農村開発技術センター機能強化計画プロジェクト

Rural Develpment Engineering Center Setting-up Project)

プロジェクト事業完了報告書

２００６年１月

バングラデシュ地方行政農村開発協同組合省（ＭＬＧＲＤＣ）地方行政技術局（ＬＧＥＤ）

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バングラデシュ農村開発技術センター機能強化計画

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I. プロジェクトの成果一覧

１．農村計画にかかる関連基礎資料の収集・整理

（１）水位資料ガンジスパドマ河流域８カ所（１９８１年以降を収集しこれを報告書として取りまとめ配布した。ＬＧＥＤの小規模水資源開発事業や簡易橋プロジェクトの推進に資するためにバ国の河川の水位データについて非干潮地点１９７カ所、干潮地点１１３カ所の水位データを収集しＬＧＥＤに提供した。

（２）気象資料

バングラデシュの主要な観測所（１３カ所）での観測記録（雨量、温度、湿度、風速、日照時間、蒸発量、雲量）を収集整理し報告書に取りまとめ配布した。

（３）バングラデシュにおける小規模水資源開発に関係する法令を収集しこれをレポートに取りまとめ配布した。

２．技術基準の収集整理、新たな基準類の整備

（１）ＬＧＥＤで制定されている設計基準やマニュアルを収集、整理しこれらをＣＤＲに収録し配布した。

（２）新基準、マニュアルの制定

以下の基準について参画・制定し配布した。

１）橋梁工仕様書（２００４年３月）

２）建築物仕様書（２００５年１月）

３）道路維持管理マニュアル（２００５年６月）

４）プロジェクトモニタリングシステム(PMS)及びマニュアル（２００５年７月）

５）地方道路設計マニュアル（２００５年１０月）

３．セミナーの開催

期間中以下のセミナーを開催した。

（１）総合農村開発セミナー（２００３年７月）政策対話

（２）技術交換成果普及地方セミナー（２００４年３月コックスバザール県）

（３）ＧＩＳ－ＲＳセミナー（２００４年９月）技術成果情報交換、

（４）技術交換成果普及地方セミナー（２００５年３月コミラ県）

（５）持続的農村開発国際セミナー（２００５年９月）

４．ワークショップ

合計１９回開催（ビダルガンジ参加型農村計画ワークショップほか、、、）

５．実施した研修

（１）コンピューター支援による設計システム（Auto-CAD）：５回

（２）構造物設計ソフト研修（STAAD-Pro）

（３）品質管理：２回

（４）GIS 関連ソフト（Arc-GIS）研修

（５）地方道路表面破損状況数値計測：６回

（６）GIS 利用者基礎研修

（７）トータルステーション測量研修

（８）研修指導者研修（３回）

（９）事業モニタリングシステムソフト研修

（10）ライブラリー担当者図書管理システム研修
（11）道路計画管理ソフトHDM研修
（12）コンクリート試験実用研修
（13）三軸試験土質研修
（14）プロジェクト管理研修
（15）工事管理研修

６．出版物

今回実施したセミナー、専門家の活動報告などを合計５４種類のレポート、データ集として取りまとめ製本印刷しLGEDの事務所ほかに配布した。

７．分野別特記事項

（１）GISの活用による参加型農村計画

１）バ国地方行政が貧弱な組織であり地域の開発計画を策定しこれを推進することが困難な状況に置かれている。地方開発を推進するには地域の資源を活用した特色のある開発計画を地域独自に策定することが課題となっている。このためプロジェクトにおいては資金協力と連携した大ファリドプール圏農村開発事業地域からビダルガンジウパジラをモデルサイトとして選定しウパジラに所属している中央官庁の駐在職員の協力を得て地域の開発計画構想を検討しこれをワークショップの場を設けて発表した。（２００４年１月）

２）これに併行して計画を策定するのに必要な河川水位、気象、土地利用などの情報を収集し、更に地域の全てのユニオンから基礎資料をアンケート方式により収集し合わせてユニオンにおいて優先度の高い開発事業種目を特定しこれらを基に経済評価を実施して開発構想（案）を策定した。

３）この開発構想案をウパジラ関係者とユニオンの代表者からなるワークショップを開催し問題点を抽出した。（２００５年１２月）

４）今後地元の以降を反映した前回の開発構想に修正を加えて地域の開発計画として策定することになる。（但し今回の協力期間ではこれを満たすことは不可能であった。）

５）この間LGEDのGIS　Unitに対しては必要な機材を供与し、併せて地域の最新の土地利用状況を把握するための衛星画像情報の取得、地上測量のための研修の実施などその技術レベルを向上させるための協力を展開した。

（２）プロジェクトモニタリング

１）プロジェクトモニタリングのための専用ソフトの開発

LGEDのモニタリングユニットがいつも膨大な作業に追われているプロジェクトのモニタリングとこれを進捗報告書として作成し関係機関に報告する業務を合理化させることを要請されそのための協力を実施した。

２）専用ソフトはその概略のデザインそしてシステムエンジニアにより開発し、これを担当者に普及させるための研修を実施した。

３）その後各プロジェクト事務所、及び現地の県事務所にプログラムを配布しその運用が開始されている。

（３）地方道路の維持管理部門の強化

1）地方道路維持管理必要性の把握

道路表面の破損状況の数値化(バンプインテグレーターによる計測システム)機材の導入及び計測のための研修を実施。(モデル５県)

2）道路開発計画管理総合ソフト（HDM)の普及

HDM のスペシャリストをインドから国際セミナーに招聘した機会にトレーニングを企画し実施した。

3）地方道路のインベントリーを策定し配布した。(図書、及びCD版)

4）地方道路維持管理マニュアルを改訂した。(数値計測を取り込む)

（4）農村インフラ設計

1）LGED で制定した基準、マニュアル類計 28 種類の収集と、その電子ファイル化。これらを終始徹底させるために CD に焼き付け LGED の LGED の全ての事務所に配布した。

2）日本の資金協力で整備された北部農村地域の主要なインフラについて電子ファイル化（Auto-CAD ファイル）を実施し LGED の事務所に配布。

3）技術情報管理システムを構築し地方の設計作業に対する支援体制を整備。

4）アメリカやイギリスなどの技術基準にかかる情報の収集・提供した。

5）デザインユニットに対してパソコンなど必要な機材を供与し高度な IT 関連設備を求められる現在の設計分野のソフト化の推進に対応できる環境を整備した。これにより設計部門の作業能率が大幅に向上し併せて担当者の仕事に取り組む意欲・プライドが向上した。

6）コンピューターによるインフラ施設のデザインにかかるソフトを供与し併せて必要な研修を実施し中央及び地方技術者のレベルの底上げを行った。

（5）テクニカルライブラリー

ＲＤＥＣビルデイングの建設が予定より大幅に遅延し２００５年１月に LGED 本館から RDEC ビルの２階にライブラリーの移転が行われ、広いスペース・快適な閲覧環境がようやく実現した。但し図書の在庫管理、貸し出し管理は旧態で半世紀も遅れた状況であったのでプロジェクトからパソコン及び図書管理ソフト (Book CAT) を整備し併せてライブラリーのスタッフに対する研修を実施し近代的な図書館運営の条件を整備した。これと併行して所蔵する図書、レポートのインベントリーを作成しこれらを分類・保管・管理ソフトに組み込み図書の貸し出し管理の合理化を推進した。

（6）品質管理

1）LGED の全ての県事務所材料試験室の試験機器、装置にかかるインベントリーの作成、及び整備基本方針の策定。

2）材料試験にかかる指導

短期専門家　土質、アスファルト、コンクリート、高度土質試験

3）試験室担当員の研修の実施

（7）研修

1）研修ニーズ調査（TNA)の実施

2)LGED にとって必要な新たな課題について研修の実施 (Auto-CAD,STAAD-Pro, ARC-GIS, Total Station, PMS, Road Roughness Survey, GIS fundamental, Library Management)

3）TNA の結果から LGED が要望する研修の実施
（Project Managemnet, Consyruction Management）

II　活動実施スケジュール

別紙専門家活動実施実績成果表に示す。

全ての活動項目に関しては概ね Plan of Operation（変更後）に沿って活動が展開された。ただしステップアッププランに絡む事項を除く。

（ステップアッププランについては各専門家の活動内容を反映して作成することとなっていたこととと、派遣された短期専門家の調査方針・調査結果に疑問があり、期間中に取りまとめ調整がなされないままに未完成の結果が提出され予定が大幅に遅延した。このために現地で再度取り組みを行って集約させており、成案となるのはプロジェクトの最終時点にまでずれ込んでしまった。これに関連して LGED による承認、予算を確保して実施に移すなどの確認は次年度以降の予算措置を待たねばならないために今回のプロジェクト期間内では不可能となっている。

III. 投入実績

1．専門家派遣　（指導分野派遣期間などの詳細は別添一２の資料参照）

（１）長期専門家　４人

（２）短期専門家　延 14 人(実質 12 人)

2．カウンターパート及び研修員受け入れ

１５人の受け入れを実施（詳細は別紙３参照）

3．供与機材

調査用車輌、業務用パソコン、大型スキャナーなど７１アイテム総額 2592 万タカ（詳細は別紙４参照）

4．現地業務費実績

総額：52,789,000Tk（供与機材費 2592 万タカを含む）（年度別詳細は別紙５参照）

年度別の主たる事業

2002 年度；供与機材購入、キックオフミーテイング開催、現地踏査、パンフレット

2003 年度：農村総合開発セミナー、Auto-CAD 研修、参加型農村計画ワークショップ（第 1 回)、技術交換及び地方普及セミナー

2004 年度：GIS-RS 開発セミナー、AutoCAD 研修、技術交換及び地方普及セミナー、参加型農村計画ワークショップ（第 2 回)、材料試験にかかるワークショップ、GIS ワークショップ

2005 年度：トレーナーズトレーニング、アスファルト試験ワークショップ、持続的農村開発国際セミナー、Auto-CAD トレーニング、トータルステーショントレーニング、プロジェクトマネージメント研修

IV プロジェクト実施運営上の工夫、教訓

1．プロジェクトの実施運営上の課題

今回のプロジェクトの抱えていた問題点は当初の PDM は研修分野以外の専門家の活動が分かりにくく、しかもこれに眼を通した個々人によってそのイメージが異なったものになってしまうという曖昧さに集約される。 こうした曖昧さに加えてプロジェクトの達成目標として「ステップアッププラン」というその内容が不確かな「計画案」設定されるという不確実さが加えられ、これがバ側において承認され、これに基づいて実際に活動が開始されることとして組み上げられ、さらにこうした予算や制度に絡む重要事項を相手側実施機関の予算書や機構図で確認するというもので不明瞭なものを求めるという設定であった。プロジェクトの期間は３年間という短い期間であり、こうした予算や組織にかかる事柄は専門家が日常の業務において努力して到達できる範囲を超えた性格のものであるという意味の持つ意味が議論されないままに独り歩きしてしまいその取り扱いに日本側の担当者が悩まされ続けるという構造的な問題を抱えていた。

2．実施上の工夫

（1）このような曖昧性を抱えた枠組みが組み上げられた理由はこれまでプロジェクトの実施における事前調査の過程を辿って検証する必要があるがここではそこまでは踏み込まない。現時点で当時の状況を考慮して推測すれば「日本側は必要な投入が日本の資金協力事業で十分に確保されるであろうと一方的な思い込みに加えて LGED であればステップアッププランの承認と予算を恒久化させるための制度化は問題ないのではという LGED への楽観的かつ過重なる期待」と、その一方でバ側にあっても JICA の技術協力の制度に対する理解不足に加えて「とにかく日本からの協力が得られれば何とかなろうという日本側を上回る更に楽観的な判断がなされたのでは」と推察している。

（2）こうした枠組みではプロジェクトが機能しないためにこれを活性化させるためにプロジェクトの活動の具現化を行った。先ず最初に実施したのは実際に活動を開始させるに際して LGED の協力に対するニーズの発掘を行い双方のプロジェクトに対する取り組む姿勢を共通させることから開始した。（分野別作業部会の設置）こうしてプロジェクトの実際の活動を開始し活動分野を特定して農村計画策定など可能な分野から活動を開始したが今度は日本側からこうした活動と PDM に記載された活動との不整合を指摘され新たなプログラムを企画する毎にその調整が求められるという非能率な状況となりプロジェクトにとっては深刻な事態であった。

（3）３年間という短期決戦型のプロジェクトでこうした構造的な欠陥を抱えたままで運営することは致命的であり速やかにこれを修復し所期の効果を発現させることが緊急の課題であった。

（4）今回は運営指導調査団がプロジェクト初年２００３年の８月末から９月初旬に派遣され PDM 及び PO に最小限の修正が加えられこれによりプロジェクトの抱えていた問題点がまとめて整理されその後の活動に非常に効果的に作用したことは特筆される。

（5）運営指導調査団が派遣されるまでの期間に作業部会にあってはその活動を担当するユニット毎に具体的な計画について検討を重ねており、これらの機会を通じて日本側とのコミュニケーションの機会が増えプロジェクトを一体として運営するというチームワークが強化されるというプラスの効果があり、更に最終的にはこうした要請が運営指導調査

団で認められプログラムが開始されるという理想的な展開となったことが特筆される。

3．教訓

（1）プロジェクトの抱えていた問題とその対処

今回プロジェクトの運営が円滑に展開できたのは当初のプロジェクトの設定上の問題とそれらを解決するために特に日本側の協力関係機関（JICA）が前向きに取り組んだ姿勢に依っている。こうした「柔軟性」が如何に重要であるかが如実に示された重要なケースであった。但し、プロジェクトの実施に際してあまり柔軟であり過ぎるのはそのプロジェクトが最終的に何処を目指すのか判らなくなるような展開となる恐れがあるのも事実であるのでケースバイケースであろう。要はプロジェクトの掲げた基本方針、そしてその後の展開を如何に上手くバランスさせて円滑に運営させるための柔軟性が求められるといえよう。とにかく今回は3年間という短期間のプロジェクトでは常識的には基本の枠組みは大幅に変更するは望ましくないのでこれらを勘案して形式上（PDM の変更）は基本を守った形としている。（その実態は大幅な組み替えが行われているが、、、）今後の類似の短期プロジェクトにあっては実施に際して活動が支障なく展開できるようなプロジェクトとして設定がなされるのが望ましいことは論を待たない。

（2）プロジェクト目標を達成するための「指標」の設定の適切性の検証

今回の「指標」は RDEC の予算と組織を規定するためにステップアッププランが承認されその活動にかかる予算が恒久的なものになるという設定がなされたが、これまでの展開からこうした指標とは別に具体的な活動の成果と結びつく指標が設定されるべきではなかろうか。特にバ国に限らず組織問題や予算面は微妙な問題を介在させており、要は今回整備され協力された分野がバ国の農村開発政策の展開において積極的な役割を担えば良いのでこれを大局的に判断できればと考えられる。いずれにしろバ国においては政府機関である LGED 本体の組織規定が明文化されていないが、こうした中で LGED はその所管する事業を時代と共に大きく拡大してきたが逆説的であるがこれらは組織の所管するサービス範囲が曖昧なことにもよる利点とも考えられ、これらは組織規定が曖昧であることがその組織にとって不利に作用するものではないということを証明している。

（3）今回の投入と成果の関連では短期専門家はその質も高くバ側からの評価も高い。但し一番難しい課題であったステップアッププランを担当した専門家は例外的な存在であった。これはステップアッププランという一番調整力が必要な分野にも拘わらずこうした調整能力が十分備えていたとはいえない専門家が派遣されてしまったことに起因する。このためにプロジェクト側からの要請していた RDEC の今後の具体的な活動分野についての検討が無視されてしまいバ側から回収した調査結果をそのまま添付するという貧弱な結果に終わってしまったたのは残念であったがこれらも全てプロジェクトが当初から抱えていた曖昧性に起因するものでありそれが最後まで影響を与え続けているに過ぎない。

V. PDM の変遷

これまでの説明の如く PDM は２００２年９月の R/D の締結時に存在したもの、そしてこれに対して変更を加えた２００３年９月に運営指導調査団と LGED とで合意したものがある。プロジェクトの具体的な活動は変更後の PDM に準拠して展開している。

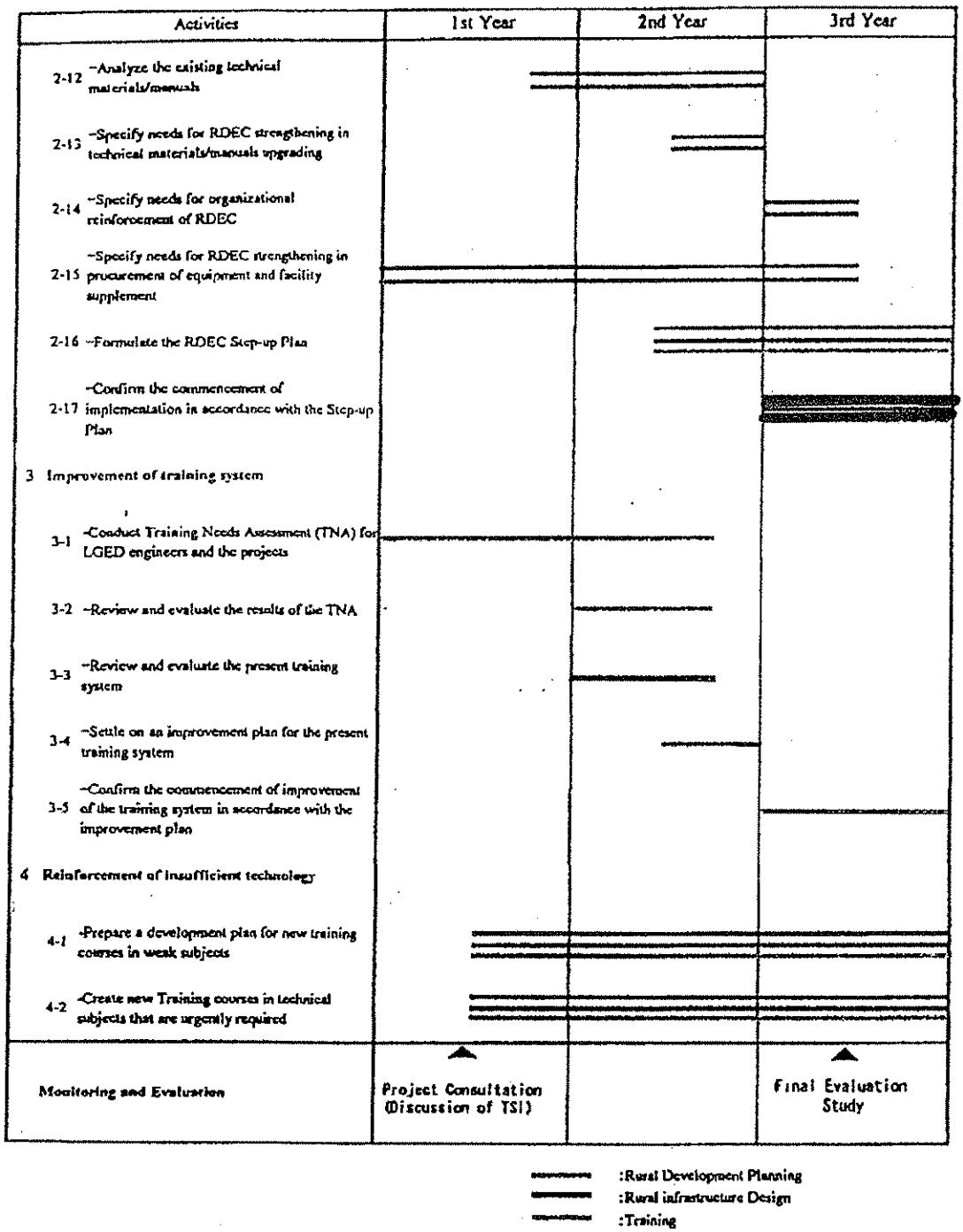
VI. 合同調整委員会開催記録

今回合同調整委員会は設置されているが期間中の開催は終了時評価調査団の評価結果報告会が最初で最後である。プロジェクトの活動に際して LGED には十分処理能力は存在するので特に合同調整員会にかける重要な課題はなかったと考えている。ただしプロジェクトの活動をバ側に広く理解してもらう上ではこうした場を設けることは必要であるのは論を待たない。その意味では合同調整委員会の委員の要職にあり激務であるので、これとは別に関係機関の担当レベルで構成される合同調整委員会連絡部会を組織して、その場でプロジェクトの活動を１年に一度の割合で実施するような仕組みが適切ではなかろうか。

以上。

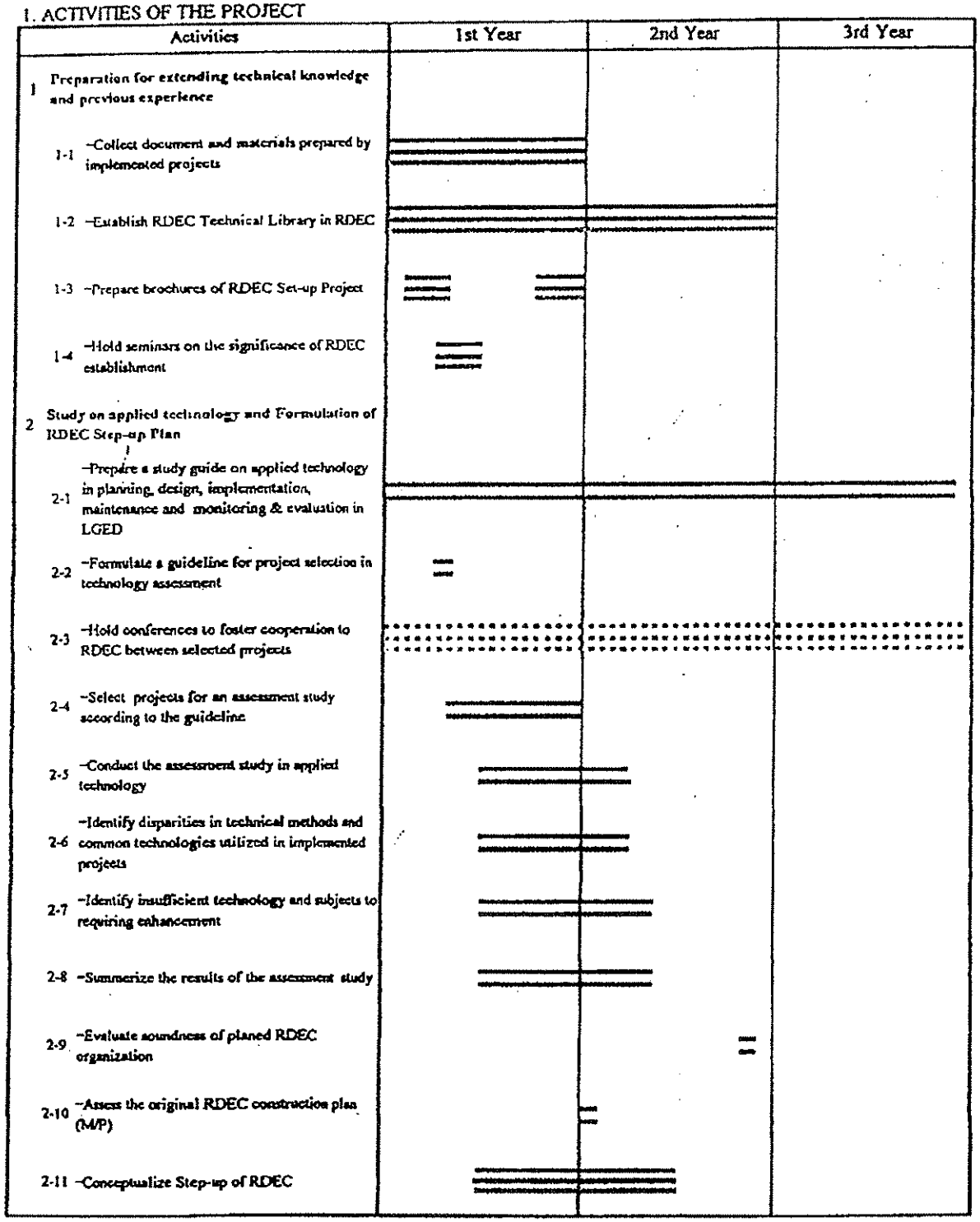
添付資料

Annex 3-2: Amended Plan of Operation (Continued)



Annex 3-2: Amended Plan of Operation

1. ACTIVITIES OF THE PROJECT



別添２　活動実績・成果表

１．農村計画分野

POによる活動計画（項目毎）					プロジェクトの活動状況			
項　目	実施時期（バーチャート）			担当者	活動実績	活動成果	最終到達目標	達成度（%）
1．知識の共有化及びRDECの広報	1年目	2年目	3年目					
1-1：プロジェクト関連資料の収集				竹内	モデル地域の農村計画の基礎となる基本資料を収集した。	１．水位資料（①ガンジス・パドマ川流域８カ所②洪水被害対策調査用水位資料全国の河川流域を対象）を収集し整理・配布した。	基礎資料が定期的に収集され必要な解析が行われてＬＧＥＤに蓄積される。	100%
						２．気象資料（雨量、温度、相対湿度、風速、日照時間、雲量、蒸発量）を収集し整理・配布した。	基礎資料が定期的に収集され必要な解析が行われてＬＧＥＤに蓄積される。	100%
						３．水資源開発関係法令が収集し整理・配布した。	水資源開発にかかる法令や制度面の情報がＬＧＥＤに収集・蓄積される。	100%
1-2：RDECテクニカルライブラリーの設立				竹内	テクニカルライブラリーの構想について検討した。	テクニカルライブラリー強化構想が策定された。	テクニカルライブラリーが整備されそのサービスが充実する。	100%
1-3：RDECパンフレットの作成				竹内	ＲＤＥＣのパンフレットを作成した。	ＲＤＥＣのパンフレットが作成され配布された。	ＲＤＥＣの知名度が上がる。	100%
1-4：RDEC設立意義についてのセミナーの実施				竹内	バングラデシュの農村開発に関係する機関を集めて農村総合開発セミナーを実施した。	農村総合開発セミナーが開催された。（８機関から12論文が発表された。参加者80名余）セミナー報告書及びプロシーデイングとして取りまとめられ配布された。	ＲＤＥＣの活動が広く関係者に理解される。	100%
自立発展の見通し	ＲＤＥＣの基本的な機能を強化するためにプロジェクトでは効果的なプログラム（セミナー、ワークショップ、トレーニング、技術情報の整備と提供など）を実施しながらその存在感を高めてきている。ＧＩＳ分野、モニタリング、地方道路の維持管理、技術情報整備や品質管理などの分野はカウンターパートの理解度・積極度も高く自立発展の見通しは高い。しかしながら研修分野やライブラリー分野などプロフェッショナルスタッフの要員の育成がおくれている一部の分野にあっては自立発展を軌道に乗せるには更なる努力が必要である。							

・達成度は最終到達目標に対し、現在の活動の進捗度を%で記述願います。
・「自立発展の見通し」は、大項目ごとに記述願います。

別添２　活動実績・成果表

１．農村計画分野

POによる活動計画（項目毎）					プロジェクトの活動状況		最終到達目標	達成度（%）
項　目	実施時期（バーチャート）			担当者	活動実績	活動成果		
4. 不足技術の補強	1年目	2年目	3年目					
1：不足技術緊急強化対策案の作成				竹内	１．農村計画分野では総合的に取り組むことが必要であることを指摘し、更に地形図などの基本情報が慢性的に不足しているバングラデシュにおいてＧＩＳ－ＲＳ技術を活用しその支援のもとにモデル地域に置いて参加型による農村開発計画策定との取り組み、及びＬＧＥＤの県事務所およびウパジラ事務所の職員に対して要請された地域情報データをパソコンで管理するためにＧＩＳソフトについて研修を実施した。	１．農村総合開発セミナーを開催し参加型かつ総合的視野で農村開発に取り組むことの重要性が提言された。次に高解像度及び中解像度の衛星画像によりＧＩＳ－ＲＳ技術を適用して基礎資料の不足している地域において土地利用や地域社会経済情報をの主題図などにまとめて判りやすい基礎資料を整備する手法の有効性がしめ示された。更にモデルウパジラにおいてそこに関係する政府機関、域内のユニオンの代表の参画による農村開発計画を策定するためのワークショップを開催し参加型による農村計画が取りまとめられた。これらをソフト情報として対象地区に提供しこれと併せて実施したスタッフの研修により地方事務所の技術レベルが向上した。	モデル地域においてＧＩＳ－ＲＳを活用して地域の関係者の参画により参加型農村計画が策定される。	100%
				竹内	２．モニタリング分野においては事業総合モニタリングシステムの開発と普及。	２．事業モニタリングシステムが開発された。これをＬＧＥＤ本部のモニタリングユニットとプロジェクト事務所及び県事務所に導入された。	２．ＬＧＥＤの全てのプロジェクト及び県事務所でのモニタリングシステムの導入、運用されプロジェクトが適切にモニタリングされる。	75%
				竹内	３．地方道路の維持管理システムの改善を行った。	３．バングラデシュの全ての地方道路を特定しこれをインベントリーとして収録。更にモデル地域において地方道路の路面の破損状況の実測、数値化を実施しこれらをＧＩＳモデルにより上記インベントリーと連動する地方道路維持管理モデルを開発。	３．今回のプロジェクトにあっては地方道路インベントリーの作成とモデル地域における維持管理の高度化を図りこれらを維持管理指針として策定する。	100%

2：特定不足技術の普及強化			竹内	1．農村計画分野ではＬＧＥＤの本部職員とモデル地域の県事務所及びウパジラ事務所の職員を対象に必要な技術（ＧＩＳ）に対する研修を実施し普及を図った。参加型による農村計画の策定を試行しこれを定着させる。	1．ＧＩＳにかかる技術については本部の職員を対象にＡｒｃ－ＧＩＳ研修を実施。さらに地方の職員に対しても今回のプロジェクトで開発されたモデル地域の主題図を活用するための基礎研修を実施した。参加型による農村計画手法を確立するためにモデル地域においてワークショップを開催した。	1．モデル地域を対象に①ＧＩＳ－ＲＳによる基礎資料を収集し利用する技術がＬＧＥＤ本部に定着する。②更に参加型による農村開発計画の手法が開発される。	①100 % ②75%
			竹内	2．モニタリング分野においては開発された事業総合モニタリングシステムを普及させるための研修の実施。	2．事業モニタリングシステム。	2．ＬＧＥＤの全てのプロジェクト及び県事務所でのモニタリングシステムの導入、運用。	70%
			竹内	3．地方道路の維持管理システムの改善を行うためにＬＧＥＤ本部において道路表面の破損状況計測機器を使って路面の凹凸状況を計測しこれを数値化するのに必要な研修を実施した。さらにモデル地域の5県において実際に道路の破損状況について供与機材を利用してこれを応用するための現地研修を実施した。	3．①バングラデシュの地方道路を特定しこれをインベントリーとして収録。更に②モデル地域（5県）において地方道路の路面の破損状況の実測、数値化を実施しこれらをＧＩＳモデルによる道路インベントリーマップを策定した。そしてこれらを反映した地方道路メインテナンスマニュアルが策定された。	①バ国における地方道路インベントリーを作成する②モデル地域における維持管理技術の高度化を図り、これらの結果をもとに③地方道路維持管理マニュアルを改訂・策定する。	①100 % ②100 % ③100%
自立発展の見通し	不足技術課題にかかる事項についてはＬＧＥＤは質の高い技術者集団を抱えており今回のプロジェクトにおいてもこうした緊急課題について協同で抽出しそれに対する取り組みを行って来たので能力的はその自立発展の、見通しには問題はない。但しこうした不足技術を特定しその解決のために研修やモデル地域における調査など、必要なプログラムついては今回のプロジェクトで予算を確保しておりこうした予算面での裏付けが得られることが前提となろう。						

・達成度は最終到達目標に対し、現在の活動の進捗度を%で記述願います。
・「自立発展の見通し」は、大項目ごとに記述願います。

別添:2　活動実績・成果表

1．農村計画分野

POによる活動計画（項目毎）					プロジェクトの活動状況		最終到達目標	達成度（%）
項　目	実施時期（バーチャート）			担当者	活動実績	活動成果		
2. 適用技術調査とRDECステップアッププラン策定	1年目	2年目	3年目					
1：LGEDの計画、設計、実施、管理及び評価における適用技術調査要領の作成	―			竹内	1．農村計画については参加型農村計画実施案を作成した。	1．対象プロジェクトの重点分野として採択・実施された。	実施案に基づいて調査が実施される。	100
	―			竹内	2．事業モニタリング分野についてはモニタリングおよび評価部門強化計画基本方針を作成した。	2．対象プロジェクトの重点分野として採択・実施された。	実施案に基づいてモニタリングプログラムの開発が実施される。	100
	―			竹内	3．地方道路維持管理部門については地方道路維持管理技術の改善実施方針を作成した。	3．対象プロジェクトの重点分野として採択・実施された。	実施案に基づいて地方道路の維持管理について調査が実施される。	100
2：調査対象プロジェクト選定基準の策定	―			竹内	1．農村計画分野の調査対象地区選定基準を策定。	1．その後の現地調査の実施に適用された。	1．現地調査の対象地区が決定される。	100
	―			竹内	2．評価部門については全プロジェクトを対象とするので選定基準は策定せずモデルプロジェクトを選定方法について調整した。	2．対象とするモデルプロジェクトを選定した。	2．プロジェクトモニタリングシステムの対象プロジェクトが決定される。	100
	―			竹内	3．地方道路の維持管理部門については地方道路維持管理改善調査の対象地域について選定方針を策定した。	3．モデル地域（5県）を決定した。	3．地方道路維持管理改善調査の対象地区が決定される。	100
3：対象プロジェクトとの協議会開催	―			竹内	上記３課題についてＬＧＥＤに設置した作業部会を通じて必要に応じて開催した。（現地調査延べ20回以上、合同作業部会12回、その他必要な打ち合わせ適宜）	参加型農村計画にあってはウパジラ事務所においてワークショップを開催、その結果は報告書及びプロシーデイングにまとめ配布した。ＧＩＳ及びＲＳ技術については本部に置いてセミナーを開催しその結果については報告書として取りまとめられ配布された。他の分野については本部の作業部会分科会で協議会を兼ねて	必要な協議会等が広く組織される。	100%
4：対象プロジェクトの選定	―			竹内	1．参加型農村計画分野におけるモデル地域及び更に地方都市のモデルマップの対象地域を選定	1．高解像度衛星画像データなどの賦存状況を勘案してモデル地域を選定した。	1．現地調査の対象地区が決定される。	100%

		—		竹内	2．モニタリング分野では全プロジェクトを対象とするプログラムとしてこれをモデルプロジェクトで検証する方式を選定した。	2．対象とするプロジェクトを選定した。	2．プロジェクトモニタリングシステムの対象プロジェクトが決定される。	100%
		—		竹内	3．地方道路の維持管理指針策定分野については地形条件や道路整備事業の状況を勘案して検討した。	3．調査対象とする５つの県を選定した。	3．地方道路維持管理改善調査の対象地区が決定される。	100%
5：適用技術調査の実施	—			竹内	1．ウパジラの開発計画の策定手法について調査した。	1．対象とするウパジラの基礎資料についてワークショップの開催を通じて収集した。更にモデル地域内のユニオンのチェアマンの意向を確認した。	1．農村計画分野にかかる適用技術調査が実施される。	100%
		—		竹内	2．ＬＧＥＤにおけるプロジェクトモニタリングの現状について調査した。	2．プロジェクトのモニタリングにおける現状と問題点が明らかにされた。	2．モニタリング分野にかかる必要な技術（対策）にかかる調査が実施される。	100%
		—		竹内	3．地方道路の維持管理にかかる現状について調査を実施した。	3．バングラデシュ全国の地方道路を地域区分に基づいて地方道路インベントリーブックを更新し製本、配布した。	3．地方道路の維持管理に分野における適用技術調査が実施される。	100%
6：共通技術の抽出、利用不整合の確認	—			竹内	1．農村計画分野において共通技術及び利用不整合について調査した。	1．農村計画分野においては基礎資料の不足が計画策定における重大な阻害要因であることが確認された。	1．共通技術が抽出され利用不整合が確認される。	100%
	—			竹内	2．モニタリング分野において共通技術及び利用不整合について調査した。	2．モニタリング部門にあっては利便性にすぐれたパソコンによるモニタリングシステムの開発が待たれていることが確認できた。	2．共通技術が抽出され利用不整合が確認される。	100%
	—			竹内	3．地方道路の維持管理分野において共通技術及び利用不整合について調査した。	3．地方道路の維持管理の強化部門については道路の破損状況を数値計測しＧＩＳとリンクした道路管理モデルの導入が有効であることを確認した。	3．共通技術が抽出され利用不整合が確認される。	100%
7：不足技術の内容、水準の特定	—			竹内	1．農村計画分野では①地形図などの基礎情報が不足している地域でより信頼度の高い農村計画を策定する技術、そして②参加型により地域の関係者を参画させる技術を検討	1．ＧＩＳ－ＲＳについてLGEDの技術の内容および水準を把握した。次に参加型による地域開発計画を樹立するというプロセスに対する経験が不足しているとして特定した。	1．不足技術の内容、水準が特定される。	100%
	—			竹内	2．モニタリング分野では様々なバ側やドナーから求められるモニタリング方式を総合して取り扱うことのできるシステムを特定。	2．モニタリングシステムの基本および適用方針を検討し必要なソフトの概要を定めた。	2．不足技術の内容、水準が特定される。	100%
	—			竹内	3．地方道路の維持管理分野においては道路の破損状況を数値化して測定する技術およびこれらの情報をパソコンの中でその位置を表示できる管理システム技術を検討した	3．左記事項を実施するのに必要な手法が決められ必要な投入を決定した。	3．不足技術の内容、水準が特定される。	100%

8：調査結果のとりまとめ				竹内	調査結果を取りまとめた。	各種報告書及び資料が作成された。		50%
9：RDEC体制計画の評価				竹内	農村計画分野においてライブラリーが収録すべき基礎資料について検討した。	1．基礎資料（気象データ、国内河川の水位データ）を収集・整理し、一部を配布した。	関係する機関から定期的に資料を収集出来るシステムの構築	NA
10：LGEDによるRDEC建設計画案の評価				竹内	当初の計画からＲＤＥＣが拡充されることについて助言した。	ＲＤＥＣは当初の６階建てから15階建てへと大幅に強化・拡充	拡充に伴う必要な資機材の整備、要員の確保	NA
11：RDECステップアッププラン構想策定				竹内	農村計画分野、モニタリング分野、地方道路維持管理分野においてＲＤＥＣの将来構想に沿ったプログラムを発掘した。	参加型による農村計画手法、ＧＩＳ－ＲＳ技術の活用（農村計画及び地方道路の維持管理）、事業モニタリングシステム、地方道路維持管理にかかる指針などを策定した。	ＲＤＥＣのステップアッププラン構想が策定される。	50%
12：既存の技術マニュアル類の分析				竹内	地方道路の維持管理マニュアルについて分析した。	地方道路の維持管理にかかる強化部門が明らかにされた。	補強すべき部分が特定される。	100%
13：要改訂マニュアル類の検討				竹内	関連部門において改訂すべきマニュアルについて検討した。	地方道路の維持管理マニュアル改訂案が策定された。	地方道路の維持管理マニュアル改訂案が承認されこれに基づいて維持管理が実施される。	100%
14：RDEC体制強化の検討				竹内	農村計画分野、モニタリング分野及び地方道路維持管理分野におけるＲＤＥＣ体制強化の検討を行った。	ライブラリー部門の将来構想の策定と関連する各活動分野の強化するための方針が示された。	ＲＤＥＣの体制が強化策が承認される。	NA
15：RDECにおける必要配備機材設備の検討				竹内	農村計画、モニタリング及び地方道路の維持管理部門における必要な機材について検討した。	関係各部門におけるプロジェクトの活動に関連して必要な機材計画が決定され供与された。	供与機材策定計画に基づいて機材が供与され有効に活用される。	100%
16：RDECステップアッププランの策定				竹内	農村計画、モニタリング及び地方道路の維持管理部門においてステップアッププランに必要な重要アイテムについて活動を通じて検証	農村計画部門については参加型による地域開発計画および基礎資料の不足をＧＩＳ及びＲＳに補完する手法をモデル地域で実証	ＧＩＳ－ＲＳ技術を活用した参加型による地域開発計画手法がモデル地域で実証される。	100%
				竹内	モニタリング分野においては各プロジェクト事務所及び地方の事務所を結んでプロジェクトをモニタリングできるシステムを開発する。	モニタリング分野においては各プロジェクト及び地方の事務所を結んだモニタリングシステムが開発された。	モニタリングモデルが導入されその供用が開始される。	100%
				竹内	地方道路の維持管理分野においては道路面の破損状況の計測数値化し維持管理モデルによる実用化を推進した。	地方道路維持管理技術にかかる改良モデルが開発された。	改良モデルの有効性が検証される。	100%

17：RDECステップアッププラン実施の開始			.....	竹内	各協力分野においてステップアップを図るための重点課題を定めて活動した。	ステップアッププランの主要なコンポーネントが抽出される。	ステップアッププランに記載事項に係る活動が開始される。	NA
自立発展の見通し	今回取り上げた課題は何れもＣＰと協同して取り組んでいるので各分野の技術的な内容についてはその持続性については問題ない。但し参加型農村計画についてはウパジラ事務所に関係するすべての機関の職員を動員して取り組んでおり各省庁の縄張り意識もあるのでこうした取り組みがプロジェクトが終了し日本人専門家がいなくなった後でもこの地域で持続的に実施できるかについては確証はもてない。これが持続して実施されるにはバングラデシュの地方行政組織が強化され地方分権が強化される必要がある。						

・達成度は最終到達目標に対し、現在の活動の進捗度を%で記述願います。
・「自立発展の見通し」は、大項目ごとに記述願います。

別添２　活動実績・成果表

農村インフラ設計分野

POによる活動計画（項目毎）					プロジェクトの活動状況		最終到達目標	達成度（%）
項　目	実施時期（バーチャート）			担当者	活動実績	活動成果		
1. 知識の共有化及びRDECの広報	1年目	2年目	3年目					
1-1：プロジェクト関連資料の収集				西野	各プロジェクト関係者への問い合わせ、聞き取りを基に適用技術の基本となっている技術基準類を探索・収集した。	策定済み技術基準類(24種類)、本プロジェクト期間中策定の技術基準類(3種類)を収集	適用技術の基本となる技術基準類(24種類)及び本プロジェクト期間中に策定されるの技術基準類を収集・整理し、電子ファイル化を行う。	NA
1-2：RDECテクニカルライブラリーの設立				西野	ライブラリーの将来計画の検討委員会を設置し、ライブラリー機能・運営等を内容とした整備計画案を検討・作成した。プロジェクト実施及び適用技術の検討の基礎となる技術図書について、委員会を設置し、検討した。	ライブラリー整備構想を作成。ライブラリー整備計画案を作成。技術図書81種類を収集。ライブラリー運営機材の整備及び専用ソフトウェアを導入	LGEDの策定した技術基準類及び関連技術図書がライブラリーに保管され、LGED技術者に利用される体制が整う。	NA
1-3：RDECパンフレットの作成								
1-4：RDEC設立意義についてのセミナーの実施								
自立発展の見通し	プロジェクト等において作成されるレポート、図面等の技術資料がテクニカルライブラリーに集積され、これを拠点として関係者が情報を共有できる効率性、有用性が理解された。集積された資料の組織全体としての利用体系が整備されるに従って、利用頻度が増加し、知識の共有化が発展していくものと考えられる。							

・達成度は最終到達目標に対し、現在の活動の進捗度を%で記述願います。
・「自立発展の見通し」は、大項目ごとに記述願います。

別添２　活動実績・成果表

農村インフラ設計分野

POによる活動計画（項目毎）					プロジェクトの活動状況			
項　目	実施時期（バーチャート）			担当者	活動実績	活動成果	最終到達目標	達成度（%）
2. 適用技術調査とRDECステップアッププラン策定	1年目	2年目	3年目					
1：LGEDの計画、設計、実施、管理及び評価における適用技術調査要領の作成		――	……>	西野	各プロジェクトの設計支援のための調査要領を検討した。	橋梁、道路及び建物に係る各設計調査要領を作成	橋梁、道路及び建物に係る各設計調査要領を作成し、モデル地域において活用される。	NA
2：調査対象プロジェクト選定基準の策定	―			西野	農村インフラ設計のためのデータ管理システムの調査対象とすべきモデル地域の選定基準について検討した。	技術的課題、地理地形及び本プロジェクト関連を基準として協議会で承認	検討された基準案が協議会において承認される。	100
3：対象プロジェクトとの協議会開催	――	――	……>	西野	活動方針・計画の検討、実績・成果の評価や承認を行った。	11回の協議会を開催	活動の円滑な促進及び各活動の検討、評価及び承認を継続的に行う。	NA
4：対象プロジェクトの選定	―			西野	データ管理システムの調査対象とすべきモデル地域を検討・選定した。	4地域(ロンプール、マイメンシン、ファリドプール及びチッタゴン)を選定した。	選定基準に基づいて選定し、協議会において承認される。	100
5：適用技術調査の実施		――	……>	西野	設計、材料試験、事業実施に係る適用技術について現地調査を行った。	13回の現地調査を実施	活動の進捗に伴い、必要に応じ、調査を実施する。	NA
6：共通技術の抽出、利用不整合の確認		――	……>	西野	設計、材料試験、事業実施に係る適用技術について共通事項、不整合を検討し、技術基準策定・改訂の検討に反映した。	技術基準策定委員会に参画し、2種類の技術仕様書を策定。土質材料試験・品質管理に係る調査報告書を作成	設計、材料試験、事業実施に係る適用技術について共通事項の整理、不整合の是正に繋がる検討を継続的に行う。	NA
7：不足技術の内容、水準の特定	――	――	……>	西野	設計、材料試験に係る不足技術について検討し、緊急的に必要とされる研修を企画・実施した。	設計分野については、AutoCAD研修3コース(計52名)、STAAD-Pro研修1コース(6名)、材料試験分野については、2コース(計28名)(他事業と連携し、全県の試験担当官をカバーした。)をそれぞれ実施。	AutoCAD研修及び材料試験研修については、64全県の担当官が受講する。STAAD-Pro研修については本部の設計担当官が受講する。	AutoCAD 56%, 他　は100%
8：調査結果のとりまとめ			……>	西野			設計、材料試験、事業実施に係る適用技術調査結果がとりまとめられ、関係者に配布される。	

