appendix 6A.



(b) Give yearwise (financial year) phasing of physical work on the project through out the investment period as per following Table.

TABLE - VIII

Physical Schedule of work(in percentage)

Year	Survey/ Design	Land acquisition development	Construction		Installa tion of equipment &machinery	Others
			Residen -tial	Function -al		
1980-81	-	54	52	65	35	-
1981-82	-	46	48	35	35	-
1982-83	-	-	-	-	30	-
1983-84	-	-	-	-	-	-
1984-85	-	-	-	-	-	-
	-	100	100	100	100	-

Attach bar diagram showing the major item wise programme of physical work of the project: Please see appendix No. 9.

40. Give financial schedule of work as per following Table.

TABLE - IX

Financial schedule of work

Year	In lakh Taka			Remarks, if any
	Local	Foreign	Total	
1980-81	82.39	110.63	193.02	-
1981-82	53.71	79.92	133.63	-
1982-83	27.37	21.00	48.37	-
1983-84	17.79	6.50	24.29	-
1984-85	18.19	6.50	24.69	-
Total	199.45	224.55	424.00	-

PART - H

Project Analysis

Not needed for this project.

ANNEXURE - I A

PROCUREMENT OF MACHINERY AND EQUIPMENT FOR EXECUTION

Item	In lakh Taka					
	Local		Imported		Total	
	Quantity	Cost	Quantity	Cost	Quantity	Cost
<b>I. Machinery:</b>						
1. Tractor with Accessories.	-	-	3	3.00	3	3.00
2. Deep Tube-well	-	-	3	6.00	3	6.00
3. Generator	-	-	4	4.00	4	4.00
4. Power Sprayer and Duster	-	-	4	0.40	4	0.40
Sub-Total I	-	-	14	13.40	14	13.40
<b>II. Spare</b>						
	-	-			L.S.	2.00
<b>III. Transport</b>						
1. Dump	-	-	4	8.00	4	8.00
Sub-Total III	-	-	4	8.00	4	8.00
<b>IV. Others</b>						
1. Growth Chamber	-	-	4	4.00	4	4.00
2. Incubator	-	-	4	1.60	4	1.60
3. Spectro-photometer	-	-	4	0.80	4	0.80
4. Seed Germinator	-	-	3	0.75	3	0.75
5. Moisture meter	-	-	5	0.25	5	0.25
6. Microscope	-	-	6	1.20	6	1.20
7. Single Pan Balance	-	-	6	0.30	6	0.30
8. Seed Vibrating Cleaner & Grader.	-	-	3	0.90	3	0.90
9. Tetrazolium Test Kit	-	-	4	0.80	4	0.80
10. Refratorometer	-	-	6	0.12	6	0.12
11. Colorimeter	-	-	2	0.40	2	0.40
12. Juice Extrator-cum-Centrifuge	-	-	5	1.25	5	1.25
13. Auto Clave	-	-	3	0.40	3	0.40
14. Foot Candle Meter	-	-	1	0.02	1	0.02
15. Calculating Machine	-	-	6	0.60	6	0.60
16. Duplicating Machine	-	-	3	0.60	3	0.60
17. Type Writer	-	-	6	0.60	6	0.60
18. Camera	-	-	4	0.80	4	0.80
19. Refrigerator	-	-	4	0.40	4	0.40
20. Garden Tools	-	-	L.S.	1.00	L.S.	1.00

Item	Local		Imported		Total	
	Qty.	Cost	Qty.	Cost	Qty.	Cost
21. Furniture	-	-	L.S.	1.00	L.S.	1.00
22. Photostate machine	-	-	2	0.30	2	0.30
23. Electric Balance	-	-	4	2.00	4	2.00
24. Chemical Balance	-	-	4	1.20	4	1.20
25. Sprinkler/irrigation material set	-	-	4	4.00	4	4.00
26. Automatic Moisture and Temperature recorder.	-	-	4	0.10	4	0.10
27. Transformer	-	-	2	2.00	2	2.00
28. Misc. Equipments and Glass ware	-	-	L.S.	5.00	L.S.	5.00
Sub-Total IV	-	-		31.67		31.67
Gross Total I+II+III+IV				53.07		55.07

ANNEXURE - II A.

Requirement of materials and supplies for operation

Item	Local		Imported		In Lakh Taka Total	
	Quantity	Cost	Quantity	Cost	Quantity	Cost
1. Materials:						
(a) Implements	L.S.	1.25	L.S.	2.00	L.S.	3.25
(b) Consumable articles	L.S.	2.25	-	-	L.S.	2.25
2. Supplies:						
(a) Manures and Fertilizer.	L.S.	1.50	-	-	L.S.	1.50
(b) Miscellaneous expences, like chemicals, books, journals, glass ware, planting materials etc.			L.S.	1.91	L.S.	1.91
(c) Spare parts and replacements			L.S.	1.20	L.S.	1.20
3. Fuel and Power	L.S.	5.60	-	-	L.S.	5.60



APPENDIX - I  
Staffing Pattern

Post with scale of pay	Main Centre		Regional Station		Sub-centre				Total		
			Akbarpur Sylhet.	Ishwardi Pabna	Rangpur	Fahartoli Chittagong					
	Extg.	Addl.	Extg.	Addl.	Extg.	Addl.	Extg.	Addl.			
A. Officer:											
1. Principal Scientific Officer (C & V). 2100/-2600/-									1		
2. Principal Scientific Officer (Vegetable) 2100/-2600/-		1							1		
3. Principal Scientific Officer (Citrus) 2100/-2600/-	1								1		
4. Principal Scientific Officer. 2100/-2600/-				1					1		
5. Senior Scientific Officer (Vegetable) 1400/-2225/-	1					1	1		3		
6. Senior Scientific Officer (Citrus) 1400/-2225/-		1	1		1			1	4		
7. Senior Scientific Officer (Virology) 1400/-2225/-	1								1		
8. Scientific Officer (Veg.) 750/-1470/-		1		1		1	1		4		
9. Scientific Officer (Citrus) 750/-1470/-				1				1	2		
10. Scientific Officer (Nutri.) 750/-1470/-				1					1		
11. Scientific Officer (Ento.) 750/-1470/-					1				1		
12. Scientific Officer (Sta.) 750/-1470/-	1								1		
<b>Total of A</b>	<b>5</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>21</b>