9：RDEC体制計画の評価			——……	西野	ライブラリー、設計、品質管理の各部門の体制計画の検討を行った。	ライブラリー部門の技術担当官の必要性についてライブラリー運営委員会において確認された。	関係部門の体制計画について課題のあるものについては協議会に報告される。	NA
10：LGEDによるRDEC建設計画案の評価			——……	西野	ライブラリー、設計、品質管理の各部門の建設計画案について確認を行った。		関係部門の建設計画案について課題のあるものについては協議会に報告される。	NA
11：RDECステップアッププラン構想策定	——	——		西野	農村インフラ設計のためのデータ管理システム計画を検討・作成した。	データ管理システム計画が承認された。	データ管理システム計画が協議会において承認される。	100
12：既存の技術マニュアル類の分析	——	——	—— ……	西野	橋梁、道路及び建物に係る技術マニュアルについて分析を行った。	技術基準策定委員会に参画し、2種類の技術仕様書(建物、橋梁)を策定。	技術基準策定委員会において策定または改訂の必要な技術マニュアルが特定される。	NA
13：要改訂マニュアル類の検討	——	——	—— ……	西野	橋梁、道路及び建物に係る要改訂マニュアルの内容検討を行った。	技術基準策定委員会に参画し、2種類の技術仕様書(建物、橋梁)を策定。	技術基準策定委員会において策定または改訂の必要な技術マニュアルが策定／改訂される。	NA
14：RDEC体制強化の検討			——……	西野	ライブラリー、設計、品質管理の各部門の体制強化の検討を行った。	ライブラリー部門の技術担当官の必要性についてライブラリー運営委員会において将来構想に位置づけられた。	関係部門の体制強化について協議会において提示される。	NA
15：RDECにおける必要配備機材設備の検討	——	——	—— ……	西野	ライブラリー、設計、品質管理の各部門及び調査モデル地域における必要機材設備の検討を行った。	関係各部門における活動に必要な機材が配置された。	関係部門における活動に必要な機材が配置され、将来的に必要とされる機材設備について報告書がまとめられる。	NA
16：RDECステップアッププランの策定			——……	西野	データ管理システム計画の進捗に伴い、将来計画における課題を検討した。		データ管理システムに係る将来計画において対処すべき課題及び活動についてステップアッププランに記載される。	NA
17：RDECステップアッププラン実施の開始			……	西野			ステップアッププランに記載事項に係る活動が開始される。	NA
自立発展の見通し	ライブラリーについては、一定の運営ルール案が示され、運営のための機材を活用した基本的作業が順調に進められるようになった。設計部については、AutoCAD等の技術を活用し、自らOJTのトレーナーとしてRDEC内部の技術力向上に向けた活動を行うようになってきた。また、品質管理部については、材料試験実績のデータ処理システムを独自に開発し、材料試験研修においても独自に研修モジュールを開発し、実施している。こうしたことから、各分野ともに自助努力による活動の推進・発展を図る方向に向かっているものと見られる。							

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別添２　活動実績・成果表

農村インフラ設計分野

POによる活動計画（項目毎）					プロジェクトの活動状況		最終到達目標	達成度（%）
項　目	実施時期（バーチャート）			担当者	活動実績	活動成果		
4. 不足技術の補強	1年目	2年目	3年目					
1：不足技術緊急強化対策案の作成	――	――	――	西野	設計、材料試験に係る不足技術について検討し、緊急的に必要とされる研修を提案した。	設計分野については、AutoCAD研修3コース（計52名）、STAAD-Pro研修1コース（6名）、材料試験分野については、2コース（計28名）（他事業と連携し、全県の試験担当官をカバーした。）をそれぞれ実施。	AutoCAD研修及び材料試験研修については、64全県の担当官が受講する。STAAD-Pro研修については本部の設計担当官が受講する。	AutoCAD 56%, 他　は100%
2：特定不足技術の普及強化	――	――	――	西野	設計、材料試験に係る不足技術について検討し、緊急的に必要とされる研修を企画・実施した。	設計分野については、AutoCAD研修3コース（計52名）、STAAD-Pro研修1コース（6名）、材料試験分野については、2コース（計28名）（他事業と連携し、全県の試験担当官をカバーした。）をそれぞれ実施。	AutoCAD研修及び材料試験研修については、64全県の担当官が受講する。STAAD-Pro研修については本部の設計担当官が受講する。	AutoCAD 56%, 他　は100%
自立発展の見通し	設計分野については、データ管理システムに係る活動に不可欠なソフトウェアの研修を実施し、通常業務での活用が図られている。またモデル地域については、OJTや県管内研修を検討しており、技術の普及・拡大が図られつつある。また品質管理部についても、独自に本プロジェクトで企画したコースから繋がる新たな研修モジュールを開発し、実施されており、試験担当官の技術力の底上げが図られてきている。このように各分野で企画・実施した緊急対策を契機に、今後とも技術普及が進められていくものと考えられる。							

・達成度は最終到達目標に対し、現在の活動の進捗度を%で記述願います。
・「自立発展の見通し」は、大項目ごとに記述願います。

別添２　活動実績・成果表

POによる活動計画（項目毎）					プロジェクトの活動状況		最終到達目標	達成度（%）
項　目	実施時期（バーチャート）			担当者	活動実績	活動成果		
1. 知識の共有化及びRDECの広報	1年目	2年目	3年目					
1-1：プロジェクト関連資料の収集				服部	各ﾌﾟﾛｼﾞｪｸﾄで行われている研修教材を収集した。	2004-05年に実施された研修を主体に教材を１８０冊収集し、研修検討資料となった。	なし。	100
1-2：RDECテクニカルライブラリーの設立				服部	当プロジェクトで実施した１２の研修コース、及び他の教材をそろえた。	研修資料が充実し、教材作成、業務執行に生かされた。	なし。	100
1-3：RDECパンフレットの作成	.....			服部	着任時には既に作成されていた。	プロジェクト活動内容が宣伝され、広く理解が得られた。	なし。	100
1-4：RDEC設立意義についてのセミナーの実施	—			服部	農村開発セミナーを開催した（2003年7月）	農村開発に携わる関係機関に対しＲＤＥＣの設立意義について相互理解が深まった。	なし。	100
自立発展の見通し	研修教材について、これまで過去のものは研修部署で整理されてこなかったが、2004-05年実施した研修の教材の多くが揃えられたことで研修教材の蓄積は研修部署の重要な業務の一つと認識されつつある。							

別添２　活動実績・成果表

POIによる活動計画（項目毎）					プロジェクトの活動状況			
項　目	実施時期（バーチャート）			担当者	活動実績	活動成果	最終到達目標	達成度（%）
2. 適用技術調査とRDECステップアッププラン策定	1年目	2年目	3年目					
1：LGEDの計画、設計、実施、管理及び評価における適用技術調査要領の作成								
2：調査対象プロジェクト選定基準の策定								
3：対象プロジェクトとの協議会開催				服部	研修を実施している１６のプロジェクト、ユニットと概要説明、意見交換を行った。	LGEDの研修状況の理解が深まり今後の研修に反映された。	なし	100
4：対象プロジェクトの選定								
5：適用技術調査の実施								
6：共通技術の抽出、利用不整合の確認								
7：不足技術の内容、水準の特定								
8：調査結果のとりまとめ								
9：RDEC体制計画の評価								

PDMによる活動計画（項目毎）					プロジェクトの活動状況		最終到達目標	達成度（%）
項　目	実施時期（バーチャート）			担当者	活動実績	活動成果		
2. 適用技術調査とRDECステップアッププラン策定	1年目	2年目	3年目					
10：LGEDによるRDEC建設計画案の評価								
11：RDECステップアッププラン構想策定				服部	研修ニーズ調査を実施した。	研修ニーズ調査結果がステップアッププラン策定に反映された。	なし	100
12：既存の技術マニュアル類の分析								
13：要改訂マニュアル類の検討								
14：RDEC体制強化の検討								
15：RDECにおける必要配備機材設備の検討								
16：RDECステップアッププランの策定				服部	研修ニーズ調査を実施した。	研修ニーズ調査等を踏まえ、ステップアッププランが策定された。	なし	100
17：RDECステップアッププラン実施の開始				服部	今後実施	なし	ステップアッププランに基づき研修が実施される。	0
自立発展の見通し	今後ステップアッププランを検討していく中で自立発展への見通しをつける。							

別添２　活動実績・成果表

POによる活動計画（項目毎）					プロジェクトの活動状況		最終到達目標	達成度（%）
項　目	実施時期（バーチャート）			担当者	活動実績	活動成果		
3．ﾄﾚｰﾆﾝｸﾞｼｽﾃﾑの改善	1年目	2年目	3年目					
1：TNAの実施	―	―		服部	研修ニーズ調査（TNA）を実施した。	LGED職員1,578名、21職種の人に対し、研修ニーズ調査を行った。	なし	100
2：ﾄﾚｰﾆﾝｸﾞ課題の検討		―		服部	研修ニーズ調査結果を基に研修課題を把握した。	研修ニーズ調査結果を踏まえ、新たな研修コースを提案した。	なし	100
3：ﾄﾚｰﾆﾝｸﾞｼｽﾃﾑの評価			―	服部	研修ニーズ調査において現状の研修システムに対する評価要望を聴取・検討した。	聴取した評価内容をとりまとめ、今後の研修の改善点として提言した。	なし	100
4：ﾄﾚｰﾆﾝｸﾞｼｽﾃﾑの改善計画の策定			―	服部	研修ニーズ調査結果、評価要望を基に改善計画案を作成した。	改善計画案に基づき新規研修が検討された。	なし	100
5：ﾄﾚｰﾆﾝｸﾞｼｽﾃﾑの改善計画の開始			―	服部	研修ニーズ調査、改善計画案を踏まえ新規の２つの研修（ﾌﾟﾛｼﾞｪｸﾄ管理研修、建設管理研修）を実施した。	LGED職員主体の講師により２研修コースが実施され、コンサル頼みの研修から職員が講師となり実施する研修へ道筋がついた。	なし	100
自立発展の見通し	研修プログラムの基となる研修ニーズ調査が全国で実施され、研修要望結果から改善案が示されたことで、今後の研修に対し改善案を踏まえた研修コースの実施が期待され、適材適所の人材育成に視する研修見通しがついた。							

別添２　活動実績・成果表

POによる活動計画（項目毎）					プロジェクトの活動状況		最終到達目標	達成度（%）
項　目	実施時期（バーチャート）			担当者	活動実績	活動成果		
4. 不足技術の補強	1年目	2年目	3年目					
1：不足技術緊急強化対策案の作成			―	服部	研修ニーズ調査を実施し、不足技術についてとりまとめるとともに、新規研修を２つ実施した。	新規研修コース内容について参加者の理解が深まり、一層の適切な事業管理、工事管理が行えるものとなった。	なし	100
2：特定不足技術の普及強化	―			服部	次の１２の研修を計28回実施 ①STAAD Pro ②ARCGIS ③Auto CAD ④GIS Software ⑤Road Roughness ⑥Total Station ⑦Quality Control ⑧Progress Monitoring ⑨Book CAT ⑩HDM-4 ⑪Project Management ⑫Const. Management	各研修参加者の能力の向上が図れた。	なし	100
自立発展の見通し	ＬＧＥＤ全職種に対し全国でＴＮＡを実施した結果は職員ニーズの結果を的確に反映していると考えられ、今後不足技術及び普及の強化にＬＧＥＤとして適切に対応していくものと考えられる。							

日本人長期専門家

No.	専門家氏名	指導分野	派遣期間					
			開始	終了	備考	2003	2004	2005
1	竹内　兼蔵	リーダー　兼　農村計画	2003/1/10	2006/01/09				
2	大嶋　健男	業務調整	2003/1/10	2006/01/09				
3	西野　徳康	農村基盤設計	2003/4/8	2005/08/31				
4	服部　孝郎	研修	2003/5/27	2006/01/09				

日本人短期専門家

No.	専門家氏名	指導分野	派遣期間					
			開始	終了	備考	2003	2004	2005
1	清田　大作	ＧＩＳによる農村計画	2003/12/21	2004/03/04	73/30=2.4			
2	向後　雄二	機材整備計画	2004/1/19	2004/02/10	22/30=0.7			
3	山口　康晴	研修ニーズアセスメント	2004/2/14	2004/03/03	18/30=0.6			
4	山路　永司	ＧＩＳによる農村計画	2004/9/19	2004/09/25	7/30=0.2			
5	井関　善民	機材整備計画(地方機材整備)	2004/12/9	2004/02/03	55/30=1.8			
6	五味　謙隆	GISによる農村地域における主題図作成	2004/12/9	2005/03/03	83/30=2.7			
7	福田　康	技術情報整備	2005/2/24	2005/03/20	26/30=0.8			
8	金森　秀行	研修コース計画の検討	2005/3/19	2005/04/13	23/30=0.7			
9	星野　敦彦	機材整備計画(高度アスファルト試験)	2005/6/2	2005/07/1	30/30=1.0			
10	福田　康	技術情報整備	2005/7/8	2005/08/30	54/30=1.8			
11	池和田　寿	スッテプアッププラン	2005/8/19	2005/10/11	54/30=1.8			
12	中島　勇	機材整備計画(高度コンクリート試験)	2005/9/22	2005/10/13	22/30=0.7			
13	谷　　茂	農村道路安全設計	2005/10/18	2005/11/02	16/30=0.5			
14	向後　雄二	機材整備計画(高度土質試験)	2005/11/13	2005/11/29	17/30=0.5			

カウンターパート配置／研修員受入実績

注：臨時の場合は、備考欄に＊を入力する

No.	カウンターパート氏名	分野（専門家指導分野）	役職（現在） 役職（当時）	備考	配置期間					本邦研修		
					開始	終了	2003	2004	2005	年度	研修コース名	期間
1	Mr. Soraj Kumar Saker	農村計画及びプロジェクト総括	地方行政技術局、局次長 地方行政技術局、局次長		2003/1/11	2006/01/09				2002		
2	Mr. Md. Wahidur Rahman	業務調整	部長く総務 事業評価 部長く事業評価		2003/1/11	2006/01/09				2002		11/17～11/30
3	Mr. Md. Lokman Hakim	研修	部長く研修、品質管理 部長く研修、品質管理		2003/1/11	2006/01/09				2002		11/17～11/30
4	Mr. Md. S.M Zakaria	農村インフラ設計	部長く設計担当 部長く設計担当		2003/1/11	2006/01/09				2002		11/17～11/30
5	Mr. S.M Selim	事業総合評価モニタリング	課長く事業モニタリング評価 課長く事業モニタリング評価		2003/1/11	2006/01/09				2003	カウンタパート研修 持続性農業の農村インフラ整備	10/26～11/22
6	Mr. Amir Azam	地方道路維持管理	課長く地方道路維持管理部 課長く地方道路維持管理部		2003/1/11	2006/01/09				2003	カウンタパート研修 持続性農業の農村インフラ整備	10/26～11/22
7	Mr. Molliha Azizur Hoque	総務	課長く総務部 課長く総務部		2003/1/11	2006/01/09				2003	カウンタパート研修 持続性農業の農村インフラ整備	10/26～11/22
8	Mr. Md. S. Rahman Pramanik	農村インフラ	マイメンシン県事務所長 マイメンシン県事務所長		2003/1/11	2006/01/09				2003	カウンタパート研修 持続性農業の農村インフラ整備	10/26～11/22
9	Mr. Iftekhar Ahmed	農村計画	MSPRoject 担当課長 MSPRoject 担当課長		2003/1/11	2006/01/09				2004	カウンタパート研修 参加型農村開発計画	10/11～11/6
10	Mr. Md. Anwar Hossain	農村道路維持管理	洪水緊急復旧担当課長 Urbaninfra改善担当課長		2003/1/11	2006/01/09				2004	カウンタパート研修 農村道路維持管理	10/11～11/6
11	Mr. Md. Abul Bashar	品質管理	課長く品質管理部 課長く品質管理部		2003/1/11	2006/01/09				2004	カウンタパート研修 品質管理	10/11～11/6
12	Mr. Monowarul Islam Khan	総務	局長補佐官 局長補佐官		2003/1/11	2006/01/09				2004	カウンタパート研修 農村道路維持管理	10/11～11/6
13	Mr. Md. Zahidur Rahman Khan	農村計画	北部農村開発事業課長 北部農村開発事業課長		2003/1/11	2006/01/09				2005	カウンタパート研修 農村開発事業の多面的効果	9/25～10/22
14	Mr. Md. Abdul Malek Sarker	安全設計	農村交通改善事業課長 農村交通改善事業課長		2003/1/11	2006/01/09				2005	カウンタパート研修 農村インフラの為の安全設計	9/25～10/22
15	Mr. Md. Tamzid Sarwar	研修	ロンプール地方事務所研修課長 ロンプール地方事務所研修課長		2003/1/11	2006/01/09				2005	カウンタパート研修 研修	9/25～10/22
16	Mr. Md. Sharifuzzaman	農村道路維持管理	農村インフラ改善事業課長 農村インフラ改善事業課長		2003/1/11	2006/01/09				2005	カウンタパート研修 農村道路維持管理	9/25～10/22

No.	国名	期間	参加者
1	カンボジアに於ける技術交換事業	2003年12月7日～17日	Mr. Quzi Md. Khurshid Hasan, Executive Engineer, LGED, H.Q Mr. Rezaul Karim Upazila Engineer , Upazila Sadar, Rangpru Mr. Md. Zahurul Alam Mondal Assistant Engineer, LGED, H.Q Mr.Md. Anisur Rahman Assistant Engineer, LGED Cox's Bazar Mr. Kanezo Takeuchi Team Leader JICA RDEC Setting-up Project
2	フリッピンに於ける技術交換事業	2004年11月27日～12月10日	Mr. Md. Rousan Kobir Executive Engineer, LGED, H.Q Mr.Md. Monjul Alam Upazila Engineer, LGED Sadar, Narayangonji Mr. Md. Abdus Salam Upazila Engineer, LGED, Chandina, Comilla Mr. Md. Shafiqul Islam Assistant Engineer, LGED Thakurgaon Mr. Kanezo Takeuchi Team Leader JICA RDEC Setting-up Project
3	持続性農村開発に関する国際セミナー	2005年9月3～5日	
		Nepal	**Mr. Basauta Sherestha,** Division Head, MENRIS, ICIMOD.
		India	**Dr. D. Mukhapadhyay,** Scientist, Trafic & Environment PlanningCentral Road Research Institute,Dehli
		Sri Lanka	**Mr.D.S.Pattiaratchi,** Director (Planning) Ministry of Agriculture, Live stock,Lands and I Irrigation.
		Sri Lanka	**Ms. P.I.L. Imbulana,** Regional Irrigation Director, Western Province,Irrigation Department
		Indonesia	**Mr. Ir Yusral Tahir,** Head, Asia Sub Division, International CooperationBureau, Ministry of Agriculture
		Indonesia	**Mr. Ir Soeprato Budisantoso** Chief Officer, Utilities and Beneficiaries Management, Office of Water Mangement, Provincial Government of South Sulawesi.
		Cambodia	**Mr. Theng Dara** Director, Water Resources and Meteorology Management and Conservation Department, Ministry of Water Resources and Meteorology
		Cambodia	**Mr. Ly Savuth** Deputy Director General of Administreation, Ministry of Rural Development
		Thailand	**Dr. Kiyoshi Honda** Associate Professor, RS & GIS Fos, AIT
		Philippines	**Mr. Henry Moreno Zapata** Project Development Officer, Department of Agranian Reform.
		Philippines	**Dr. Mahabub Hossain** Head of Social Sciences Division, IRRI, Manila

供与機材実績

No.	到着年月日	機材名	製造元	型式番号	調達ルート	数量	単価 通貨単位(Tk)	合計(TK)	設置場所	使用頻度	状態
1	2003/3/25	Vehicle	Toyota	Prada	現地	2	1,593,000	3,186,000	RDEC, LGED	A	普通
2	2003/8/25	Copy Machine	Toshiba	2826	現地	2	165,500	331,000	Design Training	A	良い
3	2003/9/2	Total Station & Single Pole Prism	Topcon	GTS-223	現地	2	481,000	962,000	GIS Unit	A	良い
4	2003/9/6	Degital Camera Cybershot	Sony	DSC-P10	現地	1	62,000	62,000	GIS Unit	A	良い
5	2003/9/6	Multimedia Projector	HITACHI	CP-327	現地	2	167,000	334,000	GIS Unit Training	A	良い
6	2003/9/6	Direct Projector	REFLECTA	Episcope	現地	1	70,500	70,500	Training 1	A	良い
7	2003/9/6	Overhead Projector (Desktop)	3M	1808	現地	3	24,000	72,000	Training 3	A	良い
8	2003/9/6	Overhead Projector (Portable)	Apollo	2523E	現地	1	41,000	41,000	Training 1	A	良い
9	2003/9/10	DVD Writer(R/RW)	HP	DVD Writer	現地	1	41,300	41,300	Design	A	良い
10	2003/9/10	DVD R/W diskette	VERBATIM		現地	50	250	12,500	Design	A	良い
11	2003/9/10	Printer Deskjet (A3)	HP	9300	現地	1	30,000	30,000	Design	A	良い
12	2003/9/10	Printer Laserjet	HP	1300	現地	1	21,300	21,300	Training	A	良い
13	2003/9/10	Printer Laserjet(A3)	HP	5100	現地	1	94,000	94,000	Design	A	良い
14	2003/9/10	Computer (Desktop) UPS & Acces.	Compaq	EVOD380 HDD40GB	現地	3	60,700	182,100	Design	A	良い
15	2003/9/10	Computer (Desktop) UPS & Acces.	Compaq	EVOD380 HDD80GB	現地	4	71,800	287,200	GIS 3 Training1	A	良い
16	2003/9/10	Computer (Notebook)	Compaq	EVO P-IV, TFT-15"	現地	1	104,800	104,800	Training	A	良い
17	2003/9/11	Software	Microsoft	Office Professional	現地	4	27,000	108,000	GISUnit 1 Training 1 Design 2	A	良い
18	2003/9/11	Software Structure Design	ResearchEngineersUSA	STTARD Pro2003	現地	3	224,400	673,200	Design	A	良い
19	2003/9/11	ComputerDesk	Mashnoon	T-180	現地	7	2,900	20,300	GISUnit 3 Training 1 Design 3	A	良い

注） 調達ルート (本邦:本邦調達 - 現地:現地調達 - 携行: 専門家の携行)
使用頻度 (A:常に使う - B:よく使う - C: 時々使う)
状態 (良い - 普通 - 悪い)

No.	到着年月日	機材名	製造元	型式番号	調達ルート	数量	単価 通貨単位	合計	設置場所	使用頻度	状態
20	2003/9/14	ArcGIS Software	ESRI	ArcGIS Editor 8.2	現地	1	596,750	596,750	GIS Unit	A	良い
21	2003/9/14	ArcGIS Software	ESRI	ArcGIS Extension	現地	1	213,300	213,300	GIS Unit	A	良い
22	2003/9/14	Toner for Plain copier Toshiba2826	Toshiba	2826	現地	24	1,450	34,800	Design 12 Training 12	A	良い
23	2003/9/14	Lamp for Direct Projector	REFLECTA	Espicope A-4	現地	4	2,900	11,600	Training	A	良い
24	2003/9/14	Lamp for Overhead Projector (Desktop)	3M	Lumens2100	現地	10	400	4,000	Training	A	良い
25	2003/9/14	Lamp for Direct Projector (Portable)	Appolo	2523E	現地	10	510	5,100	Training	A	良い
26	2003/9/15	Toner for HP Laserjet 5100 (A-	HP		現地	10	9,700	97,000	Design	A	良い
27	2003/9/15	Toner for HP Laserjet 1200	HP		現地	10	3,400	34,000	Training	A	良い
28	2003/9/15	HP Deskjet 9300 Color Cartridge	HP		現地	10	1,850	18,500	Design	A	良い
29	2003/9/15	HP Deskjet 9300 Black Cartridge	HP		現地	10	1,750	17,500	Design	A	良い
30	2003/9/16	GEAR-2001 Software (CD & Manual)	ACECOMS		現地	1	28,520	28,520	Design	A	良い
31	2003/9/18	Computer (Desktop) Pentium-4HDD80GB	Compaq	EVOD380	現地	3	76,400	229,200	Q/C Unit1 Training 1 Design 1	A	良い
32	2003/9/18	UPS	Centralion	1000VA	現地	3	6,500	19,500	Q/C Unit 1 Training 1 Design 1	A	良い
33	2003/9/18	Printer	Canon	Bubblejet i-6500	現地	3	22,200	66,600	Q/C Unit 1 Training 1 Design 1	A	良い
34	2003/9/18	Black Catridge for Bubblejet i-6500	Canon		現地	27	600	16,200	Q/C Unit 9 Training 9 Design 9	A	良い
35	2003/9/18	Yellow Catridge for Bubblejet i-6501	Canon		現地	26	500	13,000	Q/C Unit 8 Training 9 Design 9	A	良い
36	2003/9/18	Magenta Catridge for Bubblejet i-6502	Canon		現地	26	500	13,000	Q/C Unit 8 Training 9 Design 9	A	良い
37	2003/9/18	Cyan Catridge for Bubblejet i-6503	Canon		現地	25	500	12,500	Q/C Unit 8 Training 8 Design 9	A	良い

注) 調達ルート (本邦:本邦調達 - 現地:現地調達 - 携行: 専門家の携行)
使用頻度 (A:常に使う - B:よく使う - C: 時々使う)
状態 (良い - 普通 - 悪い)

No.	到着年月日	機材名	製造元	型式番号	調達ルート	数量	単価 通貨単位Tk	合計TK	設置場所	使用頻度	状態
38	2004/3/14	Multimedia Projector	Hitachi	CP-X328 Lumens 2000	現地	3	140,000	420,000	M & EUnit 1 RuralRM 1 Design 1	A	良い
39	2004/3/14	Digital Camera	Sony	5.0 Mega DSC-P10	現地	2	42,000	84,000	M & EUnit 1 RuralRM 1	A	良い
40	2003/3/14	Fax Machine	Toshiba	DP85F	現地	1	65,000	65,000	Monitoring & E Unit 1	A	良い
41	2003/3/14	Copy Machine	Toshiba	2860	現地	1	167,000	167,000	Monitoring & E Unit 2	A	良い
42	2003/3/16	Software for Structure Design (STAAD Pro)	REI	beava Latest version	現地	1	136,900	136,900	Design	A	良い
43	2003/3/16	Software for Structure Design (STAAD Pro)	REI	STAAD etc Latest version	現地	1	63,000	63,000	Design	A	良い
44	2003/3/22	Computer (Desktop) P-4, HDD:40GB RAM256MB Monitor: 17"	Compaq	EV0d220m	現地	9	77,000	693,000	M & EUnit 3 RuralRM 6	A	良い
45	2003/3/23	Computer (Desktop) P-4, HDD:40GB RAM512MB Monitor: 19"color with UPS:Centralion 1000VA	Compaq	EV0330	現地	14	88,000	1,232,000	Design	A	良い
46	2003/3/23	Computer (Notebook) P-4, HDD:40GB RAM256MB Monitor: 15"TFTcolor	Compaq	nx9010	現地	6	108,000	648,000	M & EUnit 1 RuralRM 1 Design 2 GIS 2	A	良い
47	2003/3/23	Design Jet Color Plotter Large Format	HP	500ps	現地	2	180,000	360,000	Design 1 GIS 1	A	良い
48	2003/3/23	LaserJet Printer (A-4) Color	HP	3700	現地	2	125,000	250,000	M & EUnit 1 GIS 1	A	良い
49	2003/3/23	LaserJet Printer (A-3)	HP	5100tn	現地	8	135,000	1,080,000	Design 8	A	良い
50	2003/3/23	Desk Jet Printer (A-3)	HP	1180c	現地	2	16,500	33,000	Design 2	A	良い
51	2003/3/23	Scanner	HP	3970	現地	5	12,500	62,500	Design 5	A	良い
52	2003/3/23	Scanner Design Jet Large Format	HP	Design 815mfp	現地	1	1,520,000	1,520,000	Design 1	A	良い
53	2003/3/23	DVD writer	HP	DVD100i	現地	1	40,000	40,000	Design 1	A	良い

注） 調達ルート (本邦:本邦調達 - 現地:現地調達 - 携行: 専門家の携行)
使用頻度 (A:常に使う - B:よく使う - C: 時々使う)
状態 (良い - 普通 - 悪い)

No.	到着年月日	機材名	製造元	型式番号	調達ルート	数量	単価 通貨単位(Tk)	合計(Tk)	設置場所	使用頻度	状態
54	2003/3/23	Digital Camera	Sony	3.0 Mega DSC-P32	現地	6	35,000	210,000	Design 6	A	良い
55	2003/3/25	LaserJet Printer (A-3)	HP	5100	現地	3	91,000	273,000	Rural Road Maintenance 2 GIS 1	A	良い
56	2003/3/25	Scanner	HP	8200	現地	4	28,000	112,000	Training 3 M & EUnit 1	A	良い
57	2003/3/25	Computer (Desktop) P-4, HDD:40GB RAM:256MB Monitor: 17"with UPS & Office XP Software	HP			3	95,000	285,000	Training 3	A	良い
58	2003/3/25	LaserJet Printer (A-4) with 10 toner	HP	4200	現地	1	170,000	170,000	Training 1	A	良い
59	2003/3/25	Desk Jet Printer (A-3)	HP	9300	現地	2	28,000	56,000	Training 2	A	良い
60	2003/3/25	Catridge for 9300	HP	Black	現地	5	1,800	9,000	Training 5	A	良い
61	2003/3/25	Catridge for 9300	HP	color	現地	5	2,000	10,000	Training 5	A	良い
62	2004/5/11	GPS Receiver	Ashtec	Pro MARK-2	現地	2	640,000	1,280,000	GIS 2	A	良い
63	2004/5/11	GPS Receiver	Magellan	Spor Track Pro	現地	10	44,800	448,000	Rural RM	A	良い
		Canvas Carrying Case			現地	10	950	9,500	Rural RM	A	良い
		Topo Booklet			現地	10	1,100	11,000	Rural RM	A	良い
		Data Track Management			現地	2	11,300	22,600	Rural RM	A	良い
64	2004/5/18	Digitizer	GTCO Calcomp	3648	現地	2	339,000	798,000	RuralRM 1 GIS 1	A	良い
		16button cordless Cursor			現地	2	12,000	24,000	RuralRM 1 GIS 1	A	良い
		CordlessTippen70.5 cable			現地	2	12,000	24,000	RuralRM 1 GIS 1	A	良い
		Stand for Digitizer			現地	2	24,250	48,500	RuralRM 1 GIS 1	A	良い

注) 調達ルート (本邦:本邦調達 - 現地:現地調達 - 携行: 専門家の携行)
使用頻度 (A:常に使う - B:よく使う - C: 時々使う)
状態 (良い - 普通 - 悪い)

No.	到着年月日	機材名	製造元	型式番号	調達ルート	数量	単価 通貨単位(Tk)	合計(Tk)	設置場所	使用頻度	状態
65	2004/5/29	ArcGIS Software	ESRI		現地	1	1,155,000	1,155,000	RuralRM 1	A	良い
		Arc Info (2-10)			現地	1	1,096,000	1,096,000	RuralRM 2	A	良い
		Arc View Concurrent			現地	1	309,000	309,000	RuralRM 3	A	良い
66	2004/5/30	Bump Integrator with Spare wire A1471 Counter Kit:A1472 Installation Kit: A1475	CNS Farnel	A1471	現地	9	268,500	2,416,500	RuralRM	A	良い
		Distance Odometer	CNS Farnel	A1478	現地	9	79,500	715,500	RuralRM	A	良い
		Calibration Kit	CNS Farnel	Merlin A1460	現地	2	168,700	337,400	RuralRM	A	良い
67	2005/2/2	Computer (Notebook) Processor: Intel Centrino1.6GHzRAM:512 MB AGP:Integrated HDD:40GB Display: 12"12TFT Optical Drive: COMBO Communication:LAN,WL AN	DELL	Inspiration 700M	現地	1	150,000	150,000	RuralRM	A	良い
68	2005/2/2	Digital Camera Pixel : 5 Mega Pixel Display: 12" TFTWide aspect	Sony	P-10	現地	1	28,000	28,000	Training	A	良い
69	2005/2/27	UPS for Work Station 500VA Back-up time:	APC	BK500EL	現地	15	4,800	72,000	RuralRM 6 GIS 9	A	良い
	2005/2/27	UPS for Server 1000VA Back-up time: 20m	APC	SUA1001	現地	14	24,000	336,000	GIS 14	A	良い
71	2005/2/27	Power Extenssin Cord Output: 4 point , All type of pin system			現地	29	380	11,000	RuralRM 6 GIS 23	A	良い

注) 調達ルート (本邦:本邦調達 - 現地:現地調達 - 携行: 専門家の携行)
使用頻度 (A:常に使う - B:よく使う - C: 時々使う)
状態 (良い - 普通 - 悪い)

日本側ローカルコスト負担

単位:タカ

No.	費　目	使　途	予算年度				合計
			2002(第4四半期のみ)	2003	2004	2005 (除第4四半期)	
1	現地適用化活動費	事業目的	437,500	4,026,020	5,789,757	4,102,739	14,356,016
2	一般現地活動費	日常的経費	363,600	2,368,679	2,429,743	3,420,726	8,582,748
3	携行機材費	携行機材	0	312,000	0	0	312,000
4	供与機材費	供与機材	3,186,400	12,857,670	9,875,000		25,919,070
5	広域協力活動費	技術交換	0	784,000	980,000	1,758,086	3,522,086
6							
7							
8							
合　計			3,987,500	20,348,369	19,074,500	9,281,551	52,691,920

プロジェクト実施期間中に実施されたセミナー

農村開発技術センター機能強化計画

No.	セミナー名	年月日	参加者数	実施場所	参加機関等	備　考
1	Integrated Rural Development Seminar	2003/7/19-20	75	LGED H.Q. Conference Room	MOP,LGD,FAO,BARC,BRRI,BWDB,BARD,RDA,DAE,EOJ,JBIC,JICA *1	
2	Dissemination Seminar on Rural Development of output of TIEP in Cambodia	2004/3/9-10	60	LGED Cox's Bazar Office	LGED Officer Cox'sBazar、CHT Dist.	
3	Seminar on GIS & RS for Development (Prof. Yamaji)	2004/9/21	90	LGED H.Q. Conference Room	MoLGRD&C,LGD,SPARRSO,BARC,DOE, IWM,SOB,DLRS,BWDB,CEGIS,DU,*2	
4	Dissemination Seminar on Rural Development of output of TIEP in Philippine	2005/3/8-9	50	Comilla Dist. Hotel Noorjahan	LGED Officer whole Comilla District.	
5	International Seminar for Sustainable Rural Developmer	2005/9/3-5	200	LGED H.Q. & RDEC Conference	India, SriLanka, Nepal, Indonesia, Cambodia, Plippine, Thailand	

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*1:
MOP: Ministry of Planning
LGD : Local Government Division
FAO: Food Agriculture Organization
BARC: Bangaldesh Agricultural Research Council
BRRI: Bangladesh Rice Research Institute
BWDB: Bangladesh Water Development Boa
BARD: Bangladesh Academy for Rural Development
RDA: Rural Development Academy, Bogra
DAE: Department of Agricultural Extensio
EOJ: Embassy of Japan
JBIC: Japan Bank for International Cooperation
JICA: Japan Internatiuonal Cooperation Agency

*2

MOLGRD&C	Ministry of Local Government, Rural Development and Cooperative
LGD	Local Government Division
ICIMOD	International Center for integrated Mountain Development, Nepal
SPARRSO	Space Research & Remote Sensing Organization
BARC	Bangaldesh Agricultural Research Council
DOE	Depertment of Environment
IOM	Institute of Water Modeling
SOB	Survey of Bangladesh
DLRS	Director of Land Record Survey
BWDB	Bangladesh Water Development Board
CEGIS	Center for Environmental Geographic Information Services
DU	Dhaka University

プロジェクト実施期間中に実施されたワークショップ

No.	ワークショップ名	年月日	参加者数	実施場所	参加機関等
1	Participatory Rural Planning Workshop	2004/1/18-19	105	Bhedorgonji, Shariatpur	EmbassyofJapan,JBIC,JICA,LGED,BRDB, DC, Upazila, Union
2	Workshop on Rural Development (Counterpart Training in Japan & Technical Information Exchange Program in Cambodia)	2004/1/29	60	LGED H.Q. Conference room	LGED & JICA
3	Intensive Program on Test & Quality Control (Dr. Kougo)	2004/2/7	55	LGED H.Q. Conference room	LGED & JICA
4	Strategy Workshop on GIS (Mr. Kiyota)	2004/2/24	60	LGED H.Q. Conference room	LGED & JICA
5	Strategy Workshop on Training (Mr. Yamaguchi)	2004/2/29	65	LGED H.Q. Conference room	LGED & JICA
6	Workshop on 3rd Training Need Assessment	2005/3/30	64	LGED H.Q. Conference room	LGED & JICA
7	Participatory Workshop for Prioritizing Proposed Program	2004/12/12	32	Bhedorgonji, Shariatpur	LGED & JICA
8	Workshop on Rural Development (Counterpart Training in Japan & Technical Information Exchange Program in Philippine)	2005/1/26	51	LGED H.Q. Conference room	LGED & JICA
9	Workshop on laboratory Test & Quality (Mr. Iseki)	2005/2/1	50	LGED H.Q. Conference room	LGED & JICA
10	Workshop on Application GIS (Mr. Gomi)	2005/2/26	60	LGED H.Q. Conference room	LGED & JICA
11	Workshop on Technical Information Management (Mr. Fukuda)	2005/3/16	40	LGED H.Q. Conference room	LGED & JICA
12	Workshop on 3rd Training Need Assessment	2005/3/30	50	LGED H.Q. Conference room	LGED & JICA
13	Workshop on Training (Dr. Kanamori)	2005/4/11	50	LGED H.Q. Conference room	LGED & JICA
14	Workshop on Advanced Test for Asphalt (Mr. Hoshino)	2005/6/26	60	LGED H.Q. Conference room	LGED & JICA
15	Workshop on Technical Information Management (Mr. Fukuda)	2005/8/27	40	LGED H.Q. Conference room	LGED & JICA
16	Workshop on Step-up Plan (Mr. Ikewada)	2005/10/9	30	LGED H.Q. Conference room	LGED & JICA
17	Workshop on Advanced Test for Concrete (Dr. Nakajima)	2005/10/11	50	LGED H.Q. Conference room	LGED & JICA
18	Workshop on Design Standard for Rural Road (Dr. Tani)	2005/10/30	45	LGED H.Q. Conference room	LGED & JICA
19	Workshop on Advanced Test for Soil (Dr. Kohgo)	2005/11/28	50	LGED H.Q. Conference room	LGED & JICA

プロジェクト実施期間中に実施された研修

No.	研修名	受講者数			研修期間		場所	担当部
		本部	地方	合計				
1	Auto CAD (1st)	5	10	15	03/8/9-18	10	ICT Room, RDEC	Design
2	Quality Control	1	12	13	04/2/14-19	6	Tangail District	Quality Control
3	STAAD Pro Software	6	0	6	04/2/23-3/13	12	Level-2、RDEC	Design
4	Arc GIS	12	0	12	04/7/1-18	12	CEGIS, ICT,RDEC	GIS
5	Auto CAD (2nd)	5	15	20	04/8/21-31	10	ICT Room, RDEC	Design
6	Quality Control	1	14	15	04/10/2-7	6	Tangail District	Quality Control
7	Road Roughness Survey (Dhaka)	0	10	10	04/11/20-25	6	Dhaka	Maintenance
8	Road Roughness Survey (Kishorgonj)	0	12	12	04/11/30-12/9	9	Kishorgonji District	Maintenance
9	Road Roughness Survey (Comilla)	0	12	12	04/12/7-17	10	Comilla District	Maintenance
10	Road Roughness Survey (NoaKhali)	0	11	11	04/12/11-22	10	Noakhali District	Maintenance
11	Road Roughness Survey (Shariatpur)	0	10	10	05/1/11-21	10	Shariatpur, District	Maintenance
12	Road Roughness Survey (Cox's Bazar)	0	11	11	05/2/13-21	9	Cox'sBazar District	Maintenance
13	Auto CAD (3rd)	2	17	19	05/2/7-17	10	ICT Room, RDEC	Design
14	GIS Software	0	2	2	05/3/12-15	4	GIS Unit ,HQ	GIS
15	Total Station	0	12	12	05/3/19-24	6	ICT Room, RDEC	GIS
16	Trainer's Training	3	0	3	05/3/29-31	3	Q/C Lab, ICT Room	Q/C & Training
17	Trainer's Training	0	4	4	05/4/2-4	3	Q/C Lab, ICT Room	Q/C & Training
18	Trainer's Training	0	4	4	05/4/5-7	3	Q/C Lab, ICT Room	Q/C & Training
19	Auto CAD (4th)	0	18	18	05/7/10-20	10	ICT Room, RDEC	Design
20	Progress Monitoring Software (12 BATCH)	171	130	301	05/7/23-/9/04	38	ICT Room, RDEC	Monitoring
21	Basic Computer & Book CAT	9	0	9	05/8/7-10	4	Library, RDEC	Library
22	HDM-4	12	1	13	05/9/6-9	4	ICT Room, RDEC	Rural Road Maintenance
23	Auto CAD (5th)	6	14	20	05/9/11-22	10	ICT Room, RDEC	Design
24	Advanced Concrete Test	10	8	18	05/10/9-10	2	Q/C Lab, ICT Room	Quality Control
25	Advanced Soil Test	8	1	9	05/11/21-27	6	Q/C Lab, ICT Room	Quality Control
26	Construction Management	20	10	30	05/12/3-5	3	ICT Room, RDEC	Training
27	Project Management	10	20	30	05/12/17-19	3	Level-12, RDEC	Training
28	STAAD Pro Software(Advanced Cource)	6	0	6	05/12/11-22	12	ICT Room, RDEC	Design
		287	358	645		231		

プロジェクト期間中に実施された分野毎の研修集計　3,217　開発技術センター機能強化計画

No.	研修名	受講者数 本部	県等	合計	期間	日数	日数X人数	研修場所	担当部
Design 1,064									
1	Auto CAD (1st)	5	10	15	03/8/9-18	10	150	ICT Room, RDEC	Design
5	Auto CAD (2nd)	5	15	20	04/8/21-31	10	200	ICT Room, RDEC	Design
13	Auto CAD (3rd)	2	17	19	05/2/7-17	10	190	ICT Room, RDEC	Design
19	Auto CAD (4th)	0	18	18	05/7/10-20	10	180	ICT Room, RDEC	Design
23	Auto CAD (5th)	6	14	20	05/9/11-22	10	200	ICT Room, RDEC	Design
							920		
3	STAAD Pro Software	6	0	6	04/2/23-3/13	12	72	Level-2, RDEC	Design
27	STAAD Pro Software(	6	0	6	05/12/11-22	12	72	ICT Room, RDEC	Design
							144		
Quality Control 258									
2	Quality Control	1	12	13	04/2/14-19	6	78	Tangail District	Quality Control
6	Quality Control	1	14	15	04/10/2-7	6	90	Tangail District	Quality Control
							168		208000
24	Advanced Concrete T	10	8	18	05/10/9-10	2	36	Q/C Lab, ICT Room	Quality Control
25	Advanced Soil Test	8	1	9	05/11/21-27	6	54	Q/C Lab, ICT Room	Quality Control
							90		
Training 213									
16	Trainer's Training	3	0	3	05/3/29-31	3	9	Q/C Lab, ICT Room	Q/C & Training
17	Trainer's Training	0	4	4	05/4/2-4	3	12	Q/C Lab, ICT Room	Q/C & Training
18	Trainer's Training	0	4	4	05/4/5-7	3	12	Q/C Lab, ICT Room	Q/C & Training
							33		33,000
26	Project Management	20	10	30	05/12/3-5	3	90	ICT Room, RDEC	Training
28	Construction Manager	10	20	30	05/12/17-19	3	90	Level-12, RDEC	Training
							180		
Monitoring 974									
20—1	Progress Monitoring S	0	26	26	05/7/23-26	4	104	ICT Room, RDEC	Monitoring
20—2	Progress Monitoring S	0	25	25	05/7/27-31	4	100	ICT Room, RDEC	Monitoring
20—3	Progress Monitoring S	0	26	26	05/8/1-4	4	104	ICT Room, RDEC	Monitoring
20—4	Progress Monitoring S	0	26	26	05/8/6-9	4	104	ICT Room, RDEC	Monitoring
20—5	Progress Monitoring S	0	29	29	05/8/10-14	4	116	ICT Room, RDEC	Monitoring
20—6	Progress Monitoring S	8	15	23	05/8/15-18	4	92	ICT Room, RDEC	Monitoring
20—7	Progress Monitoring S	0	24	24	05/8/20-23	4	96	ICT Room, RDEC	Monitoring
20—8	Progress Monitoring S	26	0	26	05/8/24-25	2	52	ICT Room, RDEC	Monitoring
20—9	Progress Monitoring S	25	0	25	05/8/27-28	2	50	ICT Room, RDEC	Monitoring
20—10	Progress Monitoring S	26	0	26	05/8/29-30	2	52	ICT Room, RDEC	Monitoring
20—11	Progress Monitoring S	26	0	26	05/8/31-9/1	2	52	ICT Room, RDEC	Monitoring
20—12	Progress Monitoring S	21	0	21	05/9/3-4	2	52	ICT Room, RDEC	Monitoring
							974		
Maintenance 649									
7	Road Roughness Surv	0	10	10	04/11/20-25	6	60	Dhaka	Maintenance
8	Road Roughness Surv	0	12	12	04/11/30-12/9	9	108	Kishorgonji District	Maintenance
9	Road Roughness Surv	0	12	12	04/12/7-17	10	120	Comilla District	Maintenance
10	Road Roughness Surv	0	11	11	04/12/11-22	10	110	Noakhali District	Maintenance
11	Road Roughness Surv	0	10	10	05/1/11-21	10	100	Shariatpur, District	Maintenance
12	Road Roughness Surv	0	11	11	05/2/13-21	9	99	Cox'sBazar District	Maintenance
							597		
22	HDM-4	12	1	13	05/9/6-9	4	52	ICT Room, RDEC	Maintenance
							52		
GIS 224									
4	Arc GIS	12	0	12	04/7/1-18	12	144	CEGIS, ICT,RDEC	GIS
14	GIS Software	0	2	2	05/3/12-15	4	8	GIS Unit ,HQ	GIS
15	Total Station	0	12	12	05/3/19-24	6	72	ICT Room, RDEC	GIS
							224		
Library 36									
21	Basic Computer & Boo	9	0	9	05/8/7-10	4	36	Library, RDEC	Library