APPENDIX - I  
Staffing Pattern

Post with scale of Pay	Main Centre	Regional Station					Sub-Centres		Total
		Akbarpur Sylhet	Tshurdi Pabna	Rangpur	Pahartali Chittagong				
					Extg.	Addl.			
<b>B. Staff:</b>									
1. Field Assistant 425-1035/-	1	1	1	1	1	1	1	6	
2. Stenographer 400-825/-	1							1	
3. Head Clerk-cum-Accountant.	1							1	
4. Mechanic 370-720/-	1							1	
5. Clerk-cum-Postmist 300-540/-	1	1	1	1	1	1	1	5	
6. Store Keeper-cum-Clerk 300-540/-	1	1	1	1	1			4	
7. Jeep Driver 300-540/-	4		1				1	6	
8. Truck Driver 325-610/-	1							1	
9. Tiller-cum-Pump-Driver 300-540/-	1	1	1	1	1		1	5	
10. Laboratory Attendant. 240-345/-	2							2	
11. Gardener 225-315/-	2	2	2	2	2		1	9	
12. Peon. 225-315/-	1	1	1	1	1		1	5	
13. Watchman 225-315/-	2	2	2	2	2			8	
<b>Total of B</b>	<b>17</b>	<b>3</b>	<b>9</b>	<b>11</b>	<b>9</b>	<b>9</b>	<b>6</b>	<b>54</b>	
<b>Total of A+B</b>	<b>22</b>	<b>6</b>	<b>11</b>	<b>4</b>	<b>11</b>	<b>2</b>	<b>11</b>	<b>8</b>	<b>75</b>

APPENDIX - 2

Phasing of Recruitment of Additional Officer and Staff

Name of the post	Addl. Post	1st Year 1980-81	2nd Year 1981-82	1982-1985
<b>A. Officer:</b>				
1. P. S. O.	2	2	-	-
2. S. S. O.	3	3	-	-
3. S. O.	5	5	-	-
Total of A	10	10	-	-
<b>B. Staff:</b>				
1. Field Assistant	2	2	-	-
2. Mechanic	1	1	-	-
3. Clerk-cum-Typist	1	1	-	-
4. Jeep Driver	2	2	-	-
5. Truck Driver	1	1	-	-
6. Tiller-cum-Pump-Driver	1	1	-	-
7. Gardener	1	1	-	-
8. Peon	1	1	-	-
Total of B	10	10	-	-
Total of A + B	20	20	-	-

Appendix - 3

Details of Post and Fund Required

Post & No. of Post	Rate of salary per month	In thousand Taka					Total
		1980-81	1981-82	1982-83	1983-84	1984-85	
<b>A. Officer:</b>							
1. P. S. O. (4)	2.10	100.80	105.60	110.40	115.20	120.00	552.00
2. S. S. O. (8)	1.40	134.40	141.60	148.80	156.00	162.67	743.47
3. S. O. (9)	0.75	81.00	86.40	91.80	97.20	102.60	459.00
Total of A		316.20	333.60	351.00	368.40	385.27	1754.47

B. Staff:

1. Field Assistant(6)	0.50	36.00	38.16	40.32	42.48	44.64	201.60
2. Stenographer(1)	0.40	4.80	5.10	5.40	5.70	6.00	27.00
3. Head Clerk-cum-Accountant(1)	0.40	4.80	5.10	5.40	5.70	6.00	27.00
4. Mechanic(1)	0.40	4.80	5.10	5.40	5.70	6.00	27.00
5. Clerk-cum-Typist(5)	0.30	18.00	18.72	19.44	20.16	20.88	97.20
6. Store-Keeper-cum-Clerk(4)	0.30	14.40	14.98	15.55	16.13	16.70	77.76
7. Jeep Driver(6)	0.30	21.60	23.40	25.20	27.00	28.80	126.00
8. Truck Driver(1)	0.33	3.96	4.14	4.32	4.50	4.68	21.60
9. Tiller-cum-Pump Driver(5)	0.30	18.00	18.72	19.44	20.16	20.88	97.20
10. Lab. Attendent(2)	0.24	5.76	5.93	6.10	6.27	6.47	30.53
11. Gardener(9)	0.23	24.84	25.49	26.14	26.78	27.43	130.68
12. Peon(5)	0.23	13.80	14.16	14.52	14.93	15.29	72.70
13. Watchman(8)	0.23	22.08	22.66	23.23	23.81	24.38	116.16
Total of B		192.84	201.66	210.46	219.32	228.15	1052.43
Total of A + B		509.04	535.26	561.46	587.72	613.42	2806.90

C. Allowance and Honararium

House allowances for officers and staff at 35% on the average.	178.16	187.34	196.51	205.70	214.70	982.41
Medical allowances	3.38	3.38	3.38	3.38	3.38	16.90
T. A.	40.00	50.00	50.00	50.00	50.00	240.00
Total of C	221.54	240.72	249.89	259.08	268.08	1239.31
Total of A + B + C	730.58	775.98	811.35	846.80	881.50	4046.21



APPENDIX - 4

Phasing of Fellowship and Study Tour

Items	1980-81	1981-82	1982-83	1983-84	1984-85	Total
<b>A. Fellowship:</b>						
1. Ph. D. (40 months)	-	1	-	-	-	1
2. M.S. (24 months)	-	1	1	-	-	2
3. Training (6 months)	3	3	3	3	3	15
4. Training (3 months)	2	2	2	2	2	10
<b>B. Study Tour:</b>	3	3	3	3	3	15
<b>Total</b>	8	10	9	8	8	43

APPENDIX - 5

Estimate of Contingencies (Recurring)

Items	In thousand Taka					Total
	1980-81	1981-82	1982-83	1983-84	1984-85	
<b>A. Local Currency:</b>						
1. Wages of Labour	260.00	380.00	400.00	400.00	400.00	1840.00
2. Seed, Fertilizer and Implements	60.00	70.00	80.00	80.00	80.00	370.00
3. Office expenses	175.00	224.00	225.00	230.00	230.00	1084.00
4. Oils and Fuels	126.00	126.00	130.00	130.00	135.00	647.00
5. Seminar, Training etc.	10.00	10.00	11.00	12.00	12.00	55.00
6. Repair and Replacement	24.00	30.00	35.00	35.00	35.00	159.00
7. Miscellaneous	40.00	40.00	45.00	45.00	46.00	216.00
<b>Total:</b>	695.00	880.00	926.00	932.00	938.00	4371.00

APPENDIX - 6A  
Plant and Machinery

Item of Machinery	Main Centre	Regional Station	Sub-centre			Total
		Akbarpur Sylhet	Ishurdi Pabna	Mahigon Rangpur	Pahartoli Chittagong	
1. Tractor with Accessories	-	1	1	1	1	4
2. Deep Tube-well	-	1	-	1	1	3
3. Generator	-	1	1	1	1	4
4. Power Sprayer and Duster	-	1	1	1	1	4
5. Spares	-	L.S	L.S	L.S	L.S	L.S
6. Dump-car	-	1	1	1	1	4
7. Growth Chamber (PG-36 Type)	-	1	1	1	1	4
8. Incubator (1-24 Type)	-	1	1	1	1	4
9. Spectro-Photometer (G-30)	-	1	1	1	1	4
10. Seed Germinator (G-30)	-	-	1	1	1	3
11. Moisture Meter	-	2	1	1	1	5
12. Microscope	-	2	2	1	1	6
13. Single Pan Balance	-	2	1	2	1	6
14. Seed Vibrating Cleaner & Grader	-	1	-	1	1	3
15. Tetrazolium Test Kit	-	1	1	1	1	4
16. Refractometer	-	3	1	1	1	6
17. Colorimeter	-	1	1	-	-	2
18. Juice Extractor cum Centrifuge	-	2	1	1	1	5
19. Autoclave	-	1	1	1	-	3
20. Foot Candle Meter	-	1	-	-	-	1
21. Calculating Machine	2	1	1	1	1	6
22. Duplicating Machine	-	1	1	1	-	3
23. Type Writer	1	2	1	1	1	6
24. Camera	-	1	1	1	1	4
25. Refrigerator	-	1	1	1	1	4

26. Garden Tools	-	L.S.	L.S.	L.S.	L.S.	L.S.
27. Furniture	-	L.S.	L.S.	L.S.	L.S.	L.S.
28. Photostating machine	-	1	-	1	-	2
29. Electirc Balance Meter	-	1	1	1	1	4
30. Chemical Balance (fine adjustment)	-	1	1	1	1	4
31. Sprinkler Irrigation Materials set.	-	1	1	1	1	4
32. Automatic Moisture and Temperature Recorder.	-	1	1	1	1	4
33. Misc. Equipments and Glass were	-	L.S.	L.S.	L.S.	L.S.	L.S.
34. Transformer	-	1	1	-	-	2

APPENDIX - 6B

Phasing of Procurement of Plant and Machinery.

Item	Qty.	Rate	In Lakh Taka										Total
			1980-1981		1981-1982		1982-1983		1983-84		1984-1985		
			Qty	Amo	Qty	Amo	Qty	Amo	Qty	Amo	Qty	Amo	
Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit			
<b>I. Machinery:</b>													
1. Tractor with Accessories	3	1.00	2	2.00	1	1.00	-	-	-	-	-	-	3.00
2. Deep Tube-well	3	2.00	2	4.00	1	2.00	-	-	-	-	-	-	6.00
3. Generator	4	1.00	-	-	2	2.00	2	2.00	-	-	-	-	4.00
4. Power Sprayer and Duster	4	0.10	1	0.10	3	0.30	-	-	-	-	-	-	0.40
<b>Sub-Total: I</b>	<b>14</b>	<b>-</b>	<b>5</b>	<b>6.10</b>	<b>7</b>	<b>5.30</b>	<b>2</b>	<b>2.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>13.40</b>
II Sprayer	L.S.	-	-	-	L.S	1.00	L.S	1.00	-	-	-	-	2.00
<b>Sub-Total II</b>	<b>L.S.</b>	<b>L.S.</b>	<b>-</b>	<b>-</b>	<b>L.S</b>	<b>1.00</b>	<b>L.S</b>	<b>1.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2.00</b>
<b>II. Transport:</b>													
1. Dump Car	4.00	2.00	2	4.00	2	4.00	-	-	-	-	-	-	8.00
<b>Sub-Total III</b>	<b>4.00</b>	<b>-</b>	<b>2</b>	<b>4.00</b>	<b>2</b>	<b>4.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>8.00</b>