Implemented Training during Project Period

RDEC Setting-up Project

No.	Name of Training	Number of Participants			Duration	Place	Organised Unit
		H.Q	District	Total			
1	Auto CAD (1st)	5	10	15	03/8/9-18	ICT Room, RDEC	Design
2	Quality Control	1	12	13	04/2/14-19	Tangail District	Quality Control
3	STAAD Pro Software	6	0	6	04/2/23-3/13	Level-2、RDEC	Design
4	Arc GIS	12	0	12	04/7/1-18	CEGIS, ICT,RDEC	GIS
5	Auto CAD (2nd)	5	15	20	04/8/21-31	ICT Room, RDEC	Design
6	Quality Control	1	14	15	04/10/2-7	Tangail District	Quality Control
7	Road Roughness Survey (Dhaka)	0	10	10	04/11/20-25	Dhaka	Maintenance
8	Road Roughness Survey (Kishorgonj)	0	12	12	04/11/30-12/9	Kishorgonji District	Maintenance
9	Road Roughness Survey (Comilla)	0	12	12	04/12/7-17	Comilla District	Maintenance
10	Road Roughness Survey (NoaKhali)	0	11	11	04/12/11-22	Noakhali District	Maintenance
11	Road Roughness Survey (Shariatpur)	0	10	10	05/1/11-21	Shariatpur, District	Maintenance
12	Road Roughness Survey (Cox's Bazar)	0	11	11	05/2/13-21	Cox'sBazar District	Maintenance
13	Auto CAD (3rd)	2	17	19	05/2/7-17	ICT Room, RDEC	Design
14	GIS Software	0	2	2	05/3/12-15	GIS Unit ,HQ	GIS
15	Total Station	0	12	12	05/3/19-24	ICT Room, RDEC	GIS
16	Trainer's Training	3	0	3	05/3/29-31	Q/C Lab, ICT Room	Q/C & Training
17	Trainer's Training	0	4	4	05/4/2-4	Q/C Lab, ICT Room	Q/C & Training
18	Trainer's Training	0	4	4	05/4/5-7	Q/C Lab, ICT Room	Q/C & Training
19	Auto CAD (4th)	0	18	18	05/7/10-20	ICT Room, RDEC	Design
20	Progress Monitoring Software (12 BATCH)	171	130	301	05/7/23-/9/04	ICT Room, RDEC	Monitoring
21	Basic Computer & Book CAT	9	0	9	05/8/7-10	Library,RDEC	Library
22	HDM-4	12	1	13	05/9/6-9	ICT Room, RDEC	Rural Road Maintenance
23	Auto CAD (5th)	6	14	20	05/9/11-22	ICT Room, RDEC	Design
24	Advanced Concrete Test	10	8	18	05/10/9-10	Q/C Lab, ICT Room	Quality Control
25	Advanced Soil Test	8	1	9	05/11/21-27	Q/C Lab, ICT Room	Quality Control
26	Project Management	20	10	30	05/12/3-5	ICT Room, RDEC	Training
27	Construction Management	10	20	30	05/12/17-19	Level-12, RDEC	Training
28	STAAD Pro Software(Advanced Cource)	6	0	6	05/12/11-22	ICT Room, RDEC	Design
		287	358	645			

プロジェクト実施期間中に作成された成果品　　農村開発技術センター機能強化計画

No.	発行年月	成果品名
1	2003年3月	Brochure of RDEC Setting-up Project
2	2003年8月	Documentation of Integrated Rural Development Seminar 2003
3	2003年12月	Proceeding of Integrated Rural Development Seminar 2003
4	2004年3月	Documentation of "Strategy Workshop Training Need Assessment 2004"
5	2004年3月	Survey Report of Equipment & Facilities for Soil tests at Laboratories in LGED
6	2004年4月	Technical Specifications for Bridges on the Upazila and Union Roads
7	2004年4月	Report of Exparticipants of Counterpart Training in Japan and Technical Information Exchanging Programe in Cambodia
8	2004年9月	Documentation of Participatory Rural Planning Workshop, Bhedorgonji, Shariatpur
9	2004年10月	Training on Quality Control and Construction Materials
10	2004年12月	Proceeding of Participatory Rural Planning Workshop, Bhedorgonji, Shariatpur
11	2005年2月	Technical Specifications for Buildings
12	2005年3月	Water Level Data in Ganges Padma River Basin for Participatory Rural Planning in Shariatpur District
13	2005年3月	Inventory of LGED Road Network in **Dhaka Division**
14	2005年3月	Inventory of LGED Road Network in **Sylhet Division**
15	2005年6月	Inventory of LGED Road Network in **Rajshahi Division**
16	2005年6月	Inventory of LGED Road Network in **Khulna Division**
17	2005年6月	Inventory of LGED Road Network in **Chittagong Division**
18	2005年6月	Inventory of LGED Road Network in **Barisal Division**
19	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume I Main Text & Core Appendix (Mr. ISEKI)
20	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book (Mr. ISEKI)
21	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Barisal** (Mr. ISEKI)
22	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Chittagong** (Mr. ISEKI)
23	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Comilla** (Mr. ISEKI)
24	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Sylhet** (Mr. ISEKI)
25	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Dhaka** (Mr. ISEKI)
26	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Faridpur** (Mr. ISEKI)
27	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Mymensingh** (Mr. ISEKI)
28	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Khulna** (Mr. ISEKI)
29	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Rajshahi** (Mr. ISEKI)
30	2005年6月	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Rangpur** (Mr. ISEKI)
31	2005年6月	Report of Trainig Needs Assessment of LGED Staff (2004～2005) Volume I
32	2005年6月	Report of Trainig Needs Assessment of LGED Staff (2004～2005) Volume II
33	2005年6月	Report of Trainig Needs Assessment of LGED Staff (2004～2005) Volume III
34	2005年6月	Rural Road and Structure Maintenance Manual
35	2005年6月	Proceedings of Seminar on Geographic Information System and Remote Sencing for Development
36	2005年6月	Report on Developed Software for Progress Monitoring System

プロジェクト実施期間中に作成された成果品　　農村開発技術センター機能強化計画

No.	発行年月	成果品名
37	2005年7月	User Manual on Progress Monitoring System
38	2005年7月	Water Resources Laws in Bangladesh
39	2005年9月	Report on Technical Information Exchange Program, Counterpart Training and Dissemination Seminar
40	2005年10月	Road Design Standard for Rural Road
41	2005年10月	Quality Control Manual
42	2005年10月	Report on Application of GIS for Rural Planning
43	2005年11月	Develop the Soft Copy into CD of Specification of Implementation, Design Manual, Planning Manual and Quality Control Manual
44	2005年11月	Report on Material Test on Rural Road Pavement
45	2005年11月	Meteorological Data in Bangladesh (13 Station)
46	2005年12月	Report on Concrete test & Rural Road Safty
47	2005年12月	Report on Laboratory Test & Quality Control in LGED
48	2005年12月	Final Report of Technical Library Management
49	2005年12月	Develop the Soft Copy into CD Digitized Drawings of Bridges/ Culverts /Union Parishad Complex/Growth Center implemented under RDP-21
50	2005年12月	Survey Data(CD) of Upazila Township Map Bhedqrganji Pourashava, Shariatpur Distr
51	2005年12月	Develop the Soft Copy into CD Inventry of LGED Road Network
52	2005年12月	Develop the Soft Copy into CD Meteorological Data in Bangladesh
53	2005年12月	Summary Report on Participatry Rural Planing
54	2005年12月	Proccedings of International Seminar for Sustainable Rural Development 2005

Local Government Engineering Department

Step Up Plan for Rural Development Engineering Centre (RDEC)

Rural Development Engineering Centre (RDEC)
Dhaka
December, 2005

Local Government Engineering Department

Step Up Plan for Rural Development Engineering Centre (RDEC)

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Chapter-1

RURAL DEVELOPMENT IN BANGLADESH

1 Introduction to Rural Development in Bangladesh

Bangladesh appeared on the world map as an independent and sovereign state on 16 December 1971 following the victory at the War of Liberation started from 25 March 1971. It lies in the northeastern part of South Asia Between 20034' and 26038' north latitude and 88001' and 92041' east longitude. Bangladesh is bounded by India on the west & the north, India and Burma on the east and the Bay of Bengal on the south. The area of the country is 56,977 sq. miles or 1,47,570 sq. km. The limits of territorial waters of Bangladesh are 12 nautical miles.

Except the hilly regions in the northeast and the southeast, some areas of high lands in the north and north western part the country consists of low, flat and fertile land. A network of rivers of which the Ganges/Padma, the Jamuna, the Teesta, the Brahmaputra, the Surma, the Meghna and the Karnafuli are important and their tributaries are carrying the country flow down to the Bay of Bengal. The alluvial soil is thus continuous and being enriched by heavy silts deposited by rivers during the rainy season. The total forest area covers about 14% of the land area.

As Bangladesh Lies is the delta of three Larger Rivers, the Ganges, Brahmaputra and Mehgna (GBM) is very vulnerable to floods. With a complex network of 230 rivers including 57 cross boundary rivers, about 92% of the 172 million hectare of combined basin area of the GBM rivers in beyond the boundary of Bangladesh and located in India, China, Nepal and Bhutan. On average, annually floods engulf roughly 20.5% of the area of the country, or about 3.03 million hectare. In entrance cabes floods may inundate about 70% of Bangladesh as occurred during the floods of 1988. On the other hand, Bangladesh often experiences droughts for prolonged periods during pre-monsoon and monsoon due to erratic and delayed rainfall. Moreover Bangladesh is vulnerable to cyclonic storm surges and river erosion is a common

Bangladesh enjoys generally a subtropical monsoon climate. While there are six seasons in a year, three namely Winter, Summer and Monsoon are prominent. Winter, which is quite pleasant, begins in November and ends in February. In winter there is not usually much fluctuation in temperature, which ranges from minimum of 7-13 degree Celsius (450F-550F) to maximum of 24-31 degree Celsius (980F). The maximum temperature recorded in summer is 370 Celsious (980 F) although in some places occasionally it rises up to 410 Celsius (1050F) or more. Monsoon starts in July and continues up to October. The average annual rainfall varies from 1429 to 4338 mm. The maximum rainfall is recorded in the coastal areas of Chittagong and Northern part of Sylhet district, while the minimum is observed in the western and northern parts of the country.

The population of Bangladesh is 123.15 million in 2001. The percentage of urban population was 23 while that of rural 77. The density of population was 834 per sq. km in 2001. The sex ratio of the population 104 males per 100 females. The literacy rate of the country is 60 percent.

1.1 Socio-Economic Conditions, Poverty Profile and Issues in Poverty Alleviation

Bangladesh is one of the most densely populated countries in the world. About 76 percent of the people live in the rural areas. The majority of the rural people remain unemployed for at least some months of the year. Poverty is widespread in the country & more in rural areas. About 50% of population lives below poverty and almost half of them are hard-core poor.

Agriculture remains the largest sector of the economy, occupying more than three-fifths of the employed labour force and producing nearly half of the economy's output. Land is the main productive asset in rural areas; it represents both economic and social status. Landlessness is increasing rapidly as a result of population growth, river erosion and various other social and economic factors.

Poverty in Bangladesh manifests itself in low income leading to inadequate food intake, disease prevalence and short life expectancy. Per capita GDP is about US$ 363. Inadequate food intake results in malnutrition, especially of rural children, substantial gender disparity in poverty exists and so are urban/rural and regional differences. The female-headed landless households are characterized by extreme vulnerability since women, compared to men, have even more limited employment opportunities. The recent statistics of poverty in Bangladesh indicate that 52% of urban and 44% of the rural are below the poverty line (defined as 2,100 K.calories/person/day).

The link between poverty and the lack of effective water management is well established, as farmers will not be able to obtain credit and will not risk investments in better technology or in inputs, such as, fertilizer, if they do not have adequate flood protection or irrigation. Without the benefits of this community infrastructure, small and marginal farmers remain vulnerable as subsistence producers and without the means to improve their position. The water sector has the capacity to make a significant contribution to socio-economic development of the landless poorer sections of the rural community through, for example: (i) restoring more open access to public water bodies; (ii) developing culture fisheries in water project areas protected by polders; (iii) developing means for providing equal access to new benefits in project areas.

The growth and poverty alleviation are mutually reinforcing. Given proper support, the poor have proved to be productive and efficient. Resources invested in poverty alleviation programmes, therefore, assist the process of growth. Given the linkage between growth and poverty alleviation, there will be a need for targeted interventions for poverty alleviation even if Bangladesh succeeds in achieving higher growth. The range and magnitude of those programmes will depend on how high is the growth of GDP, the sources of growth and linkage with employment creation and growth of agriculture.

1.2 Importance of Rural Development in Bangladesh

Population density in Bangladesh is very high. About 76% of the population lives in the rural areas. Poverty is widespread in the country and more so in the rural areas. Development of rural areas has greater role to achieve national goal for poverty alleviation. Because of effectiveness of the program in creating productive employment opportunities and income generation programs, the Government of Bangladesh has given higher priority to rural development sector. The strong initiative of the Government towards the development of rural areas can be understood from the achievement of concerned programs in rural sectors in the latest completed series of National Development Plan.

1.3 Strategy for Rural Development with Emphasis on Poverty Alleviation

The Government's rural development programme, which has its origin in the early 1960s, was conceptualized essentially as an instrument for providing support for increasing agricultural production. The rural development model known as the Comilla Model emphasized the formation of cooperatives and the integration of support services provided by government departments. The model had four major elements as indicated below:

- Two tier cooperative-Krishak Samabaya Samity (KSS) and Thana Central Cooperative Association (TCCA) ;
- Rural Works Programme (RWP)
- Thana Irrigation Programme (TIP)
- Thana Training and Development Centers (TTDC).

The Government of Bangladesh (GOB) formulated and adopted the Strategy for Rural Development (RD) Projects in 1984. The strategy includes among others that the RD Projects will have a combination of following three components:

- Development of physical infrastructure including roads and markets;
- Irrigated agriculture, drainage and minor flood control works
- Production and employment programme (PEP) for the rural poor

The above Strategy was followed during the Third Five Year Plan (TFYP: 1985-90) and the Fourth Five Year Plan (FFYP: 1990-95). In Bangladesh, Rural Development (RD) Projects on the development of physical infrastructure include development of rural hats and bazars identified as growth centers and Feeder Roads Type-B-presently renamed as Upazila Road (with necessary bridges and culverts on them and tree plantation) linking the growth centres with the Thana Headquarters or the arterial road system). Besides, bridges and culverts at key sites on other important rural roads will also be constructed. In developing a feeder road, it needs to be ensured that its height is raised above the normal flood level and it does not create any water logging. In the riverine areas, water routes will be developed, if feasible and cost effective, as part of communication network for growth centers.

Since early 1980s, when Government's Rural Development Strategy (1984) laid strong emphasis on the incorporation of local water resources development measures in all rural development projects, LGED came out largely involved in small-scale water resources development through implementing the SIDA-assisted Infrastructure Development Project (IDP) under the Rural Employment Sector Program (RESP) in 6 Districts. LGED implemented 60 small-scale water resources development subprojects under the water resource development (WRD) Component of the IDP (1986-96) with a total benefited area of 20,500 ha. The IDP re-excavated about 50 km khals and constructed 117 regulators/sluices/water retention structures all of whom are provided with facilities for water retention/conservation. The project has supported small scale irrigation using conserved surface water.

The Planning Commission, Local Government Engineering Department (LGED) and the World Bank jointly conducted a study on Bangladesh Rural Infrastructure Strategy in 1996. The conclusion made in the Bangladesh Rural Infrastructure Strategy Study, is that the strategy's growth center approach (which focuses public investments on selected growth centers based on well defined criteria to indicate their socio economic importance) remains valid.

Some of the main features of Rural Infrastructure Strategy 1996 are as follows:

- RD Strategy (1984) approach remain valid

- No major changes are required, only some adjustments or "Fine tuning" may be justified
- Targets will have to be reset due to increase of Growth Centers from 1400 to 2100
- Regional priorities will have to be defined with view of the natural potential of the regions

The evolution stages of RD Strategies are given in Box-1.

Box 1: Rural Development Strategy	
Strategy	Salient Aspects
Comilla Model	• Two tier cooperative-Krishak Samabaya Samity (KSS) and Thana Central Cooperative Association (TCCA) ; • Rural Works Programme (RWP) • Thana Irrigation Programme (TIP) • Thana Training and Development Centers (TTDC).
RD Strategy, 1984	• Development of physical Infrastructure Including roads and markets; • Irrigated agriculture, drainage and minor flood control works • Production and employment programme (PEP) for the rural poor
Rural Infrastructure Strategy Study, 1996	• RD Strategy's (1984) approach remains valid • No major changes are required, only some readjustments or "fine turning " may be justified. • Targets will have to be reset due to recent increase from 1400 to 2100 growth centers • Regional priorities will have to be defined with view of the natural potential of the regions • More emphasis on the user /community participation • Strengthening capacity of contractors.

1.4 Participatory Perspective Plan 1995-2010

In line with development achieved on the basis of above Strategies, Perspective Plan 1995-2010 was drafted by the Government, which included more elements than above strategies reflecting emerging needs in rural development as follows:

- Improve basic physical infrastructure in rural areas (Growth Centres/markets, Feeder Road Type-B, other key rural roads in road network, bridges/culverts, minor irrigation, drainage and water control structure etc.) to facilitate social and economic growth in rural areas and better interaction among rural markets and between rural areas and urban markets.

- Develop water routes along with roads in riverine areas, if feasible and cost effective, as a part of communication network for Growth Centres.

- Develop adequate maintenance system including organization structure, financing etc. for proper maintenance of rural infrastructure.

- Plan rural infrastructure development activities on the basis of Union/Upazila Plan books and maps and involve representatives of Union Parishads and other Local Government Institutions (LGIs) in

identification, selection, implementation and monitoring of rural infrastructure development schemes.

- Strengthen Local Government Institutions and Local Resource Mobilization to promote local level development based on participatory planning.

- Undertake studies and pilot projects for development of non-motorized rural transport and provide knowledge in rural transport development

In above Perspective Plan, stress is given not only on physical development but also on maintenance of developed infrastructure, mobilization of local people in planning, implementation and maintenance of infrastructure development

1.5 National Rural Development Policy 2001

The issues emphasized in the National Rural Development Policy (NRDP) 2001 were:
Integration of all activities in rural development with a view to alleviate poverty

- Improving quality of life of women and poor
- Economic empowerment of landless and marginal farmers
- Expansion of education, health, nutrition and family welfare activities
- Creation of opportunities for rural people to become self reliant economically
- Ensuring proper utilization of all existing resources

1.6 Bangladesh National Strategy for Economic Growth, Poverty Reduction and Social Development Paper (PRSP) 2004

1.6.1 Outlining the Poverty Reduction Strategy

Bangladesh faces a triple challenge in building a road map for accelerated poverty reduction – firstly, build on past achievements while preventing slippages; secondly, address the multidimensionality of poverty through a strategic choice of priorities and thirdly, unlock the agency potentials of the nation through an optimal mix of public action, private initiatives and community mobilization. The policy triangle on which such a road map broadly rests is constituted of pro-poor economic growth, human development and governance.

There are eight specific avenues: four strategic blocks and four supporting strategies through which the goal of accelerated poverty reduction would be pursued. These are:

- Firstly, supportive macroeconomics to ensure rapid growth with particular focus on stable macroeconomic balances, improved regularity environment, poor and gender sensitive budgetary process;
- Secondly, choice of critical sectors to maximize pro-poor benefits from growth process with special emphasis on rural, agricultural and informal sectors and improved connectivity through road, rural electrification and telecommunication;
- Thirdly, safety net measures to protect the poor, especially women, against anticipated and unanticipated income/ consumption shocks through targeted and other efforts;
- Fourthly, human development of the poor for raising their capability through education, health, nutrition and social intervention;

- Fifthly, participation and empowerment of the poor, specially women and other disadvantaged and marginalized groups such as disabled, ethnic minorities, ecologically vulnerable;
- Sixthly, promoting good governance through improving implementation capacity, promoting local governance, tackling corruption, enhancing access to justice for the poor and improving sectoral governance;
- Seventhly, improving service delivery in areas of basic needs and
- Eighthly, caring for environment and its sustainability

1.6.2 Issues Relating to Infrastructure Development

A good infrastructure is critical for higher economic growth, poverty reduction and social development. It plays a pivotal role, inter alia, in product diversification, trade expansion, provisioning of basic services, increasing productivity, decreasing production cost and thereby, enhancement of quality of life and welfare of people. Infrastructure facilities provide impetus to the growth poverty nexus through following three distinctive channels:

- First, Physical infrastructure services directly affect socio-economic condition of people(such as access to health, education, water supply and sanitation, rural roads, electricity and similar infrastructure) and enhance capabilities of the poor;

- Second, Infrastructure services help the poor in availing themselves of the economic opportunities of growth for example through better access to markets and services; increased inter-sectoral and inter-regional labour migration and investment in more profitable economic activities;

- Third, Infrastructure helps in realization of benefits of policy reforms through providing the needed socio-economic and spatial integration of the economy.

Notwithstanding all merits and essential role that infrastructure may impart, infrastructure deficiencies continue to act as a major drag on Bangladesh's development efforts.

1.6.3 Issues Relating to Road Infrastructure Development

In order to accelerate the income multiplier effects and employment generation from infrastructure development, priority would be given to creation of macro and micro level interactions i.e. through close interactions between the central and local government institution. A proper decentralization of design, implementation and management of rural infrastructure programmes will have far reaching implication for cost effectiveness, maintenance and provision for sustainable infrastructure services. To maximize the impact of decentralization, the formal rural infrastructure programmes(e.g. those implemented by LGED and REB) should focus on provision of basic economic and social services in collaboration with different local agencies, NGOs and private sector based sharing of responsibilities through experience and best practice examples. To realize this, the over all responsibilities of local level institutions should be enhanced. In order to ensure efficient planning, implementation, operation and maintenance of rural infrastructure, a community participation process needs to be adopted with involvement of Local Government Institutions, NGOs, beneficiary groups, user committee and private sector.

1.7 Organizations/ Agencies Working for Rural Development

In Bangladesh, different Government agencies are working for rural development. These are:

- Bangladesh Academy For Rural Development (BARD), Comilla
- Bangladesh Rural Development Board (BRDB)

- Rural Development Academy (RDA), Bogra
- Department of Agriculture
- Department of Forest (DOF)
- Bangladesh Water Development Board (BWDB)
- Bangladesh Agriculture Development Corporation (BADC)
- Department of Fisheries and Livestock (DOFL)
- National Institute of Local Government (NILG)
- Rural Electrification Board (REB)
- Department of Agriculture Extension (DAE)
- Local Government Engineering Department (LGED)
- Department of Public Health Engineering (DPHE)
- Department of Social Welfare

Besides Government agencies, Development Partners and NGOs also assist rural development in Bangladesh significantly.

Chapter-2

LOCAL GOVERNMENT ENGINEERING DEPARTMENT

2 Institutional Arrangement for Rural Infrastructure Development and Creation of LGED

On the institutional arrangement for rural infrastructure development in Bangladesh, one special feature is the existence of a dynamic organization named as Local Government Engineering Department (LGED). LGED has taken a pioneering role for planning and implementation of rural infrastructure development activities throughout the country in collaboration with the Local Government Institutes (LGIs).

LGED is one of the prime Engineering Organization in Bangladesh basically working in the rural area and also in the urban area for infrastructure development, employment generation, poverty alleviation and social upliftment . It started functioning since early sixties when implementation of three elements of Comilla Model was started. In 1970, a cell was established under the Local Government Division to administer the Rural Works Programme (RWP) nation wide. It was converted into the Local Government Engineering Bureau (LGEB) under Government revenue budget in 1984, which was upgraded as the Local Government Engineering Department (LGED) in 1992.

2.1 How LGED Operates–its Organogram

LGED is under the Local Government Division of the Ministry of Local Government, Rural Development & Co-operatives. The Chief Engineer heads it. There are offices of LGED at Regions, Districts & Upazilas (Sub-District) level. At each level it has interface with Local Government Institutions both rural and urban i.e with City Corporations, Zila/Hill Zila Parishads as well as Upazilas and Union Parishads . LGED has a total manpower of 9628 working at HQ., Regions, Districts and Upazila levels. Of the total manpower 90% is in the upazila level, 9% is at region & district level and only 1% is at HQ. Level. The total overhead cost is 4.37%. The Organization Chart of LGED has been shown in later on.

2.2 What Does LGED Do?

LGED is a Public sector executing agency. Its activities and functions depend on Government's policy and strategy. LGED is primarily responsible for rural & urban infrastructure development at the local level. So the LGED activities are very much concerned with Bangladesh Rural Infrastructure Strategy Study 1984 and 1996 and Rural Development Policy and Poverty Reduction Strategy.

Depending on Government's policy, the key functions of LGED are:

- Provide technical support to the rural & urban Local Government Institutions
- Planning, Implementation, Maintenance and Monitoring of Infrastructure Development Projects in the rural, urban and water sector areas
- Prepare plan books, maps, database, design manuals, technical standards and specifications
- Impart training to LGED staff, LGI representatives, contractors and beneficiaries

At present LGED is implementing 70 projects in different sectors costing US$ 808 million. Different Development Partners and the Government of Bangladesh finance these projects of LGED. At present LGED is working in the following sectors:

- Rural Development and Institutions
- Physical Planning Water Supply and Housing
- Water Resources Development
- Transport
- Education

The summary of projects in 2005-2006 is given in Table-1 :

Table-1

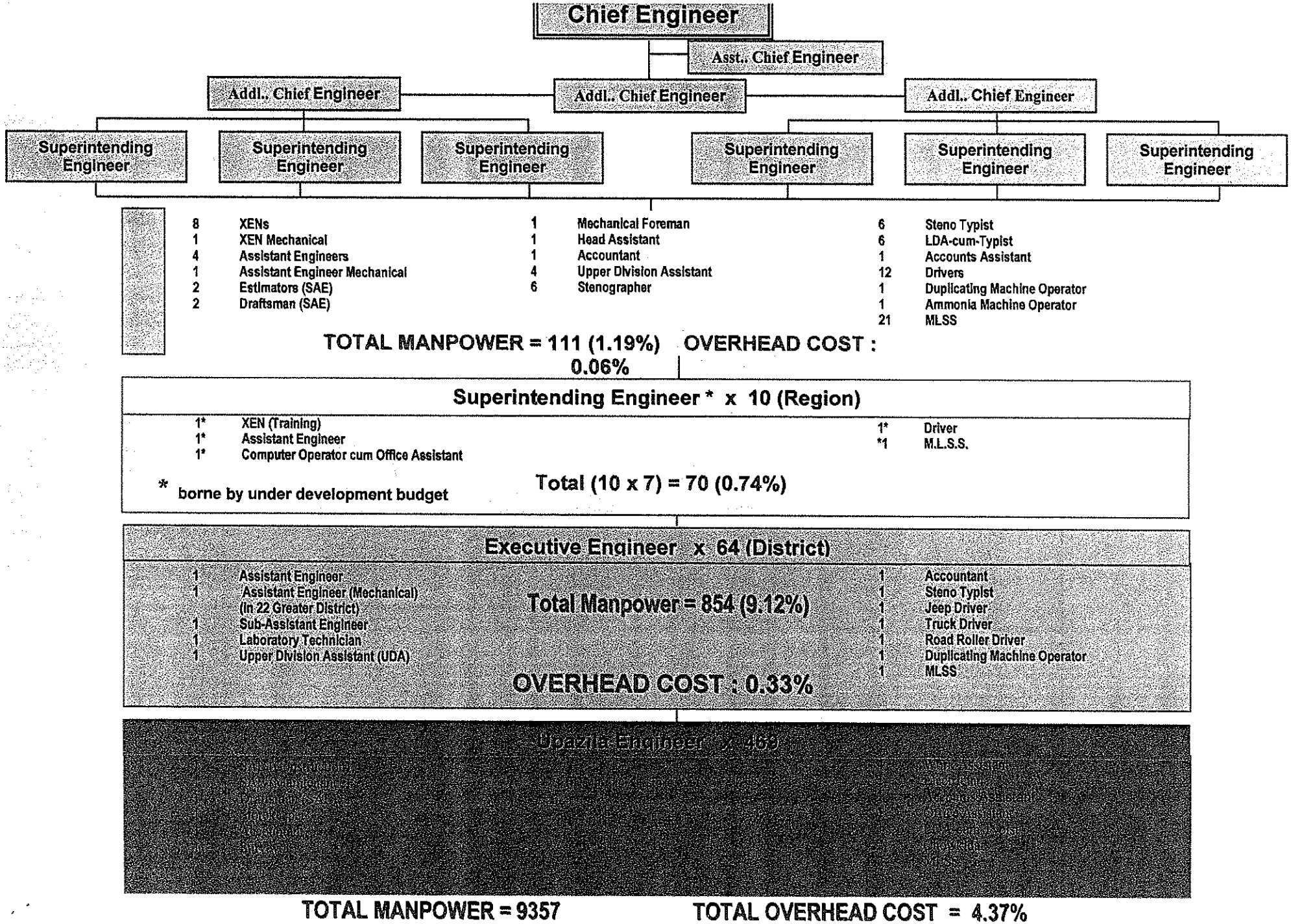
Sector	No. of Projects (2005-2006)	Total Project Cost (Lakh Taka)	Allocation (2004-'05) (Lakh Taka)	Allocation (2005-'06) (Lakh Taka)
A. Rural Development & Institutions	40	1914408.00 (US$ 3244.75 m)	229043.00 (US$ 394.90 m)	285060.00 (US$ 483.15 m)
B. PPWS & Housing	11	251567.00 (US$ 426.38 m)	16513.00 (US$ 28.57 m)	33576.00 (US$ 57.41 m)
C. Agriculture	6	29614.89 (US$ 50.19 m)	6179.00 (US$ 10.65 m)	6313.00 (US$ 10.70 m)
D. Water Sector	3	72771.00 (US$ 123.34 m)	7065.00 (US$ 12.18 m)	7458.00 (US$ 12.64 m)
E. Transport Sector	3	125610.00 (US$ 216.56)	2800.00 (US$ 4.82 m)	9800.00 (US$ 2.93 m)
F. Project under other Ministries & non ADP	7	460027.84 (US$ 779.70 m)	57001.19 (US$ 98.27 m)	134522.00 (US$ 228.00 m)
Total	70	2853998.73 (US$ 4837.27 m)	318601.19 (US$ 549.31 m)	476729.00 (US$ 808.01 m)

2.3 Different Units in LGED HQ

LGED operates through a decentralized system. The regional, district and upazila office of LGED are mainly involved in implementation. The HQ is responsible for planning, administration, monitoring and evaluation. The different units in LGED are :

- Planning Unit
- Design unit
- Training Unit
- Maintenance Unit
- Audit Unit
- GIS Unit
- MIS Unit
- Quality Control Unit
- Urban Management Unit
- Integrated Water Resources Management (IWRM) Unit
- Monitoring and Evaluation Unit
- Rural Infrastructure Maintenance Management Unit

The organization chart is shown below:


Chief Engineer
Asst.. Chief Engineer
Addl.. Chief Engineer
Addl.. Chief Engineer
Addl.. Chief Engineer
Superintending Engineer
Superintending Engineer
Superintending Engineer
Superintending Engineer
Superintending Engineer
Superintending Engineer
8 XENs
1 XEN Mechanical
4 Assistant Engineers
1 Assistant Engineer Mechanical
2 Estimators (SAE)
2 Draftsman (SAE)
1 Mechanical Foreman
1 Head Assistant
1 Accountant
4 Upper Division Assistant
6 Stenographer
6 Steno Typist
6 LDA-cum-Typist
1 Accounts Assistant
12 Drivers
1 Duplicating Machine Operator
1 Ammonia Machine Operator
21 MLSS
TOTAL MANPOWER = 111 (1.19%) OVERHEAD COST : 0.06%
Superintending Engineer * x 10 (Region)
1* XEN (Training)
1* Assistant Engineer
1* Computer Operator cum Office Assistant
1* Driver
*1 M.L.S.S.
* borne by under development budget
Total (10 x 7) = 70 (0.74%)
Executive Engineer x 64 (District)
1 Assistant Engineer
1 Assistant Engineer (Mechanical) (In 22 Greater District)
1 Sub-Assistant Engineer
1 Laboratory Technician
1 Upper Division Assistant (UDA)
Total Manpower = 854 (9.12%)
1 Accountant
1 Steno Typist
1 Jeep Driver
1 Truck Driver
1 Road Roller Driver
1 Duplicating Machine Operator
1 MLSS
OVERHEAD COST : 0.33%
Upazila Engineer x 469
TOTAL MANPOWER = 9357
TOTAL OVERHEAD COST = 4.37%

2.4 Major Functions of LGED

The major functions of LGED are :

- Plan and implement Works Programme at the Upazila level through the Upazila Engineering setup and provide technical support to the Upazila Development Coordination Committee (UDCC) and the Union Parishads (UP)
- Provide technical support to the Pourashavas and the Zila Parishads
- Construct Union Parishad Complex (UPC) and Union connecting roads throughout the country
- Plan and monitor development of Growth Centre connecting roads and construction of bridges/culverts through the Project Implementation Committees (PIC) constituted by the Union Parishads with food aid from the World Food Programme (WFP)
- Implement and monitor construction of roads and bridges/culverts in the rural areas under the Integrated Food for Development (IFFD) project with food aid supported by CARE
- Plan, implement and monitor development projects with resources from the government and the development partners with the objective of creating civic facilities in various city corporations and pourashavas
- Plan, implement and monitor Rural Infrastructure Maintenance Programme (Paved roads and bridges/ culverts)
- Plan, implement and monitor development projects with assistance from the development partners for construction of Upazila roads, Union Roads and Village roads (including necessary bridges/culverts) and development of Growth Centres and river ghats etc.
- Plan, implement and monitor the development of Growth Centres /market connecting roads with the Upazila HQ.
- Prepare, implement and monitor small scale irrigation, flood control and drainage schemes at the Upazila and the Union levels
- Prepare Plan Books of Upazilas, Unions and Pourashavas, prepare thematic/ digital maps and prepare and maintain database of roads and social infrastructures
- Implement and monitor construction/ reconstruction/repair of the primary school buildings under the Primary and Mass Education Division (PMED) throughout the country
- Perform functions relating to recruitment, transfer, promotion, disciplinary action of all officers and staff including the Upazila Engineers
- Improve capability of the officers and staff of all levels of LGED through training in relevant topics.
- Impart training in relevant topics to the peoples' representatives, contractors, project committees, LCSs and the beneficiaries involved with various development activities and increase their awareness about participatory process and role in development

2.5 Types of Rural Infrastructure Development Activities

The types of rural infrastructure development activities under different projects/programmes comprise the following:

- Construction of Upazila Road, Union Road, Village Road
- Construction of bridges and culverts on Upazila Road, Union Road, Village Road
- Development of growth center, rural markets and women market section
- Construction of small scale water resource scheme, such as construction of embankment, re-excavation of khal, construction of small sluice and regulators
- Routine maintenance of earth roads, Herring Bone Bond (HBB) roads and other paved roads
- Construction of Union Parishad Complex, Upazila Parishad Complex
- Construction of schools, cyclone shelters
- Maintenance of rural road by destitute women
- Maintenance of bridge/culvert and GC/RM

- Development of ferry/landing ghat
- Low cost housing, water supply, sanitation for rural poor
- Re-excavation of derelict ponds for pisciculture
- Construction of storage, godown and multi-purpose centre
- Construction of submersible road in haor ares
- Construction of Construction of multi-purpose cycle shelter including connecting road
- Construction of rural schools, clinic

2.6 Activities under Other Sector

2.6.1 Urban Sector

The activities in Urban Sector are:

- Improvement Of Integrated Town Centre (Bus Terminal, Markets Etc.)
- Improvement Of Municipal Roads, Bridges & Culverts
- Storm Water Drainage
- Water Supply
- Sanitation
- Solid Waste Management
- Slum Upgrading
- Housing & Land Development (Pilot)
- Land use Plan, Survey & Mapping
- Institutional Development Of Municipalities

2.6.2 Small Scale Water Resources Development Sector

LGED had always supported water resources development since past 30-40 years by constructing regulators and water retention structures through the Thana Irrigation Pprogrames (TIP) and block fund for irrigation and agriculture in Upazila Budgets.

Since early 1980s, when Government's Rural Development Strategy (1984) laid strong emphasis on the incorporation of local water resources development measures in all rural development projects, LGED came out largely involved in small-scale water resources development through implementing the SIDA-assisted Infrastructure Development Project (IDP) under the Rural Employment Sector Program (RESP) in 6 Districts. LGED implemented 60 small scale water resources development subprojects under the water resource development (WRD) Component of the IDP (1986-96) with a total benefited area of 20,500 ha. The IDP re-excavated about 50 km khals and constructed 117 regulators/sluices/water retention structures all of which are provided with facilities for water retention/conservation. The project has supported small-scale irrigation using conserved surface water.

LGED participated extensively in the Canal Digging Program (CDP) since 1979 in re-excavating khals and derelict ponds/tanks and constructed 80 regulators/water retention structures to develop comprehensive water retention/conservation schemes. The CDP activities developed/facilitated generation of source of water to enhance surface water based minor irrigation to an estimated 419,500 ha benefited area of the CDP.

LGED is nearly completing implementation of 11 Rubber Dam Projects, 9 of them having been financed under the Ministry of Agriculture (MOA) and co-implemented by the Department of Agriculture (DAE). The combined net command area of the 11 projects is 19,200 ha for which the Rubber Dams have

developed source of surface water for irrigation of hyv-boro rice and vegetables cultivation using Low Lift Pumps (LLPs) in most cases.

LGED has implemented 280 small-scale water resource development subprojects in 37 districts in the western half of the country during 1996-2003 under the Asian Development (ADB), International Fund for Agriculture Development (IFAD) and the Government of Netherlands (GON) assisted Small Scale Water Resources Development Sector Project (SSWRDSP). The main objective of the project was to improve agricultural production ensuring sustainable operation and maintenance by the local beneficiaries. One of the important selection criteria was that "more than 50 percent of the beneficiary in the subprojeet must be marginal or small farmers (holding less than 1.0 ha and priority are given to the subproject with higher percentages of small, marginal and landless farmers" which expanded the scope for pro-poor economic growth for increasing income and employment of the poor and women. Of the 280 completed subprojects, 45 are exclusively water conservation subprojects (benefited area 20,237 ha), 1 is command area development subproject (benefited area 557 ha) and 50 subprojects have specified water retention/conservation objectives (benefited area 32,300 ha). Besides, all regulator/sluice structures of 137 flood control and drainage (FCD) type subprojects (benefited area 85,400 ha) are provided with water retention facilities so that farmers can retain water up to acceptable levels.

2.6.3 Education Sector

LGED is managing construction primary schools mostly in rural areas. Recently LGED is also involved in renovation of Primary Training Institute (PTI) s. These constitute significant percentage of total annual budget of LGED. Mostly the activities are carried under Ministry of Primary and Mass Education Division (MoPME).

2.6.4 Transport Sector

LGED is also working in Transport sector. The main activities in this sector are :

- Improvement of priority Upazila Roads and Union Roads including critical bridges and cross drainage structures
- Maintenance of priority Upazila Roads and targeted Union Roads
- Improvement of Growth Center Markets (GCMs)
- Development of Ghats (River Jetties)
- Construction of Structures on Union Roads (SURs)

2.7 Selections and Approval of Infrastructure Development Projects

Rural Infrastructure Development Projects are normally formulated and adopted as per Government's Policy in the sector and approved through appropriate authority of the Government. Projects are financed either by Government or by Development Partners. A Development Partner finances a project as per their Country Portfolio Review Mission or Three Years Rolling Plan. A series of activities are to be accomplished right from Feasibility Study up to Loan Effectiveness Declaration. Feasibility is done in terms of socio-economic and technical aspects, which includes consideration of EIRR, BCR, connectivity and opinion of beneficiary/LGI and other stakeholders. At present LGED has 40 Rural Infrastructure Development Projects under Rural Development and Institution Sector amounting 3245 million dollar.

2.7.1 Participatory Development Process in Small Scale Water Resource Development Project

Subproject development in SSWRDS is a combination of two parallel process-"Institutional" and "Technical". The development process is subdivided into three distinct stages:

Identification and Feasibility: Union Parishad initiates proposal and Upazila Development Coordination Committee (UDCC) approves it. Project management Office (PMO) pre-screens the proposal through a multidisciplinary field reconnaissance followed by a PRA check and a feasibility study. Subprojects are reviewed and approved by the District Level Inter-Agency Project Evaluation Committee (DLIAPEC).

Design and Institutional Establishment: After DLIAPEC approval. WMCA is established under the legal framework of the Cooperative Societies Act 2001 and Cooperative Societies Rules framed there under. Detail designs are prepared and discussed with stakeholders for their approval. The WMCA, Union Parishad and LGED Executive Engineer sign a tripartite Implementation Agreement before tendering for civil works and engaging Labour Contracting Society (LCS) for earthworks. WMCA must fulfill a number of preconditions including (i) enrolment of at least 70 percent of beneficiary householders as WMCA members; (ii) collection of full beneficiary contributions for O&M, (iv) project-affected persons are consulted, and (v) environmental mitigation and land acquisition plans are prepared.

Construction and First Year O&M: To reduce poverty, Labor Contracting Society (LCS), comprising local vulnerable persons and destitute women, carry out earthworks. Subproject infrastructure are turned over to the WMCA, through a transfer agreement one year after completion, to carry out sustainable Operation and Maintenance (O&M).

2.8 Financing of Infrastructure Development

Rural Infrastructure Development Projects are normally financed by the following agencies:

- Government of Bangladesh
- Local Government Institutions
- Development Partners
- Users/ Beneficiaries

Government of Bangladesh also contributes in the foreign aided projects in the form land acquisition cost, custom duty & value added tax (CD/VAT). The proportion of contribution by GOB and LGIs is gradually increasing and that of the development partners is gradually decreasing. Some specific areas where contribution of GOB/LGI is increasing are Improvement of Growth Centre/Market, construction of Union Parishad Complex and construction of bridge/culvert on Rural Roads. It is mentionable that 20% of the total cost of these structures is borne by LGIs. In general, the Government is contributing more than 50% of the fund required for development activities.

2.9 Planning Tools for Infrastructure Development Schemes

The rural infrastructure development is done based on following tools:

- Upazila Plan Book
- Union Plan Book

- Digitized Upazila base Map
- The Upazila Plan Book contains the following sections:
- Upazila Base Map
- Upazila Road Development Map
- Upazila Drainage and Embankment map
- Upazila Irrigation Map
- Upazila Land Use/Water Use Map

The Union Plan Book contains the following sections:

- Union Base Map
- Union Road Development Map
- Union Drainage and Embankment map
- Union Irrigation Map
- Union Land Use/Water Use Map

Digitized Upazila Maps at 1: 50,000 and Union maps are available for all Upazilas and Unions. Maps have been digitized and updated regular basis. These are used for planning Rural Infrastructure Development.

The Geographic Information System (GIS) was adopted to produce multi sectoral maps and database for planning. Linkage was established with ICIMOD, Nepal and national agencies like SPARRSO, BBS, and SOB etc. This is gradually gaining importance because of natural calamities, disasters, river migration and draught as well.

Some other planning tools are:

- Guidelines on Environmental issues including physical planning, which includes Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA).

- Land and Water Use Manual, which includes planning guidelines, relevant considerations and methodology.

- Growth Centre Planning Manual which includes Development Plan preparation for Growth Centre, its construction and maintenance

2.10 Selection Criteria of Scheme and Acceptable Standard

Under a project, schemes are selected and implemented as per provision of the approved project and concerned guidelines. The following guidelines/manuals are followed:

- Earthwork Manual
- Pavement Design Manual
- Standard Pavement Sections
- Standard Specifications
- Road Structure Manual
- Pre-stressed Design Manual
- Quality Control Manual
- Guidelines on Tree Plantation/Tree Plantation Manual
- Earth Work Volume Calculation Software

- Standard Bidding Document
- Small Scale Water Resources Design Manual

Viability of scheme is checked through collection of socio-economic data such as:

- No. of households served
- No. of institutions connected
- Contribution towards increase of agricultural production and improvement of commercial activities
- Creation of employment
- Area to be benefited from drainage congestion
- Requirement of land acquisition
- Influence area of Growth Centre(GC)/market
- Approximate number of attendants and major commodities traded

Environmental Impact Assessment (EIA) is done before a scheme is taken to identify the possible positive and adverse environmental impact that the proposed scheme may cause. The EIA process comprises the following elements:

- Identification of all possible positive and negative impacts on natural and human environment resulting from proposed scheme
- Evaluation which includes qualification of identified impacts with respect to a common base
- Preparation of mitigation plans, which upon implementation will reduce potentially significant negative impact of a scheme to an acceptable limit.

2.10.1 Subproject Selection Criteria in SSWRDS

To qualify for being implemented under the Project, a subproject will meet the following Criteria:

1. The subproject shall be in line with the district strategies and guidelines for small-scale water resource interventions to the developed during the process of NWMP formulation in 2001;
2. More than 40 percent of the subproject benefit area will be operated by landless sharecroppers, marginal or small farmers (up to 1.0 ha), and within district priority will be given to subprojects with higher percentages of land operated by these farmers and subprojects located in food-deficit areas;
3. Each subproject will entail rehabilitation/upgrading an existing water control system, which may include new supplementary structures in existing systems;
4. Not more than 30 percent of the households depend on full-time or part-time capture fisheries within the subproject area;
5. The subproject cost must not exceed $ 1,000/ha for Command Area Development (CAD) schemes and $ 500/ha for other schemes without Asian Development Bank(ADB)'s prior approval;
6. The benefited area served by the subproject must be more than 50 ha and must not exceed 1,000 ha;
7. Each subproject shall be technically feasible; economically viable (the economic internal rate of return [EIRR] should be more than 12 percent); and socially and environmentally sound (requiring no or minimal displacement of people and land acquisition, and not involving sensitive areas);
8. The Initial Environmental Examination (IEE)/ Environmental Impact Assessment (EIA) study has been undertaken and appropriately approved after consulting the beneficiaries and project-affected people, concluding that the subproject is environmentally sound and the negative consequences can be mitigated;

9. Local stakeholders of each subproject must have indicated support for the proposed subproject and willingness to form a WMA, or in the case of a subproject with mainly fisheries benefit, those benefited from fisheries;
10. Recurrent maintenance costs of each subproject (including re-excavation cost to maintain) design performance of the subproject) will be covered by the O&M budget of the Water Management Cooperative Association (WMCA)'s Operation and Maintenance (O&M) Committee and funds collected from the subproject direct beneficiaries in proportion to the benefit they receive; and
11. The subprojects will not be located in the Chittagong Hill Tracts. Subprojects in the deeply flooded area in the Northeast will be considered only if the beneficiaries can demonstrate the capacity of ensuring the sustainability of interventions.