IV. Others:

1. Growth Chamber	4	1.00	2	2.00	1	1.00	1	1.00	- - - -	4.00
2. Incubator	4	0.40	2	0.80	2	0.80	-	-	- - - -	1.60
3. Spectro- Photometer	4	0.20	-	-	2	0.40	2	0.40	- - - -	0.80
4. Seed Germinator	3	0.25	-	-	-	-	3	0.75	- - - -	0.75
5. Moisture Meter	5	0.05	2	0.10	2	0.10	1	0.05	- - - -	0.25
6. Microscope	6	0.20	2	0.40	2	0.40	2	0.40	- - - -	1.20
7. Single Pan Balance	6	0.05	-	-	6	0.30	-	-	- - - -	0.30
8. Seed Vibrating Cleaner and Grader	3	0.30	1	0.30	1	0.30	1	0.30	- - - -	0.90
9. Tetrazolium Test Kit	4	0.02	-	-	2	0.04	2	0.04	- - - -	0.08
10. Refractometer	6	0.02	-	-	3	0.06	3	0.06	- - - -	0.12
11. Colorimeter	2	0.20	1	0.20	1	0.20	-	-	- - - -	0.40
12. Juice Extractor cum Centrifuge.	5	0.25	2	0.50	2	0.50	1	0.25	- - - -	1.25
13. Auto clave	3	0.13	3	0.40	-	-	-	-	- - - -	0.40
14. Foot Candle Meter	1	0.02	-	-	-	-	1	0.02	- - - -	0.02
15. Calculating Machine	6	0.10	3	0.30	3	0.30	-	-	- - - -	0.60
16. Duplicating Machine	3	0.20	1	0.20	1	0.20	1	0.20	- - - -	0.60
17. Type Writer	6	0.10	3	0.30	3	0.30	-	-	- - - -	0.60
18. Camera	4	0.20	2	0.40	2	0.40	-	-	- - - -	0.80
19. Refrigerator	4	0.10	2	0.20	2	0.20	-	-	- - - -	0.40
20. Garden Tools	L.S.	L.S.	-	-	L.S.	0.50	L.S.	0.50	- - - -	1.00
21. Furniture	L.S.	L.S.	L.S.	0.50	L.S.	0.50	-	-	- - - -	1.00
22. Photostate Machine	2	0.15	1	0.15	1	0.15	-	-	- - - -	0.30
23. Electric Balance	4	0.50	1	0.50	1	0.50	2	1.00	- - - -	2.00
24. Chemical Balance	4	0.30	1	0.30	2	0.60	1	0.30	- - - -	1.20
25. Sprinkler Irrigation Material set	4	1.00	1	1.00	2	2.00	1	1.00	- - - -	4.00
26. Automatic Mois- ture & Tempe- rature Recorder	4	0.05	4	0.20	-	-	-	-	- - - -	0.20
27. Transformer	8	0.25	5	1.25	-	-	3	0.75	- - - -	2.00
28. Misc. Equipments & Glass ware	L.S.	-	-	-	-	-	L.S.	5.00	- - - -	5.00
Sub-total of IV	-	-	-	9.90	-	9.75	-	12.02	- - - -	31.67
Grand Total of I+II+III+IV	-	-	-	20.00	-	20.05	-	15.02	- - - -	55.07

APPENDIX - 7

Construction of Functional Buildings and Residential Quarters with statement of expenditure and year wise Break-up.

In lakh Taka

Item	Year 1980-1981	Year 1981-1982	Year 1982-83 to 84-85	Total
<b>A. Functional Building:</b>				
1. Construction of 3 research buildings, one at Joydebpur, one at Akbarpur and the other at Pahartali (5000sq. ft each 15000sq.ft. cost Tk. 100.00 per sq. ft.	30.00	-	-	30.00
2. Godown at Akbarpur, Rangpur, Pahartali and Ishurdi 500sq.ft each 2000sq.ft @ Tk. 200.00 per sq.ft.	12.00	-	-	12.00
3. Implement shade-cum-grage 3000sq.ft. each at 4 sub-centre=12000 sq.ft. @ Tk. 150.00 per sq. ft.	18.00	-	-	18.00
<b>Total</b>	<b>60.00</b>	<b>-</b>	<b>-</b>	<b>60.00</b>
<b>B. Residential Quarters:</b>				
1. Construction of 1 residential quarter at Akbarpur for one P.S.O sq.ft. each 1500sq.ft @ Tk. 250.00 per sq.ft.	3.75	-	-	3.75
2. 2 residential quarters for S.S.O, one at Akbarpur and one at Rangpur, 1250sq.ft. each 2500sq.ft. @ Tk. 250 per sq.ft.		6.10	-	6.10
3. 7 quarters for S.O, 4 at Akbarpur and 2 at Rangpur and 1 at Pahartali, 1000 sq.ft. each 7000sq.ft.		17.50	-	17.50
4. 4 quarters for 4 field Assistants 2 at Akbarpur and 1 each at Pahartali and Rangpur, 850sq.ft. each 3400sq.ft. @ Tk. 250sq.ft.	4.00	-	-	4.00
5. 12 semi permanent quarters for Clerk-cum-typist and Drivers, 4 at Akbarpur, 4 at Pahartali and 4 at Rangpur, 850sq.ft each 10200sq.ft @ Tk. 150 per sq.ft.		10.48	-	10.48
6. 36 semi permanent quarters for Gardenrs, Watchman and other such staff 750sq.ft. each 12000sq.ft. @ Tk. 150 per sq.ft.	12.00	-	-	12.00
<b>Total</b>	<b>19.75</b>	<b>34.08</b>	<b>-</b>	<b>53.83</b>
<b>Grand Total A + B = Tk. 429.10 lakah.</b>				<b>113.83</b>

APPENDIX - 8 (A)

PHASING OF EXPENDITURE

Item	(In Lakh Taka)					
	Year(1980-81)	Year(1981-82)	Year(1982-83)	Year(1983-84)	Year(1984-85)	Total
<u>Local Currency:</u>						
<u>A. Capital:</u>						
1) Purchase of land	15.00	-	-	-	-	15.00
2) Temporary Access Road	2.00	-	-	-	-	2.00
3) Residential Buildings	15.13	4.15	-	-	-	19.28
4) Duties and Taxes of Construction materials to be imported from Japan	15.00	12.00	-	-	-	27.00
5) Transport cost from Chittagong to Joydebpur.	1.00	1.00	-	-	-	2.00
6) Duties and taxes for machinery and equipment including clearing and inland transportation charges	20.00	20.00	10.00	-	-	50.00
<b>Total</b>	<b>68.13</b>	<b>37.15</b>	<b>10.00</b>	<b>-</b>	<b>-</b>	<b>115.28</b>
<u>B. Revenue:</u>						
1) Pay of Officers & Staff	7.31	7.76	8.11	8.47	8.81	40.46
2) Allowances & Honoraria	6.95	8.80	9.26	9.32	9.38	43.71
3) Contingencies	14.26	16.56	17.37	17.79	18.19	84.17
<b>Total</b>	<b>82.39</b>	<b>53.71</b>	<b>27.37</b>	<b>17.79</b>	<b>18.19</b>	<b>199.45</b>
<b>Grand Total of Local Currency</b>						

APPENDIX # 8 (A)

Phasing of Expenditure

Item	(In Lakh Taka)				
	Yr. (1980-81)	Yr. (1981-82)	Yr. (1982-83)	Yr. (1983-84)	Total
<u>FOREIGN EXCHANGE</u>					
<u>A. Capital:</u>					
1) Land Development	5.00	5.00	-	-	10.00
2) Functional Building	60.00	-	-	-	60.00
3) Residential Building	15.13	19.42	-	-	34.55
4) Road Internal	5.00	5.00	-	-	10.00
5) Fencing	-	25.00	-	-	25.00
6) Machinery and equipment	20.00	20.00	15.00	-	55.00
7) Consultancy services	5.00	5.00	5.50	6.00	27.50
8) Books, Journal, Spareparts Implements and Misc.cost.	0.50	0.50	0.50	0.50	2.50
Grand Total of Foreign Exchange	110.63	79.92	21.00	6.50	224.55
Total of Local Currency and Foreign Exchange	193.02	133.63	48.37	24.29	424.00

APPENDIX - 8 (B)

Abstract of Total Expenditure

Item	(In Lakh Taka)					
	Yr. (1980-81)	Yr. (1981-82)	Yr. (1982-83)	Yr. (1983-84)	Yr. (1984-85)	Total
<u>Capital:</u>						
Local Currency	68.13	37.15	10.00	-	-	115.28
Foreign Exchange	110.63	79.92	21.00	6.50	6.50	224.55
Total	178.76	117.07	31.00	6.50	6.50	339.83
<u>Revenue:</u>						
Local Currency	14.26	16.56	17.37	17.79	18.19	84.17
Grand total of Capital and Revenue	193.02	133.63	48.37	24.29	24.69	424.00

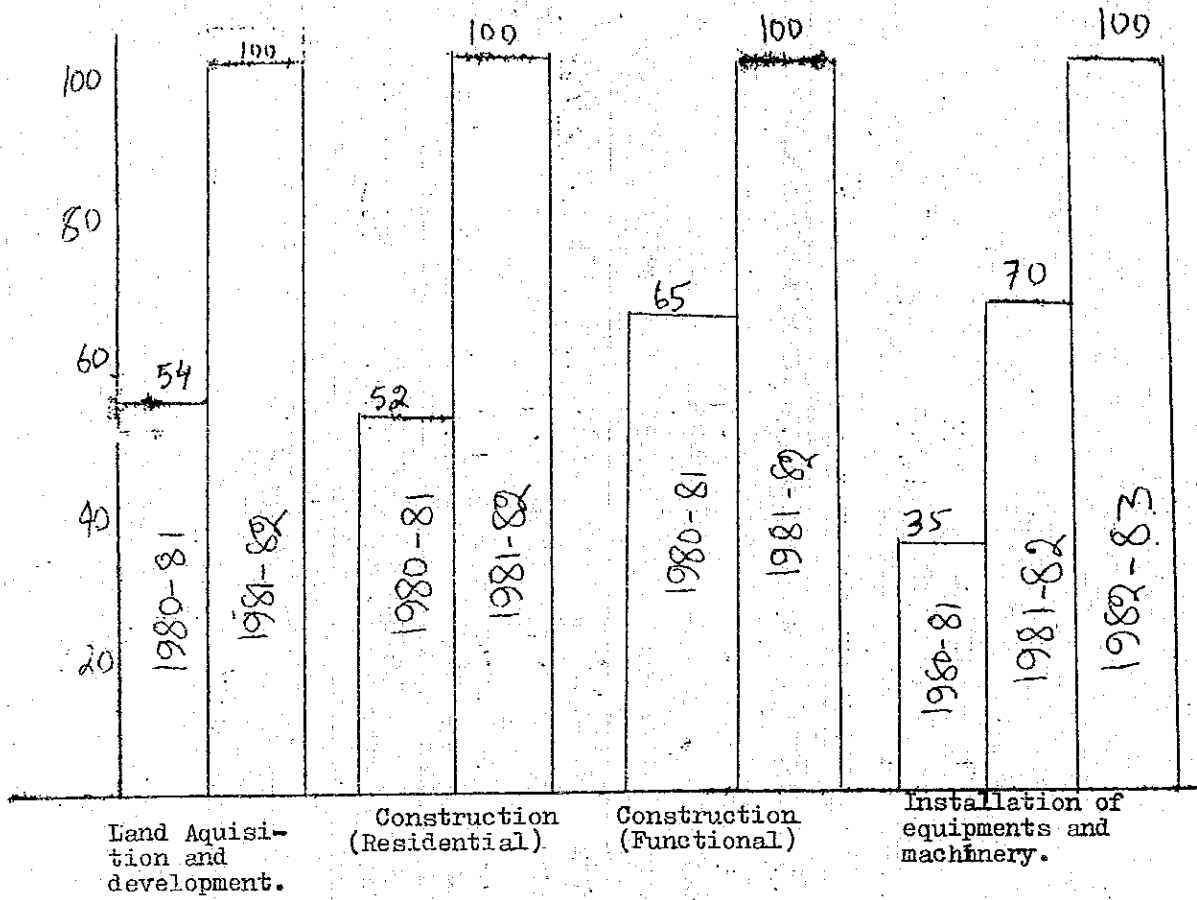


APPENDIX - 8 (B)

Abstract of Total Expenditure

Item	Year(1980-81)	Year(1981-82)	Year(1982-83)	Yr.(1983-84)	Yr.(1984-85)	Total
<u>Local Currency:</u>						
A. Capital	68.13	37.15	10.00	-	-	115.28
B. Revenue	14.26	16.56	17.37	17.79	18.19	84.17
Total	82.39	53.71	27.37	17.79	18.19	199.45
<u>Foreign Exchange</u>						
Capital	110.63	79.92	21.00	6.50	6.50	224.55
Grand Total of Local Currency and Foreign Exchange	193.02	133.63	48.37	24.29	24.69	424.00
Total Foreign Exchange			224.55			
Total Local Currency			199.45			

APPENDIX - 9



APPENDIX - X

Statement showing the required qualification and function of the Technical Staff of the Project