2.10.2 Mode of Implementation /Technology of Labour Intensive Methods

As per Poverty Reduction Strategy Paper(PRSP) of Bangladesh, rural infrastructure development has been emphasized particularly for poverty reduction and employment generation. LGED is addressing this issue since its inception. Initially the whole gamut of rural infrastructure development was totally labour intensive. Gradually the scenario has been changed a bit. But LGED has always given emphasis on poverty reduction through significant employment generation. With is purpose, LGED carried out different pilot exercises under various rural development projects. The usual modes of construction and maintenance of infrastructure development schemes are contractor who are engaged following Government procedures as well as special provisions of various development partners. Since inception LGED is practicing and evolving various Labour Intensive Methods for roads/infrastructure development works. Some of the Labour Intensive Methods are described below:

Project Implementation Committee

Project Implementation Committee (PIC) comprised of LGI representatives and Local People. Normally Project Implementation Committee implements earthwork and other small works. Generally PIC comprised of 5-7 members. The PIC consist of Union Parishad Chairman, Union Parishads members and other local elites such as Social Worker, School Teachers, Ansar, VDP Members and Farmers. The PIC chairperson will either be the Union Parishad Chairman or Union Parishad Member. Inclusion of at least one-woman member is mandatory. PIC has to select one of her member to act as Project Secretary. PIC is formed as per set methodology and their works have to be performed as per set criteria and standard.

After formation of PIC, the members are trained on:

- Methodology of the work to be performed
- Quality Control and Technical Issues
- Management issues such as withdrawal of resource (wheat/cash), maintenance of Master Roll, Accounts etc.

PIC can be suspended or cancelled based on their performance. Persons who have been sentenced on charge of misappropriation and persons against whom case is pending in court/charge sheeted or defaulters in submitting accounts of a previous year's scheme will not be qualified to be a Chairperson/member of PIC.

Labour Contracting Society (LCS)

Since early 80s Labour Contracting Societies (LCS) are being used as a new and innovative mode of construction and maintenance of physical infrastructure. LCS is a group of landless (Having less than 0.5 acre of land) men and women labourers organized by the formal group of Bangladesh Rural Development Board(BRDB), Non Government Organization(NGO) and other informal groups to implement small construction and maintenance scheme on contract

To find out an approach to increase participation of target group people for implementation of rural works schemes as an alternate to Project Implementation Committee (PIC), to ensure fair wage as well as to attain target group objectives of the project and to generate quality workmanship, a labour based organization was considered necessary. The idea was stirred up from the concept of Employment Guarantee Scheme(EGS) of Maharashtra in India created in early 70s. The new and innovative mode of construction in the name of Labour Contracting Society (LCS) was introduced on experimental basis from 1983-84.

The use of the LCS is considered as a landmark in targeting poverty alleviation directly with infrastructure development. The LCS are now engaged in different rural infrastructure development projects. The main objectives of the use of LCS for infrastructure development are to :

1. Directly involve the landless groups in infrastructure construction and maintenance ;
2. Provide employment and income opportunities for the landless groups/destitute women;
3. Eliminate intermediaries for project construction and maintenance activities; and
4. Ensure fair wages to the laborers
5. Achieve required quality/standard of construction and maintenance work

Government is committed for continuous innovation in direct targeting of poverty alleviation with infrastructure development. Experience with LCS is elaborated below.

- LCS comprises of a group of 7-30 landless labourers who depend on manual labour as their main source of income and do not operate more than 0.5 acres of land. Experience of use of LCS as a new and innovative mode of construction in infrastructure development goes back to 1983-84. The LCS are now active in different rural infrastructure projects.

- Initially LCS involvement was mainly limited to earthwork and pipe /culvert installation. Over the years involvement of LCS has been expanded and now LCS are involved in construction and maintenance activities which includes earth work of road embankment canal etc. pipe casting and culvert installation; earthwork and structure maintenance; tree plantation on roads, embankments and care taking of trees and other construction activities like Herring Bone Bond (HBB) bricks laying, box culvert construction etc. As the groups are gaining experience and showing good performance there is a plan to involve the groups in more specialized construction activities.

- The LCS are not only being trained on the technical issues of infrastructure development but also on other social issues like sanitation, nutrition, women's right, environmental awareness etc. The group members are motivated to spend their earnings on things like latrines, nutritious food, health care, children education etc.

Graduation of Labour Contracting Society (LCS)

Normally contractors who intent to work in LGED, are to enlisted or pre-qualified as and when necessary. Certain criteria need to be fulfilled for this purpose. The competent LCS group within LGED may be enlisted or pre-qualified like other contractors having pre-requisite qualifications and experiences. As per their financial capacity they can be enlisted as "D" class contractors.

In these labour intensive programmes, there are provisions of saving of a certain amount of salary through bank account. Before the end of the contract period, the members are trained on Income Generating Activities (IGA) so that they can adopt other ways for earning and sustain that utilizing the savings made during working as LCS member.

Contractor

LGED get more works done by contractors. But as it has been mentioned that LGED has the mandate of poverty reduction through employment generation in carrying out infrastructure development activities. the Plans and specification as well as the wage rates of works in LGED are prepared in such a way that significant number of labour is engaged in work.

2.11 Maintenance of Rural Infrastructure Under LGED

For smooth implementation of maintenance, LGED has categorized Rural Infrastructure Maintenance. Maintenance of rural infrastructures under LGED has been categorized into two distinct categories:

- o Routine Maintenance
- o Periodic Maintenance

Besides, one more category of maintenance can be included under special circumstances:

- o Emergency Maintenance

Routine Maintenance involves activities, which are usually carried out on off-pavement and on-pavement of the road repeatedly through out the year. Periodic Maintenance is those, which are usually carried out with a frequency of 3-5 years.

2.11.1 Use of Labour Based Methods in Maintenance Operation

Employment seeking by a large number of people is a common feature in various part of the country. Owing to a large proportion of unemployed population in Bangladesh, availability of labour is plentiful which is a pre-condition for the use of labour-based method (LBM). Under the Local Government Engineering Department labour intensive methods are followed both in construction and maintenance activities. It is observed that the use of LBM is much less costly than the conventional equipment based methods.

Infrastructure Development Projects and the road maintenance programme under LGED have a positive contribution towards creating employment opportunities for the rural poor in the following way :
Short- term (seasonal) employment
Long- term (year round) employment
The employment opportunity created by LGED through construction activities is mostly short-term employment (seasonal). The employment generated through maintenance activities is regular, but it is for a limited period of time (2-3) years. After this period, the beneficiaries need to take up self-

employment/ productive activities. The efficient use of labour-based method also contributes towards socio-economic benefits in the form of rural employment, income distribution, and an increased participation of the rural population in the development and maintenance process.
Length Person Method

This method is used for off-pavement maintenance. Basically women crew is recruited from among the beneficiary to do maintenance of earth shoulder, slope as well care taking of trees. Normally one woman is recruited per kilometer. But in case of newly planted road site and in case of replacement more than 80%, two women per kilometer is engaged. There is a provision of a supervisor for a group of 15-20 workers.

Mobile Maintenance Team (MMT)

LGED has introduced labour intensive Mobile Maintenance Team for On-Pavement Maintenance such as routine maintenance of on pavement. A group of 3-4 unskilled workers with a skilled gang leader form a Mobile Maintenance Team in a district. They are provide with necessary materials, tools and equipment for the work. Transport is also provided for carrying materials. Normally they move around the district and carry out on-pavement maintenance based identification by District Executive Engineer's Office.

2.11.2 Rural Roads Maintenance Funds

Maintenance of Rural Roads is carried with funds from different sources. The major sources of fund for rural roads maintenance are given below:

- GoB fund from the Revenue Budget being allocated since 1992-93,
- Maintenance component of various RD Projects in the form contribution from the development partners and GoB contribution under the Development Budget,
- Food Aid resources from the development partners and also from the government,
- Fund from the Local Government Institutions (Union Parishad)

Availability of funds for the maintenance of LGED roads during FY 2003-2004 are furnished in the Table-2 below:

Table-2: Funds Available For Maintenance, 2003-04

Source	Funds(Taka in Lakh)	Percentage
GoB Revenue Budget	20000	61.04
Maintenance by RDPs	6569	20.05
Maintenance by Food Aid	6195	18.91
Total :	32764	100

The overall funding in 2003-04 has been improved compared to the situation during last financial year. The funding under GoB revenue budget has been increased.

Funding situation has further improved in financial year 2004-05. The funds from various sources are indicated in the Table-3 below:

Table-3: Funds For Maintenance, 2004-2005

Source	Funds(Taka in Lakh)	Percentage
GoB Revenue Budget	37000	77.28
Maintenance by RDPs	6142	12.83
Maintenance by Food Aid	4733	9.89
Total :	47875	100

In the recent year the overall funding has been improved considerably, the above table shows that the total of funds from various sources is expected to be Tk 478.75 crore during 2004-05, which is close to the requirement. But in the past years funding was much lower than the requirement.
During the last decade a significant expansion of rural feeder road network in the country has been observed. At the same time, the shortage of maintenance fund has become a recurring problem. A considerable amount of road left out side the maintenance programme due to shortage of fund, as a result a huge amount of backlog has been accumulated over the years.

In order to protect the rural road assets that have been created over the years spending from GoB and development partners, adequate resources have to be accumulated from various sources and has to be deployed to clear up the backlog. To overcome the situation following measures could be taken;

- RD Projects (supported by the development partners) fund could be used to address this need of backlog mitigation.
- Side by side a part of the maintenance fund (in access of routine and periodic maintenance requirement) from GoB revenue budget could also be used for mitigating backlog maintenance.

2.11.3 Community Participation in Rural Infrastructure Development

The concept of community participation in rural infrastructure planning, implementation and maintenance has surfaced quite recently in Bangladesh. The concept arises from the need to maximize the impact of rural infrastructures. Development planners are increasingly emphasizing that infrastructure, which does not represent the hopes and aspirations of the community, will not be used by it and the community will be reluctant to share the responsibility for its maintenance. The process of involving the community in infrastructure planning, implementation and maintenance involves answering two basis questions:

- why community participation ? and
- how community participation can be ensured ?

The effectiveness of community participation may depend on the following;

- Socio-political situation
- Institutionalization capacity of the organization
- Extent of the intervention

The effectiveness of community participation in rural infrastructure planning, implementation and maintenance has already been recognized. Rural communities are increasingly being involved for those purposes. For rural infrastructure development, an information sharing approach has been followed with a long-term view of adopting users input approach in this regard, institutional constraints are progressively being identified and removed.

2.12 Gender and Development (GAD)

LGED always gives importance to involvement of women in development activities on equal terms with men. Presently 500 women are working in LGED of which 300 are in permanent set-up. Among the women employees, 40 are graduate engineers. LGED has a Gender forum to look after all concerns about gender equity. The Gender issue is also given due importance by LGED in terms of employment opportunity of women workers in infrastructure construction and maintenance. It is estimated that the women workers enjoy about 30% employment person days.

LGED has formulated Gender Equity strategy to be used in project planning, implementation and maintenance. Gender Equity strategy has been developed for national and 3 sectors namely Rural, Urban and Water. The strategy provides a clear, practical achievable, vision and guidance in terms of Gender Equity. The objectives are prioritized to benefit the Rural and Urban poor and contribute to the Government of Bangladesh's poverty reduction and Gender mainstreaming goals. The principles of Gender Equity strategy are given below:

- Accountability
- Transparency
- Partnership
- Participation
- Empowerment
- Sustainability
- Ownership and acceptability
- Integration and coordination
- Capacity building

2.13 Employment Generation through Infrastructure Development Activities

Infrastructure development projects/activities have a positive contribution towards creating direct employment opportunity to the rural poor in the following ways:

- Short term (seasonal) employment through construction employment through maintenance activities;
- Regular employment through maintenance activities.

A total of 846.50 million employment person days has been created through rural infrastructure development activities from July 1991 to June, 2004 as indicated in Table 4.

Table –4: Employment Generated (Million Person days)

Year	Construction	Maintenance	Total
1991-92	21.13	1.28	22.41
1992-93	25.93	1.15	27.08
1993-94	23.19	1.18	24.37
1994-95	29.37	1.40	30.77
1995-96	51.17	7.81	58.98
1996-97	60.30	11.07	71.37
1997-98	56.10	7.60	63.70

Table –4: Employment Generated (Million Person days)			
1998-99	57.60	15.90	73.50
1999-2000	63.50	17.50	81.00
2000-2001	65.00	20.00	85.00
2001-2002	67.00	22.50	89.50
2002-2003	80.00	23.82	103.82
2003-2004	90.00	25.00	115.00
Total:	690.29	156.21	846.5

The ways that poverty reduction is addressed for small-scale water resources development are employment and increased agriculture and fish production. Implementation of 280 subprojects by LGED under SSWRDSP-I resulted in construction or rehabilitation of 945 km embankment and re-excavation or excavation of 1162 km canal. This provided opportunities for 3.2 million person-days of employment. The investment in maintenance of completed subprojects generated 2,500 person-days of labor annually. Employment generation in agriculture in the completed subprojects during 1999 to 2002 was between 4.3 and 14.1 million person-days of labor annually.

The increase in fish production in the completed subprojects during 1999 to 2002 generated 150,000 person-days of labor employment annually. Implementation of 280 subprojects benefit almost 165,000 ha of cultivated land for the drainage improvement, flood management and water conservation. The drainage improved land covers 87.0%, flood free land 61.0%, water conservation benefit land 30.0% and irrigated land 1.3% of the total cultivated area.

The cropped area increased by 38,318 ha in the completed subprojects during 1999 to 2001. Annually cropped area increased by 16% and the land use intensity increased by 13% in the completed subprojects areas during 1999 to 2002. Annually cereal crop production increased by 28% and non-cereal crop production by 123% in the completed subprojects areas during 1999 to 2002.

Total increase of cereal and non-cereal production in subprojects completed during 1999 to 2001 was estimated at 199,700 tons and 261,570 tons, respectively. Fish production has increased by an estimated 3,540 tons in the completed subprojects during 1999 to 2002.

2.14 Quality Control

For ensuring required quality of works, LGED follows a lot of measures for quality control. LGED developed Quality Control Guidelines and set up laboratories in HQ., regional and field level. Other than central laboratory, there are 10 regional laboratories and 54 district laboratories equipped with modern quality control facilities.

2.15 Training in LGED

As an organization LGED always emphasizes on training. Training in LGED started since 1982 in former Works Programme Wing and gained a real momentum in 1984 with the establishment of the then Local Government Engineering Bureau (LGEB). In August 1992, LGEB was upgraded as Local Government Engineering Department (LGED) and the Training Unit started functioning as LGED TU. Second Training Needs Assessment was done in 1996. The overall objective of LGED Training Unit is development of overall training policy, assessment of training need, preparation of Annual Training Plan,

development of training modules, implementation and evaluation of courses. LGED's approach towards training are as follows :

- Training is based on Needs Assessment
- Training system is decentralized
- Curriculum is uniform throughout the country
- Target group includes not only staff but also LGI representatives, contractors and beneficiaries
- Training method is participatory
- Training is evaluated at different stages

LGED Training system is decentralized. 64 districts and 470 upazilas are covered through 10 Regional Training Centres. It does not mean that training is only implemented at HQ and regional levels. Training is also held at district, upazila and union level depending on the target group and the type of training. LGED is very much careful in implementing training for PIC, LCS members and contractors.

2.16 Developmental Impact

Various study reports have indicated positive developmental impacts of rural infrastructure. The Study Report of the International Food Policy Research Institute (IFPRI) and the Bangladesh Institute of Development Studies (BIDS) on Developmental Impact of Rural Infrastructure in Bangladesh, October 1990 contains the following major findings:

- Development of rural infrastructure has far-reaching implications for the alleviation of poverty by in directly generating income.
- Infrastructure affects agricultural production indirectly through prices, diffusion of technology and the use of inputs.
- Fertilizer prices are 14 percent lower, labour costs 12 percent higher, 105 percent more formland is irrigated, 71 percent more is sown with high yielding varieties (HYVs) and use of fertilizer is 92 percent higher in villages having access to better infrastructure facilities.
- Infrastructure development is estimated to have increased agricultural production in developed areas by as much as 32 percent.
- Infrastructural endowment canuses household income to rise by 33 percent, income from agriculture increases by about 24 percent, that from livestock and fisheries by about 78 percent that from wages almost doubles and income from business and industries rises by 17 percent.
- Infrastructure development has a positive effect on health

The report of the Bangladesh Institute of Development Studies (BIDS) on Rural Poverty Update, 1992 published in 1993 indicates the following on Infrastructure and its impact on the Rural labour market :

- Infrastructure development increases the demand for labour via its positive impact on agriculture, industry and services;
- Villages with developed infrastructure are also villages with higher level of agricultural modernization;
- With the development of infrastructure, total labour supply in self employment in the non-farm sector (particularly in trade and business) increases by about 20 percent compared to villages with underdeveloped infrastructure;

Total earnings as well as employment of poor households were found substantially higher in infrastructurally developed villages compared with underdeveloped villages.

Wage employment per household in the occasional deficit group is higher by about 36 percent in villages with developed in infrastructure compared with under developed villages.

The findings of Bangladesh Institute of Development Studies (BIDS) and World Bank on Stimulating Growth through Rural Non-Farm activities are:

- Improvement of physical infrastructure is considered to be one of the most critical supportive elements for development of rural no-farm enterprises
- Growth in Rural Non Farm Activity (RNA) was observed in places well connected by all weather roads and having supply of electricity
- Improvement in physical infrastructure allowed greater integration of product and factor markets

- An External Evaluation team from the Bangladesh University of Engineering and Technology (BUET) and the Bangladesh Institute of Development Studies (BIDS) was engaged by the Development Partner to assess the performance of Small Scale Water Resources Development Sector Project (SSWRDSP) during 1996-2002 project period and draw lessons for the second phase of the project as well as for the water sector in Bangladesh. The team has following findings regarding poverty reduction:

- Without doubt, the sub-project activities have had a positive impact on the position of the poor by increased labour opportunities in earthwork during construction and in agriculture.
- The micro-credit system has created more, though as yet limited opportunities for the poor people to initiate economic activities.
- Given the high proportion of the members particularly the Water Management Cooperative Association (WMCA) leaders in the higher land size categories, much of the output benefits may have accrued to them, although the marginal and small farmers may have also share in the increase of agricultural production.
- So long as the direct employment in construction and earthwork are concerned, the poor were benefited.
- More importantly, larger part of the estimated indirect employment benefit has gone to the hired labourers and small and marginal farmers, and thus helped reduce the severity of poverty.

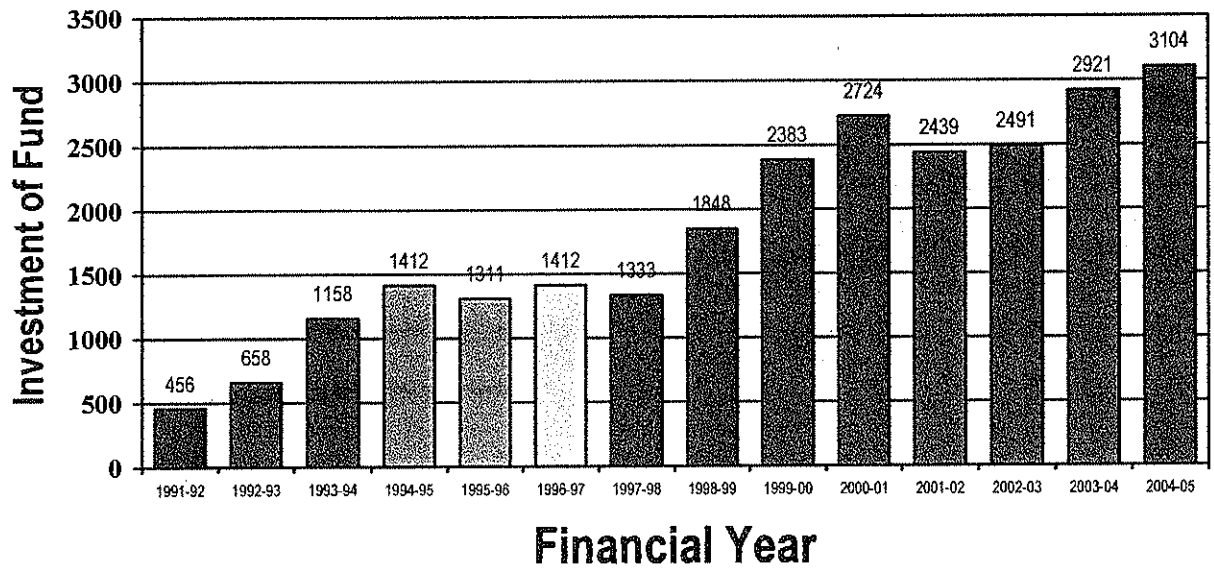
Chapter-3

RURAL DELEOPMENT ENGINEERING CENTRE (RDEC)

3 Rural Development Engineering Centre(RDEC)

Local Government Engineering Department (LGED) under Local Government Division (LGD) of Ministry of Local Government, Rural Development and Cooperatives (LGRD & C) has been involved in rural development in respect of infrastructure development since early 1960's with several changes in her organizational structure and nomenclature. The volume of work shouldered by LGED has been increased tremendously during the last decade. It can be understood from Figure –1 below:

Figure – 1: Investment of Fund for Infrastructure Development through LGED



It is fact that there was a huge and urgent demand of rural infrastructure development and still the demand is high. For example, there is 219153 Km of Rural Road Network and LGED is responsible for improvement and maintenance of that network. Only a nominal percentage of this network has been made all weather road and it is to be done for the remaining length for which substantial intervention and investment is needed. LGED made all efforts in developing effective tools and organizing practical training for enhancing capacity of its staff as well as providing appropriate technical support to Local Government Institutions (LGIs).

To cope up with the rapid increase of workload per person and no increase of staff under the rigid regulations, LGED sought a way of organizational restructure with introduction of effective management system. In this context, a study was conducted under Management Capability Strengthening (MANCAPS) Project of LGED and a number of proposals resulted from it. Keeping pace with existing momentum of capacity building and institutional development in LGED and to boost it up further, a proposal for establishment of Rural Development Engineering Centre(RDEC) was submitted for Japanese assistance in 1997 to accommodate engineering, environmental and socioeconomic activities/functions which was developed to some extent by Institutional Support Project(ISP) in line with

proposal of MANCAPS. In fact the proposal of RDEC construction bloomed back in 1994 when a Project Finding Mission of a Japanese Consultant visited LGED and formulated a preliminary study report.

After submission of RDEC project proposal in October 1997 through Economic Relations Division (ERD) to Embassy of Japan (EOJ) it was forwarded to Japan International Cooperation Agency (JICA) for grant aid. RDEC building construction indicated that a Technical Assistance (TA) program from Japan would accompany the project. Accordingly a proposal for Project Type Technical Cooperation Project (PTTCP) of JICA was prepared and submitted in October 1998 to JICA through ERD and EOJ. Several Team of JICA visited Bangladesh in this context. RDEC Setting-up Project launched from 10th January 2004 for three years.

3.1 Rationale and Objectives of RDEC

Under rapid growth of LGED implemented projects with limited manpower, LGED used rely heavily on Technical Assistance Projects in various areas to maintain her competence and efficiency in implementation of projects and providing technical support to LGIs. But there is a limit of support from projects in terms of continuation and coherence with long-term strategy of management and institutional improvement of LGED. Instead of depending on short-lived Technical Assistance, it was felt better to establish a permanent base where engineering and other relevant functions would be concentrated along with functional organization with an aim to institutionalize the function within LGED core organization to ensure continuous efficient activities in line with LGED's vision and mission. Rural Development Engineering Centre has been planned for such purpose with following objectives:

3.1.1 Overall Objectives

The RDEC will strengthen the capacity of LGED and Local Government Institutions (LGI) not in the field of civil works only but also in social, economic and environmental areas through the provision of a number of timely and effective technical supports.

3.1.2 Short-Term objective

The Center will take over relevant engineering functions developed at LGED under the support of Government of Bangladesh (GOB) and different projects in the field of Planning, Design, Quality Control, Research and Development and the Center will be in close linkage with LGED field organizations and projects.

3.1.3 Medium-Term objective

The multiple effects expected to be resulted from planned activities/interventions of RDEC are :

- Improvement of quality of works
- Maximizing of project impact on rural societies
- Enhancement of project efficiency and reduction of project cost
- Ensure proper implementation of infrastructure maintenance works (periodic, routine and emergency) &
- Promotion of capacity of LGED field organization, LGIs and local contractors/consultants.

3.1.4 Long-Term Objective

LGED will be able to deal with ever expanding rural development activities in the way that maximizes the positive impact of infrastructure development on rural economy and poverty alleviation

3.1.5 Compositions and Functions of RDEC

RDEC would work as an arm of LGED HQ. and provide Technical Assistance to LGED project and LGIs. The functions would be those already developed at LGED HQ with addition of some limited new functions. Different wings and sections of RDEC would assess and identify need of projects and LGIs and adopt activities to meet that. The core functions of LGED would be handled at LGED HQ. These are :

- Administration
- Finance and Personal Affairs
- Policy and Strategy Issues
- Project Formulation, Appraisal and Approval
- Project Implementation and Maintenance
- Management Information System (MIS)
- Maintenance of HQ. and RDEC Building

The functions, which are related to development of Planning, Design, Human Resource, Construction Equipment Maintenance, Water Resource and Urban Management, would be located in RDEC building. These are:

- Planning: Physical Planning, Geographic Information System (GIS), Urban and Water Resource Planning
- Design: Rural/Urban Infrastructure and Small Scale Water Resource Development (SSWRDS)
- Human Resource Development (HRD) : Training, Library, Information Technology(IT) and Display
- Quality Control: Laboratory and Construction Equipment Maintenance Workshop(CEMW)
- Management: Integrated Water Resource Management (IWRM), Urban Management, Internal Audit

For effective interventions by RDEC, a strong linkage will have to be established between RDEC, LGED projects and LGIs. RDEC would be authorized to carry Technical Audit to look at quality of work, socio-economic impact and performance of LGIs.

3.1.6 Functional Requirement of RDEC

The main functional requirement of RDEC is Office space, Training rooms, Library, Quality Control Laboratory, Construction Equipment Maintenance Workshop (CEMW). The ancillary facilities are Car Parking, Dormitory and Common Space. Initially a 6(Six) storied building was thought at north side of LGED Head Office building. In course of time, the space, which would be available in six floors of planned RDEC, was found quite inadequate. Based on requirement and justification, a 15(Fifteen) storied building is being constructed. The justification and schematic diagram has been provided in next chapter. It has been calculated that the space, which would be available in RDEC together with that in LGED Head Office building, would be adequate in terms of functional requirement of LGED.

3.1.7 Requirement of Equipment in RDEC

For smooth functioning of RDEC building and different activities within it, some equipment is needed. Equipment related to functional requirement has been planned for procurement from building construction package while equipment related to capacity building/research/pilot study has been from Technical Assistance Project. Detail has been given in next chapter.

3.1.8 Organization in RDEC

It was expected that a Technical Assistance Project would available from JICA for ensuring setting-up, utilization, strengthening and institutionalization of activities of RDEC. It was planned that an Additional Chief Engineer would head the Centre. Initially two Superintending Engineer (SE), nine Executive Engineer(XEN) along with Support Staff(SS) was planned to be deputed to RDEC . The actual number was chalked out during RDEC Setting-up Project, which has been detailed in next chapter. Conceptually a group of LGED core staff is placed at RDEC who would enhance their capacity initially working with JICA Experts and takes over and run the centre at their own later on. The RDEC fixed Organogram has been depicted in next chapter.

3.1.9 Budget for RDEC

The budget for the centre would vary largely on number of staff, their payment condition and activities of RDEC. The annual budget needs to be ensured by any possible means. One of the possible ways is from a Technical Assistance Project. Another way can be that the annual budget of RDEC is met by appropriating certain percentage from the ongoing Rural development Projects.

3.1.10 Technical Assistance in RDEC

RDEC, which accommodates comprehensive engineering functions, cannot be allowed to live within its own shell but needs to be keen on technology development. During Loan Agreement of building construction it was requested to ensure utilization of RDEC through a Technical Assistance Project. The areas of Technical Assistance are Planning, Design, Maintenance, Training, Quality Control, Construction Equipment Maintenance and Integrated Water Resource Management. Some of expected outputs through Technical Assistance are:

- Data Base on Rural Development in Bangladesh: Compilation of existing data in LGED Head office and in regional organizations in the fields of technical, social, economical and environmental aspects
- Revised technical standards and/or manuals in the fields of Planning, Design, and Maintenance
- Upgrading of Training system with offering training courses for insufficient technology and

3.1.11 Risk Analysis for RDEC

Master Plan for RDEC was prepared based on proposal made by MANCAPS, which has been accepted by LGED and involving persons concerned with centre through discussion. Question about overall functionality of RDEC does not arise. But there are some factors, which may affect sustainability and utilization of the centre.

3.1.12 Staff Assigned to RDEC

LGED Staff has been placed in RDEC to work with JICA Experts and develop their capacity so that they can run the center after departure of JICA Experts.

3.1.13 Budget of RDEC

Appropriate mechanism needs to be established for ensuring budget of RDEC. Hopefully LGED can do it efficiently.

3.1.14 Linkage between RDEC and LGED Projects/Field Offices and LGIs

Linkage needs to be established between RDEC and LGED projects/field offices and LGIs for effective intervention on them by RDEC. If this linkage is not established and maintained, the centre will gradually ignored which in turn will result idle staff. LGED staff deputed to RDEC should be active for establishing appropriate linkage. The staff may be authorized to carry Technical Audit, which may add value in establishing linkage.

3.1.15 Training/Seminar Spaces and Dormitory

Provision has been made for one Seminar Room, several classrooms, Syndicate rooms, dormitory for Resource Persons and participants. If such activities do not happen frequently, these provisions will lose viability. Of course this events has been increased to a significant magnitude during the last decade.

3.1.16 Construction Equipment Maintenance Workshop (CEMW)

There is provision of costly equipment for repairing and maintenance of construction equipment. Mechanical Engineers and Foremen at LGED HQ. need to enhance their capacity who in turn would train LGED Mechanical Engineers and Foremen at LGED field offices. If, by any reason, capacity development of Mechanical Engineers and Foremen at LGED HQ. can not be enhanced to a certain level, utilization of CEMW can't be ensured fully.

Chapter-4

Rural Deleopment Engineering Centre: Construction And Setting-Up

4 Rural Development Engineering Centre(RDEC) : Building Construction

Through the discussions held with the Loan Appraisal Mission of Japan Bank of International Co-operation (JBIC) in November 1998, it was decided to include the project in the JBIC-funded Northern Rural Infrastructure Development Project as a component and the Government of Japan made the pledge of the loan in July 1999.

M/S. Vitti Sthapati Brinda Ltd. and its associates, the engaged Design and Supervision Consultant, launched its activity from 1st July 2000 for a period 30 calendar months including 12 months defect liability period. The Steering committee on the 17th September 2000 decided that the total layout as envisaged in Terms of Reference (TOR) earlier should be revised with the availability of more land. The consultant finalized the revised architectural design. Additional land was handed over to LGED from the Public Works Department (PWD).

The consultant completed the preparation of tender documents and tender was invited on 25th February 2001. All pre-qualified contractors responded positively and purchased tender documents. Pre-bid meeting for the prospective contractors was held on 31st March 2001 to clarity different points of tender documents and issues related to the "Construction of Rural Development Engineering Center".

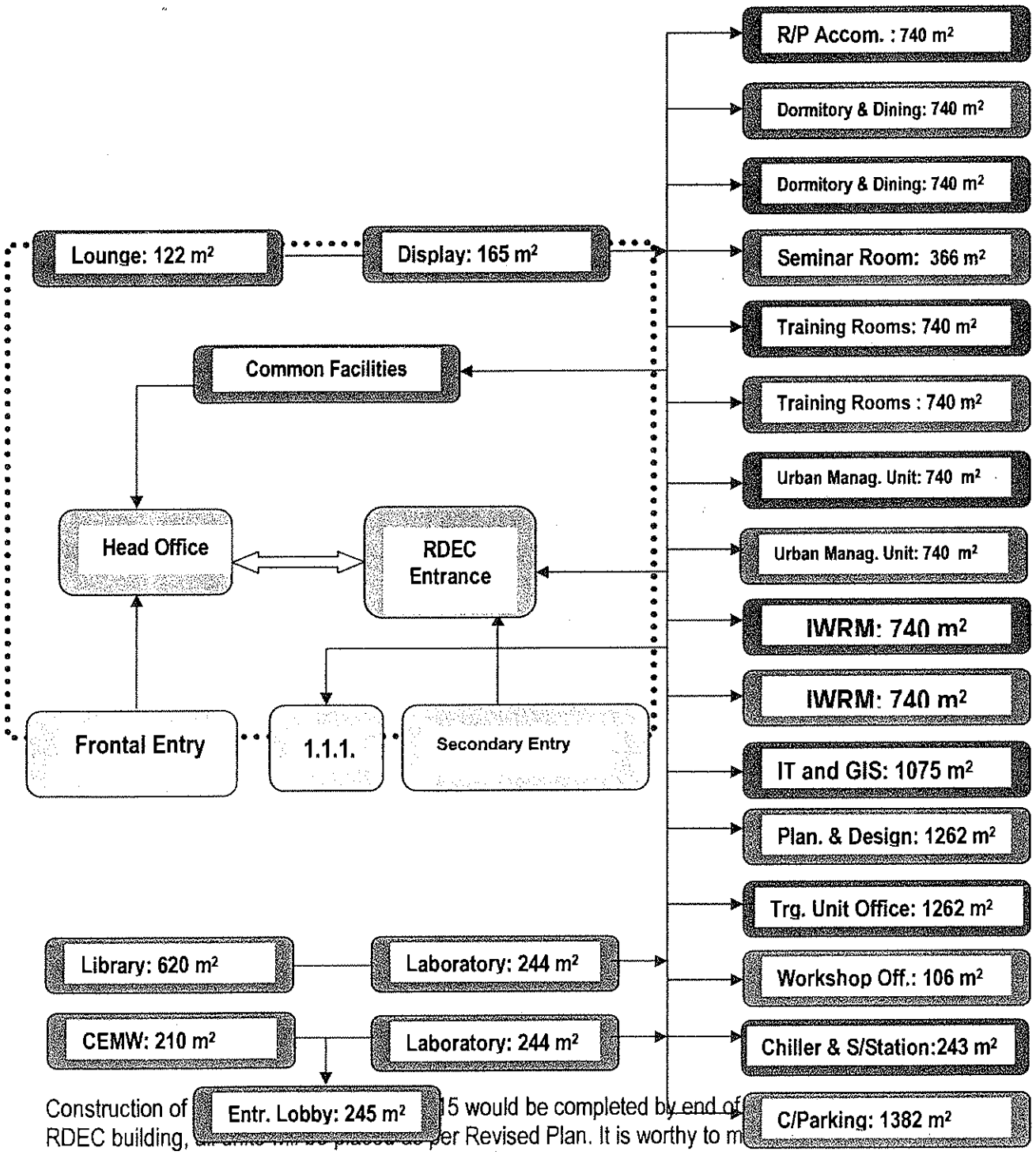
For construction of the RDEC, 16 companies applied for pre-qualification. Twelve companies were pre-qualified out of which 7 participated in the bidding. Tender was received on 15th April 2001. M/s NAVANA Construction Ltd. was the lowest bidder and the contract was awarded to them. The construction work was started from 15th September 2001. The first phase was completed early 2003 and RDEC building was inaugurated on 13 April 2003.

LGED prepared a Master Plan on Rural Development Engineering Centre Construction in 1998 initiated from 1994 for establishing RDEC to institutionalize all capacity building activities in the field of Planning, Training, Design, Quality Control, and Equipment Maintenance etc. Initially 6-storied building was planned to be constructed to accommodate required facilities. Through discussions held with Appraisal Mission of JBIC in November 1998, it was decided to include construction of RDEC Building under Northern Rural Infrastructure Development Project as a component. A Loan Agreement was made in July 1999 and subsequently Term of Reference (ToR) was prepared for Design and Supervision Consultant for RDEC building construction and accordingly consultant was engaged.

The consultant prepared several options for RDEC building based on Master Plan on RDEC Construction. Those were presented & discussed. During these series of meeting, few important issues came up for consideration, which are as follows:

- Land is very scarce in Dhaka City
- Agargaon area is getting importance as many national and international organizations' offices are being constructed in this area
- Vertical expansion of different offices should be as maximum as possible as it is evident that small piece of land wont be available in future
- LGED's works have been expanded to various sectors like Urban Basic Service Delivery and Small Scale Water Resources Development. LGED Planned to establish Urban and Integrated Water Resource Management Units along with Research & Development Cell in RDEC building.

Depending on all these considerations a 15 storied RDEC Building was re-planned. With JBIC finance, construction up to level-6 was taken up keeping provision of future vertical extension. Accordingly foundation was designed for 15-storied building. It has been planned that in the top three floors (level-13, 14 & 15), there would be dormitory. For training/seminar/workshop purposes class room, discussion room, Display area and Seminar room etc. would be in level-10, 11 & 12. Water and Urban Sector Management Unit would be in level-6, 7, 8 & 9. The remaining floor areas will have units as per Master Plan of RDEC Construction. The schematic diagram of RDEC building is shown below:



Construction of [redacted] 15 would be completed by end of RDEC building, [redacted] per Revised Plan. It is worthy to m[redacted]

been utilized for construction of 6-storied RDEC building. Cost of 9(Nine) floors and additional cost of foundation was borne by LGED at its own.

4.1 Rural Development Engineering Centre (RDEC) Setting-up

For enhancing capacity of LGED staff in different fields under RDEC, the Government of Bangladesh (GoB) requested the Government of Japan (GoJ) for Project Type Technical Cooperation in RDEC. A proposal was sent to Embassy of Japan through ERD on 5th August 1998. A revised proposal for assistance in the field of GIS, Physical Planning, Quality Control, Equipment Maintenance, Hydraulics and Hydrology Design was sent to EOJ through ERD on 10th October 1999. JICA Basic Study Team visited Bangladesh during 23-24 November 1999.

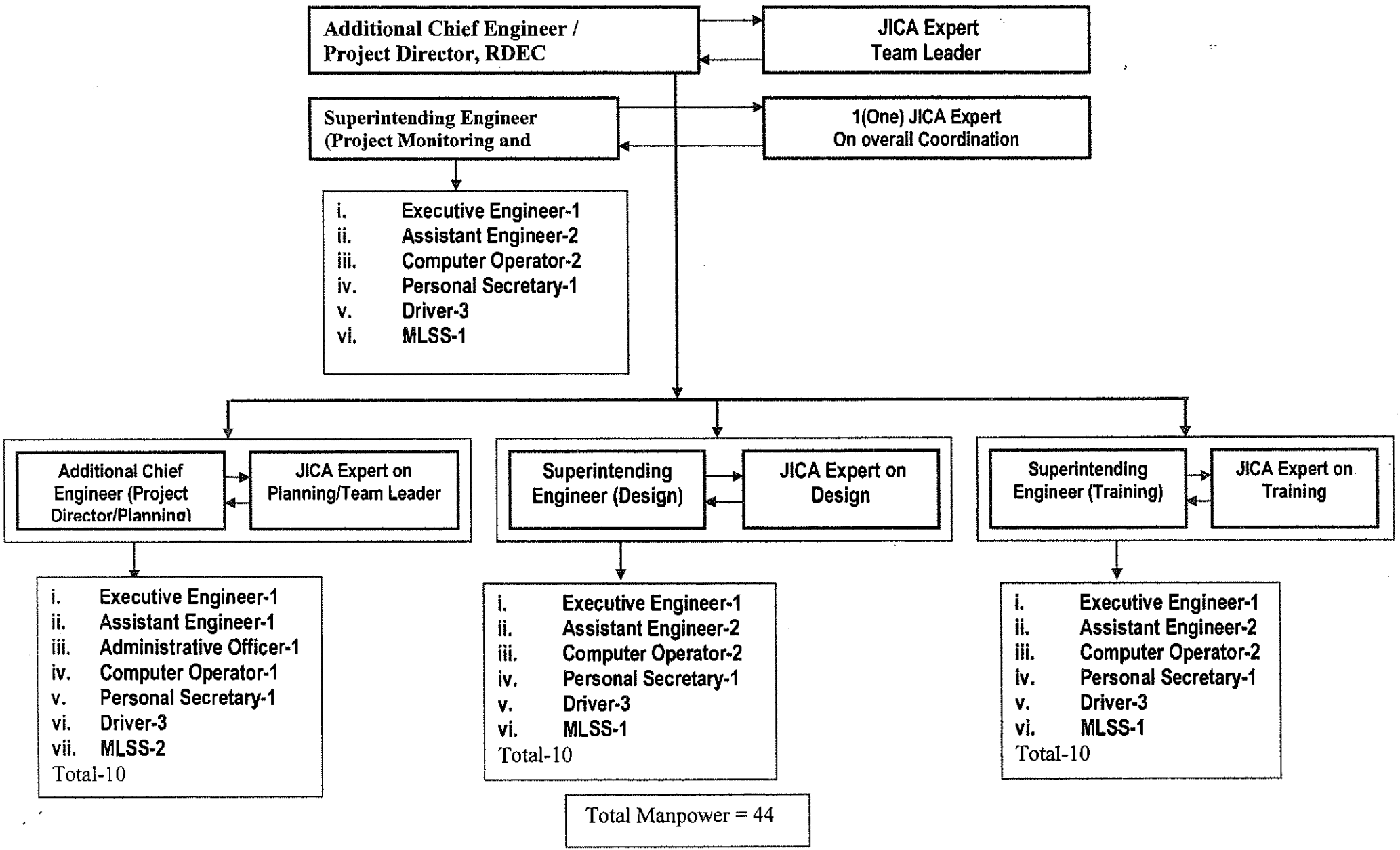
JICA Supplementary Study Team visited Bangladesh during 27 November up to 22 December 2000. A MOU was signed between JICA and LGED in 14 December 2000 during visit of Supplementary Study Team for assistance in Training, Planning, Design, Quality Control and Construction Equipment Maintenance after conducting Project Cycle Management (PCM) workshops – one at HQ. and one at the field. JICA 2nd Preparatory Study Team for Rural Development Engineering Centre Setting-up Project visited Bangladesh during 04 June up to 07 July 2001and signed a MOU with LGED & GOB on 21 June 2001. The Japanese experts prepared the Project Document. Depending on previous discussions and MOUs signed. Technical Assistance Project Proforma was prepared by LGED, which was approved by the Planning Commission in SPEC meeting on 10 August, 02.

JICA Implementation Study Team for "Rural Development Engineering Centre" project visited Bangladesh from 21st to 27th September 2002. Because of broader function of RDEC, it was agreed that the project would be implemented with step-wise approach. Record of Discussions was signed between LGED & GOB on 25 September 2002 to implement technical cooperation project "Rural Development Engineering Centre Setting-up" for a provisional three years period from 10 January 2003 as a grant project.

4.2 Organization of RDEC Setting-up Project

There are three Long Term JICA Experts and one coordinator. One Additional Chief Engineer of LGED is the Project Director. Three JICA Experts are on Planning, Design and Training. Concerned Superintending Engineers of LGED are acting as counterpart official. Superintending Engineer (Project Monitoring and Evaluation), LGED is the coordinator. Few LGED officials have been deputed to RDEC under the project/Superintending Engineers to work day to day with JICA Experts to enhance their capacity in different fields. The Organogram of RDEC is given in Figure – 3.

Figure-3 : FIXED ORGANIZATION CHART OF RDEC



Besides Long Term JICA Experts, Short Term JICA Experts also worked in the project. Total fourteen Short Term Experts worked as follows:

- Rural Planning by GIS (Dec03~2.5Months)
- Laboratory Test & Quality Control (Jan04~3Weeks)
- Training Needs Assessment (Feb.04~2Weeks)
- Key Note Speaker at the GIS Seminar (Sep. 04)
- Rural Planning by GIS-II (Dec 04~Feb 05)
- Laboratory Equipment (Dec 04~Jan 05:2months)
- Technical Library (25 Feb. 05 : 3Weeks)
- Trainers training (Mar.05~4Weeks)
- Asphalt Test (Jun.05~4Weeks)
- Technical Library (Jul. 05 : 8Weeks)
- Step-up Plan (August 05 : 8 Weeks)
- Concrete Test (September 05 : 3 Weeks)
- (Design Standard: October 05:2 Weeks)
- (Soil Test: November 05 : 2 Weeks)

4.3 Activities and Output of RDEC Setting-up Project

During cooperation period following major activities were encouraged:

- Preparation for extending technical knowledge and experiences through establishing technical Library
- Study on applied technology and Formation of RDEC Step-up Plan
- Improvement of Training System and
- Reinforcement of insufficient technology

Through the implementation of RDEC Setting-up Project, following outputs would to be generated by the mutual cooperation between LGED and JICA along the course of the respective program:

- Data base on Rural Development in Bangladesh: Compilation of existing data in LGED Head office and in regional organizations in the fields of technical, social, economical and environmental aspects
- Dissemination of technical knowledge & previous experience obtained from implemented projects
- Revised technical standards and/or manuals in the fields of Planning, Design, and Maintenance
- Upgrading of Training system with offering training courses for insufficient technology
- Specify actual needs of training and reflect outcome of current training system
- New Technical references &Training Courses
- Institutional Development of LGED and
- Guidelines for technical management in RDEC, the Step-up Plan of RDEC

4.4 Achievement of RDEC Setting-up Project

Since inception progress of RDEC Setting-up Project is significant. Initially working groups were formed on Training, Planning and Design. So far 12(Twelve) working group meetings have been held for discussion on technical cooperation. The major issues discussed were:

- Procurement of Equipment under JBIC

- Procurement of Equipment under JICA & its justification
- Implementation of Training, Seminar & Workshop
- Collection of LGED Manuals for Technical Library
- Procurement of Satellite Imagery
- Group Training, Exchange Visit & Counterpart Training
- Dispatch of Short Term Expert

4.4.1 Overseas Training

Eight overseas training were held under the project. Counterpart training in Japan was held for four batches. Two numbers of Group Training were held in Japan – one on Construction Equipment Management and the other on Technology For Prevention of Premature Deterioration of Concrete Structure. Technical Information Exchange program was held in Cambodia and Philippines. The overseas training was held to enhance capacity of LGED officials in different fields.