Sl. No.	Name of Post	Qualification	Functions
1.	Principal Scientific Officer(B.H.A.S)	At least second class M.Sc.(Ag)/M.Ag.degree with 10 years' research experience or M.S. degree from abroad with 7 years' research experience or Ph.D.degree with 4 years research experience in Horticulture.	Planning & executing of Technical Programme, Supervision and Co-ordination in their field of research.
2.	Senior Scientific Officer(B.A.S.I)	At least second class M.Sc.(Ag)/M.Ag.degree with 5 years' experience or M.S. degree from abroad with 2 years' research experience or Ph.D.degree in Horticulture/Plant Pathology/Agricultural Chemistry as the case may be	Participation in active research planning and execution of technical programme supervision and Co-ordination programme of work of various fields of Citrus and Vegetable research.
3.	Scientific Officer (B.A.S.--Jr.)	At least second class M.Sc.(Ag),M.Ag. in Horticulture/Plant Pathology/Entomology/ Agril. Chemistry as the case may be	Active research in respective discipline area.
4.	Scientific Officer (Statistics) (B.A.S.--Jr.)	At least second class M.Sc.(Ag)/M.Ag.,M.S. degree in the related field.	Design and layout of research programme and analyses of experiment
5.	Field Assistant Grade - VII)	Diploma in Agriculture with 5 years experience	Assistance in research activity and farm management.

APPENDIX - XI  
ACHIEVEMENT OF THE PROJECT

A. Physical Facilities:

A research building, a glass house, a net house were constructed during the period from October, 1977 to March, 1978. Afterwards a Jabara house (ware house), a store room, entrance gate, a nursery house were also constructed for the project.

About 13 acres of land were developed with approach road, drainage and irrigation facilities within the period October, 1978 to May, 1979. One deep tube-well in the main field and one sprinkler irrigation set near the main building have also been installed.

A good number of laboratory equipments, farm machinery, transport vehicles and miscellaneous tools and plants were also procured from Japan as grant.

B. Experiments:

I. Citrus

(1) Survey: Survey of the different citrus fruits that are being grown in Bangladesh has been initiated under this project. A detailed methodology has been developed in this content. The main purpose of this survey is to know the different varieties and species of citrus fruits that are being found in Bangladesh and to locate the good ones for collection and further study.

(2) Collection: A good number of varieties belonging to all the four leading groups of citrus viz. Pomelo, lime and lemons, mandarin orange and sweet orange have been collected from Jaintiapur Sub-centre and other places of Bangladesh. They include 7 varieties of mandarin orange namely Feautrell's Early, Satsumer, Nagpuri, Dancy, Khasia, Kinnow; varieties of sweet orange namely, Ruby red, pineapple, Blood red, Suckery, Mossambi, Decibre, valencia, Jaffa, 3 varieties of lemon namely Elachi, Seedless lemon and Ada lebu and one variety of lime namely Kagzi.

These varieties have been planted in the orchard in August, 1979 for detailed study.

(3) Introduction: About 771 number of grafts, and seedlings of 19 different varieties of citrus fruits and its relatives were procured from Japan during November, 1978. They include Hassaku, Kawachi Bankan, Amanat sukan, Beni Hassaku and Shin Amanatsu varieties of pomelo (*Citrus grandi*), Vill-franlla, Ureaka and Lisbon varieties of lemon (*Citrus limon*) Washington Navel, Ushida Navel and Fakuwara varieties of sweet orange (*Citrus sinensis*) and Miyagawase, Mihowase and Okitsuwase varieties of Mandarin orange (*Citrus reticulata*). All these varieties <sup>have</sup> already been planted in a separate plot to observe their performances under the condition of Bangladesh. Again in January, 1980 another consignment of planting materials of different citrus varieties belonging to different species have been collected from abroad.

(4) Rootstock trial: To find out suitable rootstock for a particular scion variety/varieties, an experiment has been designed and started with trifoliolate oranges, yuzo, pomelo and sour oranges rootstock.

(5) Other fruits: Besides the above, a good number of varieties of exotic fruits like peach, plum, edible fig, persimmon grapes, lequat, Rambutan, Cuntued apple etc. has been collected from different countries for adaptation trial.

## II. Vegetables:

(1) Survey - A survey on the cultivation of different species and varieties of vegetables in different parts of the country, with special emphasis to the cropping pattern, cultivation period and practices, the existing seed production method has been made to ascertain various problems, drawbacks and farmers immediate need to improve the overall vegetable production of the country.

(2) Collection: A good number of promising varieties of eggplant (12 varieties), cauliflower (4), Country bean (8), Pumpkin (7)

Cucumber (8), Radish (5), Melon (4), Spinach (4) Okra (5), Chilli (6) and sponge gourd (3), has been collected from different areas of the country for evaluation and use as breeding materials.

(3) Introduction: A large number of varieties of Cabbage 32 varieties, cauliflower (22), Radish (12), Broccoli (17), Turnip (14), Chinese Kailan (6), Cucumber (25), Pumpkin and squash (20), Melon (23), Tomato (8), Eggplant (7) and different kinds of bean (5) has been introduced from abroad to study their adaptability under local condition and for use as breeding materials.

(4) Other experimental works: Experiments on different species of vegetables in various discipline had been and are being conducted. Results on some of the experiments are enumerated below.

(1) One variety of cabbage namely "Green Express" out yielded the popular existing rainy season variety "K-K Cross" in a yield trial with 14 varieties during the rainy season of 1979.

(2) Two varieties of radish namely "45 days" and "55 days" performed excellently and found to be suitable for successful cultivation during the rainy season.

(3) Seed production of two chinese varieties of radish seemed to be possible under Bangladesh condition.

(4) One variety of bean "Early white" was found to be very promising and extra-early i.e. 45 days earlier than the local earliest variety.

(5) One newly introduced leafy vegetable "Kailan" performed fairly well overcoming heavy shower in the rainy season. It is expected that this vegetable will gain popularity as one of the summer vegetable.

(6) Two widely popular leafy vegetable of South-East Asia "Saishin" and "Taisai" showed good performance under local environmental condition during the rainy season. Seeds of these vegetables can also be produced successfully under local condition during the winter season.

MINUTES OF THE PROJECT EVALUATION COMMITTEE (PEC)  
MEETING HELD ON 29-10-1980 AT 9-00 A.M.