4.4.2 Local Training/ Seminar/Workshop

The following training/seminar and workshop were held under the project:

- Integrated Rural Development Seminar at LGED, HQ, Dhaka
- Training on Auto CAD at LGED, HQ, Dhaka
- Participatory Rural Planning Workshop at Bhedarganj, Shariatpur
- Intensive Program on Tests and Quality Control at LGED, HQ, Dhaka
- Workshop on Rural Development at LGED, HQ, Dhaka
- Strategic Workshop on GIS "Development of Land Use Map through IKONOS Data Analysis
- Training on Quality Control at LGED, District: Tangail
- STAAD PRO Software Training, LGED, HQ, Dhaka
- Strategy Workshop on Training Needs Assessment, LGED, HQ, Dhaka
- Workshop on Rural Development at Cox's Bazar
- Training on ARCGIS at LGED, HQ, Dhaka
- Auto CAD Training on Data Management at LGED, HQ, Dhaka
- Seminar on GIS at LGED, HQ, Dhaka
- International Seminar For Sustainable Rural Development
- Dissemination Seminar on Rural Development
- Workshop on Roughness Road Survey
- Participatory Workshop For Prioritizing Proposed Programs
- Workshop on Laboratory Tests and Quality Control
- Workshop on Application of GIS
- Workshop on Technical Information Management
- Workshop on Technical; Library
- Workshop on Step-up Plan of RDEC
- Workshop on Rural Road Technical Standard
- Workshop on Advanced Soil Test
- Training of Trainers
- Training on Fundamental Uses of GIS Software
- Training on Operation and Application of Total Station
- Training on PMS
- Training on Basic Computer Software and Book Cat

- Strategic Training on HDM 4 For Maintenance
- Training on Concrete
- Training on Project Management
- Training on Construction Management

The local training/seminar/workshop was held to enhance capacity of officials LGED as well as of other Department and LGI Representatives in different fields.

4.4.3 Procurement

Satellite Imagery of Bhedarganj Upazila of Shariatpur District was procured to prepare Land Classification/Land Use Maps for facilitating Upazila Development Plan as a Model. Equipment was procured for different units and programs for enhancing capacity and carrying out pilot exercise. The cost of equipment amounts Taka 26 m approximately.

4.4.4 Publication

Different publications have been prepared under the project. Some are as follows:

- RDEC Brochure
- Documentation on Integrated Rural Development Seminar
- Proceedings on Integrated Rural Development Seminar
- Report of Ex-Participants of Counterpart Training in Japan and Technical Information Exchanging Program in Cambodia
- Survey Report of Equipments and Facilities for Soil Tests at Laboratories in LGED
- Documentation of Strategy Workshop on Training Needs Assessment
- Survey Report of Equipment & Facilities for soil tests at Laboratories in LGED
- Training Manual on Quality Control and Construction Materials
- Technical Specification for Buildings
- Water Level data in Ganjes Padma River Basin for participatory Rural Planning in Shariatpur District
- Inventory of LGED Road Network: Dhaka, Chittagong, Khulna, Rajshahi,Sylhet & Barisal Division
- Survey Report of Equipment & Facilities for soil tests at Laboratories in LGED
- TNA Report (Volume-1, 2, 3)
- Rural Road & Structure Maintenance Manual
- Proceedings of Seminar on GIS & Remote Sensing
- User Manual on Progress Monitoring System
- Water Level Laws in Bangladesh
- Report of TIEP & CP Training and Dissemination Workshop at HQ & Comilla
- Road Design Standards for Rural Road
- Quality Control Manual
- Report on PMS Software
- Report on Application of GIS for Rural Planning
- Report on Asphalt Test on Rural Road Pavement
- Develop the Soft Copy into CD of Specification of Implementation, Design Manual, Maintenance Manual, Planning Manual and QC Manual
- CD of Inventory of LGED Road Network
- CDs of Meteorological Data in Bangladesh
- Report on Technical Library

4.5 Status of Process under RDEC Setting-up Project

Different pilot exercise/study were carried under RDEC Setting-up Project. Some of these are:

Development of Maintenance Management Program: Besides development of infrastructure, LGED also emphasizes maintenance of infrastructure. There is Rural Infrastructure Maintenance Cell in LGED. There is a guideline for selection and implementation of schemes for infrastructure maintenance. LGED maintains a computerized inventory for rural roads named as Road and Structure Data Management System (RSDMS). This database provides information on road length, surface condition, length of gap, length of structure and tree plantation. Recently information on Annual Average Daily Traffic (AADT) and Roughness of Road Surface has been included in RSDMS. A Pilot study was adopted in 5(Five) districts of Bangladesh for measuring Road surface Roughness. The districts are Cox's Bazar, Comilla, Shariatpur, Noakhali and Kishorganj.

Strengthening of Monitoring & Evaluation for Rural Development Projects: Monitoring and Evaluation (M&E) Unit of LGED carries progress monitoring for all the development projects. There is provision under different project of finding benefit from project intervention. Central M&E Unit of LGED has planned to carry effect and impact of infrastructure development in near future. An exercise was adopted in 2(Two) districts of Bangladesh to find effect and impact of infrastructure development on pilot basis. The districts are Rajshahi and Barisal.

Data Management System: LGED is a decentralized organization. Only 1% staff is at HQ., 0.5% at Region, 7.5% at District level and 91% staff is at Upazila(Sub-District) level. There is high need of exchange of information/data from field to HQ. Under RDEC Setting-up Project, a program was taken to exchange design data between field and LGED HQ. Rangpur, Mymensingh, Faridpur and Chittagong LGED office as well as Design Unit in RDEC building has been equipped to exchange such data.

Enhancement of Training Management System: LGED Training Unit has a data bank named as Training Management System (TMS) to maintain training information of all staff. TMS needs to keep updated for facilitating proper participant in a course. For this purpose data from field comes to TU HQ. A program was taken for exchanging such data between LGED District offices and TU HQ. Jessore and Sylhet district LGED office have been equipped for this purpose.

Training Need Assessment (TNA) and Sample Course Implementation: The LGED deals with multidimensional nature of activities such as infrastructure development, socio-economic development of rural and urban areas, support to the LGI for development of good governance, etc. The nature of works in LGED has been changing with time, from technical to social issues. Moreover the volume of work has also been increasing tremendously. To cope with the increased volume and diversified nature of works, the LGED put much priority on human resource development through training. Training has been institutionalized within LGED. To fulfill the process of institutionalization, LGED has established Rural Development Engineering Centre (RDEC).

Training needs change with change/addition of work responsibilities and with introduction of new technology. The first TNA in LGED was done in 1989-90 and the second TNA was done during 1995-96. Training courses are designed depending on Training Needs Assessment. Normally several courses are evolved from Training Needs Assessment for a particular target group. Implementation of the courses evolved from TNA for different target groups normally takes couple of years. It is appropriate to carry out TNA at a certain interval.

The implementation of courses evolved from TNA 1995-96 has been completed mostly in an effective way. LGED's work dimension has been increased a lot by this time. Technology has also been advanced a lot. So it is essential to carry Training Needs Assessment Exercise again for LGED staff to identify the latest deficiency in different categories to facilitate the development of mostly needed Training Curriculum for LGED staff during the next few years.

The third TNA exercise was carried out under RDEC Setting-up Project. The target group of TNA was LGED staff of 26 categories. Few sample course as recommended in TNA 2004-2005 has also been implemented.

Experimental Study on Application of GIS by Various Resolutions of Satellite Imagery: Under RDEC Setting-up Project a program was carried out on Participatory Rural Planning Exercise. Bhedarganj Upazila of Shariatpur district was selected for model study. Satellite imagery was procured for the pilot exercise. Base maps were prepared first. Participatory Planning Workshop was held on 18-19/01/2004 at Bhedarganj Upazila of Shariatpur to facilitate Upazila Development Plan. Union Development Plan would be prepared from Upazila Development Plan. Total three workshops were held in three years. In the first workshop, Upazila Engineer was the main actor while Union Parishad Chairmen would be an observer. But in the next two workshops, Union Parishad members were active participants.

In this exercise, Upazila Development Plan for Bhedarganj Upazila was prepared from Satellite Images (IKONOS) of one-meter resolution. Experimental study was carried for the same area using Satellite Image of lower resolution (5.8m) may be with IRS Satellite Images.

Setting of Library: All relevant documents (Project Documents, Specification, Design Manuals, and Training Manuals etc.) are being collected for setting library in RDEC. Some technical reference books would also be procured for library. For selection of books, a committee was formed. Many books have been procured under the program.

4.5.1 Present Status of RDEC Setting-up Project

A JICA Review Mission to review RDEC Setting-up Project visited LGED during 30th August up to 6th September 2003 who appreciated performance of RDEC Setting-up project. A Terminal Evaluation was held during 20 July to 3rd August 2005 who were also satisfied with project activities. But it is worthy to note that the units which have been set in RDEC, needs strengthening while for some unit like CEMW, Library, IWRM needs both setting and strengthening. Ultimately the activities of the units planed to be in RDEC needs be strengthened and institutionalized.

Having above background, the Master Plan on Institutionalization of Activities in RDEC namely Step-Plan of RDEC has been prepared in consultation with relevant section/unit of LGED and based on broad aspects and long-term visions, which LGED will have to cover and pursue to ensure effective and efficient management of projects. This would facilitate acceleration of infrastructure development and enhancement of well being of people.

Chapter-5

STEP UP PLAN FOR RURAL DELEOPMENT ENGINEERING CENTRE (RDEC)

5 Future Vision of RDEC

The government of Bangladesh has given strong effort for rural prosperity as more than 75% of people live in rural areas. The total volume of investment program into rural infrastructure has gradually been increasing. In addition to quantitative aspect, the better and reliable quality of developed rural infrastructure is demanded to meet the social demand for efficient performance of public investment. LGED has been entrusted with key role for rural development and its workload has been gradually increasing. The rapid increase of workload per person and no increase of staff under the rigid regulation of government, LGED has established RDEC as its technical center of Excellency. It is expected that RDEC will continuously develop capabilities of LGED personnel so that it can efficiently cope with the ever-increasing workload.

5.1 Why Step Up Plan for RDEC

LGED has been playing key role for rural infrastructure development with high performance and flexibility on each project component. However to cope up with rapid increase of workload per person and no increase of staff under the rigid regulation of Government sector, LGED sought a way of organizational restructure with introduction of effective management system. In this context, LGED established Rural Development Engineering Center (RDEC) as a technical center of LGED. Though very recently LGED staff at HQ has been increased by 22 number and Districts by 128 number but the total staff number has been decreased to 9355 from 9628 due to decrease of staff at Upazila level. The increase is 1.56% while the decrease amounts 2.80% which would be effective very soon. Having this situation in organization arrangement, LGED's total workload and dimension are still increasing. For example in Education sector, LGED was responsible for construction of Primary School only. But now LGED has been entrusted with renovations of Primary Training Institute (PTI). In Water sector, LGED's work was concentrated in 37 Districts in SSWRDSP-1 while it has been extended to 61 Districts in SSWRDSP-2. Having this situation prevailing, LGED needs to institutionalize and strengthen the activities of RDEC within next 5 years period. For carrying these activities, Technical Assistance would be needed. LGED has decided to approach to Development partners for technical assistance. However LGED feels that JICA is the most appropriate agency to provide Technical Assistance. It is to be noted that setting-up has been completed by JICA.

5.2 Overall Goal and Purpose Of RDEC Step Up Plan

The overall goal is to strengthen the technical and institutional capacity of LGED through enhancement of capacity of RDEC to be achieved by dint of series of planned activities. The key area for strengthening in LGED as identified are capability of LGED staff, organization of LGED and utilization of facilities within LGED. The establishment of RDEC is an appropriate idea to solve these problems. The overall goal of strengthening would be that RDEC would continue as technically sound centre, self-reliant and capable to provide services as needed in concerned areas to enable planning, implementation, operation and maintenance of rural infrastructure under the highest performance in cost effective way.

The purpose of institutionalization and strengthening are to develop and to reinforce major functions of RDEC as a core technical unit of LGED.

5.3 Areas Of Intervention of RDEC Step Up

There would be several areas of intervention under stepping up of RDEC. These units have already been established and have different capacities. As mentioned earlier, some areas/ units would need support of varying degree for strengthening and institutionalization. This will achieve desired output of the respective units. Five years period from 2006-2011 has been considered after completion of RDEC stepping-up Project. The following are the Units, which would need such support:

1 GIS/Planning (Rural Sector)
2 Social and PM&E
3 Technical Library
4 Integrated Water Resource Management (IWRM)
5 Training
6 Design (Rural Infrastructure)
7 Quality Control Laboratory
8 Rural Infrastructure Maintenance Management (RIMM)
9 Management Information System (MIS)
10 Construction Equipment Maintenance Workshop (CEMW)

5.4 Outputs Expected of RDEC Step Up

The following outputs are expected during institutionalizing and strengthening of RDEC:

Output-1 (GIS/Planning): Upgraded Upazila / District Base Map for supporting planning capacity of LGED and Local Government Institutions with strengthened digitized information by Geographic Information System(GIS) in selected model Upazilas.

Output-2 (Social and PM&E) : Improved Project Monitoring and Evaluation System for the projects under implementation and developed program for Project Evaluation in selected projects. Also established and maintained social data base

Output-3 (Technical Library): Modernized Library in RDEC where most technical manuals, project documents, specifications developed within LGED and essential technical books, magazines, publications, design standards etc. of different authors/organizations would be available in hard and soft form (in some cases) through the introduced/developed Computerized Management System with assuring easy access to all LGED staff.

Output-4 (IWRM) : Improved Planning and Design of potential Small Scale Water Subproject using surface water. Improved Operation and Maintenance of completed subproject for sustainability.

Output-5 (Training): Improved Training system with upgraded training manuals in hard and soft form for different courses and enhanced Training Management system as well as coverage in new areas on the basis of Training Needs Assessment (TNA) conducted under RDEC Setting-up Project (2004). Result of next round of TNA for LGED staff in a simpler form compared to earlier ones. Method for carrying out TNA for LGI representatives, Contractors and beneficiaries is established.

Output-6 (Design): Improved technical capabilities of LGED engineers for better planning, design and implementation of various infrastructures.

Output-7 (Quality Control): Improved Quality Control System in both Laboratory and Field that would lead to quality works.

Output-8 (RIMM): Improved Rural Road Maintenance System using software. Developed also earthen road maintenance and management system of after carrying out Research and Development activities.

Output-9 (MIS): Improved Information Management System for LGED, including development Wider Area network covering Regional Offices in the country.

Output-10 (CEMW): Fully functioning of Construction Equipment Maintenance Workshop recently set up at HQ level

5.5 Activities to be accomplished in RDEC Step Up

For attaining above-mentioned outputs for different units, different activities would be accomplished. These are given below:

The activities for **Output-1 (Planning and GIS)** would be:

- Updating Upazila/District Base maps
- Updating existing GIS data base
- Creation of new database for the whole country
- Preparation of other thematic maps
- Creation of Digital/spatial database of additional features necessary for LGED Planning/research and development needs (country wide)
- Dissemination of geo spatial information on web
- Prepare Upazila Township Maps
- Support LGI to make rural development plan
- R&D on rural planning by GIS

The activities for **Output-2 (Social and PM&E)** would be:

- Set up the PME unit including social cell
- Collect and compiling basic data on social and rural economy
- Conduct project effect/impact study in model upazilas
- Conduct EIA for new RDP when necessary
- Prepare development project proposal (DPP)
- Prepare Annual Work Plan including budget
- Prepare different types of report for Ministry, IMED, National Assembly
- Produce reports based on inspection report
- Monitor progress against plan
- Enhance capacity through training for carrying Effect Monitoring and Evaluation
- Carry out Research and Development (R&D) on multiple effect of RDP
- Plan and implement training/seminar/workshop as required

The activities for **Output-3 (Technical Library)** would be:

- Collect necessary technical books and reports
- Install book-cat software

- Data entry in book-cat
- Convert existing database to multi-use database to use by LAN
- Digitize existing documents
- Collect new documents in both hard and soft form

The activities for **Output-4 (IWRM)** would be:

- Collection and analysis of basic data for project planning of SSWRDSP
- Set improved Planning and Design System for Integrated Water Resource Management
- Adopt Research/Study programs in the selected Model District/Upazila on appropriate issues
- Prepare Master Plan for Small Scale Water Resources Development Sector Project (SSWRDSP)
- Enhance capacity of LGED officials/staff through training/seminar/workshop concerned with Integrated Water Resource Management
- Capacity building of local stakeholders, WMA leaders, LGI representatives and LGED officials and staff on water management
- Monitor and evaluate the performance of SSWRDP

The activities for **Output-5 (Training)** would be:

- Update training manuals as required
- Update Training Management System (Data-Bank)
- Prepare training manual in new areas based as suggested in the Training Needs Assessment conducted under RDEC Setting-up Project (2004)
- Implement training courses on new topics as felt necessary
- Conduct training courses as identified in TNA 2004.
- Harmonize training courses that are implemented by different projects under LGED.
- Plan and implement training/seminar/workshop as required
- Carryout next round TNA for LGED staff in simpler and innovative form
- Establish method for carrying TNA for LGI representatives, beneficiary and contractor
- Establish a Training Management System of LGED including creation of Training Fund from different project fund.

The activities for **Output-6 (Design)** would be:

- Update Design software
- Procure new design software
- Set improved Design System for Rural Infrastructure
- Conduct training courses on design
- Make functioning Data Management System
- Procure equipment
- Preserve drawing, design by PDF
- Research and Development on road safety

The activities for **Output-7 (Quality Control)** would be:

- Improve Quality Control System prevailing in LGED
- Develop software for laboratory management
- Identify, prioritize Research and Development (R&D) activities on concrete, pavement and construction material and carryout some important programmes
- Establish method for carrying Technical Audit

- Identify need and Plan for training/seminar/workshop as required
- Develop manual for target participants
- Conduct training courses as designed
- Develop job description for Quality Control engineers and staff to achieve HRD planning
- Update quality control manual
- Prepare database on R&D activities

The activities for **Output-8 (RIMM)** would be:

- Introduce survey system for IRL, Deflection and ADTA
- Calibrate HDM on local condition
- Introduce dynamic linkage between Road Database and GIS map through DSRMS software
- Integrate GIS with HDM application
- Research and Development (R&D) on improved measuring system of IRI
- Plan and implement training/seminar/workshop as required

The activities for **Output-9 (MIS)** would be:

- Update data on MIS
- Operate WAN up to regional level
- Make functional of E mail
- Develop internet and intranet
- Activate mobile data logger
- Plan and implement training/seminar/workshop as required

The activities for **Output-10 (CEMW)** would be:

- Set Construction Equipment Maintenance Workshop (CEMW) after procurement of equipment with assistance of external Short / Long Term Expert
- Diagnosis and maintenance of vehicle at own workshop
- Enhance capacity of LGED officials/staff concerned with CEMW through training/seminar/workshop
- Upgrade the existing EMS software
- Conduct Training on O&M of workshop, generator, other utility
- Monitor Operation and Maintenance of CEMW
- Plan and implement training/seminar/workshop as required

5.6 Implementation Schedule for RDEC Step Up

On completion of RDEC Setting-up Project, it is necessary to take up Step Up plan. As RDEC Setting up project is going to end from January, 2006, RDEC Step up plan is purposed to start functioning from January 2006. But a huge amount of fund is concerned with the operation of Step up plan, it is not possible to start at desired speed rather at slower rate. But as soon as suitable source of financing is available it will start at desired level. Considering duration of the project as 5 (five) years, the most suitable time for starting this project is from July 2006 to June 2011.

5.7 Tentative Technical Assistance Needed

The activities that would be undertaken by different unit of RDEC have been categories as routine and development activities. There is a need of technical assistance in development issues. The different activities to be carried out under different units have been categorized into GoB and Technical Assistance (TA) and have been in the table below:

Unit	Type of Activities to be undertaken by different units	Possible Source of Assistance		
		GoB	Technical Assistance needed	Priority
Planning and GIS	Update Upazila / District Base maps	√		1
	Update existing GIS data base	√		2
	Prepare Upazila Township Maps		√	3
	Creation of Digital/spatial database of additional features necessary for LGED Planning/research and development needs (country wide)		√	4
	Create new database for the whole country by Satellite Imageries		√	5
	Preparation of other thematic maps		√	6
	Support LGI to make rural development plan	√		7
	R&D on rural planning by GIS		√	8
	Dissemination of geo spatial information on web		√	9
Social and PM&E	Set up the PME unit including social cell	√		1
	Enhance capacity through training for carrying Effect Monitoring and Evaluation		√	2
	Carry out Research and Development (R&D) on multiple effect of RDP		√	3
	Collect and compiling basic data on social and rural economy	√		4
	Conduct EIA for new RDP when necessary		√	5
	Conduct project effect/impact study in model upazilas		√	6
	Prepare development project proposal (DPP)	√		7
	Prepare Annual Work Plan including budget	√		8
	Prepare different types of report for Ministry, IMED, National Assembly	√		9
	Produce reports based on inspection report	√		10
	Monitor progress against plan	√		11
	Plan and implement training/seminar/workshop as required		√	12
Technical Library	Collect necessary technical books and reports	√		
	Install bookcat		√	
	Data entry in bookcat	√		
	Convert existing database to multi-use database to use by LAN		√	
	Digitize existing documents		√	
	Collect new documents in both hard and soft form	√		
IWRM	Enhance capacity of LGED officials/staff through training/seminar/workshop concerned with Integrated Water Resource Management		√	1
	Prepare Master Plan for Small Scale Water Resources Development Sector Project (SSWRDSP)		√	2
	Set improved Planning and Design System for Integrated Water Resource Management		√	3
	Collect and analyze basic data for project planning of SSWRDSP	√		4
	Adopt Research/Study programs in the selected Model District/Upazila on appropriate issues		√	5

Unit	Type of Activities to be undertaken by different units	Possible Source of Assistance		
		GoB	Technical Assistance needed	Priority
	Capacity building of local stakeholders, WMA leaders, LGI representatives and LGED officials and staff on water management	√		6
	Monitor and evaluate the performance of SSWRDP		√	7
Training	Update training manuals as required		√	1
	Implement training courses on new topics as felt necessary	√		
	Update & Establish Training Management System (Data-Bank)		√	3
	Conduct training courses as identified in TNA 2004.	√		4
	Harmonize training courses that are implemented by different projects under LGED.		√	5
	Plan and implement training/seminar/workshop as required	√		6
	Carryout next round TNA for LGED staff in simpler and innovative form		√	7
	Establish method for carrying TNA for LGI representatives, beneficiary and contractor		√	8
Design (Infrastructure)	Conduct training courses on design		√	1
	Procure equipment		√	2
	Conduct Research and Development activities on road safety		√	3
	Procure new design software		√	4
	Update Design software		√	5
	Set improved Design System for Rural Infrastructure	√		6
	Make functioning Data Management System		√	7
	Preserve drawing, design by PDF	√		8
Quality Control	Improve Quality Control System prevailing in LGED		√	1
	Develop software for laboratory management		√	2
	Identify, prioritize Research and Development (R&D) activities on construction material and carryout some important programmes		√	3
	Establish method for carrying Technical Audit		√	4
	Identify need and Plan for training as required	√		5
	Develop manual for target participants		√	6
	Conduct training courses as designed	√		7
	Develop job description for Quality Control engineers and staff to achieve HRD planning	√		8
	Update quality control manual		√	9
	Prepare database on R&D activities		√	10
RIMMU	Introduce survey system for IRL, Deflection and ADTA		√	1
	Calibrate HDM on local condition	√		1
	Research and Development (R&D) on improved measuring system of IRI		√	2
	Introduce dynamic linkage between Road Database and GIS map through DSRMS software		√	3
	Integrate GIS with HDM application		√	3
	Plan and implement training/seminar/workshop as required	√		4
MIS	Update Data Center		√	1
	Establish WAN up to regional level	√		2
	Operation of LGED's own online e-mail(@lged.org)	√		3
	Enhancement & Maintenance of Internet and Intranet		√	4
	R & D on mobile data logger		√	5
	Plan and implement training/seminar/workshop as required		√	6

Unit	Type of Activities to be undertaken by different units	Possible Source of Assistance		
		GoB	Technical Assistance needed	Priority
CEMW	Make functioning of Construction Equipment Maintenance (CEMW)	√		1
	Conduct training for LGED officials/staff concerned with CEMW		√	2
	Monitor Operation and Maintenance of CEMW	√		3

5.8 Organizational Requirement for RDEC Step Up

LGED has a plan to strengthen all its units so as to runs all its routine and development activities by itself. At present many consultant are assisting to perform routine as well as development activities. RDEC has been established as a technical centre of Excellency. It is estimated that some more time will be needed to reach that status. As such some project consultant/staff have been proposed in the step up plan.

The detailed requirement of national expert, administrative and support staff is given below:

Organizational Requirement for RDEC Step Up Plan

Unit	Category of officers/staff	Number	Possible Source of Funding		Remarks
			GoB	Development Project Account (To be searched)	
GIS/Planning (Rural Sector)	XEN(GIS)	1	0	1	Creation of post of XEN and AE will need some more time
	Assistant Engineer	5	0	5	
	Sub Assistant Engineer	2	0	2	
	GIS Professional (Contractual)	15	5	10	
Social and PME Unit	Social Cell				
	Socio Economist	1	0	1	A few post to be hired
	Sr. Sociologist cum Data Analyst	1	0	1	
	Statistician	1	0	1	
	Support Staff	3	3	0	
	PME Cell				
	Executive Engineer	2	2	0	
	Assistant Engineer	4	4	0	
	Sub Assistant Engineer	4	4	0	
	Socio Economist	1	0	1	
	System Analysist	1	0	1	
	Computer Programmer	1	0	1	
	Support Staff	8	4	4	
Technical Library	Executive Engineer	1	0	1	Creation of post of XEN and AE will need some more time
	Assistant Engineer	1	0	1	
	Sub Assistant Engineer	1	1	0	
	Librarian	2	2	0	
	Support Staff	10	10	0	
Integrated Water	Superintending Engineer	1	1	0	

Unit	Category of officers/staff	Number	Possible Source of Funding		Remarks
			GoB	Development Project Account (To be searched)	
Resource Management (IWRM)	Executive Engineer	3	3	0	
	Assistant Engineer	3	3	0	
	Sub Assistant Engineer	3	3	0	
	Support Staff	10	10	0	
	Consultants	4	0	4	A few post to be hired
Training	Executive Engineer (Trg) HQ	4	4	0	
	Executive Engineer, (Trg) Regional	10	10	0	
	Computer Operator/Data Processor	14	14	0	
	Support Staff- HQ	6	6	0	
	Support Staff – RTC	10	10	0	
	Local Consultant	2	0	2	A few post to be hired
RIMMU	Addl CE(M)	1	1		
	SE	1	1		
	Xen	1	1		
	AE	1	1		
	SAE				
	Support Staff	14	4	10	
	Others ME/MS	10	4	6	
Design (Rural Infrastructure)	Superintending Engineer (Design)	1	1	0	
	Executive Engineer (Design)	1	1	0	
	Assistant Engineer	4	4	0	
	Sub Assistant Engineer	2	2	0	
	Others	5	3	2	
	Support Staff	5	1	0	
	Local Consultant	1	0	1	
Quality Control Laboratory	Superintending Engineer (QC)	1	1	0	
	Executive Engineer (Lab)	1	1	0	
	Assistant Engineer (Civil)	3	3	0	
	Assistant Engineer (Mech)	1	1	0	
	Computer Programmer	1	1	0	
	Sub Assistant Engineer	6	6	0	
	Computer Operator	2	2	0	
	Expatriate Consultant	4	0	4	1 full time and 3 part time
MIS	Executive Engineer	1	1	1	Creation of post of XEN and AE will need some more time
	Assistant Engineer	2	0	2	
	Sub Assistant Engineer	2	0	2	
	Support Staff	3	3	0	
	Programmer	1	0	1	4 part time expert to be hired
	Network expert	1	0	1	
	Database Admin	1	0	1	
	Web Developer	1	0	1	
Construction Equipment Maintenance Workshop (CEMW)	Executive Engineer	1	1	0	
	Assistant Engineer (Mechanical)	1	1	0	
	Assistant Engineer (Electrical)	1	1	0	
	Mechanical Foreman	1	0	2	
	Filter/Helper	3	0	3	
	Support Staff	5	5	0	

5.9 Equipment

The equipment required for different units and programs would be decided mutually between LGED and Development Partner during the TA project formulation and accordingly procurement and supply would be done. Primary need of equipment is given below

Unit	Category of Equipment	Number (in 5 year)	Possible Source of Funding		Remark
			GoB	Development Project Account (to be searched)	
GIS/Planning (Rural Sector)	Plotter	2	-	2	
	Desktop Computer	25	20	5	
	Notebook Computer	2	0	2	
	Color Printer (A3)	1	0	1	
	Color Printer (A4)	1	0	1	
	B/W Printer (A3)	1	1	1	
	GPS Machine	1	0	1	
	Total Station	46	0	46	
	Digitizing board	2	2	0	
	CD Writer	3	3	0	
	UPS	23	23	0	
	Digital Camera	2	0	2	
Social and PME Unit	Desktop Computer	12	10	2	
	Laptop Computer	4	2	2	
	Notebook Computer	3	2	1	
	Laser Jet Printer	4	2	2	
	Scanner	1	1	0	
	Multimedia Projector	2	1	1	
	Digital Camera	1	1	0	
	Fax Machine	1	1	0	
	Photocopier	4	3	1	
	Telephone	4	4	0	
Technical Library	Computer	4	3	1	
	Printer	4	3	1	
	Laptop computer	1	1	0	
	Photocopier	1	0	1	
	Scanner	1	0	1	
	Multimedia Projector	1	1		
	Other as needed			0	
Integrated Water Resource Management (IWRM)	Computer	20	20	0	
	Photo copier	2	0	2	
	Scanner	1	0	1	
	Plotter	1	0	1	
	Level Machine	400	200	200	
Training	Computer	12	8	4	
	Colour Printer	12	8	4	
	Photocopier	3	1	2	
	Scanner	5	4	1	
	Camera	5	4	1	
	Multimedia	12	8	4	
	Laptop	12	8	4	
RIMMU	Odometer, Counter, Bump integrator	7		7	
	ROMDAS Z250	12		12	

Unit	Category of Equipment	Number (in 5 year)	Possible Source of Funding		Remark
			GoB	Development Project Account (to be searched)	
	Laptop Computer	10		10	
	Desktop Computer	5		5	
	HDM-V2 (Four Pack)	4		4	
	Benkelman Beam	10		10	
	Portable Weight	10		10	
Design (Rural Infrastructure)	Computer	5	3	2	
	Printer	5	3	2	
	Laptop Computer	1	0	1	
	Photocopier	1	0	1	
	Scanner A4	1	0	1	
	Scanner A1	1	0	1	
	Software	3	0	3	
Quality Control Laboratory	Humidity and temperature control system	1	0	1	
	General testing equipment	1	0	1	
	Concrete & Cement testing	1	0	1	
	Asphalt testing	1	0	1	
	Reinforcement testing	1	0	1	
	Computer	79	15	54	
MIS	Server PC	6	3	3	
	Computer	5	3	2	
	Switch	8	0	8	
	Router	1	0	1	
	DDN Modem	1	0	1	
	B/W printer	1	0	1	
Construction Equipment Maintenance Workshop (CEMW)	Automobile Workshop Equipment	1	1	0	
	Utility :				
	Generator	2	2	0	
	Sub Station	2	2	0	
	Passenger Lift	4	4	0	
	Water Pump	4	4	0	
	Safety and Security:				
	Metal Detector	2	2	0	
	Baggage Scanner	2	2	0	

5.10 Justification for Additional Manpower and Equipment

5.10.1 GIS/Planning (Rural Sector)

Local Govemment Engineering Department (LGED) introduced Geographical Information System (GIS) in early nineties with a view to enhance planning and implementation capacity of infrastructure development throughout the country. As part of GIS development, LGED ever first digitized all basic spatial information of Upazila level in different fourteen layers. These layers of information have become enormous resources not only for LGED, many other govemment and organizations and non-government organizations also using this spatial information for many GIS applications which covers a huge range of socio-economic aspect to infrastructure, environment and disaster management.

Since its inception, the GIS activities are gradually expanding to meet the increased demand of LGED. Having completed the Upazila level spatial database, GIS Unit has now concentrated to create

Pourashava level spatial database to facilitate urban planning. In collaboration with IRRI, Philippines, GIS Unit already prepared rural accessibility and poverty maps for the whole country which would be very useful information to deal with the critical dimension of poverty issues in our country.

GIS Unit has received substantial support from RDEC Setting-up project in terms of hardware, software, short-term expert services, training and pilot study particularly for Upazila Township map. This support has made a qualitative change in the mode of service delivery of GIS Unit. Now for long term sustainability, LGED has already proposed to the government to create some core position in GIS Unit namely, Executive Engineer, Assistant Engineer and Sub-Assistant Engineer level. In the Step-Up plan we have identified some activities which are very important for making a continued progress in GIS that has been achieved by the previous support. The Step-Up activities are mostly related to spatial database updating, some important database creation which we lack at the moment and human resources development activities which are a continuous process for any dynamic organization. The long and short term activities included in the Step-Up plan would contribute very significantly to make a well-established sustainable GIS Unit in the future.

5.10.2 Social and PME Unit

LGED is involved in the implementation of a large number of infrastructure development projects both in rural and urban areas. Monitoring of these projects is a comprehensive task and it is considered to be very important management function of LGED. Keeping this in mind PM&E Unit has been set up in LGED and since its inception this unit developed a solid reputation as professional, reliable and efficient unit of LGED. During its long operation PM&E engaged a large number of responsibilities including progress monitoring that is being performed entirely by the staff of PM&E unit alone. Now this kind of activities are being carried out manually which involve much time and huze labour and patience are needed to be devoted to get the desired results. Apart from this progress monitoring study on socio economic effect and impact monitoring is also crucial important for LGED to undertake future course of action and policy guidelines. But because of the lack of necessary professional experts and logistics support in the present PM&E unit this task is being carried out by outside professional institution through sub contract by different development projects of LGED. Carrying out the tasks of effect, benefit and impact monitoring and evaluation (EME) by PM&E is linked to its organizational capability and PM&E will need to develop software for effect, impact and socio economic monitoring. Recently, PM&E unit has developed software on progress monitoring with the assistance of RDEC setting up project and also a training course was arranged for the user who are directly or indirectly involved with this process. But this is not sufficient and main things need to be done in respect of effect, impact and socio economic monitoring software and at the same time an intensive training on the software for the user would also be required in this connection. To have implemented this above proposed project a few additional professional manpower those are supposed to be managed by LGED only the sufficient logistics supports are needed to be supplied. The PM&E unit realizes that creation of such additional posts under the organizational set up of LGED. PM&E of LGED HQ may be strengthened with this additional manpower in addition to existing set up headed by Superintending Engineer assisted by one Executive Engineer and one Assistant Engineer of LGED.

5.10.3 Technical Library

Library has been set up and all documents, reports, specification, manual, books, magazines are being stored. Documentation of these are made manually and sometimes very difficult to get in it in a short time. Therefore management of the library is very essential. A few equipment like computer, photocopier is needed in the library. Moreover required number of staff need to be deployed and be trained qualified.

5.10.4 Integrated Water Resource Management (IWRM)

IWRM Unit is an important unit of Local Govemment Engineering Department. Its Mid-Term (for 5 years) vision is to function for increased agricultural productions and poverty alleviation for rural poor people. The activities which would be done by IWRM unit includes project preparation, Master Plan preparation for Small Scale Water Resources potential subprojects, monitoring and O&M of completed subprojects, policy formulation on water related issues, capacity building for LGED staffs, setting of bench mark at Union Level and design of structures for small scale water resources subprojects. It has direct role to increase production agriculture products. The mid-term step-up target of IWRM unit include 4 nos. consultants for design of structures and providing training to LGED staffs for their capacity building. Besides, 4 nos. computers, 2 nos. Photocopy machines, 1 no. Scanner, 1 no. plotter may be need to be procured at the HQ level. The survey works at the field level are being done with the existing equipment lying with the field level office. Level machines will be used in Upazila Engineers' Office for setting up Bench Mark and transferring the Bench Mark to proposed structure sites. 1 level machine to each Upazila was supplied in 1992-93 financial year from LGED HQ. Most of them are not functioning well and some of them are out of order now. As such level machines would be required and it has been estimated that old equipment will gradually be replaced for smooth functioning of the unit. The total requirement will be 475 which means 100 level machines per year. The price of each level is considered Tk. 40,000.00. Other equipments will be used in IWRM Unit. 4 consultants (Local) are proposed for designing and imparting training to LGED staffs for their capacity building in designing of structures. Now 20 consultants are working in Quality Assurance Unit of Small Scale Water Resources Development Sector Project for designing subprojects.

5.10.5 Training

The Training Unit has already been institutionalized and is being run them. There are in total 14 Training Engineers, out of them 4 positions are met from revenue fund and the rest 10 positions are from other development budget. It is expected that the remaining 10 position will soon be transformed in revenue budget. However, 2 positions of local consultant (1 for project period and another short term) have been proposed in the project. It is expected that the consultant will carry out development works and XEN(Trg) will perform routine works.

5.10.6 Design (Rural Infrastructure)

To develop technical capabilities of LGED engineers for better planning, design & implementation of various infrastructures, RDEC has been established. Various activities such as implementation of ATUO CAD, ST AAD PRO training, preservation of drawing by pdf file, design using by software, scanning of map & establishment of network with 4 model sites for data management has been done with the help of RDEC Setting of Project.
In addition of normal work we have various activities such as Conduction of Training, Updating of Design Manual, Updating of existing Software, Procurement of new design software and also proper functioning of Data Management System and Research & Development on rural road safety have to done, for this reason we need such equipment & one Assistant Engineer as mentioned in draft step-up plan.

5.10.7 Quality Control Laboratory

Function & Activities:

- All the set Functions under Short term Set-up Target (5-Years) is quite natural and must to do for a Laboratory like ours strength and to support its district/regional level laboratories except R&D.
- R&D program is the only exception, it has been adopted to introduce in the concrete, pavement and construction materials and their practices.

Justification of Man Power for Quality Control Unit:

- Expatriates have been chosen to convey the study on R&D activities to achieve quality construction using local construction materials as well as to ensure use of higher level of locally available tools and equipment. A continuous study will surely can change the chosen field of works and the outcome will contribute a large for quality construction.
- A long term Expatriate expert will guide and arrange logistics for the expatriate short term experts engaged for different field of involvements and in the next 5-years he will guide the local engineers/staffs to its actual practice in the actual work.
- Expatriate experts will also work or contribute their expertise to achieve the target in the field of developing an O&M manual for laboratory equipment, set-up of modern laboratories at districts and regional laboratories, HRD planning, software for management and reporting etc.
- Local Man-power i.e. GOB staffs have been fixed to convey the normal activities of the central laboratory as well as to support the field laboratories; also to the activities of expatriate experts will work under R&D.
- GOB staff will be responsible to achieve the target set in short-term (5years) of the Central Quality Control unit.

Budget:

The amount shown under Activities of Quality Control will be spent to support the following activities:

- to convey the R&D activities as well as other activities experts will be associated with.
- allocated fund for R&D is for research, locate and selection of local construction material sources also to perform extensive tests to ensure qualitative as well as quantitative sourcing.
- The financial availability under Equipment, please refer to Survey Report of Testing Equipment and Facilities in LGED laboratories (Volume I: Main Text & Core Appendixes) prepared by Mr. Yoshitami Iseki, JICA expert; (the amount shown is the summation of Item-2: Equipment, Item-3: Spare Parts, Item-4: Cost Escalation of the report)
- The financial availability under Logistics, please refer to Survey Report of Testing Equipment and Facilities in LGED laboratories (Volume I: Main Text & Core Appendixes) prepared by Mr. Yoshitami Iseki, JICA expert (The amount shown is the amount against Item-1: Facilities of the report)
- As a Logistics support to district laboratories, regional laboratories and to central laboratory an allocation is required under Logistics, 1no. computers for each of the district laboratories, 2nos. for each of the regional laboratories and 5nos. computers have been considered for Central Quality Control Unit i.e. total 79 computers are required.

5.10.8 Rural Infrastructure Maintenance Management

In view of continuous improvement of maintenance management system and for selection of proper road maintenance option based on technical and economic analysis, RIMMU needs some equipment to meet the demand. Major tasks like, Conducting road roughness survey for measuring international roughness index (IRI), for this purpose an appropriate software and Laptop can be used for direct

entering of bump count data; Traffic Survey for vehicle composition; Axle Load survey and Deflection Survey for measuring pavement strength and Bearing capacity, analysis of field data, etc. would be required for choosing appropriate maintenance option in rural road maintenance. Such survey is essential for calibrating Road Deterioration Works Effects (RDWE), comprised of the deterioration of pavement and impact of maintenance activities on pavement condition and future rate of pavement deterioration as well as Road User Effects (RUE), comprised of vehicle operating costs (VOC), travel time, safety Parameter with local condition.

- 7 sets of Odometer, Counter, Bump Integrator: This equipment is used to measure roughness of road, 5 sets will be used in new 5 pilot district and remaining 2 sets be used at HQ as buffer stock.
- 12nos. ROMDAS Z-250 Reference Profiler: This equipment is used to calibrate the vehicle before start of the roughness survey.
- 10nos. Laptop Computer will be used at the field level for instant data collection at field directly from the bump integrator etc.
- 5nos Desktop Computer will be used in the new pilot districts.
- 5nos Printer will be used in the new pilot districts.
- One HDM-4 V2 (Four Pack) Software is required because 4 specialists can work at a time to prepare different analysis like Program analysis, Strategy analysis and Project Analysis.
- 10nos. Benkelman Beam is required for measuring pavement strength to calibrate the parameter of Road Deterioration Works Effects (RDWE) and Road User Effects (RUE). It will be used at 10 regional offices.
- 10 nos. Portable Weigh Pad is required for measuring pavement strength to calibrate the parameter of Road Deterioration Works Effects (RDWE) and Road User Effects (RUE), besides that it will be used for axle load survey that is essential for choosing appropriate maintenance option. It will be used at 10 regional offices.

5.10.9 Management Information System (MIS)

MIS Unit at LGED HO has been providing LAN support in LGED HO since 1999. This year

LAN is extended to RDEC. At present, around 600 workstations are connected with the LAN. As such, every user is now able to share information & resources among them using LAN infrastructures.

Again, many units or projects of LGED have developed customized software to capture and store their project related data. Most of them are basically developed using traditional client-server (front-end-back-end) architecture. And the data are usually kept in their own server or workstation

The potential problem of this kind of individual effort is that after terminating of a particular project all the valuable data might be lost. To get rid of this situation, a mechanism to store all kind of information in a central data repository is a must.

(1) Datacenter, a state-of-the-art concept to store all kind of information in central location to make it available for any project or individuals any time. It will be scalable, secured and robust data storage and management option. To develop internet based distributed application there is no other alternative except establishing of a datacenter for LGED under MIS Unit.

(2) WAN, as LGED has already established LAN at its HO & RDEC connecting around 600 workstations and shown its ability in administering the LAN successfully. Now it is time to extend this service up to district and upazila level to make information exchange real-time between HO and field offices.

(3) Online-Email, as MIS unit is now giving offline email services through an UUCP account which is not accessible from out side of LGED Domain meaning that roaming people are not able to get email when they are abroad or out side of Dhaka.

(4) Internet! Intranet Development and Maintenance, as dissemination of information is vital to bridge the gap of digital divide, Internet and Intranet for the global and local users respectively are very essential. Though LGED has a web site but it is not well designed and maintained due to lack of sufficient and appropriate professionals and other supports.

(5) Mobile Data Logger (R&D activities), as during and after any major disaster, instant information collection regarding lives, property and infrastructures damage is an important aspect, it is demand of the time to carry out some research work for development of some sort of system to receive and send information on-the-fly from remote places using existing mobile and wireless technology.

(6) Parallel processing (R&D activities), as some times computer-based complex decision-support system takes much time even a month or year, it essential to go for parallel processing to reduce the processing time. The system may use dedicated individual or clustered computers or use resources of idle computers for performing parallel processing.

In a nutshell, these are the background information for the activities to be carried out under MIS Unit in future intervention.

5.10.10 Construction Equipment Maintenance Workshop (CEMW)

To run the Construction Equipment Maintenance Workshop at LGED HQ, a few expert manpower such as Engineer, Foreman, Mechanics, Fitter are necessary. The Central Workshop is completely a new establishment in LGED. In order to make the workshop functioning, extra manpower are necessary from outside source otherwise desired output from the workshop will be hampered. As the government scope is limited, it will take much more time to procure the same from scarce revenue budget. It is therefore suggested that a few specific manpower would be procured from JICA. It is expected that these manpower will perform fuel injection pump testing, electric works in vehicle. In due course, the position will be gradually be absorbed in the GOB fund. It is to be noted that a few staff will be arranged from field level set up.

At present the workshop has been set up in LGED recently. It is not necessary to procure extra equipment from the project rather it is necessary to make these equipment functioning properly. As such operation and maintenance of equipment has been given more emphasis.

5.11 Budgetary Provision

Required amount of budgetary provision for any activities is the prerequisite for success. The provision of revenue budget is small compared to its need. Sometimes creation of any post in the revenue set up takes time and thereby hampers smooth implementation of development. own. For this reason sometimes LGED has to depend on donors for temporary assistance. With the existing strength, LGED has been putting more efforts to develop capacity of its Necessary budgetary provision for the strengthening activities of RDEC Step Up plan during 2006-2011 period has been estimated as below:

RDEC Step-up Plan: Summary of Budget

Unit	Items	Cost per year in TK.	Possible Source of Funding		
			GOB	Development Program Account	Remarks
GIS/Planning (Rural Planning)	Activities	8,000,000	1,200,000	13,800,000	
	Staff Salary	3,000,000	-	-	
	Equipment	1,000,000	-	-	
	Others	1,000,000			
	R&D	2,000,000	-	-	
	Sub-Total	**15,000,000**	**1,200,000**	**13,800,000**	
Social & PME Unit	Activities	500,000	250,000	250,000	
	Staff Salary	2,000,000	1,000,000	1,000,000	
	Equipment	1,200,000	600,000	600,000	
	Others	300,000	150,000	150,000	
	R&D	1,000,000		1,000,000	
	Sub-Total	**5,000,000**	**2,000,000**	**3,000,000**	
Technical Library	Activities	400,000	200,000	200,000	
	Staff Salary	1,800,000	1,800,000	-	
	Equipment	160,000	60,000	100,000	
	Others	200,000	200,000	-	
	Sub-Total	**2,560,000**	**2,260,000**	**300,000**	
Integrated Water Resource	Activities	720,000	360,000	360,000	
	Staff Salary	3,200,000	1,600,000	1,600,000	
	Equipment	4,460,000	-	4,460,000	
	Others	-	-	-	
	R&D	1,000,000		1,000,000	
	Sub-Total	**9,380,000**	**1,960,000**	**6,420,000**	
Training	Activities	7,200,000	3,600,000	3,600,000	
	Staff Salary	2,640,000	1,320,000	1,320,000	
	Equipment	1,800,000	900,000	900,000	
	Others	75,000	37,500	37,500	
	Sub-Total	**11,715,000**	**5,857,500**	**5,857,500**	
Design (Rural Infrastructure)	Activities	150,000	-	150,000	
	Staff Salary	800,000	800,000	-	
	Equipment	300,000	-	300,000	
	Others	100,000	-	100,000	
	R&D	1,500,000	-	1,500,000	
	Maintenance of DMS	200,000	-	200,000	
	Sub-Total	**3,050,000**	**800,000**	**2,250,000**	
Quality Control & Laboratory	Activities	1,200,000	-	1,200,000	
	Staff Salary	2,512,000	1,512,000	1,000,000	
	Equipment	2,811,940	-	2,811,940	
	Others (Addl. Facilities)	80,460	-	80,460	
	Logistics (PC)	790,000	-	790,000	
	Sub-Total	**7,394,400**	**1,512,000**	**5,882,400**	
Rural Infrastructure Maintenance & Management Unit	Activities	400,000	-	400,000	
	Staff Salary	840,000	840,000	-	
	Equipment	4,142,800	-	4,142,800	
	Others	6,992,000	-	6,992,000	
	R&D	2,200,000	-	2,200,000	
	Sub-Total	**14,574,800**	**840,000**	**13,734,800**	
MIS	Activities	180,000	1,200,000	3,660,000	
	Staff Salary	1,440,000	-	-	
	Equipment	3,000,000	-	-	
	Others	240,000	-	-	
	Sub-Total	**4,860,000**	**1,200,000**	**3,660,000**	
Construction Equipment Maintenance Workshop	Activities	1,200,000	-	1,200,000	
	Staff Salary	1,400,000	1,000,000	400,000	
	Equipment	300,000	-	300,000	
	Others	400,000	-	400,000	
	Sub-Total	**3,300,000**	**1,000,000**	**2,300,000**	
	Grand Total	**76,834,200**	**18,629,500**	**57,204,700**	

5.12 Expected Input from the Development Partners

To run the RDEC Step Up Plan, external assistance is needed. As RDEC has been done by JBIC and JICA it is more expected that they would provide some more assistant to make the RDEC well functional. As a part of initiation, LGED has already sent proposal to Embassy of Japan (EOJ) on 30 June 2004 for a Technical Assistance Project from JICA. Local Government Engineering Department (LGED) will assign required number of competent full-time counterparts to RDEC. There would be one co-coordinator and four Long Term Experts – one expert on each field of Design, Training, Integrated Water Resource Management (IWRM) and Construction Equipment Maintenance Workshop (CEMW). Short Term Experts would be dispatched on Planning through GIS, Quality Control Laboratory, and Training as and when required. One Superintending Engineer would be assigned as full time counterpart to each Japanese Expert. Required number of administrative and supporting staff would also be placed under each counterpart LGED Official. An Additional Chief Engineer of LGED will be the Project Director of the project. Required number of administrative and supporting staff would be placed under the Project Director also.

LGED will provide office space and necessary logistics such as electricity, water supply and domestic telecommunication to the Japanese Experts. Spaces for concerned output/activities such as Library, Quality Control Laboratory, Seminar/Training Rooms and Equipment Maintenance Workshop would be provided by LGED.

5.13 Interface Between RDEC Step –up Plan and Project for Strengthening of Activities in RDEC

An application for Project for Strengthening of Activities in RDEC was submitted to Embassy of Japan in Bangladesh for Japan's Technical Cooperation in June 2004. It was proposed that the Government of Japan will dispatch Long Term and Short Term Experts, procure and provide equipment and arrange training at home and abroad. It was further proposed that there would be one co-coordinator and four Long Term Experts – one on Planning, one on Design, one on Training and one on Construction Equipment Maintenance Workshop (CEMW). Short Term Experts would be dispatched on Planning through GIS, Quality Control Laboratory and Training as and when required.

In RDEC Step-up Plan ten areas of interventions have been proposed while six areas of intervention were proposed earlier in Project for Strengthening of Activities in RDEC. Considering expanded work volume of LGED and high need of quality control, One Long Term Expert on Quality Control should be considered for strengthening of activities in RDEC. It means Expatriate Long Term Expert would support five areas while Short Term Experts would support other areas.

Rural Development Engineering Center (RDEC) Setting-up Project

Project Completion Report

January 2006

Local Government Engineering Department (LGED),
and
Japan International Cooperation Agency (JICA)

Table of Content

Annex

Appendix

1. Name of the Project: Rural Development Engineering Center (RDEC) Setting-up Project

2. Implementing Agency

Rural Development Engineering Department (LGED),
Local Government Division (LGD),
Ministry of Local Government, Rural Development and Cooperatives (MLGRDC), &
Japan International Cooperation Agency (JICA)

3. Objective of the Project

RDEC is supremely classified as a technical core center in LGED's organization framework and continuously capable of providing necessary technical service according to its Step-up Plan.

(See attached Annex-1 PDM and Plan of Operation (PO))

4. Duration of the Project

3 Years from 10 January 2003.

5. Member List of JICA Team with Counterpart

Name/Designation	Name of Counterpart
Kanezo Takeuchi/team leader, Rural Planning	Mr. Shorj Kumar Sarker/Additional Chief Engineer
Takeo Oshima / Coordinator	Mr. Md. Wahidur Rahman/Superintending Engineer (Adm,PM & E)
Noriyasu Nishino:/Rural Infrastructure Design	Mr. S.M. Zakaria, Superintending Engineer (D&I)
Takao Hattori:/Training	Mr. Lokman Hakim, Superintending Engineer (Training)

6. Original Arrangement of Project Activities

6-1 Introduction

In the JICA's Technical Cooperation Project, Implementation Arrangement is basically done at the signing on the Record Discussion (R/D) Document between Counterpart Agencies and JICA. Project Design Matrix (PDM) and Plan of Operation (PO) are attached to the R/D document to show the areas of activities with time schedule of each item during the project. In the RDEC setting-up Project those are also discussed in the same way, and agreed between JICA preliminary mission team and Counterpart Organization, LGED. Thus, R/D and PDM together with PO defines basic framework of the project and it is desirable to be kept throughout whole Project Period. (Annex-1)

6-2, Major Activities in the original PDM

In the original PDM, the contents of activities seemed in the gray zone, except for Technical Library in PDM activity Item 1-1, and for Training with activity items of 3-1, 3-2, and 3-3 respectively. (See attached PDM)

On the basis of the texts put in the original PDM, it might not be understood the majority of the concerned members of RDEC setting-up Project the activities in rural planning and in rural infrastructure design. Such impression had also been shared by us, therefore, we, the JICA Team, intended to hold first a Kick-off meeting as soon as possible. It was held on 1st February 2003 under presentation of Japanese Authorities concerned together with LGED's counterparts members. In the meeting, the views on the programs of the RDEC to be supported by JICA and expects with interest of the LGED to be cherished in the course of the Project were exchanged. The meeting ended with approval on our request to establish Work Group in respective area of

potential activities. This was responded by the imminent establishment of three Work groups with nomination of their members. (See attached Annex-2: Member list of Work group) Contents of the Members with position showed us that the major technical field in the RDEC Setting-up Project with high interest of LGED were 7 fields, namely GIS related technology, Project Monitoring and Evaluation, Rural road Maintenance, Management Information System, Design, Quality Control and Training.

The further information on field of the needs of respective Work group were surveyed by interview with members of respective group, and their intention together with items of activities to be supported by the JICA were collected. On the basis of the obtained information, the following strategic programs were developed; Rural Planning by GIS, Design, Technical Information Management System for rural infrastructure design, Project Monitoring, modernization of maintenance sector, and Training. They were reported to JICA HQ with our comment for soonest implementation as most important major activities of the Project. However, any items of such newly requested activities had not been authorized in the original PDM, therefore methods for realization of those strategic programs in the limited project period were the most imminent matters to be cleared.

Under such tight and the rigid situation, the immediate needs approach was adopted in order to make realize those requested important activities in the Project. The contents of items of existing PDM was carefully checked and studied, and the narrow way could be found out through the planning and organizing Seminars and Workshops Programs, which were fortunately given the position of important activity because of clearly mentioned items in the Plan of Operation (PO) attached to the R/D document. The Integrated Rural Development Seminar was organized first in July 2003, and marked great success by the adoption of integrated approach with input from almost Government organizations in Rural Development in Bangladesh.

In parallel to the Integrated Rural Development Seminar, the Participatory Rural Planning Workshop was proposed to LGED for strengthening capability of rural planning in the GIS Unit. Necessity of GIS-RS related technology in studying development plans of the objective area, this is because of shortage of reliable data except the but the only data obtained through interpretation of high resolution Satellite Image, was strongly requested to be undertaken under RDEC Setting-up Project through JICA office, and it was supported by JICA HQ and necessary allocation of budget was made. Thus, the attractive activities of land-use analysis in rural planning sector could be started from the procurement of high resolution Satellite Image data.

Such approach could gradually expand activity areas of the Project, and contributed to the unification of members concerned that is, JICA Team, and their Counterparts of LGED.

In the same line, Technical Information Exchanging Program for covering three years was planned and requested for approval. It was also fortunately supported in principle with the conditioning further study on the programs in detail. In this line, first Auto-CAD Training, which is aiming to render training for Assistant Engineers of District Office, was conducted in LGED HQ in August 2003.

However, the commencement of other strategy activities had to wait until fine tuning of the PDM.

7 Fine Tuning of Project Activities

In September 2003, JICA HQ dispatched interim Project monitoring Mission to Bangladesh. The TOR of the mission was to monitor progress of the Project, and to adjust activities of the Project after investigation of situations of the project for future prospect. Mission had a series of discussion with Bangladeshi Authorities including Work groups' members of the Project, and visited model study area in Shariatpur District. The mission grasped the total situation of the Project, and convinced the importance and effectiveness of implementation of newly proposed programs and small amendment on the original PDM and PO was then

made by adding few terms, which covers areas of newly proposed programs from respective unit. The Mission promised to convey the proposed activities to JICA HQ with signed M/M. The draft amended PDM was then explained in the Project consultation Meeting held in Tokyo in October 2003, and acknowledged there. A letter of approval on the amended PDM was arrived to JICA Bangladesh Office in November 2003.

It was exactly the Turning Point of the Project to make first foot print to advance to exact direction, and all newly requested strategic activities in the fields of Participatory Rural Planning by GIS, Project Monitoring and Evaluation, Rural Road Maintenance, and Data Management system for Rural Infrastructure Design etc. were given the position of Strategic Programs in the RDEC Setting-up Project. (See attached Annex-3, Modified PDM and PO)

From the later semi-annual term in Fiscal 2003, the Project could start with full functioning, and marked strong step for remarkable progress.

8 Component of JICA's Technical cooperation Project

There are four major components of JICA's Technical Cooperation Project, i.e.

(1) Dispatching JICA Expert (Long Term & Short Term)

(2) Acceptance Trainee from LGED

(3) Provision of Equipment, and

(4) Sharing Local Cost for supporting activities of the Project

On the basis these components, activities of the Project is shown below;

9. Activities of the RDEC Setting-up Project

Major activities with their progress in the Project were shown in attached Annex 4.

From the contents of Annex-4, Major activities of the RDEC Setting-up Project were summarized bellow;

9-1 Technical Library

For the technical Unit, support was rendered through provided expertise by short term expert, and equipment (PC with software Book CAT with training for modern Library management) and Training

(1) Inventory of existing books, report

(2) Installation of Library Management software "Book CAT"

(3) Training of Library staff on the Library Management with Fundamental Computer soft.

9-2 Seminar

A total of Five (5) Seminars that is, Integrated Rural Development Seminar, Dissemination Seminars of the contents of Technical Information Exchanging Program (Cox's Bazar, and Comilla), GIS-RS Seminar for Development, and International Seminar for Sustainable Rural Development were organized. (See Annex-5)

9-3 Participatory Rural Planning by GIS

(1) Draft Upazila Development Plan (DUDP) was formulated under the participation of Officers of Upazila, and all Union Chairman in the Upazila.

(2) Arrangement of Basic data for rural planning through interpretation of various level of resolution of Satellite Images, and by data collection from concerned authorities of BWDB, MDB etc., on water level, meteorology and so on.

(3) Technical Equipment to conduct study on rural planning, such as, GIS related software, GPS, Total Station, PC with attachment, etc.

(4) Support on Land use analysis in model Upazila through interpretation of High resolution satellite Image (IKONOS).

(5) Support to develop thematic map by RS, and GIS, and comparative study on availability of middle level of resolution of satellite Image (IRS) in Model Area

(6) Training on ARC-GIS, Total Station, and Fundamental GIS

(7) Pourashava Base map

(8) GIS-RS Seminar

9-4 Project Monitoring

(1) Development of PC based Project Monitoring System (PMS) software.

(2) Training of staffs of Monitoring unit in LGED HQ, and District Offices in LGED.

(3) Provision of Equipments for strengthening Project Monitoring Unit.

9-5 Rural Road Maintenance Unit

(1) Development of rural Road Inventory in both Data book Version, and CD Version

(2) Introducing advanced Road Maintenance Needs Survey methods by Road Roughness Index

(3) Training on Road roughness measurement

(4) Training on HDM Software

(5) Provision of Equipment for IRRI measurement with GPS, and ARC GIS Software

9-6 Rural Infrastructure Design

(1) Establishment of Technical Information Management system for rural infrastructure design

(2) Collection, e-filing and publication by soft data on existing rural infrastructure design Standards and Manuals;

(3) Development new design manual and Specification (Rural Road, Building, and Bridge)

(4) Collection of technical information, design drawings, of constructed rural infrastructures, scanning, and digitizing important structures for distribution in concerned District Offices of LGED

(5) Training on Auto-CAD for covering one AEs in every District Office of LGED

(6) Training on STAAD Pro software for Design Engineers of LGED

9-7 Quality Control

(1) Baseline survey of LGED's QC Unit

(2) Inventory Survey of all Laboratories of LGED's district Offices

(3) Implement Laboratory Test on Construction materials, with Training

1) Soil (Fundamental Test)
2) Asphalt
3) Concrete
4) High standard soil test (Tri-axial compression test)

(4) Training of Labo-Technicians (2times)

(5) Provision of equipment for above mentioned Laboratory Tests, in Central Laboratory Unit in RDEC.

9-8 Training

(1) TNA Exercise

(2) Create new Training Courses, which was devolved from the analytical results of TNA 2004

(3) Conduct two training courses with reflecting recommendation of TNA 2004 with mobilizing internal resources for trainer

(4) Conduct trainers' Training

(5) Suggest new training systems by creating Training fund

(6) Provision of equipment for support training activities

9-9 Technical Information Exchanging Program

Total 8 engineers of LGED Could join to two visiting programs in Cambodia in 2003 and in Philippines in 2004

10 Input by JICA

10-1 Dispatch of JICA Experts

(1) Long Term Experts

Four Long Term Experts in the fields of 1) Team Leader/Rural Development Planning, 2) Coordinator, 3) Rural Infrastructure Design, and 4) Training, were dispatched for covering entire project period. (See attached Annex-5)

(2) Short Term Expert

In order to respond to the request for sophisticated technical subject, the Project arranged to invite Short Term Experts. A total 14 items by 12 Experts in the field of rural planning by GIS, Training, Laboratory Equipment, Construction Material Test,, Technical Library, Step-up Plan, and Technical standard, engaged in our Program by 14 times of assignment. (See attached Annex-5)

10-2 Training in Japan

(1) Counterpart training (Individual Course)

A total of 15 engineers of LGED were dispatched to Japan under the Individual Counterpart Training Scheme in four years duration from Nov. 2002 to October 2006. Subject of the Counterpart Training are designed upon the interest and type of the duties they have been discharging.

Because of the level of dispatched trainees Programs of the training in Japan were composed by the Policy issue on rural and agricultural development in Japan, Management of natural resources including farmland systems by GIS, rural energy, Research activities for rural development, Disaster Prevention and rehabilitation, Maintenance of rural infrastructure, training, experience land reclamation by poldering, manufacturing of pump, and so on. Details are shown in attached Annex 6.

(2) Group Training Course

Considering the types of construction works with natural condition, and the needs of training for engineers of LGED, the JICA Team recommended LGED for the arrangement participation in effective and important Group Training Courses, and following two courses was fortunately available for LGED. Participants were LGED's Assistant Engineer in HQ, and Upazila Engineer in Chittagong District.

Name of Group Training Course:

1) Construction Equipment management Course

2) Technology for Preservation of Deterioration of Concrete Structure

10-3 – Provision of Technical Equipment

10-3-1 Technical Equipment Provided by JICA's Equipment Provision Scheme (Form A4)

At the implementing arrangement by R/D, type with volume was limited into following five items, namely (1) Personal Computer(s), (2) Photocopy machine (e) (3) Vehicle(s), (4) Audio and Visual Equipment(s), and Other necessary Equipment(s).

Along with expansion of strategy Programs of the RDEC Setting-up Project by the amendment of PDM, those were increased to meet the steady progress of technical cooperation programs in time.

A total of 25.9Milion Taka was spent for procurement of total 74items of technical equipment was rendered under the Technical Equipment Providing Schemes (TEPS) of JICA's Technical Cooperation Program. (See attached Annex-7-1) Major and important equipment are, two Vehicles, Large Size Scanning

and Plotter Machine, Bump Integrator with calibrating unit, Total station, Software for GIS application and Road Development, Personal Computers, with scanner and Fax for data management system, copy machines, multi-media Projectors for presentation, GPS equipment for ground control positioning, and so on.

10-3-2 Technical Equipment Provided by JICA's Experts' Hand Carrying Schemes

In addition to the TEPS, necessary equipment(s) for daily works were additionally procured under Experts' Hand Carrying Technical equipment Procurement Schemes from the Local Cost Account of the Project. Total number of the equipment was 76 items with total amount of 4.38 Million Taka. Other miscellaneous equipment with total 40 Items 0.355Milion Taka were procured under the Field Activities Support Scheme of the Project. Effective items of procured Equipment in this category will also be handed over to LGED at the time of completion for the continued usage in the future activities.

10-3-3 Technical Books and Design Standard Procured by JICA's Experts' Hand Carrying Schemes

In the course of implementation of the Project, technical books and design standard, those are not available in LGED were requested to us for their procurement. Therefore, the Project requested JICA HQ the arrangement their procurement. A total 103 items of technical books design standards with total price ¥987,516 (approximate Bangladesh Taka 563,000) were procured in JICA HQ and provided to the Project. (See Annex 7-3)

The technical books, those are necessary for rural infrastructure development, and being available in Bangladesh was additionally procured in the Local Cost Account of the Project. Those books are enlisted in Annex 7-4 as a total 43items with total price of 47,599 Taka. Those technical books and standards etc. will also be handed over to LGED at the time of completion of the Project.

10-4 Local Cost sharing

In the implementation of the RDEC Setting-up Project, the strategic programs in the field of seven categories, namely (1) Participatory Rural Planning by GIS, (2) Project monitoring and evaluation, (3) Rural Road maintenance, (4) Rural Infrastructure design (including data management system for rural infrastructure design), (5) Quality Control, (6) Technical Library, and (7) Training were accordingly identified and implemented throughout the Project period.

A total of 27 million Taka was allotted from JICA's Local Cost Account, for supporting the above mentioned strategy programs in the respective Work Unit of the Project. Procurement high and middle level resolution of Satellite Image of model study areas, TNA exercise, series of Seminar and Workshops and Trainings, Base map development in model Pourashava, development of data base for Road Inventory, basic data collection and publishing, digitized works of important rural infrastructures, Publishing a series of Report and Data books including CD version were main items in this category. (See attached Annex-8)

10-5 Outputs by the RDEC Setting-up project

The activities with outputs of RDEC Setting-up Project can be summarized in the following Table

No		Total No	Major Program	No of Participants	Remark
1	Seminar	5		475	Annex 9
			Integrated Rural Development seminar	75	
			GIS-RS Seminar for Development	90	
			International seminar	200	
			Regional Dissemination Seminar on TIEP		

			Cambodia in Cox' Bazar, Philippines in Comilla	60 50	
2	Workshop	18	Participatory Rural Planning Workshop in Bhedorganj Upazila, Shariatpur District /Short Term expert & Others	977	Annex 10
3	Training CP in Japan TIEP Training in home Country	4 2 28	Superintending Engineer Executive engineer Cambodia Philippines Rural Planning by GIS (3) Arc-GIS GIS Software Total Station Project Monitoring Unit (1Course 30 1Trainees) PMS 12 batches Rural Road Maintenance (2Courses 79 Trainees) Roughness Survey 6 districts HDM-4 Design Unit (2 courses 104trainees) Auto-CAD (5 batches) STAAD Pro (2 batches) QC Unit (3 Courses 55 trainees) QC for Labo-Technicians (2 batches) Advanced Concrete Test Advanced Soil Test Training Unit (5 Course 71) Trainers' Training (3 Batches) Project Management Construction management Technical Library(1 Course 9 trainees) Basic Computer, & BookCAT	15 3 12 10 5 5 645 29 15 2 12 301 66 13 92 12 28 18 9 11 30 30 9	Annex 6 Annex 11
4	Provided Equipment		Through Equipment Providing Scheme Total Item Through experts' hand carrying Scheme Total Item	Tk 25.9Mil Tk 4.7Mil	Annex 7
5	Publication		Report Seminar report, Workshop report, TNA, Rural Road Design Manual, Rural Road Maintenance Manual, Water level data, Meteorology data, CDR Publication incl. Total station data Design Standard, Meteorology Data, Road Inventory, Digitized rural infrastructure, Upazila Base map survey data	49 5	Annex 12

6	Local Cost		Equipment(50%), and strategy programs Including training, and seminar, TIEP etc.	Tk 52 .Mil	Annex 8

11. Conclusion and Recommendation

11-1 Conclusion

1. The activities of the Project, enlisted original PDM with PO, was vague, and difficult to make clear image of project activities. The reason of such vague arrangement was assumed to be brought by the condition and ideas of the project formulation stage during 1999 ~2002. Discrepancy between the interest and expectation of LGED and intension of JICA missions might be there. The condition of the contribution of JBIC Portion on Equipment Procurement in RDEC may enlarge those gaps being caused by pre-condition of the Project.

2. The Indicator to verify the Objectives of the Project, which was written in the original PDM, was rather isolated from the JICA Team, because of authorization of Step-up Plan, which includes organizational structure with financial arrangement with confirmation of budget requirement, is totally beyond our reach.

The substitutional indicator is therefore recommended to reflect the achievement of real activities by the Project.

3. Steady progress could be achieved in spite of considerable times for re-setting or fine-tuning of the Project activities, and this could be judged by the better relation between LGED workgroup team and JICA Team. Because of limited project period with three years, condensed program were implemented every year and it was quite fortunate that such program was implemented steadily. The function of RDEC has been improved significantly, and routine works for basic data collection and compilation in technical library etc, should be continued with mobilizing LGED's available resources.

4 , New concepts or programs, such as participatory rural planning, sophisticated soil test, safety of rural infrastructure, they were implemented as a model case during RDEC setting-up Project Period, need to be supported through further programs available.

5. Lubricant Function for Team Work

During implementation of the Project, a number of times of meeting were organized in the occasion of Workgroup Meetings, Seminars and Workshops, they were arranged for the presentation of outputs by the Short Term Experts, Seminars, Dissemination of Overseas programs, and for step-up plan etc. Such meeting seems functioned to create gradually unified atmosphere among the members of the attendants. The effects may be given positive impacts by a lubricant function among various unit of LGED.

11-2. Recommendation for further development

Under the excellent leaders with efficient management system in LGED, there are no critical issues in current situation, but capability of LGED should be increased in order to meet ever increased and diversified social and economical demand for National Goal for PRSP. Advanced measures are therefore recommended in this respect;

(1) LGED has been an organization of technical based for rural infrastructure development, and it may continue to work as a department of technical expertise in the Government. In this framework, RDEC was established to function as a technical core center of LGED. High efficiency with quick response to serve rural society is an outstanding feature of LGED, and this mind should be inherited at every level of LGED. In this respect, the Human Resources with high technical specialties should be continuously developed under the Strategic Program of LGED.

(2) Various type of technical know how should be collected, compiled, and developed in RDEC. The Research & Development (R&D) activities should accordingly be created not from the Donors' interest, but LGED's own concern on the necessity for future diversification of work field of LGED.

(3) In R&D activities, appropriate technology with labor intensive concept should be taken account in order to meet National policy on Poverty reduction.

(4) It is recommended that necessary fund should be created to fulfill the strategy programs of RDEC, and they are conventionally classified as Training Fund, and Research Development Fund (RDF).

(5) Engineers of LGED have already excellent capability in the field of engineering. However, under rapidly diversifying programs in the Programs of LGED in various sectors, such as Rural, Small scale water resources development, and urban, the engineers should have abilities to meet such multi sectoral approach. Programs to build such multi-sectoral, that is, inter-disciplinary capability in LGED should be developed and earlier implementation of the program is essential.

12. Acknowledgement

The JICA RDEC Setting-up Team deeply appreciate the kindness with hospitality rendered by LGED's counterparts throughout project period. Our deepest thanks are given to Mr. Md. Shahidul Hassan, Chief Engineer of LGED for his warm and strong encouragement.

In conducting our daily works, we have got a great support by our counterparts Team, headed by Mr. Saroj Kumar Sarker, Additional Chief Engineer, Mr. Md. Wahidur Rahman, Superintending engineer (Adm, PM & E), Mr. S.M. Zakaria, Superintending Engineer (D&I) Mr. Lokman Hakim, Superintending Engineer (Training), LGED HQ.

Our thanks are to all members of Workgroups, which was established as soon as our arrival in LGED for steady progress of the Project, and the meeting was undertaken with friendly atmosphere, Because of space of the paper, we could not note down all the name whom we met during our visit and any program, and we would like to request your kind support to convey our great appreciation to them.

Lastly, the all things that we experienced in Bangladesh, we feel it and remind it just happen yesterday. It is still in our heart, and all days in Bangladesh are our treasures. Wishing the accelerated function of RDEC toward technical Core of LGED and for contributing steady development in rural areas in Bangladesh.

31 December 2005

In the Office Room, Level IV, RDEC Building, LGED HQ.

Annex

Annex-1-1: (Original PDM)

PDM of Rural Development Engineering Center Setting-up Project

Project Name: Rural Development Engineering Center Setting-up Project Duration: January 10, 2003 – January 9, 2006 (3 years)

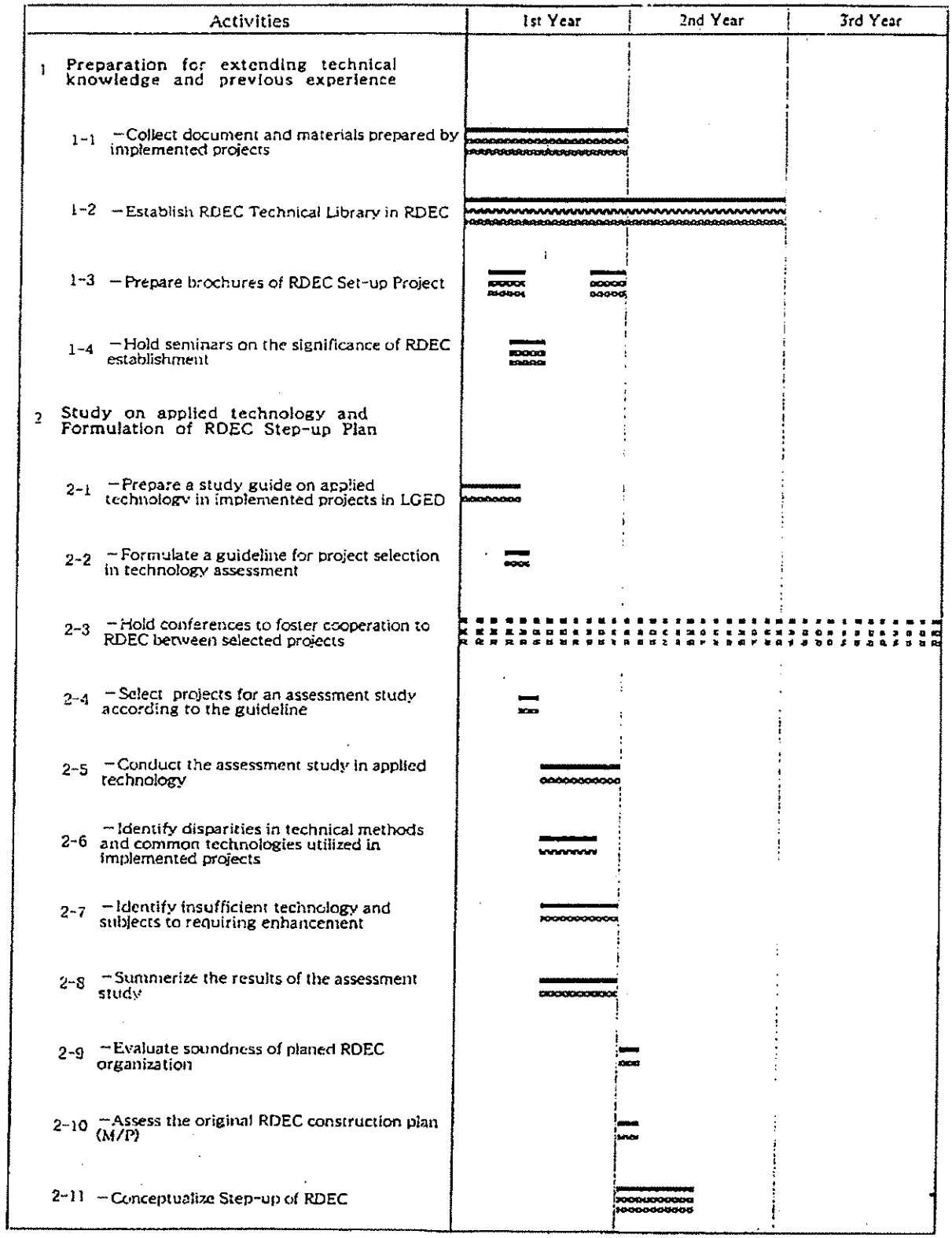
Project Area: Bangladesh Target Agency: LGED Date: September, 2002

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Super Goal Institutional (technical) capability of LGED is strengthened	—	—	—
Overall Goal RDEC is continuously capable of providing necessary technical service according to its Step-up plan.	RDEC is supremely clarified as a technical core center in LGED's organization framework.	RDEC Progress Report	Incentives for grading up in engineering are kept in RDEC Apportionment of consultants in LGED technical staff members decrease. Training opportunities are evenly given to all LGED technical staff members.
Project Purpose RDEC is all set to function as a technical core center in LGED.	Step-up plan is authorized and budgeted. Training scheme is established and budgeted.	LGED budget document LGED decision document	RDEC Step-up Plan is executed on schedule. RDEC 's budget become permanent.
Outputs 1. Technical knowledge and previous experiences obtained through implemented projects are accumulated in RDEC to be set for disseminating in LGED project. 2. Directions for technical standard and management of the applied technology are prepared as manuals 3. The LGED training system is activated, with offering training courses for insufficient technology. 4. Guidelines for technical management in RDEC are prepared as Step-up plan, referring to the output 1 to 3.	1. By 2003, existing technical documents and materials are collected and made available in the library 2. Number of standard manuals revised and created by the end of the project 3-1. Training curriculums are newly created that were highly requested by LGED staff. 3-2. Half of training curriculums are newly created that were requested by half of LGED staff. 3-3. Number of training instructor and training materials 3-4. Manual for arranging training curriculums and syllabus	Periodic project survey report. Periodic project survey report. Annual Training Report of LGED Training Cell.	Each LGED project recognize the RDEC's role and affirmative and cooperative for the project activity. High request for training continues among LGED staff Some training programs are tried for improvement and the result is feed-backed.
Activities 1-1. Establish Technical Library in RDEC. 1-2. Publicize the significance of RDEC establishment, delivering brochures on the Project to Set up the RDEC. 2-1. Execute assessment study of applied technology on implemented projects in LGED. 2-2. Identify differences and shared areas in technical methods, and points to be improved among technical methods and standard specifications of the implemented projects. 2-3. Evaluate and approve the basic concept, institutional authority and management plan of RDEC. 2-4. Specify needs for RDEC strengthening in procurement of equipment, technical material upgrading, and supplement of facilities. 3-1. Conduct TNA (Training Needs Assessment) among LGED engineers of implemented projects and analyze the results. 3-2. Prepare an improvement plan for the current training system. 3-3. Create some new training courses to complement technical subjects that are urgently required based on the results of 2-2 and 3-1.	**Inputs** **Japanese side** Long-term Expert 1) Leader/Rural Development Planning 3 years 2) Rural Infrastructure 3 years 3) Training 3 years 4) Coordinator 3 years Short-term Experts * Equipment 1) Computer 2) Vehicle(s) 3) Audio and visual equipment for training 4) Other necessary equipment Budget A portion of expenditures for local activities related to the Project. Training in Japan Training opportunities in Japan for counterparts in related subjects. **GOB (LGED)** Personnel 1) Four (4) fulltime counterparts against each Japanese Long-term Expert 3 years 2) LGED engineers necessary to execute project activities 3) Counterparts for short term Experts 4) Computer operators, Drivers, and Secretaries for LGED staff Equipment 1) Office 2) Furniture 3) Telecommunication tools and business equipment. Budget 1) Salaries and necessary expenses for counterparts 2) Allowances and expenses of trainees 3) T raining costs	Materials and technical standard of each project are submitted to RDEC timely. Each project are supportive for assessments executed in project activities (2-1 and 3-1) Significance, objective and scope of Step-up plan are shared among LGED Engineers. Budget for training and lecturer are properly available. **Pre-conditions** Significance of the project spreads among LGED engineers. TAPP is approved and necessary inputs in terms of personnel and budget are executed properly. Construction of RDEC building finishes before the commencement of the project Equipment and facilities are procured by JBIC loan and maintained properly by GOB

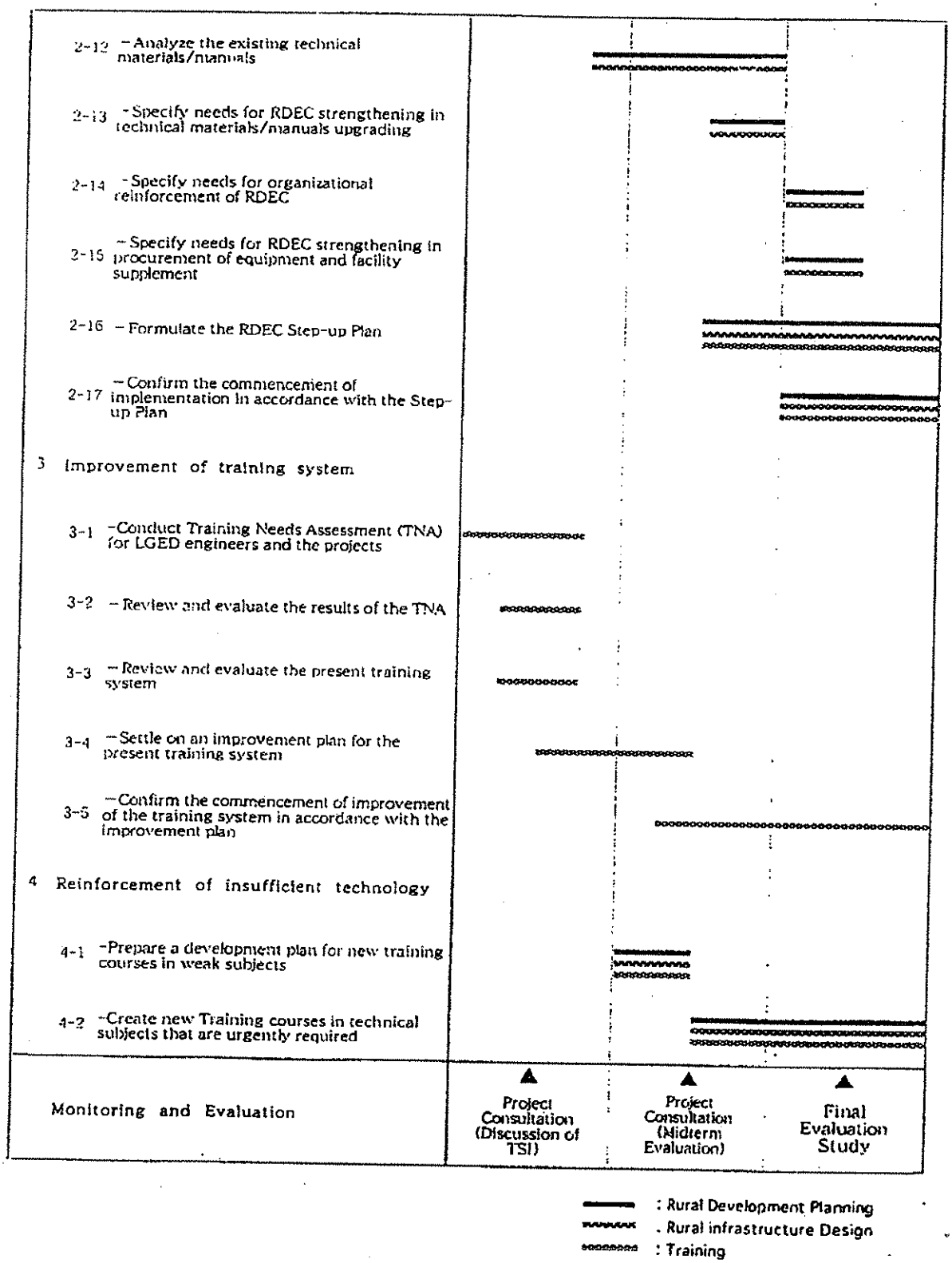
* A certain number of short-term expert(s) will be dispatched to supplement the activities of the long-term experts, when necessity arises, for the smooth implementation of the Project.

Annex 1-2, Plan of Operation (Original)

I. ACTIVITIES OF THE PROJECT



Annex 1-2 Original Plan of operation (Continued)



Annex 2: Member list of Work group of RDEC Setting-up Project

Task Force for LGED/JICA Tech al Cooperation Program on RDEC Setting-up Project

Working Team – I : Rural Planning

1. Mr. Saroj Kumar Sarkar, Additional Chief Engineer, LGED HQ.
2. JICA Expert (Rural Planning).
3. Mr. S. M. Salim, Executive Engineer (Planning & monitoring), LGED HQ.
4. Mr. Md. Shahidul Islam, Assistant Engineer, GIS, LGED HQ.
5. Mr. Sirajum Munir, Sociologist, Rural Development Project-21, LGED HQ.
6. Mr. Shah Nurul Kadir, Assistant Engineer, MIS, LGED HQ.
7. Mr. Md. Amir Azam, Executive Engineer (Maintenance), LGED HQ.
8. Mr. Manmath Ranjan Halder, Assistant Engineer (Maintenance), LGED HQ.

Working Team – II : Rural Infrastructure Design

1. Mr. S. M. Zakaria, Superintending Engineer (Planning & Design), LGED HQ.
2. JICA Expert (Rural Infrastructure Design).
3. Mr. A. B. M. Nazrul Islam, Senior Design Consultant, LGED HQ.
4. Mr. Munir Siddique, Assistant Engineer, GIS, LGED HQ.
5. Mr. Md. Abul Bashar, Executive Engineer (Maintenance), LGED HQ.
6. Mr. Md. Saiful Islam, Assistant Engineer (Design Unit), LGED HQ.
7. Mr. Md. Zahedul Islam, Assistant Engineer (Design Unit), LGED HQ.

Working Team – III : Training

1. Mr. Mohammad Lokman Hakim, Superintending Engineer (Trg. & QC), LGED HQ.
2. JICA Expert (Trg. & QC).
3. Mr. Mollah Azizul Haque, Executive Engineer, LGED HQ.
4. Mr. Md. Azizur Rahman, Executive Engineer (Training), XEN Office, LGED HQ.
5. Mr. Md. Ashadul Haque, Executive Engineer (Training), LGED HQ.
6. Mr. Md. Abul Kalam Pramanik, Executive Engineer (Training), LGED HQ.