The meeting was presided over by Prof. S.H.K. Eusufzai, Member (Agric), Planning Commission. The following attended the meeting:-

Ministry of Agriculture:

Mr. A.N.M. Eusuf, Joint Secretary (P&D).  
Dr. Abdul Jalil Mirah, Chief, Planning Cell.  
Dr. Kazi M. Badruddoza, Executive Vice-Chairman, B.A.R.C., and Director, BARI.  
Dr. H. Zaman, Director, BRRI.  
Dr. M. Ayubur Rahman, Associate Director, BARI.  
Mr. Md. Shahidul Islam, Director of Agriculture (E&M).  
Mr. Md. Mozharul Hoq, Deputy Director, Hort. Development Board.  
Mr. M.A. Malek, Dy. Director, Directorate of Plant Protection.  
Mr. S.A. Khan, Dy. Director, Dte. of Plant Protection.

Ministry of Finance:

Mr. M. Saiful Haque, Deputy Chief ERD.  
Mr. M.A. Malek, Research Officer, ERD  
Mr. M. Shahidullah, Research Officer, ERD.

Establishment Division (O&M Wing).

Mr. A.N.M. Kamaluddin, Assignment Officer, O&M Wing.

Ministry of Planning.

Mr. Rabiul Hossain, Additional Director, PIB.

Planning Commission.

Mr. Abdus Salam, Division Chief, Agriculture Division.  
Dr. A.H.M. Altaf Ali, Chief, Crop Section, Agril. Divn.  
Mr. M.A. Mumin, Deputy Chief, Agril. Division.  
Mr. Anwar Hossain, Research Officer, Agro-Economic Section, Agriculture Division.  
Mr. Md. Rafiqul Islam, Research Officer, Crop Section Agriculture Division.

Opening the discussion, the chairman requested Mr. A.N.M. Eusuf Joint Secretary, Ministry of Agriculture & Forests explained the salient features of the schemes under consideration of the Commission. He stated that there are 11 (eleven) schemes of different agenda under the Ministry of Agriculture and Forests which are in the agenda for consideration by the PEC today.

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2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

6. Name of the Scheme: Scheme for Strengthening of Citrus and Vegetable Seed Research Centre & Estab. of Regional Station at Akbarpur and Sub-Station at Pahartali.

Total cost - Tk. 488.00 lakh

F.E.C. - Tk. 240.00 lakh

Decisions:

The scheme is approved in principle subject to the following conditions:-

- i) Staffing pattern for the project be critically examined by Executive Vice-Chairman, BARC in consultation with the Agriculture Division, Planning Commission and the agreed set-up be reflected in the scheme.
- ii) The on-going scheme be made fully operational with the available facilities.
- iii) Necessary efforts be made to utilise the Japanese assistance for the project both technical and others to the maximum.
- iv) The scheme be modified accordingly and revised scheme be re-submitted to the Agriculture Division, Planning Commission for approval through ECNEC.

7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_

Sd/- Prof. S.H.K. Eusufzai  
Member  
Planning Commission



Telegram: AGRESEARCH  
G.P.O. Box : 3041  
Off. : 314295  
          315001 -2  
Res. : 313209

BANGLADESH AGRICULTURAL RESEARCH COUNCIL  
House No.35(New), Road No. 1,Dharmondi R.A., Dacca-5.

Kazi M. Badruddoza  
M.Ag.Ph.D.(U.S.A)  
Dip-in-Genetics(Sweden)  
Executive Vice-Chairman.

Ref: Exv/VC/BARC/23

Date 6.11.1980

To  
The Member,  
Agriculture Division,  
Planning Commission,  
Sher-e-Bangla Nagar,  
Dacca-7.

Sub : Citrus and Vegetable Seed Research Project.

With reference to proceeding of the PEC meeting held on 29.10.80, this is to inform you that I have checked the staffing pattern and advised the Bangladesh Agricultural Research Institute to drop the following posts shown in the scheme.

- 1) Principal Scientific Officer(Path.) - One at Joydebpur.
- 2) Scientific Officer(Agronomy) - One at Akbarpur.
- 3) Laboratory Attendant - One at Pahartali.
- 4) Gardener - One at Pahartali.
- 5) Peon - One at Joydebpur.
- 6) Vehicle cleaner - One at Joydebpur.
- 7) Sweeper - Five of all Centres.

The Institute has further been advised to revise the scheme accordingly.

Sd/- Kazi M. Badruddoza,  
Executive Vice-Chairman,  
Bangladesh Agricultural Research Council.

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH  
CABINET SECRETARIAT  
CABINET DIVISION

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Extracts taken from the Minutes of the Meeting of the Executive Committee of the National Economic Council held on 23-7-1981.

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Item No.5 : Strengthening of Citrus and Vegetable Research Centre and Establishment of Regional Station at Akbarpur and sub-station at pahartali.

24. This is a joint venture of the Government of Bangladesh and the Government of Japan. This on-going scheme though started in 1977 could not take up actual work before 1979. Revision of the scheme for another 5 years has therefore become essential with the inclusion of a regional station at Akbarpur (by merging Jaintiapur sub-centre), Sylhet and a new sub-centre at Pahartali. The main objectives of the scheme are :-

- (i) To serve as national citrus and vegetable research centre for applied and adaptive research,
- (ii) To develop high-yielding disease-resistant varieties of orange and other citrus fruits,
- (iii) To conduct studies on edible quality, nutritional value and publish research literature etc.

25. The investment cost of the project totals Tk. 752.26 lakh with a FEC of Tk. 445.39 lakh spread over a period of 7 years (July 1977 - June 1985). A sum of Tk. 199.45 lakh in LC will be financed by the Government as grant. Japan Government will provide as grant entire foreign exchange of Tk. 224.55 lakh in foreign exchange. The SFYP has an allocation of Tk. 753.00 lakh out of Tk. 19.00 crores provided in the SFYP for Agricultural research.

Discussion :

26. During discussion on the project point was made that Sangi Valley of Chittagong Hill Tracts has good potential to grow sizeable

crop of citrus fruit. Therefore, research and product development facilities should be extended to serve this highly prospective zone.

Decision :

27. The project was approved at a cost of Tk. 752.26 lakh with a FEC of Tk. 445.39 lakh spread over a period of 7 years during 1977 to June 1985.

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Sd/- N.N. Chowdhury,  
Joint Secretary.  
28-7-1981.