9/2/03

(Md. Wahidur Rahman)
Superintending Engineer
(Project Monitoring & Evaluation)
&
Coordinator
RDEC Setting-up Project

Major Meetings Held during Project Period

No	Year	Month/date	Type	Topics
1	2003	02/01	Kick-Off	Acquaintance, Implementing principle, organization
2	"	02/18	First Work Group Meeting	Equipment in Fiscal 2002 (EP), Programs in2003, Needs of LGED
3		04/08	2nd WG	New Program, EP in Fiscal 2003
4		04/28	3rd WG	EP in Fiscal 2003, Short term Expert (SE), TIEP, Technical Information Management (TIM)
5		06/17	4th WG	Integrated Rural Development Seminar, (IRDS) Participatory Rural Planning Workshop (PRPW), TIM TIEP, JICA Monitoring Mission (JMM)
6		08/07	5th WG	Progress of Activities (PA), PRPW,TIM, Group Training (GT), Counterpart Training (CPT), Strategy Programs (SP)
7		08/24	6th WG	JMM, Progress of JBIC Portion (JBIC), SP, EP,CPT
8		09/10	7th WG	Reviewing of JMM, SP, EP, Ex-participant of GT Reporting
9		11/08	8th WG	SP, SE, TIEP
10	2004	04/11	9th WG	PA, SE, JBIC
11		06/29	10th WG	PA, CPT, TIEP, Training & Seminar (T&S), SE, EP
12		11/24	11th WG	PA, EP, CPT, TIEP, SE, SP in fiscal 2005
13	2005	04/11	12th WG	Reporting by SE, Transfer of Equipment, PA, SE, International Seminar (ISSRD), JICA Evaluation Mission (JEM)
14		07/14	13th WG	JEM, ISSRD, PR
15		08/03	JCC	JCC on Joint Evaluation of the Project
16		12/13	14th WG	Step-up Plan
17		12/27	15th WG	Last Work Group meeting, Reporting Project activities, and achievement, Reporting CPT, Step-up Plan

Annex 3-1: Amended PDM

PDM of Rural Development Engineering Center Setting-up Project

Project Name: Rural Development Engineering Center Setting-up Project Duration: January 10, 2003 – January 9, 2006 (3 years)

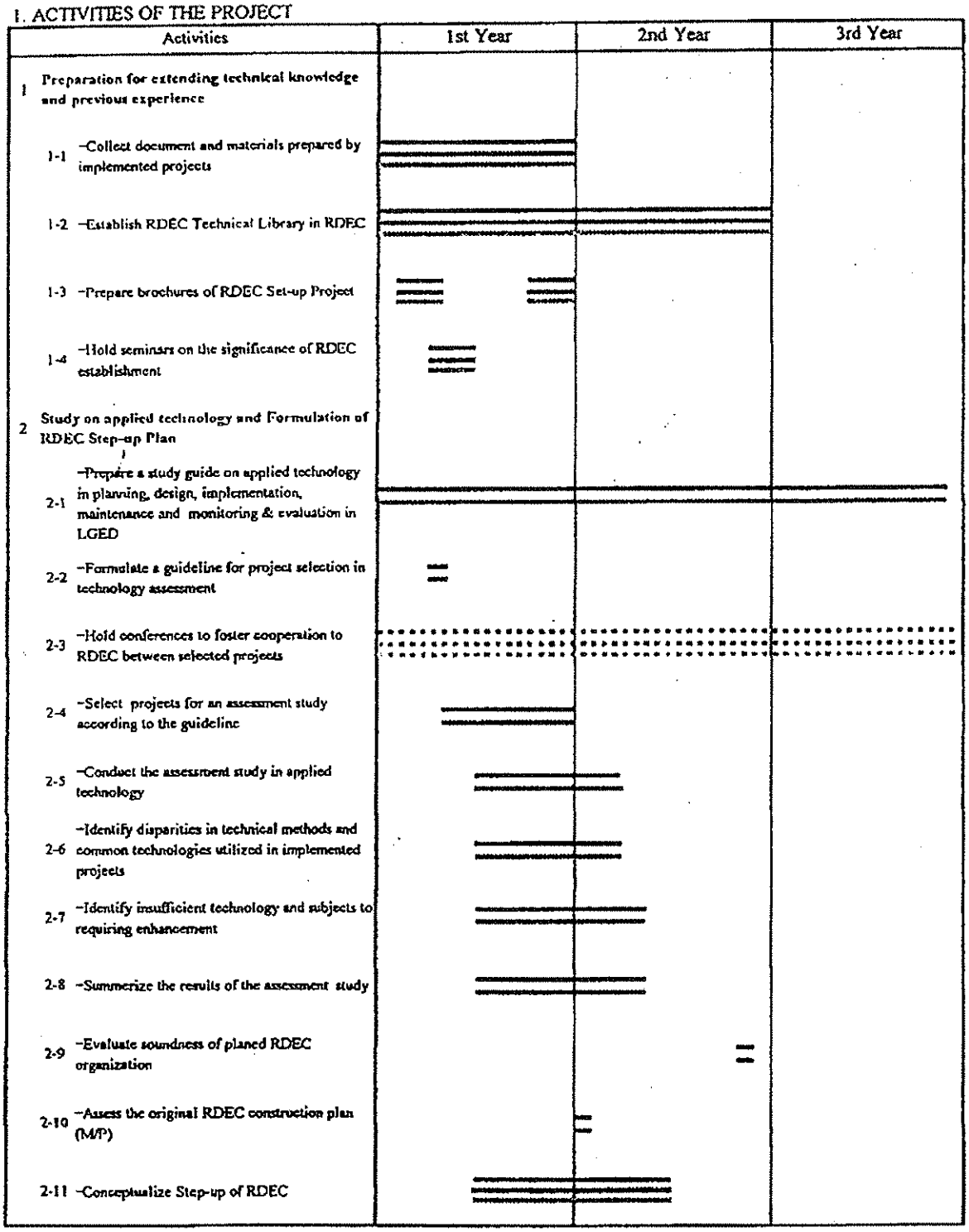
Project Area: Bangladesh Target Agency: LGED Date: September 4, 2003

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Super Goal Institutional (technical) capability of LGED is strengthened	—	—	—
Overall Goal RDEC is continuously capable of providing necessary technical service according to its Step-up plan.	RDEC is supremely clarified as a technical core center in LGED's organization framework.	RDEC Progress Report	Incentives for grading up in engineering are kept in RDEC Apportionment of consultants in LGED technical staff members decrease. Training opportunities are evenly given to all LGED technical staff members.
Project Purpose RDEC is set to function as a technical core center in LGED.	Step-up plan is authorized and budgeted Training scheme is established and budgeted	LGED budget document LGED decision document	RDEC Step-up Plan is executed on schedule. RDEC 's budget become permanent.
Outputs 1. Technical knowledge and previous experiences obtained through implemented projects are accumulated in RDEC to be set for disseminating in LGED project. 2. Technical standard and management of the applied technology are improved. 3. The LGED training system is activated, with offering training courses for insufficient technology. 4 Guidelines for technical management in RDEC are prepared as Step-up plan, referring to the output 1 to 3.	1. By 2005, existing technical documents and materials are collected and made available in the library 2. Number of standard manuals revised and created by the end of the project 3-1. Training curriculums of important subjects in LGED are newly created. 3-2. Training curriculums are newly created that were highly requested by LGED staff. 3-3. Number of training materials 3-4. Manual for arranging training curriculums and syllabus	Periodic project survey report. Periodic project survey report Annual Training Report of LGED Training Unit.	Each LGED project recognize the RDEC's role and affirmative and cooperative for the project activity. High request for training continues among LGED staff Some training programs are tried for improvement and the result is feed-backed
Activities 1-1. Establish Technical Library in RDEC. 1-2. Publicize the significance of RDEC establishment, delivering brochures on the Project to Set up the RDEC. 2-1. Execute assessment study of applied technology in the field of planning, design, training, maintenance and monitoring & evaluation in LGED. Identify differences and shared areas in technical methods, and points to be improved among technical methods and standard specifications of the implemented projects. 2-3. Evaluate and approve the basic concept, institutional authority and management plan of RDEC. 2-4. Specify needs for RDEC strengthening in procurement of equipment, technical material upgrading, and supplement of facilities. 3-1. Conduct TNA(Training Needs Assessment) among LGED engineers of implemented projects and analyze the results. 3-2. Prepare an improvement plan for the current training system. 3-3. Create some new training courses to complement technical subjects that are urgently required based on the results of 2-2 and 3-1. 4-1. Conceptualize Step-up of RDEC 4-2. Formulate the RDEC Step-up Plan 4-3. Confirm the commencement of implementation in accordance with the Step-up Plan	**Inputs** **Japanese side** Long-term Expert 1) Leader/Rural Development Planning 3 years 2) Rural Infrastructure Design 3 years 3) Training 3 years 4) Coordinator 3 years Short-term Experts * Equipment 1) Computer 2) Vehicle(s) 3) Audio and visual equipment for training 4) Other necessary equipment Budget A portion of expenditures for local activities related to the Project. Training in Japan Training opportunities in Japan for counterparts in related subjects.	**GOB (LGED)** Personnel 1) Four (4) fulltime counterparts against each Japanese Long-term Expert 3 years 2) LGED engineers necessary to execute project activities 3) Counterparts for short term Experts 4) Computer operators, Drivers, and Secretaries for LGED staff Equipment 1) Office 2) Furniture 3) Telecommunication tools and business equipment. Budget 1) Salaries and necessary expenses for counterparts 2) Allowances and expenses of trainees 3) Training costs	Materials and technical standard of each project are submitted to RDEC timely. Each project are supportive for assessments executed in project activities.(2-1 and 3-1) Significance, objective and scope of Step-up plan are shared among LGED Engineers. Budget for training and lecturer are properly available. **Pre-conditions** Significance of the project spreads among LGED engineers TAPP is approved and necessary inputs in terms of personnel and budget are executed properly. Construction of RDEC building finishes before the commencement of the project Equipment and facilities are procured by JBIC loan and maintained properly by GOB.

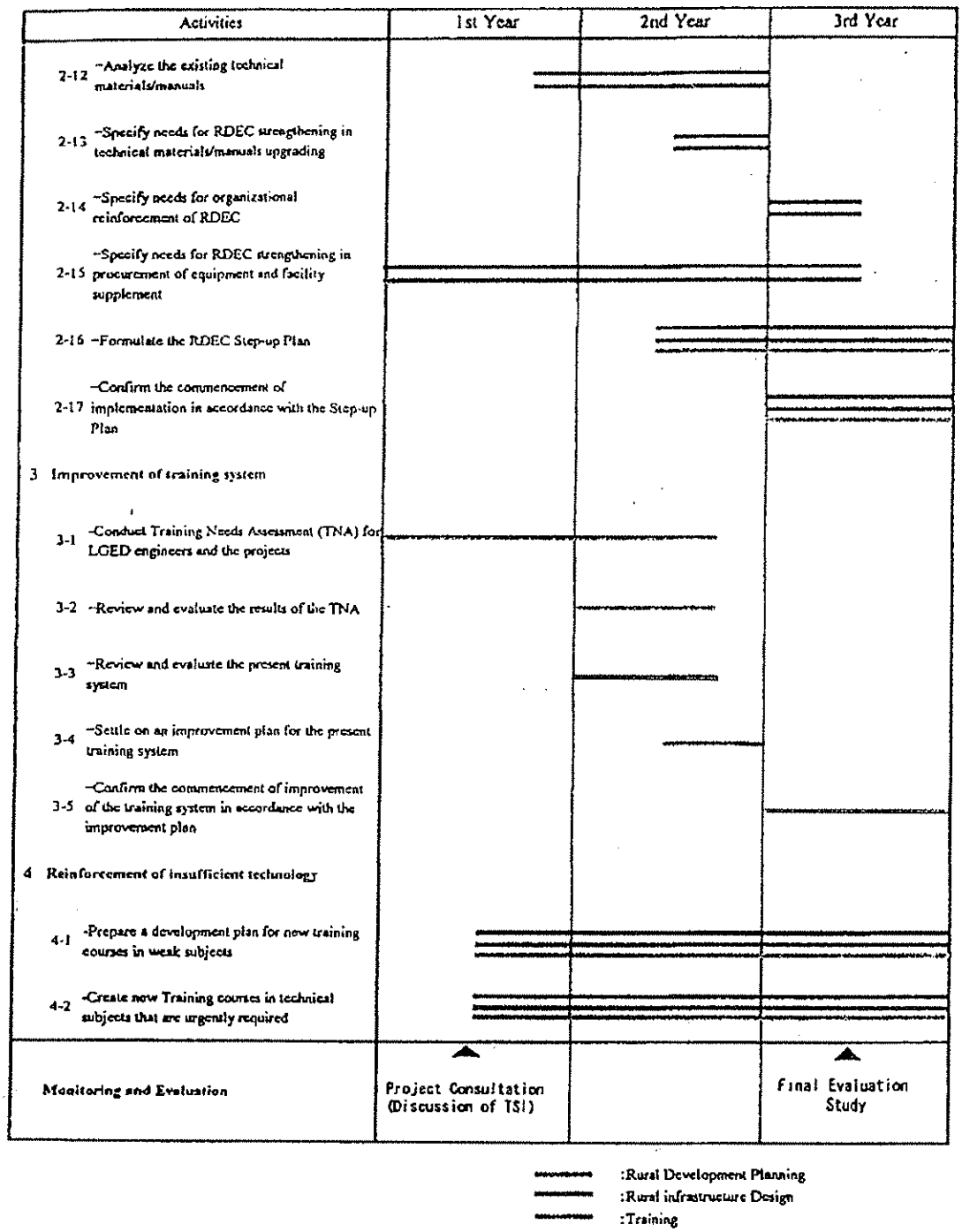
* : A certain number of short-term expert(s) will be dispatched to supplement the activities of the long-term experts, when necessity arises, for the smooth implementation of the Project.

Annex 3-2: Amended Plan of Operation

I. ACTIVITIES OF THE PROJECT



Annex 3-2: Amended Plan of Operation (Continued)



Annex-4: Progress & Achievement of RDEC Setting-up Project

Project Progress Report of RDEC Setting-up Project
Progress of Activities and Achievement of expected Output

Rural Development Engineering Center (RDEC) Setting-up Project

15 September 2005

Name of Counterperts in LGED; Mr. Saroj Kumer Sarker (Additional Chief Engineer)
Mr. Wahidur Rahman (Superintending Engineer for Adm.,PM&E)
Mr. S.M. Zakaria (Superintending Engineer for Design)
Mr. Md. Lokman Hakim (Superintending Engineer, for Tng & QC)

Name of JICA Experts Mr. Kanezo Takeuchi (Chief Adviaer/Rural Planning)
Mr. Takeo Oshima(Coordinator)
Mr. Noriyasu Nishino (Rural Infrastructure Design)
Mr. Takao Hattori (Training)

Progress of Activities and Achievement of expected Output Form No1

(Output No. in the PDM and its description;
1. technical knowledge and previous experiences obtained through implemented projects are accumulated in RDEC to be set for dissemination in LGED project.)

Activities	Expert in Charge	Ref. No in Plan of Operation	Progress of Activities: Planned/Actual	1st Year	2nd Year	3rd Year	Activities/Expected outputs	Major activities Achieved/Outputs	Achievement (%)	Remark
1-1: Establish Technical Library in RDEC	*									
1-1-1 Collect document and materials prepared by implemented projects	T,O,N,H	1-1	P A	—— ■	■	■	•Collection of Basic data of the Projects	•Basic data Water Level, meteorology etc. was collected and published. •Design Standard, Textbook, Specification, maintenance manuals etc, were collected and published as book and soft data by CD •Training manuals were collected.	100 100 100	
1-1-2 Establish RDEC Technical Library in RDEC	T,O,N,H	1-2	P A	—— —	—— ■	—— ■	•Establishment of Technical Library	•Activation plan of Technical Library of LGED was completed	100	
1-2: Publicize the significance of RDEC establishment, delivering brochaers on the Project to Set up the RDEC										
1-2-1 Prepare brochures of RDEC Setting-up Project	T,O,N,H	1-3	P A	— — ■ ■	— — ■ ■		•Preparation of Brochures of RDEC Setting-up	•Brochures of RDEC Setting-up Project both in English and in Japanesa versic were prepared and distsributed.	100	
1-2-2 Hold Seminars on the significance of RDEC establishment	T,O,N,H	1-4	P A	— ■			•Integrated Rural Development Seminar •Dissemination seminars for Local Staffs of LGED	•Integrated Rural Development Seminar at LGED HQ in July 03 •Dissemination Seminars for Local Staffs of LGED in Cox's Bazar in Mar. 04, and in Comilla in Mar.05	100	
					■		•GIS-RS Seminar	•GIS-RS Seminar was organized at LGED HQ in Sep. 04	100	
						■	•International Seminar for sustainable rural development	•International Seminar for sustainable rural development in 03-05 Sep.	100	

* T: TAKEUCHI Kanezo Team Leader/Expert in Rural Planning
O:OSHIMA Takeo Coordinator

Annex 2-2

N: NISHINO Noriyasu Expert in Rural Infrastructure design
H : HATTORI Takao Expert in Training

Progress of Activities end Achievement of expected Output (Form-2)

(Output No. in the PDM and its deecription;
2. Technical standard and menegement of the applied technology are improved

Activities	Expert in Charge	Ref. No in Plan of Operation	Progress of Activities: Planned / Actual	1st Year	2nd Year	3rd Year	Activities/Expected outputs	Major activities Achieved/Outputs	Achievement (%)	Remark
2-1: Execute assessment study of applied technology in the field of planning, design, training, maintenance and monitoring & evaluation in LGED										
2-1-1 Prepare a study guide on applied technology in planning, design, implementation, maintenance and monitoring & evaluation in LGED		2-1	P							
(Rural Planning)	T		P				・Concept Paper on Participatory Rural Development Planning	・Concept Paper was developed	100	
			A							
(Project Monitoring)	T		P				・Concept paper on Project Monitoring & Evaluation	・Concept Paper was developed	100	
			A							
(Rural road maintenance)	T		P				・Concept paper on the develop-ment of rational Rural road maintenance System	・Concept Paper was developed	100	
			A							
(Rural Infrastructure Design)	N		P				・Concept paper on data manage-ment system in RDEC	・Concept Paper was developed	100	
			A							
2-1-2 Formulation a guideline for project selection in technology assessment		2-2	P							
			A							
(Rural Planning)	T		P				・Guideline for the selection	・Guideline for the selection was shown	100	・Bhedorganj Upszila in Shariatpur District was selected
			A							
(Project Monitoring)	T		P				・Guideline for the selection	・Guideline for the selection was shown	100	・Type of model RDP was taken into account
			A							
(Rural road maintenance)	T		P				・Guideline for the selection	・Guideline for the selection was shown	100	・Topography and hydrology with planned road type was adopted
			A							
(Rural Infrastructure Design)	N		P				・Guideline for the selection	・Guideline for the selection was shown	100	・Administrative and Geographical factors are edopted
			A							
2-1-3 Hold conferences to foster cooperation to RDEC between selected projects	T,O,N,H	2-3	P				・Establishing of Work group and hold conference	・Work group was established and series of Meetings were held (total 15 Times)	100	
			A							
2-1-4 Select projects for an assesament study according to the guideline		2-4	P							
(Rural Planning)	T		P				・Selection of Model Project	・Bhedorganj Upazile was selected as model Study Area	100	
			A							
(Project Monitoring)	T		P				・Selection of Model Project	・Two districts were selected as model Project	100	
			A							
(Rural road maintenance)	T		P				・Selection of Model Project	・Five Districts were selected as model sites	100	
			A							
(Rural Infrastructure Design)	N		P				・Selection of Model Project	・Four Districts were selected as model sites	100	
			A							

Annex 2-3

2-1-5 Conduct the assessment study in applied technology		2-5	P			
(Rural Planning)	T		P	•Assessment Study on Participatoray Rural Planning	•Conduct assessment study through participatory rural planning	100
			A			
(Project Monitoring)	T		P	•Assessment Study on Project Monitoring	•Conduct assessment study on Project monitoring	100
			A			
(Rural road maintenance)	T		P	•Assessment Study on Rural Road maintenance	•Conduct assessment study on Rural Road and results was published as Rural Road Inventory Book	100
			A			
(Rural Infrastructure Design)	N		P	•Assessment Study on Laboratory Equipment for Quality control	•Summarization of Assessment study on respective subjects offices in LGED	100
			A			
2-2: Identify differences and shared areas in technical methods and points to be improved among technical methods and standard specifications of the implemented projects				•Assessment Study on Technical information Management system	•Conduct assessment study on Technical data Management system	100
2-2-1 Identify disparities in technical methods and common technologies utilized in implemented projects		2-6	P			
(Rural Planning)	T		P	•Identify disparities in the fields of Participatory rural Planning	•The Lack of basic data (hydrology, meteorology etc.) were identified	100
			A			
(Project Monitoring)	T		P	•Identify disparities in the fields of Project Monitoring	•The Lack of advanced software for Project Monitoring was identified	100
			A			
(Rural road maintenance)	T		P	•Identify disparities in the fields of rural road maintenance	•The Lack of measuring system on road roughness was identified	100
			A			
(Rural Infrastructure Design)	N		P	•Identify disparities in the fields of rural road, bridge, building, Quality control	•Disparities in the fields of QC, Labo-test on construction materials was identified	100
			A			
2-2-2 Identify insufficient technology and subjects to requiring enhancement		2-7	P			
(Rural Planning)	T		P	•Identify insufficient technology in participatory rural planning	•GIS & RS application methods and rural planning by participatory approach was identified.	100
			A			
(Project Monitoring)	T		P	•Identify insufficient technology in Project Monitoring	•Necessity of advanced and practical Software for Project Monitoring was identified	100
			A			
(Rural road maintenance)	T		P	•Identify insufficient technology in Rural Toad Maintenance	•Physical data collection of road roughness, and displaying on the	100
			A			
(Rural Infrastructure Design)	N		P	•Identify insufficient technology in Rural Infrastructure	•data management on rural-infrastructure, end application of computer supported structure design etc. were identified •Labo-tests for construction mateials were identified.	100
			A			
2-2-3 Summarize the results of the assessment Study		2-8	P			
(Rural Planning)	T		P	•Summarization of Assessment study on GIS Application	•Summary Report on Assessment study on GIS was developed as a GIS Seminar Report.	100
			A			
(Project Monitoring)	T		P			
(Rural Road Maintenance)	T		A			
(Rural Infrastructure Design)	N		P	•Summarization of Assessment	•Summary Report on Asseasment	100

Annex 2-6

			A	study on rural infrastructure design, and Quality Control	Study on Laboratory was developed •Importance of data management system was summarized and proposed	100
2-3: Evaluate and approve the basic concept, institutional authority and management plan of RDEC						
2-3-1 Evaluate soundness of planned RDEC organization		2-9	P			
(Rural Planning)	T		P A	•Evaluate the RDEC Organization from the rural planning point of view	•Lack of basic data management sect such as natural & social aspects was pointed out.	100
(Rural Infrastructure Design)	N		P A	•Evaluate on the ROEC Organization on the technical library	•Institutional arrangement was recommended (Library Management Committee)	100
2-3-2 Assess the original RDEC construction plan	T,O,N,H	2-10	P A	•Advice on the RDEC construction Plan	•RDEC Building was enlarged by 15 stories	100
2-4: Specify needs for RDEC strengthening in procurement of equipment, technical material upgrading, and supplement of facilities						
2-4-1 Analyze the existing technical materials/ manuals		2-12	P			
(Rural Planning)	T		P A	•Analyze Base Map for GIS data	•Necessity of Remote sensing data was confirmed	100
(Project Monitoring)	T		P A	•Analyze Monitoring Form	•Necessity of Efficient PMS was identified	100
(Rural road maintenance)	T		P A	•Analyze rural Road maintenance manual	•Insufficient fields was identified	100
(Rural Infrastructure Design)	N		P A	•Analyze Bridge, Road, and Building Design manual	•Insufficiant fields was identified at the design manual committee •QC manual with available apparatus activated by Short Term Experts.	100
2-4-2 Specify needs for RDEC strengthening in technical materials/manuals upgrading		2-13	P			
(Rural Planning)	T					
(Project Monitoring)	T		P A	•Specify Needs in technical materials in Project Monitoring	•Manuals for Project Monitoring was specified and newly developed	100
(Rural road maintenance)	T		P A	•Specify Needs in technical materials inRural Road Maintenance	•Manuals for upgraded Rural Road Maintenance was specified & revised	100
(Rural Infrastructure Design)	N			•Specify Needs in technical materials in Bridge and building	•Technical Specification for Bridge, and Building were authorized. •Road design standard was authorized	100
2-4-3 Specify needs for organizational reinforcement of RDEC	T,O,N,H	2-14	P A	•Specify Needs for organizational reinforcement of RDEC	•Necessity on Strengthening RDEC Library was proposed	100
2-4-4 Specify needs for RDEC strengthening in procurement of equipment and facility supplement	T,O,N,H	2-15	P A	•Specify Needs in technical equipment in respective fields	•Necessary Equipment for strengthening RDEC's activities was delineated and procured.	100

Progress of Activities and Achievement of expected Output (Form-3)

(Output No. in the PDM and its description;

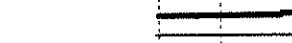
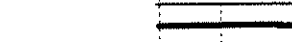
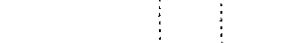
3. The LGED training system is activated, with offering training courses for insufficient technology

Activities		Ref. No in Plan of Operation	Progress of Activities: Planned / Actual	1st Year	2nd Year	3rd Year	Activities/Expected outputs	Major activities Achieved/Outputs	Achievement (%)	Remark
3-1: Conduct TNA (Training Needs Assessment) among engineers of implemented projects and analyze the results										
3-1-1 Conduct Training Needs Assessment (TNA) for LGED engineers and the projects	H	3-1	P A				・Conduct Training Needs Assessme	・TNA was conducted.	100	
3-1-2 Review and evaluate the results of the TNA	H	3-2	P A				・Reviewing and evaluation of TNA	・Reviewing and evaluation of TNA was completed	100	
3-2: Prepare an improvement plan for the current training system										
3-2-1 Review and evaluate the present training system	H	3-3	P A				・Reviewing and evaluate present training system	・Present training system was reviewed and evaluated	100	
3-2-2 Settle on an improvement plan for the present training system	H	3-4	P A				・Settling on improvement plan on present training system	・Improvement plen of present training system was proposed	100	
3-2-3 Confirm the commencement of improvement of the training system in accordance with the improvement plan	H	3-5	P A				・Confirmation of commencement of improvement of present training system	・Commencement of improvement of present training system is confirmed	75	

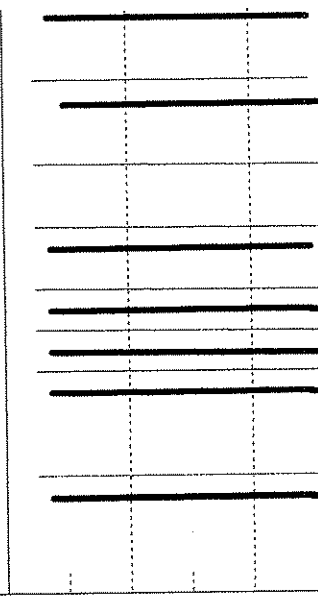
Progress of Activities and Achievement of expected Output (Form No 4)

(Output No. in the PDM and its description;

4. Guidelines for technical management in RDEC are prepared as Step-up plan, referring to the output 1 to 3

Activities	Expert in Charge	Ref. No in Plan of Operation	Progress of Activities: Planned/Actual	Progress of Activities: 1st Year / 2nd Year / 3rd Year	Activities/Expected outputs	Major activities Achieved/Outputs	Achievement (%)	Remark
4-1: Conceptualize Step-up of RDEC		2-11	P					
(Rural Planning)	T		P A		•Conceptualize Step-up of RDEC in the field of Rural Planning	•Participatory Rural Planning by GIS-RS technology was conceptualized	100	
(Project Monitoring)	T		P A		•Conceptualize Step-up of RDEC in the field of Rural Planning	•Project Monitoring System was conceptuelized	100	
(Rural road maintenance)	T		P A		•Conceptualize Step-up of RDEC in the field of Rural Road maintenan	•Improved rural road Maintenance Program was conceptualized	100	
(Rural Infrastructure Design)	N		P A		•Conceptualize Step-up of RDEC in the field of Rural Infrastructure Design and Quality Control works	•Improved data management system for infrastructure design was conceptualized •Reinforcement of QC unit was conceptualized.	100	
(Training)	H		P A		•Conceptualize Step-up of RDEC in the field of Training	•Improved training system, with new training programs was conceptualized	100	
4-2: Formulate the RDEC Step-up Plan		2-16	P					
(Rural Planning)	T		P A		•Formulation of Step-up Plan in Rural Planning	•Contents of Step-up Plan in the field of rural Planning was drafted	75	
(Project Monitoring)	T		P A		•Formulation of Step-up Plan in Project Monitoring	•Contents of Step-up Plan in the field of Project Monitoring was drafted	75	
(Rural road maintenance)	T		P A		•Formulation of Step-up Plan in Rural Road Maintenance	•Contents of Step-up Plan in the field of rural road maintenance was drafted	75	
(Rural Infrastructure Design)	N		P A		•Formulation of Step-up Plan in Rural Infrastructure Design & QC	•Contents of Step-up Plan in the field of rural infrastructure design & QC was drafted	75	
(Training)	H		P A		•Formulation of Step-up Plan in Training	•Contents of Step-up Plan in the field of Training was drafted	75	
						•Contents of Step-up Plan in other sectors of LGED was drafted.	75	
4-3: Confirm the commencement of implementation in accordance with the Step-up Plan	T,O,N,H	2-17	P A		•Confirmation of Implementation of Step-up Plan	Authorization of Draft Step-up Plan is in process.	NA	
4-4: Reinforcement of insufficient technology								
4-4-1 Prepare a development plan for new training course in weak subjects		4-1	P					
(Rural Planning)	T		P A		•Prepare development plan for new training course in rural planning	•GIS related Training subjects were selected.	100	
(Project Monitoring)	T		P A		•Prepare new training course on Project Monitoring	•Training on developed PMS software was selected.	100	
(Rural road maintenance)	T		P A		•Prepare new training course on Rural Road maintenance	•Training on Road maintenance was identified.	100	
(Rural Infrastruoture Design)	N(T)		P		•Prepare new training course on	•Auto-CAD Training was delineated	100	

Annex 2-7

			A		Rural Infrastructure design and Quality Control	•STAAD Pro Training was developed •Training on Quality Control for Laboratory technicians were developed
(Training)	H		P A		•Prepare new training course on the basis of TNA	•Two courses of Training programs were identified. 100
4-4-2: Create new training courses in technical subjects that are urgently required		4-2	P			Following courses are newly created and implemented.
(Participatory Rural Planning)	T		P A		•Create new training courses in the field of rural planning	•Arc-GIS Training Course 100 •Training on Survey by Total station 100 •Fundamental Training on GIS 100 •Training on PMS Software 100
(Project Monitoring)	T		P A		•Create new training courses in the field of project monitoring	•Training on Road Roughness Survey 100 •Training on HDM Software. 100 •Auto-CAD Training 100 •STAAD Pro Training 100 •Training on Library Management 100 •Training on Quality Control for Laboratory technicians. 100
(Rural road maintenance)	T		P A		•Create new training courses in the field of rurel road maintenance	
(Rural Infrastructure Design)	N(T)		P A		•Create new training course on Rural Infrastructure design and Quality Control	
(Training)	H		P A		•Create new training course on Priority area	•Project management Course 100 •Construction management courses 100 •Trainaers' training by PD Method 100 •Training on Construction Meterials 100

Annex 5 Member list of JICA Expert (Long Term, & Short Term)

Long-term Japanese Expert

No.	Name of Expert	Field	Period of Assignment					
			From	To	Remarks	2003	2004	2005
1	Mr. Kanezo Takeuchi	Team Leader Rural Planing	2003/1/10	2006/01/09				
2	Mr. Takeo Oshima	Coordinator	2003/1/10	2006/01/09				
3	Mr. Noriyasu Nishino	Rural Infrastructure Design	2003/4/8	2005/08/31				
4	Mr. Takao Hattori	Training	2003/5/27	2006/01/09				

Short-term Japanese Expert

No.	Name of Expert	Field	Period of Assignment					
			From	To	Remarks	2003	2004	2005
1	Mr. Daisaku Kiyota	Rural Planing by GIS	2003/12/21	2004/03/04	73/30=2.4			
2	Dr. Yuji Kogo	Laboratory Test & Quality Control (Central Laboratory)	2004/1/19	2004/02/10	22/30=0.7			
3	Mr. Yasuharu Yamaguchi	Training Needs Assessment	2004/2/14	2004/03/03	18/30=0.6			
4	Dr. Eiji Yamaji	Rural Planing by GIS	2004/9/19	2004/09/25	7/30=0.2			
5	Mr. Yoshitami Iseki	Laboratory Test & Quality Control (Field Laboratory)	2004/12/9	2004/02/03	55/30=1.8			
6	Mr. Yoshitaka Gomi	Rural Planing by GIS (Thematic Map Development)	2004/12/9	2005/03/03	83/30=2.7			
7	Mr. Yasushi Fukuda	Technical Information Management (RDEC Library)	2005/2/24	2005/03/20	26/30=0.8			
8	Dr. Hideyuki Kanamori	Training Course Design	2005/3/19	2005/04/13	23/30=0.7			
9	Mr. Atsuhiko Hoshino	Laboratory Test & Quality Control (Advanced Asphalt Test)	2005/6/2	2005/07/1	30/30=1.0			
10	Mr. Yasushi Fukuda	Technical Information Management (RDEC Library)	2005/7/8	2005/08/30	54/30=1.8			
11	Mr. Hisashi Ikewada	Step Up Plan of RDEC	2005/8/19	2005/10/11	54/30=1.8			
12	Mr. Isamu Nakajima	Laboratory Test & Quality Control (Advanced Concrete Test)	2005/9/22	2005/10/13	22/30=0.7			
13	Dr. Shigeru Tani	Rural Road Technical Standard	2005/10/18	2005/11/02	16/30=0.5			
14	Dr. Yuji Kogo	Laboratory Test & Quality Control (Advanced Soil Test)	2005/11/13	2005/11/29	17/30=0.5			

16.2

Annex-6: List of Counterparts with their Training in Japan

Assignment of Counterpart / Training in Japan

Note: In case a counterpart's employment is temporary, enter "*" in Remarks

No.	Name of Counterpart	Field	Present Psot / Post at Assignement time	Remarks	Period Of Assignment From	To	2003	2004	2005	Training in Japan Year	Name of Training	Duration
1	Mr. Soraj Kumar Saker	Rural Planing	Additional Chief Engineer		2003/1/11	2006/01/09				2002		
		Project Director	Additional Chief Engineer									
2	Mr. Md. Wahidur Rahman	Project Coordinato	Super Engineer, Admi. PM & E		2003/1/11	2006/01/09				2002		
			Super Engineer, P M & E									11/17~11/30
3	Mr. Md. Lokman Hakim	Quality Control	Super I Engineer, Q/C & TR		2003/1/11	2006/01/09				2002		
		Training	Super I Engineer, Q/C & TR									11/17~11/30
4	Mr. Md. S.M.Zakaria	Rural Infra Design	Super I Engineer, Design		2003/1/11	2006/01/09				2002		
			Super I Engineer, Design									11/17~11/30
5	Mr. S.M Selim	Project Monitoring	Executive Engineer, P M & E		2003/1/11	2006/01/09				2003	Counterpart Training	10/26~11/22
		& Evaluation	Executive Engineer, P M & E								Infrastructure Dev.	
6	Mr. Amir Azam	Rural Road	Executive Engineer, R R M		2003/1/11	2006/01/09				2003	Counterpart Training	10/26~11/22
		Maintenance	Executive Engineer, R R M								Infrastructure Dev.	
7	Mr. Molllha Azizur Hoque	Administration	Executive Engineer, Admi.		2003/1/11	2006/01/09				2003	Counterpart Training	10/26~11/22
			Executive Engineer, Admi.								Infrastructure Dev.	
8	Mr. Md. S. Rahman Pramanik	Rural Infra Design	Executive Engineer, Mymensingh		2003/1/11	2006/01/09				2003	Counterpart Training	10/26~11/22
			Executive Engineer, Mymensingh								Infrastructure Dev.	
9	Mr. Iftekhar Ahmed	Rural Planing	Executive Eng. MSPRoject		2003/1/11	2006/01/09				2004	Counterpart Training	10/11~11/6
			Executive Eng. MSPRoject								Partici. Rural Dev. Plan	
10	Mr. Md. Anwar Hossain	Rural Road Mainter	Exe. Eng. Em. Flo. Reh. Pro.		2003/1/11	2006/01/09				2004	Counterpart Training	10/11~11/6
			Exe. Eng. I Urban Infra. Im.								Rural Raod Maintenance	
11	Mr. Md. Abul Bashar	Quality Control	Executive Eng. Quality Cont.		2003/1/11	2006/01/09				2004	Counterpart Training	10/11~11/6
			Executive Eng. Quality Cont.								Quality Control	
12	Mr. Monowarul Islam Khan	Administration	Assistant Chief Engneer		2003/1/11	2006/01/09				2004	Counterpart Training	10/11~11/6
			Assistant Chief Engneer								Rural Raod Maintenance	
13	Mr. Md. Zahidur Rahman Khan	Rural Development	Executive Engineer, RDP-21		2003/1/11	2006/01/09				2005	Counterpart Training Multiple Effects in RuralDevelopmentProject	9/25~10/22
			Executive Engineer, RDP-22									
14	Mr. Md. Abdul Malek Sarker	Safety Design	Executive Engineer, RTIP		2003/1/11	2006/01/09				2005	Counterpart Training Safety Design for Rural infrustructure	9/25~10/22
			Executive Engineer, RTIP									
15	Mr. Md. Tamzid Sarwar	Training	Executive Engineer, Training		2003/1/11	2006/01/09				2005	Counterpart Training	9/25~10/22
											Training	
16	Mr. Md. Sharifuzzaman	Rural Road Mainter	Executive Engineer, RDP-25		2003/1/11	2006/01/09				2005	Counterpart Training	9/25~10/22
			Executive Engineer, RDP-25								Rural Raod Maintenance	

TIEP (Technical Information Exchange Program) in Abroad and Bangladesh

No.	Name of Country	Duration	Participant
1	Technical Information Exchange Program in Cambodia	07–17Dec, **2003**	Mr. Quzi Md. Khurshid Hasan, Executive Engineer, LGED, H.Q Mr. Rezaul Karim, Upazila Engineer , Upazila Sadar, Rangpur Mr. Md. Zahurul Alam Mondal, Assistant Engineer, LGED, H.Q Mr.Md. Anisur Rahman, Assistant Engineer, LGED Cox's Bazar Mr. Kanezo Takeuchi, Team Leader, JICA RDEC Setting-up Project
2	Technical Information Exchange Program in Philippine	27, Nov. – 10, Dec. **2004**	Mr. Md. Rousan Kobir, Executive Engineer, LGED, H.Q Mr.Md. Monjul Alam, Upazila Engineer, LGED Sadar, Narayangonji Mr. Md. Abdus Salam, Upazila Engineer, LGED, Chandina, Comilla Mr. Md. Shafiqul Islam, Assistant Engineer, LGED Thakurgaon Mr. Kanezo Takeuchi, Team Leader JICA RDEC Setting-up Project
3	International Seminar for Sustainable Rural Development	3～5, Sep. **2005**	
		Nepal	Mr. Basauta Sherestha, Division Head, MENRIS, ICIMOD.
		India	Dr. D. Mukhapadhyay, Scientist, Trafic & Environment Planning Central Road Research Institute, Dehli
		Sri Lanka	Mr.D.S.Pattiaratchi, Director (Planning) Ministry of Agriculture, Live stock, Lands and Irrigation.
		Sri Lanka	Ms. P.I.L. Imbulana, Regional Irrigation Director, Western Province Irrigation Department
		Indonesia	Mr. Ir Yusral Tahir, Head, Asia Sub Division, International Cooperation Bureau, Ministry of Agricultu
		Indonesia	Mr. Ir Soeprato Budisantoso Chief Officer, Utilities and Beneficiaries Management, Office of Water Manage Provincial Government of South Sulawesi.
		Cambodia	Mr. Theng Dara Director, Water Resources and Meteorology Management and Conservation Department, Ministry of Water Resources and Meteorology
		Cambodia	Mr. Ly Savuth Deputy Director General of Administreation, Ministry of Rural Development
		Thailand	Dr. Kiyoshi Honda Associate Professor, RS & GIS Fos, AIT,
		Philippines	Mr. Henry Moreno Zapata Project Development Officer, Department of Agranian Reform.
		Philippines	Dr. Mahabub Hossain Head of Social Sciences Division, IRRI, Manila

Annex-7: List of Equipment Provided

1. Equipment Provided through Equipment Provision Scheme (by Form A4)
2. Equipment Procured for Experts Hand Carrying Equipment Scheme
3. List of Technical Book procured in JICA HQ and provided to the Project
4 List of Technical Books procured in Bangladesh
5. List of Office Furniture & Other Miscellaneous Equipment
6. List of Satellite Image provided for Land use analysis

Grant Equipment

No.	Date	Name of Equipment	Manufacture	Model	Procurement	Number	Unit Price Taka	Total	Setting Place	Frequency in use	condition
1	2003/3/25	Vehicle	Toyota	Prada	Local	2	1,593,000	3,186,000	RDEC, LGED	A	normal
2	2003/8/25	Copy Machine	Toshiba	2826	Local	2	165,500	331,000	Design Training	A	Good
3	2003/9/2	Total Station & Single Pole Prism	Topcon	GTS-223	Local	2	481,000	962,000	GIS Unit	A	Good
4	2003/9/6	Degital Camera Cybershot	Sony	DSC-P10	Local	1	62,000	62,000	GIS Unit	A	Good
5	2003/9/6	Multimedia Projector	HITACHI	CP-327	Local	2	167,000	334,000	GIS Unit Training	A	Good
6	2003/9/6	Direct Projector	REFLECTA	Episcope	Local	1	70,500	70,500	Training 1	A	Good
7	2003/9/6	Overhead Projector (Desktop)	3M	1808	Local	3	24,000	72,000	Training 3	A	Good
8	2003/9/6	Overhead Projector (Portable)	Apollo	2523E	Local	1	41,000	41,000	Training 1	A	Good
9	2003/9/10	DVD Writer(R/RW)	HP	DVD Writer	Local	1	41,300	41,300	Design	A	Good
10	2003/9/10	DVD R/W diskette	VERBATIM		Local	50	250	12,500	Design	A	Good
11	2003/9/10	Printer Deskjet (A3)	HP	9300	Local	1	30,000	30,000	Design	A	Good
12	2003/9/10	Printer Laserjet	HP	1300	Local	1	21,300	21,300	Training	A	Good
13	2003/9/10	Printer Laserjet(A3)	HP	5100	Local	1	94,000	94,000	Design	A	Good
14	2003/9/10	Computer (Desktop) UPS & Acces.	Compaq	EVOD380 HDD40GB	Local	3	60,700	182,100	Design	A	Good
15	2003/9/10	Computer (Desktop) UPS & Acces.	Compaq	EVOD380 HDD80GB	Local	4	71,800	287,200	GIS 3 Training1	A	Good
16	2003/9/10	Computer (Notebook)	Compaq	EVO P-IV, TFT-15"	Local	1	104,800	104,800	Training	A	Good
17	2003/9/11	Software	Microsoft	Office Professional	Local	4	27,000	108,000	GISUnit 1 Training 1 Design 2	A	Good
18	2003/9/11	Software Structure Design	ResearchEngineersUSA	STTARD Pro2003	Local	3	224,400	673,200	Design	A	Good
19	2003/9/11	ComputerDesk	Mashnoon	T-180	Local	7	2,900	20,300	GISUnit 3 Training 1 Design 3	A	Good

Note) Procurment (Japan: Procurment form Japan - Local:Local Purchase 3,447,200
Frecuency in use (A:always - B:well - C: sometime)
Condition (Good - Normal - Bad)

No.	Date	Name of Equipment	Manufacture	Model No.	Procurment	Number	Unit Price Taka	Total	Setting Place	Frequency in use	condition
20	2003/9/14	ArcGIS Software	ESRI	Arc Editor	Local	1	596,750	596,750	GIS Unit	A	Good
21	2003/9/14	ArcGIS Software	ESRI	ArcGIS Extension	Local	1	213,300	213,300	GIS Unit	A	Good
22	2003/9/14	Toner for Plain copier Toshiba2826	Toshiba	2826	Local	24	1,450	34,800	Design 12 Training 12	A	Good
23	2003/9/14	Lamp for Direct Projector	REFLECTA	Espicope A-4	Local	4	2,900	11,600	Training	A	Good
24	2003/9/14	Lamp for Overhead Projector (Desktop)	3M	Lumens2100	Local	10	400	4,000	Training	A	Good
25	2003/9/14	Lamp for Direct Projector (Portable)	Appolo	2523E	Local	10	510	5,100	Training	A	Good
26	2003/9/15	Toner for HP Laserjet 5100 (A-	HP		Local	10	9,700	97,000	Design	A	Good
27	2003/9/15	Toner for HP Laserjet 1200	HP		Local	10	3,400	34,000	Training	A	Good
28	2003/9/15	HP Deskjet 9300 Color Cartridge	HP		Local	10	1,850	18,500	Design	A	Good
29	2003/9/15	HP Deskjet 9300 Black Cartridge	HP		Local	10	1,750	17,500	Design	A	Good
30	2003/9/16	GEAR-2001 Software (CD & Manual)	ACECOMS		Local	1	28,520	28,520	Design	A	Good
31	2003/9/18	Computer (Desktop) Pentium-4HDD80GB	Compaq	EVOD380	Local	3	76,400	229,200	Q/C Unit1 Training 1 Design 1	A	Good
32	2003/9/18	UPS	Centralion	1000VA	Local	3	6,500	19,500	Q/C Unit 1 Training 1 Design 1	A	Good
33	2003/9/18	Printer	Canon	Bubblejet i-6500	Local	3	22,200	66,600	Q/C Unit 1 Training 1 Design 1	A	Good
34	2003/9/18	Black Catridge for Bubblejet i-6500	Canon		Local	27	600	16,200	Q/C Unit 9 Training 9 Design 9	A	Good
35	2003/9/18	Yellow Catridge for Bubblejet i-6501	Canon		Local	26	500	13,000	Q/C Unit 8 Training 9 Design 9	A	Good
36	2003/9/18	Magenta Catridge for Bubblejet i-6502	Canon		Local	26	500	13,000	Q/C Unit 8 Training 9 Design 9	A	Good
37	2003/9/18	Cyan Catridge for Bubblejet i-6503	Canon		Local	25	500	12,500	Q/C Unit 8 Training 8 Design 9	A	Good

Note) Procurment (Japan: Procurment form Japan - Local:Local Purchase 1,431,070
Frecuency in use (A:always - B:well - C: sometime)
Condition (Good - Normal - Bad)

No.	Date	Name of Equipment	Manufacture	Model No.	Procurment	Number	Unit Price Taka	Total	Setting Place	Frequency in use	condition
38	2004/3/14	Multimedia Projector	Hitachi	CP-X328 Lumens 2000	Local	3	140,000	420,000	M & EUnit 1 RuralRM 1 Design 1	A	Good
39	2004/3/14	Digital Camera	Sony	5.0 Mega DSC-P10	Local	2	42,000	84,000	M & EUnit 1 RuralRM 1	A	Good
40	2003/3/14	Fax Machine	Toshiba	DP85F	Local	1	65,000	65,000	Monitoring & E Unit 1	A	Good
41	2003/3/14	Copy Machine	Toshiba	2860	Local	1	167,000	167,000	Monitoring & E Unit 2	A	Good
42	2003/3/16	Software for Structure Design (STAAD Pro)	REI	beava Latest version	Local	1	136,900	136,900	Design	A	Good
43	2003/3/16	Software for Structure Design (STAAD Pro)	REI	STAAD etc Latest version	Local	1	63,000	63,000	Design	A	Good
44	2003/3/22	Computer (Desktop) P-4, HDD:40GB RAM256MB Monitor:	Compaq	EVOd220m	Local	9	77,000	693,000	M & EUnit 3 RuralRM 6	A	Good
45	2003/3/23	Computer (Desktop) P-4, HDD:40GB RAM512MB Monitor: 19"color with	Compaq	EV0330	Local	14	88,000	1,232,000	Design	A	Good
46	2003/3/23	Computer (Notebook) P-4, HDD:40GB RAM256MB Monitor:	Compaq	nx9010	Local	6	108,000	648,000	M & EUnit 1 RuralRM 1 Design 2 GIS 2	A	Good
47	2003/3/23	Design Jet Color Plotter Large Format	HP	500ps	Local	2	180,000	360,000	Design 1 GIS 1	A	Good
48	2003/3/23	LaserJet Printer (A-4) Color	HP	3700	Local	2	125,000	250,000	M & EUnit 1 GIS 1	A	Good
49	2003/3/23	LaserJet Printer (A-3)	HP	5100tn	Local	8	135,000	1,080,000	Design 8	A	Good
50	2003/3/23	Desk Jet Printer (A-3)	HP	1180c	Local	2	16,500	33,000	Design 2	A	Good
51	2003/3/23	Scanner	HP	3970	Local	5	12,500	62,500	Design 5	A	Good
52	2003/3/23	Scanner Design Jet Large Format	HP	Design 815mfp	Local	1	1,520,000	1,520,000	Design 1	A	Good
53	2003/3/23	DVD writer	HP	DVD100i	Local	1	40,000	40,000	Design 1	A	Good

Note) Procurment (Japan: Procurment form Japan - Local:Local Purchase - Handcarry: Handcarry of Expert)
Frecuency in use (A:always - B:well - C: sometime)
Condition (Good - Normal - Bad)

No.	Date	Name of Equipment	Manufacture	Model No.	Procurment	Number	Unit Price Taka	Total	Setting Place	Frequency in use	condition
54	2003/3/23	Digital Camera	Sony	3.0 Mega DSC-P32	Local	6	35,000	210,000	Design 6	A	Good
55	2003/3/25	LaserJet Printer (A-3)	HP	5100	Local	3	91,000	273,000	Rural Road Maintenance 2 GIS 1	A	Good
56	2003/3/25	Scanner	HP	8200	Local	4	28,000	112,000	Training 3 M & EUnit 1	A	Good
57	2003/3/25	Computer (Desktop) P-4, HDD:40GB RAM:256MB Monitor: 17"with UPS & Office XP Software	HP		Local	3	95,000	285,000	Training 3	A	Good
58	2003/3/25	LaserJet Printer (A-4) with 10 toner	HP	4200	Local	1	170,000	170,000	Training 1	A	Good
59	2003/3/25	Desk Jet Printer (A-3)	HP	9300	Local	2	28,000	56,000	Training 2	A	Good
60	2003/3/25	Catridge for 9300	HP	Black	Local	5	1,800	9,000	Training 5	A	Good
61	2003/3/25	Catridge for 9300	HP	color	Local	5	2,000	10,000	Training 5	A	Good
62	2004/5/11	GPS Receiver	Ashtec	Pro MARK-2	Local	2	640,000	1,280,000	GIS 2	A	Good
63	2004/5/11	GPS Receiver	Magellan	Spor Track Pro	Local	10	44,800	448,000	Rural RM	A	Good
		Canvas Carrying Case			Local	10	950	9,500	Rural RM	A	Good
		Topo Booklet			Local	10	1,100	11,000	Rural RM	A	Good
		Data Track Management			Local	2	11,300	22,600	Rural RM	A	Good
64	2004/5/18	Digitizer	GTCO Calcomp	3648	Local	2	339,000	798,000	RuralRM 1 GIS 1	A	Good
		16button cordless Cursor			Local	2	12,000	24,000	RuralRM 1 GIS 1	A	Good
		CordlessTippen70.5 cable			Local	2	12,000	24,000	RuralRM 1 GIS 1	A	Good
		Stand for Digitizer			Local	2	24,250	48,500	RuralRM 1 GIS 1	A	Good