Sd/- M. Saifur Rahman,  
Minister for Finance and  
Chairman, ECNEC.  
29-7-1981.

No. A-13/81/DCNEC/165

Dated : 15-8-1981.

Copy forwarded for favour of information and necessary action to :-

1. Dr. S.H.K. Eusufzai, Member, Planning Commission.
2. Secretary, Ministry of Agriculture and Forests.

(Md. Ayub Miah)  
Section Officer  
Ph.No. 409693.

Government of the People's Republic of Bangladesh  
Ministry of Agriculture and Forests  
Section(Planning-1)

No.X/Agri/Plan-1/BARI-27/80/743

Dated: 2.9.1981.

To

The Director,  
Bangladesh Agriculture Research Institute,

Subject: Administrative approval.

The undersigned is directed to accord administrative approval to the scheme for "Strengthening of Citrus & Vegetable Research Centre and Establishment of Regional Station at Akbarpur and Sub-station at Pahartali," at an estimated cost of Tk.752.26 lakh (Seven hundred fifty two lakh twenty six thousand only) with foreign exchange component of Tk. 445.39 lakh (Four hundred forty five lakh thirty nine thousand) only to implement the scheme with the period on July, 1977 to June, 1985.

This has the approval of the Executive Committee of the National Economic Council.

Sd/- C. H. Saha,  
2.9.81

Sr.Scale Section Officer,  
Ministry of Agriculture & Forests.

No:Agri/Plan-1/BARI-27/80/743

Dated: 2.9.1981.

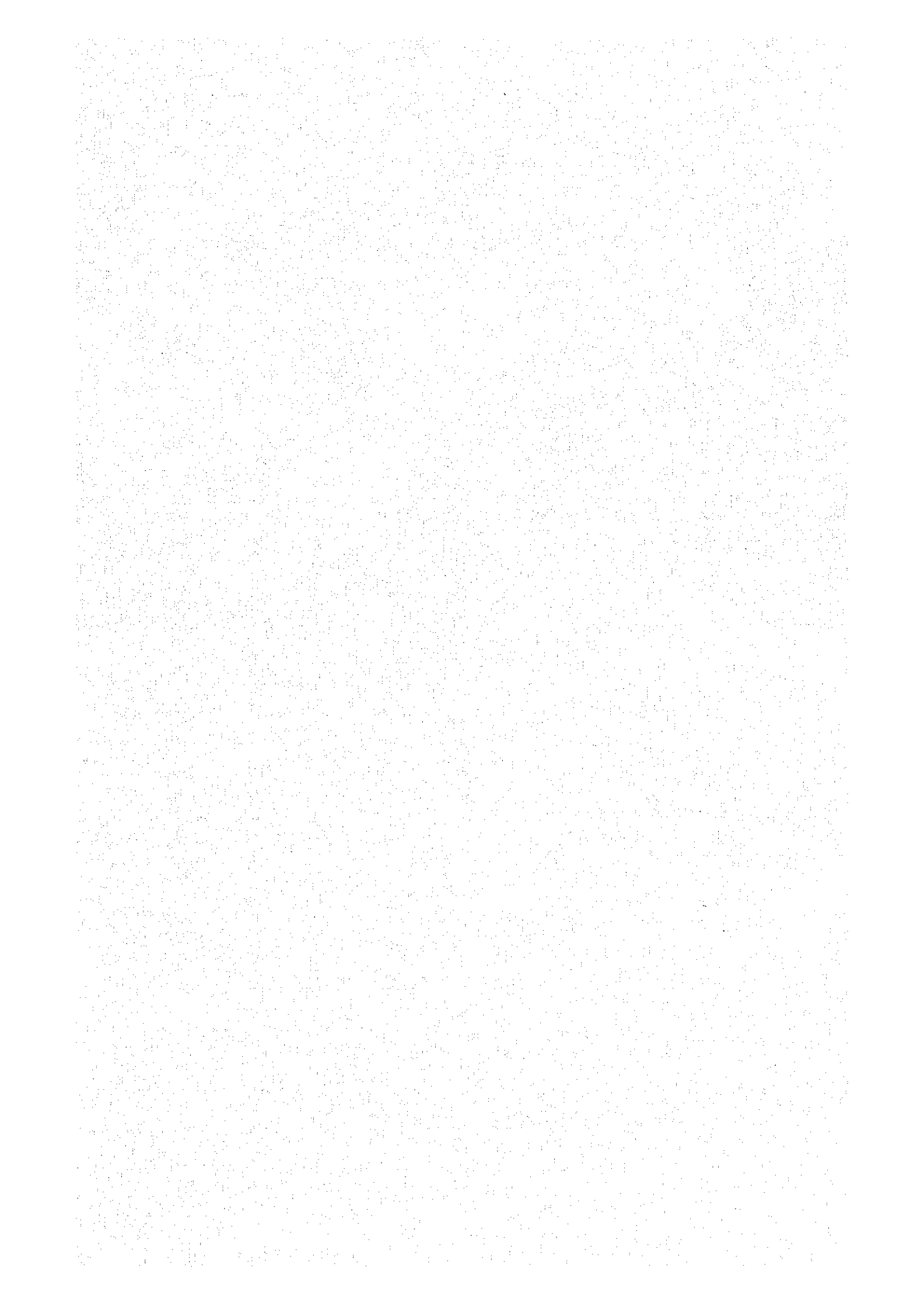
Copy forwarded for information and necessary action to:-

1. The Secretary, Establishment Divn. (O&M), B/D. Secretariat. Dacca.
2. The Secretary, Ministry of Finance (Dev.) " " "
3. The Accountant-General of Bangladesh.
4. The Section Chief, (Crop Section) Agri. Division, Planning Commission. Sher-e-Bangla Nagar, Dacca.
5. The Financial Adviser, M/O. Agriculture & Forests.
6. The Chief Agril. Economist, Planning Cell, Ministry of Agriculture and Forests.
7. The Section Officer, Section Budget-1/R&R-II, M/O. Agri & Forests.

( C. H. Saha )  
Sr. Scale Section Officer,  
Ministry of Agriculture and Forests.







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