Note) Procurment (Japan: Procurment form Japan - Local:Local Purchase - Handcarry: Handcarry of Expert)
Frecuency in use (A:always - B:well - C: sometime)
Condition (Good - Normal - Bad)

No.	Date	Name of Equipment	Manufacture	Model No.	Procurment	Number	Unit Price Taka	Total	Setting Place	Frequency in use	condition
65	2004/5/29	ArcGIS Software (8.3) Arc Info	ESRI		Local	1	1,155,000	1,155,000	RuralRM 1	A	good
		Arc Info (2-10)			Local	1	1,096,000	1,096,000	RuralRM 2	A	good
		Arc View Concurrent			Local	1	309,000	309,000	RuralRM 3	A	good
66	2004/5/30	Bump Integrator with Spare wire A1471 Counter Kit:A1472 Installation Kit: A1475	CNS Farnel	A1471	Local	9	268,500	2,416,500	RuralRM	A	good
		Distance Odometer	CNS Farnel	A1478	Local	9	79,500	715,500	RuralRM	A	good
		Calibration Kit	CNS Farnel	Merlin A1460	Local	2	168,700	337,400	RuralRM	A	good
67	2005/2/2	Computer (Notebook) Processor: Intel Centrino1.6GHzRAM:512 MB AGP:Integrated HDD:40GB Display: 12"12TFT Optical Drive: COMBO Communication:LAN,WLAN	DELL	Inspiration 700M	Local	1	150,000	150,000	RuralRM	A	good
68	2005/2/2	Digital Camera Pixel : 5 Mega Pixel Display: 12" TFTWide aspect	Sony	P-10	Local	1	28,000	28,000	Training	A	good
69	2005/2/27	UPS for Work Station 500VA Back-up time: 20m	APC	BK500EL	Local	15	4,800	72,000	RuralRM 6 GIS 9	A	good
	2005/2/27	UPS for Server 1000VA Back-up time: 20m	APC	SUA1001	Local	14	24,000	336,000	GIS 14	A	good
71	2005/2/27	Power Extenssin Cord Output: 4 point , All type of pin system			Local	29	380	11,000	RuralRM 6 GIS 23	A	good

Note) **Procurment** (Japan: Procurment form Japan - Local:Local Purchase 6,626,400
Frecuency in use (A:always - B:well - C: sometime)
Condition (Good - Normal - Bad)

No.	Date	Name of Equipment	Manufacture	Model No.	Procurment	Number	Unit Price Taka	Total	Setting Place	Frequency in use	condition
72	2005/2/27	ArcGIS Software	ESRI	Spatial Analyst	Local	1	208,500	208,500	RuralRM 1	A	Good
73	2005/3/1	BumpIntegratorA1471 Spare wire A1471-1016 Counter Kit:A1472 Installation Kit: A1475	CNS Farnel	A1471	Local	1	287,000	287,000	RuralRM 1	A	Good
74	2005/3/1	Distance Odometer	CNS Farnel	A1478	Local	1	87,500	87,500	RuralRM 1	A	Good

Note) **Procurment** (Japan: Procurment form Japan - Local:Local Purchase - Handcarry: Handcarry of Expert)
Frecuency in use (A:always - B:well - C: sometime)
Condition (Good - Normal - Bad)

Equipment Status of RDEC Project(Above 20,000 Yen)

No	Purchase Date	Equipment Name	Quantity	Unit Price		Total Price		Purchase from	User
				In Taka	In Yen(¥)	In Taka	In Yen(¥)		
1	22/01/2003	Toshiba Notebook Computer	1	164571	288000	**164571**	287999	JICA Head office,Japan	Mr. Takeuchi
2	22/01/2003	Water Level tester ST type Shinto	1	34857	61000	**34857**	61000	JICA Head office,Japan	Mr. Takeuchi
3	22/01/2003	Pokenav Mount Mini Empex	1	22286	39000	**22286**	39001	JICA Head office,Japan	Mr. Takeuchi
4	22/01/2003	PH Meter Piccolo II Hanna	2	16000	28000	**32000**	56000	JICA Head office,Japan	Mr. Takeuchi
5	22/01/2003	Planimeter KP90N Koizumi	1	47429	83000	**47429**	83001	JICA Head office,Japan	Mr. Takeuchi
6	22/01/2003	Distance Meter Lyte Speed 1000 Bushnell	1	53029	92800	**53029**	92801	JICA Head office,Japan	Mr. Takeuchi
7	29/01/2003	Sharp Notebook Computer (MEBIUS)	1	145143	254000	**145143**	254000	JICA Head office,Japan	Mr. Oshima
8	29/01/2003	Canon Color Printer BJ M70	1	21714	38000	**21714**	38000	JICA Head office,Japan	Mr. Oshima
9	29/01/2003	Canon Digital Camera IXY Digital 200A	1	27429	48000	**27429**	48001	JICA Head office,Japan	Mr. Oshima
10	30/01/03	Fax Machine, Canon- B155	1	28950	-	**28950**	-	Univrsal Traders	Project (Mr. Oshima)
11	13/03/03	Microsoft Office XP Software-2002	2	27000	-	**54000**	-	Daffodil Computers	Mr.Sorif & Nurul Quadir
12	17/03/2003	Plain Paper Copier with toner, Canon-1215	1	117000	-	**117000**	-	Univrsal Traders	Project (Mr. Oshima)
13	17/03/2003	Desktop Computer, P-4, Compaq	3	79400	-	**238200**	-	Techvally Comp.	Sharif, Mr. Munir, Mr. Saiful
14	16/04/2003	Canon Color Printer BJ-S6300	1	36571	64000	**36571**	63999	JICA Head office,Japan	Mr. Nishino
15	19/04/2003	Steel Almirah	1	10900	-	**10900**	-	Otobi	Project (Mr. Oshima)
16	25/05/2003	Printer Canon i6300	2	22000	-	**44000**	-	JAN	Samsul Islam & Nishino's Room
17	30/06/2003	Multimdia Projector, Hitachi- CP-327	1	158000	-	**158000**	-	Unique	Project (Mr. Nishino)
18	07/04/03	Notebook Computer G8/X20PDEW2	1	161714	283000	**161714**	283000	JICA Head office,Japan	Mr. Hattori
19	07/04/03	Digital Camera Cool pix 4300	1	29714	52000	**29714**	52000	JICA Head office,Japan	Mr. Hattori
20	07/04/03	Canon Color Printer PIXUS 850i	1	20857	36500	**20857**	36500	JICA Head office,Japan	Mr. Hattori
21	14/07/03	Copy Machine, (Canon-6130)	1	185000	-	**185000**	-	Univrsal Traders	Project (Mr. Nishino)
22	26/08/03	Upgrading Desktop computer(HDD, MotherBoard, Processor etc)	2	30000	-	**60000**	-	Zaman & Brother	02 Secretary of RDEC
23	17/09/03	Printer Canon i6500	1	22200	-	**22200**	-	Geneva Intern	Mr. Takeuchi
24	17/09/03	Notebook Computer, Compaq	1	104800	-	**104800**	-	Geneva Intern	Project (Mr. Nishino)
25	27/10/03	UPS , Sendon-1500VA	1	12500	-	**12500**	-	IOE	Project (Mr. Nishino)
26	06/11/03	Desktop Computer, P-4, with UPS	1	79500	-	**79500**	-	Flora	Bhedorgonj Workshop
27	08/11/03	Printer Canon i6500	1	22200	-	**22200**	-	JAN	Bhedorgonj Workshop
28	08/11/03	Printer Canon i6500	1	22200	-	**22200**	-	JAN Associates	Mr. Saiful Islam, AE-Design
29	08/11/03	Paper Deck & Sorter for Canon-6130	1	127000	-	**127000**	-	Univrsal Traders	Project (Mr. Nishino)
30	17/12/2003	Notebook Computer (NEC) PC-LC-9007 D With Ram	1	203429	356001	**203429**	356001	JICA Head office, Japan	Mr. Nishino

Equipment Status of RDEC Project(Above 20,000 Yen)

No	Purchase Date	Equipment Name	Quantity	Unit Price		Total Price		Purchase from	User
				In Taka	In Yen(¥)	In Taka	In Yen(¥)		
31	28/12/2003	Refrgerator, LG, GR-212, DLSK	1	19190	-	**19190**	-	Butterfly Marketing	Project
32	08/01/04	Upgrading Desktop Computer(HDD, MotherBoard Processor etc)	1	33300	-	**33300**	-	Batikram	TNA Consultant
33	13/01/2004	Plain Paper Copier, Toshiba-2860	1 Set	170000	-	**170000**	-	IOM	Project (Mr. Hattori)
34	15/01/2004	Fax Machine, Canon- B155	2	30000	-	**60000**	-	Univrsal Traders	Mr. Hattoori & Mr. Takeuchi
35	24/01/2004	BookSelf (Wooden & Ply wood)	1	32000	-	**32000**	-	Zaman & Brother	For TNA Data (Training Unit)
36	29/02/2004	Printer Change(HP1500 to HP2500)	1	75000	-	**75000**	-	Flora	Mr. Sharif
37	03/03/04	Upgrading Desktop Computer(HDD MotherBoard, Processor etc)	2	21800	-	**43600**	-	Batikram	QC
38	14/03/2004	Printer Canon i6500	1	21000	-	**21000**	-	JAN	QC
39	12/06/04	Fax Machine, Toshiba DP 85F	1	65000	-	**65000**	-	Dil Enterprise	Project (Mr. Nishino)
40	19/06/2004	Color Printer, HP LJ3700	1	99000	-	**99000**	-	Flora	Mr. Takeuchi
41	19/06/04	Spiral Binder, Brand: HIC	2	21200	-	**42400**	-	L&A Business Assoc.	Project and M&E Unit
42	26/06/2004	Upgrading Desktop Computer (HDD,MotherBoard, Processor etc)	1	34700	-	**34700**	-	Gateway Tech Ltd	Design Unit
43	30/06/2004	LCD Monitor Samsung 17"	2	31800	-	**63600**	-	Epsilon	QC
44	30/06/2004	HP Laser Jet 1300 Printer	1	20800	-	**20800**	-	Epsilon	QC
45	28/09/2004	UPS Centralion-2000VA	1	38000	-	**38000**	-	Flora	Design Unit
46	30/09/2004	DVD Cam Corder, Hitachi D2MV380V	1	72000	-	**72000**	-	L& A Business	Project, TNA
47	30/09/2004	Television, Sony- HW-21 21"	2	25600	-	**51200**	-	L& A Business	Project, TNA
48	30/09/2004	DVD Player, Sony- NS-575	1	15000	-	**15000**	-	L& A Business	Project, TNA
49	07/12/04	Conference Microphone DM-4410/DIS/ DENMARK	3	19800	-	**59400**	-	Zaman & Brother	ICT Room, RDEC
50	28/12/04	Pen Drive	2	11300	-	**22600**	-	Ryans Computers	Project, Nishino Sir(XEN-D)
51	02/02/05	Processor, RAM, HDD, 17" Monitor	2	54000	-	**108000**	-	Gateway Tech	Library & Map Unit
52	02/02/05	Canon i6500 Printer	2	22000	-	**44000**	-	Gateway Tech	Library & Map Unit
53	19/02/2005	Processor, RAM, HDD, 19" Monitor, M.Board	1	57500	-	**57500**	-	Gateway Tech	Mr. Saiful Islam, AE-Design
54	05/03/05	Toshiba Photocopier 2860	1	170000	-	**170000**	-	IOM	Mr, Takeuchi
55	07/03/05	Desktop Computer	1	58500	-	**58500**	-	Flora	Bhedarganj
56	07/03/05	Printer	1	25500	-	**25500**	-	Flora	Bhedarganj
57	07/03/05	HP iPaq Pocket PC 3400`	1	26000	-	**26000**	-	Flora	Sharif, RDEC
58	20/4/2005	Mother Board & External Hard Disk	1	14000	-	**14000**	-	Syscom System	Mr. Munir, TS
59	12/05/05	Digital Camera (7.2Mega Pixel, DSC-P200)	1	36500	-	**36500**	-	Unique Business®	Mr. Bashar (QC)
60	13/7/2005	Computer with UPS (Desktop)	1	65000	-	**65000**	-	Flora	Library

Equipment Status of RDEC Project(Above 20,000 Yen)

No	Purchase Date	Equipment Name	Quantity	Unit Price		Total Price		Purchase from	User
				In Taka	In Yen(¥)	In Taka	In Yen(¥)		
61	01/08/05	Amplifier and wireless Microphone (2) for Training	1	63000	-	**63000**	-	Zaman & Brother	ICT Room, RDEC
62	01/09/05	Desktop Computer with UPS	1	64000	-	**64000**	-	Flora Limited	Mr. S. Nurul Quadir, Design Unit
63	09/10/05	Concrete Mixure Machine	1	25000	-	**25000**	-	Maxim Ercon Ltd.	QC unit
64	16/11/2005	Air Compressure Set	1	35060	-	**35060**	-	Rashid Enterprise	QC unit
65	20/11/2005	10ltr Capacity Tank	1	11750	-	**11750**	-	SAARC Group of Co.	QC unit
66	23/11/2005	HDM-4, Version-2, Software	1	165000	-	**165000**	-	Geoplan Bangladesh	RIMMU, LGED
67	28/11/2005	Pocket PC with Mobile & Camera	1	56500	-	**56500**	-	Cyber Bridge	GIS unit
					Grand Total:	**4,350,293**	**(**01TK=1.75¥)**		

Taka In Word: Four Milion Three Hundred Fifty Thousand Two Hundred Ninety Three Only.

(Akio Arai)
Resident Representative
Japan International Cooperation Agency

(Md. Shahidul Hassan)
Chief Engineer
Local Government Engineering Department

Equipment Status of RDEC Project(Below 20,000 Yen)

All Amount in Taka

No	Purchase Date	Equipment Name	Quantity	Unit Price	Total Price	Purchase from	Used By
1	27/01/03	Voltage Stabilizer, Micro	1	2400	2,400.00	Micro Electronics	Md. Samsul Islam
2	04/03/03	Canon Color Image Scanner	1	7500	7,500.00	Access Pvt Ltd.	AE-21
3	16/03/03	Voltage Stabilizer, Micro	3	9025	27,075.00	Micro Electronics	Mr.Takeuchi,Mr.Oshima,Mr. Hattori,
4	16/03/03	UPS, Micro-1000VA	4	6460	25,840.00	Micro Electronics	Mr.Monir,Md.Ashadul,Mr.Malek,Mr.Jahidul
5	03/04/03	Printer, Canon S400sp	2	7000	14,000.00	Techvalley	Project & Design Unit
6	04/12/03	UPS STAC 500C SVR	3	2800	8,400.00	Radio Electric	Mr.Nishino,Mr.Oshima,Mr. Hattori,
7	05/08/03	CD Writer (Sony)	1	6500	6,500.00	Techvalley	TS, Mr. Munir
8	06/08/03	UPS	1	7990	7,990.00	Integra	Secretary, Level-4
9	16/6/2003	CD Writer (Sony)	4	3900	15,600.00	Integra	Sharif,Samsul islam, Mr. Saiful,QC
10	15/07/03	Canon Scanner 1250	1	4350	4,350.00	Orbit Comp. Home	Secretary of RDEC
11	25/08/03	Projector Screen	1	9000	9,000.00	Unique	Project (Mr. Nishino)
12	11/08/03	CD Writer, Asus	1	4500	4,500.00	Batikram	Bhedorgonj Workshop
13	11/08/03	Multimedia Speaker	2	500	1,000.00	Flora	02 Secretary of RDEC
14	12/10/03	Epson Scanner 1260	1	6200	6,200.00	Flora	Bhedorgonj Workshop
15	20/12/03	Modem US Robotics 56K	1	4500	4,500.00	United Computer	Sharif
16	21/12/03	Samsung 17"Flat Monitor	2	7000	14,000.00	Flora	1 Secretary of RDEC & 1 QC
17	28/12/03	Epson Scanner 1260	1	6200	6,200.00	Flora	Bhedarganj
18	14/01/04	Photocopy Stabilizer	1	6000	6,000.00	TechnoSquare	Mr. Hattori
19	20/01/04	Epson Scanner 1260	2	6200	12,400.00	Flora	Mr. Munir, TS & XEN(T)
20	22/01/04	UPS , Sendon-1000VA	1	6950	6,950.00	IOE	Mr. sharif
21	03/09/04	Sendon UPS	2	6800	13,600.00	IOE	QC
22	21/03/04	Projector Screen	1	9000	9,000.00	Dil Enterprise	Design Unit
23	22/06/04	UPS, Sendon 1000VA	3	6950	20,850.00	IOE	M&E Unit
24	09/04/04	External CD Writer- Litton	1	5800	5,800.00	Gateway Tech Ltd	Sugatani Sir
25	28/09/04	UPS Centralion-1000VA	1	5500	5,500.00	Flora	Design Unit
26	02/02/05	UPS Centralion-1000VA	2	5500	11,000.00	Gateway Tech	Library & Map Unit
27	02/02/05	Epson 1670 Scanner	2	7700	15,400.00	Gateway Tech	Library & Map Unit

Equipment Status of RDEC Project(Below 20,000 Yen)

No	Purchase Date	Equipment Name	Quantity	Unit Price	Total Price	Purchase from	Used By
28	13/02/05	UPS Centralion-1000VA	1	5500	5,500.00	Gateway Tech	QC unit
29	13/02/05	HP Scanjet 3770 Scanner	1	8500	8,500.00	Gateway Tech	QC unit
30	13/02/05	RAM + Service Charge(2700+2000)	1	4700	4,700.00	Gateway Tech	QC unit
31	19/02/05	UPS Centralion-1000VA	1	5500	5,500.00	Gateway Tech	Mr. Saiful Islam, AE-Design
32	03/07/05	HP Scanjet 3770 Scanner	1	8500	8,500.00	Flora	Sharif
33	03/07/05	UPS Centralion-1000VA	1	5500	5,500.00	Flora	Bhedarganj
34	06/01/05	Samsung Hard Disk, 80X2=160GB	1	10000	10,000.00	Gateway Tech	Mr. Munir, TS
35	13/06/05	Canon i560	1	6000	6,000.00	J.A.N Associates	Kishida Sir
36	10/05/05	6" Cylinder Mould	3	2100	6,300.00	Maxim Ercon Ltd.	QC unit
37	01/09/05	Canon i560	1	6000	6,000.00	J.A.N Associates	TL, RDEC
38	10/09/05	Micrometer	1	8000	8,000.00	Ferba Instrumentation	QC unit
39	20/11/05	03ltr Capacity Tank	1	8150	8,150.00	SAARC Group of Co.	QC unit
40	23/11/05	Pressure Meter	1	1400	1,400.00	Jeeban Traders	QC unit
				Grand Total	**355,605.00**	**(** 1 Taka=1.75(¥))**	

Taka In Word: Three Hundred Fifty Five Thousand Six Hundred Five Only.

(Akio Arai)
Resident Representative
Japan International Cooperation Agency

(Md. Shahidul Hassan)
Chief Engineer
Local Government Engineering Department

List of Technical Books Procurement for the activity on RDEC (Import from Japan ; AASHTO, ACI, ASTM and BS) (As of 21 Nov 2004)

SI	classification		publisher	author	Code No.	ISBN	Publication Year	Title	Price (F.C.)	Price (Yen)	Request from	Remarks
1	Bridge	Design	AASHTO					AASHTO LRFD Bridge Design Specifications, (U.S. Customary Units) 2nd Edition 2003 Interim Revisions (2003),	216	22,382	Design Unit	
2	Bridge	Design	AASHTO		M-LRFDUS-2-15			AASHTO LRFD Bridge Design Specifications, 2nd Edition – 2003 Interim Revisions STANDARD	216	22,382	Design Unit	
3	Bridge	Design	AASHTO		M-LRFDUS-214			AASHTO LRFD Bridge Design Specifications, 2nd Edition – 2002 Interim Revisions STANDARD	145	15,025	Design Unit	
4	Bridge	Design	AASHTO		M-LRFDUS-213			AASHTO LRFD Bridge Design Specifications, 2nd Edition – 2001 Interim Revisions STANDARD	75	7,772	Design Unit	
5	Bridge	Design	AASHTO		M-LRFDUS-212			AASHTO LRFD Bridge Design Specifications, 2nd Edition – 2000 Interim Revisions STANDARD	80	8,290	Design Unit	
6	Bridge	Design	AASHTO		M-LRFDUS-211			AASHTO LRFD Bridge Design Specifications, 2nd Edition – 1999 Interim Revisions STANDARD	72	7,461	Design Unit	
7	Bridge	Design	AASHTO					OPIS Software for Bridge Design	145	15,025	Design Unit	
8	Bridge	Design	AASHTO		M-GSBTW-1			Guide Design Specifications for Bridge Temporary Works	25	2,591	Design Unit	
9	Bridge	Design	ACI Book Store		341.2 R-97			Seismic Analysis and Design of Concrete Bridge Systems	44.5	4,611	Design Unit	
10	Bridge	Design	ACI Book Store		343 R-5			Analysis and Design of Reinforced Concrete Bridge Systems	126.5	13,108	Design Unit	
11	Bridge		ACI Book Store		345.1 R-92			Routine Maintenance of Concrete Bridges	19.5	2,021	Design Unit	
12	Bridge		ACI Book Store		345.2 R-98			Guide for Widening Highway Bridges	23.5	2,435	Design Unit	
13	Bridge		ACI Book Store		345 R-91			Guide for Concrete Highway Bridge Deck Construction	49.5	5,129	Design Unit	
14	Bridge		ACI Book Store		C-29			Bridge Repair and Rehabilitation	39.5	4,093	Design Unit	
15	General	Concrete	ACI Book Store		212.3 R-91			Chemical Admixtures for Concrete	61.5	6,373	Design Unit	
16	General	Concrete	ACI Book Store		308 R-01			Guide to Curing Concrete	42.5	4,404	Design Unit	
17	General	Concrete	ACI Book Store		311.4 R-00			Guide for Concrete Inspection	21.5	2,228	Design Unit	
18	General	Concrete	ACI Book Store		408.1 R-90			Suggested Development, Splice and Standard Hook Provisions for Deformed Bars in Tension	19.5	2,021	Design Unit	
19	General	Concrete	ACI Book Store		421.1 R-99			Shear Reinforcement for Slabs	19.5	2,021	Design Unit	

List of Technical Books Procurement for the activity on RDEC (Import from Japan ; AASHTO, ACI, ASTM and BS) (As of 21 Nov 2004)

Sl	classification		publisher	author	Code No.	ISBN	Publication Year	Title	Price (F.C.)	Price (Yen)	Request from	Remarks
20	General	Concrete	ACI Book Store		435 R-95			Control of Deflection in Concrete Structures	88.5	9,170	Design Unit	
21	General	Concrete	ACI Book Store		445 R-99			Recent Approaches to Shear Design of Structural Concrete	52.5	5,440	Design Unit	
22	General	Concrete	ACI Book Store		504 R-90			Guide to Joint Sealants for Concrete Structures	76.5	7,927	Design Unit	
23	General	Concrete	ACI Book Store		515.1 R-85			Guide to the Use of Waterproofing, Damp-proofing, Protective and Decorative Barrier Systems for Concrete	59.5	6,165	Design Unit	
24	General	Concrete	ACI Book Store		543 R-00			Design, Manufacture, and Installation of Concrete Piles	47.5	4,922	Design Unit	
25	General	Concrete	ACI Book Store		546.1 R-80			Guide for Repair of Concrete Bridge Superstructures	25.5	2,642	Design Unit	
26	General	Concrete	ACI Book Store		546 R-96			Concrete Repair Guide	56.5	5,855	Design Unit	
27	General	Concrete	ACI Book Store		549.1 R-93			Guide for the Design, Construction and Repair of Ferro cement	37.5	3,886	Design Unit	
28	General	Concrete	ACI Book Store		C-10			Repair and Rehabilitation of Concrete Structures	20.5	2,124	Design Unit	
29	General	Concrete	ACI Book Store		C-12			Concrete Mixtures	27.5	2,850	Design Unit	
30	General	Concrete	ACI Book Store		C-16			Quality Assurance Concrete Construction	65.5	6,787	Design Unit	
31	General	Concrete	ACI Book Store		C-17			High Strength Concrete	70.5	7,305	Design Unit	
32	General	Concrete	ACI Book Store		C-19			Concrete Foundations	44.5	4,611	Design Unit	
33	General	Concrete	ACI Book Store					Concrete Construction Engineering Handbook	150	15,543	Design Unit	
34	General	Concrete	ACI Book Store					Concrete Mix Design, Quality Control and Specification	116	12,020	Design Unit	
35	General	Concrete	ACI Book Store					Concrete Repair (V1)	14	1,451	Design Unit	
36	General	Concrete	ACI Book Store					Concrete Repair (V2)	14	1,451	Design Unit	
37	General	Concrete	ACI Book Store					Concrete Repair (V3)	14	1,451	Design Unit	
38	General	Concrete	ACI Book Store		E199			Aggregates for Concrete	30	3,109	Design Unit	

List of Technical Books Procurement for the activity on RDEC (Import from Japan ; AASHTO, ACI, ASTM and BS) (As of 21 Nov 2004)

Sl	classification		publisher	author	Code No.	ISBN	Publication Year	Title	Price (F.C.)	Price (Yen)	Request from	Remarks
39	General	Concrete	ACI Book Store		E2-00			Reinforcement for Concrete	22.5	2,331	Design Unit	
40	General	Concrete	ACI Book Store		SP-203			Code Provisions for Deflection Control in Concrete Structures	40.5	4,197	Design Unit	
41	General	Concrete	ACI Book Store		SP=299			ACI Manual of Concrete Inspection	94.5	9,792	Design Unit	
42	General	Soil	AASHTO		M-IMQA-1			In Situ Soil Improvement Techniques, Task Force 27 Report	50	5,181	Design Unit	
43	General		ACI Book Store		C-31			Seismic Design and Construction	46.5	4,818	Design Unit	
44	Material Testing		ASTM					Annual Book of ASTM Standards Vol-04.01, Edition-Latest, 2003.	177	18,341	QC Unit	
45	Material Testing		ASTM					Annual Book of ASTM Standards Vol-04.02, Edition-Latest, 2003.	197	20,413	QC Unit	
46	Material Testing		ASTM					Annual Book of ASTM Standards Vol-04.03, Edition-Latest, 2003.	252	26,112	QC Unit	
47	Material Testing		ASTM					Annual Book of ASTM Standards Vol-04.04, Edition-Latest, 2003.	143	14,818	QC Unit	
48	Material Testing		ASTM					Annual Book of ASTM Standards Vol-04.08, Edition-Latest, 2003.	245	25,387	QC Unit	
49	Material Testing		ASTM					Annual Book of ASTM Standards Vol-04.09, Edition-Latest, 2003.	264	27,356	QC Unit	
50	Material Testing		ASTM					Annual Book of ASTM Standards Vol-04.10, Edition-Latest, 2003.	184	19,066	QC Unit	
51	Material Testing		ASTM					Annual Book of ASTM Standards Vol-04.11, Edition-Latest, 2003.	222	23,004	QC Unit	
52	Material Testing		ASTM					Annual Book of ASTM Standards Vol-04.12, Edition-Latest, 2003.	229	23,729	QC Unit	
53	Material Testing		BS		BS-1377-1:1990		1990	BS Testing Manual Edition- Latest	184	19,066	QC Unit	
54	Material Testing		BS		BS-1377-2 Amendment 1		1996	BS Testing Manual Edition- Latest	36.8	3,813	QC Unit	
55	Material Testing		BS		BS-1377-2:1990		1990	BS Testing Manual Edition- Latest	161.92	16,778	QC Unit	
56	Material Testing		BS		BS-1377-3 Amendment 1		1996	BS Testing Manual Edition- Latest	36.8	3,813	QC Unit	
57	Material Testing		BS		BS-1377-3:1990		1990	BS Testing Manual Edition- Latest	136.16	14,109	QC Unit	

List of Technical Books Procurement for the activity on RDEC (Import from Japan ; AASHTO, ACI, ASTM and BS) (As of 21 Nov 2004)

Sl	classification	publisher	author	Code No.	ISBN	Publication Year	Title	Price (F.C.)	Price (Yen)	Request from	Remarks
58	Material Testing	BS		BS-1377-4 Amendment 1		1995	BS Testing Manual Edition- Latest	36.8	3,813	QC Unit	
59	Material Testing	BS		BS-1377-4:1990		1990	BS Testing Manual Edition- Latest	136.16	14,109	QC Unit	
60	Material Testing	BS		BS-1377-5 Amendment 1		1994	BS Testing Manual Edition- Latest	18.4	1,907	QC Unit	
61	Material Testing	BS		BS-1377-5:1990		1990	BS Testing Manual Edition- Latest	184	19,066	QC Unit	
62	Material Testing	BS		BS-1377-6:1990		1990	BS Testing Manual Edition- Latest	246.56	25,549	QC Unit	
63	Material Testing	BS		BS-1377-7:1990		1990	BS Testing Manual Edition- Latest	136.16	14,109	QC Unit	
64	Material Testing	BS		BS-1377-8:1990		1990	BS Testing Manual Edition- Latest	99.36	10,296	QC Unit	
65	Material Testing	BS		BS-1377-9:1990		1990	BS Testing Manual Edition- Latest	161.92	16,778	QC Unit	
66	Material Testing	BS		BS- 812-101:1984		1984	BS Testing Manual Edition- Latest	44.16	4,576	QC Unit	
67	Material Testing	BS		BS-812-103.1:1985		1985	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
68	Material Testing	BS		BS-812-103.2:1989		1989	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
69	Material Testing	BS		BS-812-104:1994		1994	BS Testing Manual Edition- Latest	110.4	11,440	QC Unit	
70	Material Testing	BS		BS-812-105.1:1989		1990	BS Testing Manual Edition- Latest	44.16	4,576	QC Unit	
71	Material Testing	BS		BS-812-105.2:1990		1990	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
72	Material Testing	BS		BS-812-105S1:1989		1989	BS Testing Manual Edition- Latest	36.8	3,813	QC Unit	
73	Material Testing	BS		BS-812-105S2:1990		1990	BS Testing Manual Edition- Latest	51.52	5,339	QC Unit	
74	Material Testing	BS		BS-812-106:1985		1985	BS Testing Manual Edition- Latest	44.16	4,576	QC Unit	
75	Material Testing	BS		BS-812-117:1988		1988	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
76	Material Testing	BS		BS-812-118:1988		1988	BS Testing Manual Edition- Latest	88.32	9,152	QC Unit	

List of Technical Books Procurement for the activity on RDEC (Import from Japan ; AASHTO, ACI, ASTM and BS) (As of 21 Nov 2004)

Sl	classification		publisher	author	Code No.	ISBN	Publication Year	Title	Price (F.C.)	Price (Yen)	Request from	Remarks
77	Material Testing		BS		BS-812-119:1985		1985	BS Testing Manual Edition- Latest	44.16	4,576	QC Unit	
78	Material Testing		BS		BS-812-121:1989		1989	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
79	Material Testing		BS		BS-812-123:1999		1999	BS Testing Manual Edition- Latest	110.4	11,440	QC Unit	
80	Material Testing		BS		BS-812-124:1989		1989	BS Testing Manual Edition- Latest	158.24	16,397	QC Unit	
81	Material Testing		BS		BS-812-100:1990		1990	BS Testing Manual Edition- Latest	110.4	11,440	QC Unit	
82	Material Testing		BS		BS-812-102:1989		1990	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
83	Material Testing		BS		BS-812-109:1990		1990	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
84	Material Testing		BS		BS-812-110:1990		1990	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
85	Material Testing		BS		BS-812-111:1990		1990	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
86	Material Testing		BS		BS-812-112:1990		1990	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
87	Material Testing		BS		BS-812-113:1990		1990	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
88	Material Testing		BS		BS-812-114:1990		1990	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
89	Material Testing		BS		BS-812-120:1989		1990	BS Testing Manual Edition- Latest	55.2	5,720	QC Unit	
90	Material Testing		BS		BS-812-2:1995		1995	BS Testing Manual Edition- Latest	110.4	11,440	QC Unit	
91	Material Testing		BS		BS-5930	0-580-33059-1	1999	BS Testing Manual Edition- Latest	327.52	33,938	QC Unit	
92	Material Testing		BS		BS-5835	0-580-11256-X	1980	BS Testing Manual Vol-Part-1, Edition- Latest	88.32	9,152	QC Unit	
93	Road	Design	AASHTO					Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT<400)	50	5,181	Design Unit	
94	Road	Design	ACI Book Store					Guide for Design and Construction of Parking Lot	46.5	4,818	Design Unit	
95	Road	Pavement	AASHTO					Guidelines for Skid-Resistant Pavement Design	15	1,554	Design Unit	

List of Technical Books Procurement for the activity on RDEC (Import from Japan ; AASHTO, ACI, ASTM and BS)

(As of 21 Nov 2004)

Sl	classification		publisher	author	Code No.	ISBN	Publication Year	Title	Price (F.C.)	Price (Yen)	Request from	Remarks
96	Road	Pavement	AASHTO		M-GDPS-4			Guide for Design of Pavement Structures, Volume 1	110	11,398	Design Unit	
97	Road	Pavement	AASHTO		M-GDPSV2-3			Guide for Design of Pavement Structures, Volume 2	45	4,663	Design Unit	
98	Road	Pavement	AASHTO					Standard Specification for Transportation materials and Methods of sampling and testing	528	54,712	QC Unit	
99	Road	Pavement	ACI Book Store		325.1 R-67			Design of Concrete Overlays for Pavements	60	6,217	Design Unit	
100	Road	Pavement	AASHTO		M-CSD-1			Computerized Software for Design of Pavement Structures			Design Unit	
101	Road	Planning/ Design	AASHTO					Green Book; A Policy on Geometric Design of Highways and Streets, 4th Edition, 2nd Printing Multiple Codes	275	28,496	Design Unit	
102	Road	Planning/ Design	AASHTO		M-VLVLR-1			Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT<400)	50	5,181	Design Unit	
103	Road	Planning/ Design	AASHTO					Highway : A Policy on Geometric Design of Rural Highways, 1965	70	7,253	Design Unit	

Total 987,516 Yen

01¥=0.57Tk

562,884 BDT

(Akio Arai)
Resident Representative
Japan International Cooperation Agency

(Md. Shahidul Hassan)
Chief Engineer
Local Government Engineering Department

List of the Technical Books Procure under RDEC Setting-up Project

Local Purchase

No.	Classification		Publisher	Author	ISBN	Publication Year	Title	Price	Request by	Remarks
1	Architecture		McGRAW-HILL INC	Joseph De Chiara & John Callender	0-07-016387-1	2001	TIME SAVER STANDDARDS FOR BUILDING TYPES McGRAW HILL INTERNATIONAL EDITIONS Architechture Series (4th Edition)	1,700.00	Design Unit	16/10/04
2	Architecture		McGRAW-HILL INC	John Hancock Callender	0-07-068506-1	1998	TIME SAVER STANDDARDS FOR ARCHITECTURAL DESIGN DATA McGRAW HILL INTERNATIONAL EDITIONS Architechture Series (7th Edition)	3,700.00	Design Unit	16/10/04
3	Architecture		McGRAW-HILL INC	Joseph De Chiara, Julias Panero, Martin Zelnik	0-07-134616-3	2001	TIME SAVER STANDDARDS FOR INTERIOR DESIGN & SPACE PLANNING (2nd Edition)	4,500.00	Design Unit	29/09/04
4	Architecture		McGRAW-HILL INC	Joseph De Chiara, Julias Panero, Martin Zelnik	0-07-016301-4	1995	TIME SAVER STANDDARDS FOR HOUSING & RESIDENTIAL DEVELOPMENT (2nd Edition)	2,950.00	Design Unit	30/12/04
5	Bridge	Design		V.K. Raina	0-07-462362-1	2003	Concrete Bridge Practice Analysis, Design & Economics	980.00	Design Unit	16/10/04
6	Bridge			V.K. Raina	0-07-462349-4	2003	Concrete Bridges	860.00	Design Unit	16/10/04
7	Bridge			V.K. Raina	0-07-460310-8	1993	Consultancy & Construction Agreements for Bridges	560.00	Design Unit	16/10/04
8	Flood Control/ Water Resources		STD	Gurcharan Singh	81-86308-27-x	1996	Water Supply & Sanitary Engineering	175.00	Design Unit	16/10/04
9	Flood Control/ Water Resources			Garg	81-7409-047-9	2003	Irrigation Engineering & Hydraulic Structures	230.00	Design Unit	16/10/04
10	Flood Control/ Water Resources			Subramanya	0-07-462446-6	1998	Flow in Open Channels	225.00	Design Unit	16/10/04
11	Flood Control/ Water Resources			Leliavsky	0-412-22540-9	1981	Design Textbooks in Civil Engineering Weirs	350.00	Design Unit	30/12/04
12	Flood Control/ Water Resources			Linsley	0-07-084185-3	1988	Hydrology for Engineers	750.00	Design Unit	16/10/04
13	General	Concrete		Ferguson	0-471-80378-2	1988	Reinforced Concrete Fundamentals	250.00	Design Unit	16/10/04
14	General	Concrete		Reynolds	0-419-14540-0	1999	Reinforced Concrete Design Handbooks	1,050.00	Design Unit	29/09/04

No.	Classification		Publisher	Author	ISBN	Publication Year	Title	Price	Request by	Remarks
15	General	Concrete		Dayaratnam	81-204-0045-3	1996	Prestrssed Concrete Structure	450.00	Design Unit	16/10/04
16	General	Concrete		Sushil Kumar	81-900893-6-6	2003	Trasure of RCC Design	290.00	Design Unit	16/10/04
17	General	Design		Joseph E. Bowles	0-07-118844-4	1997	Foundation Analyis & Design	1,350.00	Design Unit	29/09/04
18	General	Design		Teng	0-87692-033-4	1987	Foundation Design	180.00	Design Unit	16/10/04
19	General	Design		Tomilnson	0-13-031180-4	2001	Foundation Design & Construction (7th Edition)	550.00	Design Unit	29/09/04
20	General	Design		Winter	-	2001	Design of Concrete Structure (7th Edition)	250.00	Design Unit	29/09/04
21	General	Design		Nilson	0-07-058199-1	2004	Design of Concrete Structure (12th Edition)	280.00	Design Unit	29/09/04
22	General	Design		Nilson	0-471-83072-0	1987	Design of Prestressed Concrete	280.00	Design Unit	16/10/04
23	General	Design		S.P. Timosb/D.H. Young	0-07-085807-1	1965	Theory of Structure	720.00	Design Unit	16/10/04
24	General	Soil		Tomilnson	0-419-18450-3	1994	Pile Design & Construction Practice	250.00	Design Unit	16/10/04
25	General			Dayaratnam	81-204-1419-5	2002	Design of Reinforced Concrete Structure	550.00	Design Unit	16/10/04
26	General		STD	Gurcharan Singh	81-8014-020-2	2003	Standard Handbook of Civil Engineering (9th Edition)	350.00	Design Unit	29/09/04
27	General		STD	Chen W.F.			Structural Engineering Handbook (CD)	7,740.00	Design Unit	29/09/04
28	General			Peck & Hanson	0-85226-707-x	2003	Foundation Engineering	150.00	Design Unit	16/10/04
29	General			Norris	0-07-058116-9	2003	Elementary Structural Analysis	480.00	Design Unit	16/10/04
30	General			Shedd & Vawter	0-85226-728-2	1998	Theory of Simple Structure	150.00	Design Unit	16/10/04
31	General			V.T. Chow	07-010774-2		Handbook of Applied Hydrology	7,980.00	Design Unit	29/09/04
32	General			D.N. Ghosh		2000	A Dictionary of Civil Engineering	200.00	Design Unit	29/09/04
33	General			Garg			Sweage Disposal & Air Pollution Engineering	180.00	Design Unit	16/10/04
34	General			Aziz & Shahjahan		1982	Surveying	120.00	Design Unit	16/10/04
35	General			Alam Singh	81-239-0121-6	2001	Modern Geotechnical Engineering	250.00	Design Unit	16/10/04

No.	Classification		Publisher	Author	ISBN	Publication Year	Title	Price	Request by	Remarks
36	General			C.K. Wang	0-07-066623-7	1983	Intermeiate Structural Analysis	810.00	Design Unit	29/09/04
37	General			BDS	984-30-0086-2	1993	Bangladesh National Building Code Vol-Part-1. Edition-1993	900.00	Design Unit	20/10/04
38	Road	Design		Yoder	0-471-07780-2	1975	Principles of Pavement Design	450.00	Design Unit	16/10/04
39	Road			Gurcharan Singh	-	2001	Highway Engineering	154.00	Design Unit	29/09/04
40	Road			Paulh Wright	0-471-00315-8	1996	Highway Engineering (9th Edition)	2,100.00	Design Unit	29/09/04
41	Road			Kadyali	81-7409-165-3	2003	Principles & Practices of Highway Engineering (4th Edition)	280.00	Design Unit	29/09/04
42	General	Design	Wiley	T.Y. Lin & Ned H. Burns	9812-53-117-3	2004	Design of Prestressed Concrete Structure 3rd Edition	675.00	Design Unit	18/08/05
43	Bridge	Design	TATA McGRAW-HILL	V K Raina	0-07-462362-1	2003	Concrete Bridge Practice Analysis, Design & Economics 2nd Edition	1,200.00	Design Unit	18/08/05
							Total (BDT)	**47,599.00**		

(Akio Arai)
Resident Representative
Japan International Cooperation Agency

(Md. Shahidul Hassan)
Chief Engineer
Local Government Engineering Department

List of the Furniture & Others (Local Purchase)

No	Date	Particulars	Quantity	Unit Price	Total Price	User
1	19/03/03	Vebox Desktop Computer Table	1	3600	3,600.00	Project 1215 Photocopy
2	20/03/03	Vebox Desktop Computer Table	3	4100	12,300.00	Sharif, Mr. Munir, Mr. Saiful
3	27/04/03	File Rack (Wooden)	4	8000	32,000.00	Project
4	27/04/04	Paper Stand	1	2400	2,400.00	Project
5	24/05/03	Twister Wall Clock	2	450	900.00	Level-3 & 4, Project
6	25/05/03	Vebox Desktop Computer Table	2	4000	8,000.00	Level-4, Secretary
7	26/07/03	Table for Laptop	1	4000	4,000.00	Mr. Oshima
8	21/01/04	Photocopier Stand	1	6500	6,500.00	Project (Mr. Hattori)
9	24/01/04	BookSelf (Wooden & Ply wood)	1	32000	32,000.00	TNA Consultant
10	18/03/04	Chair Table & Drawer	1	12730	12,730.00	Sharif
11	19/04/04	Telephone set	1	750	750.00	Mr. Oshima
12	30/06/04	Crockarize Shelf	1	7500	7,500.00	Project
13	30/06/04	Printer Desk	1	6000	6,000.00	Mr. Takeuchi
14	19/08/04	Telephone set	1	750	750.00	Mr. Hattori
15	18/11/04	Chair Table & Drawer	1	14000	14,000.00	Project
16	12/06/04	File Rack (Wooden)	2	8500	17,000.00	Project & GIS
17	12/08/04	Executive Table	2	5600	11,200.00	QC & Library
18	12/08/04	Mobil Drawer	2	4150	8,300.00	QC & Library
19	12/08/04	Swivel Chair	2	3720	7,440.00	QC & Library
20	12/08/04	TV Trolly	2	3500	7,000.00	Project & ICT Room
21	28/12/04	Life Jacket	7	1000	7,000.00	Project
22	28/12/04	Wall Charger Light	6	1200	7,200.00	Project
23	07/05/05	Display Shelf	1	8100	8,100.00	Mr. Oshima
24	12/12/05	Computer Table	1	3700	3,700.00	Bhedarganj
25	-	Heavy Duty Staper Machine	1	3000	3,000.00	Project
26	-	Heavy Duty Punch Machine	1	1000	1,000.00	Project
27	-	Photocopier Stand	1	6000	6,000.00	Takeuchi Sir
				Total:	**230,370.00**	

Taka In Word: Two Hundred Thirty Thousand Three Hundred Seventy Only

(Akio Arai)
Resident Representative
Japan International Cooperation Agency

(Md. Shahidul Hassan)
Chief Engineer
Local Government Engineering Department

List of the Sattelite Image

Local Purchase

No	Purchase Date	Particulars	Total Price In Taka	Purchase from	User
1	09/10/03	IKONOS Sattelite Image	2,260,000.00	CEGIS	TL RDEC & GIS
2	14/09/03	IKONOS Sattelite Image Map	81,900.00	CEGIS	TL RDEC & GIS
3	14/09/03	IKONOS Sattelite Image Map	9,500.00	CEGIS	TL RDEC & GIS
4	13/03/05	IRS LISS Image of Bhedarganj	49,200.00	CEGIS	TL RDEC & GIS
5	17/03/05	Sattelite Image (IRS)	999,900.00	CEGIS	TL RDEC & GIS
6	21/03/05	Digital Georeferenced Image of Ramu	185,200.00	CEGIS	TL RDEC & GIS
		Total	**3,585,700.00**		

Taka In Word: Three Million Five Hundred Eighty Five Thousand Seven Hundred Taka Only

(Akio Arai)
Resident Representative
Japan International Cooperation Agency

(Md. Shahidul Hassan)
Chief Engineer
Local Government Engineering Department

Local Cost Breakdown/ Japan

Unit:Taka

No.	Category	Budgetary Year				Amount
		2002 (only 4th Quarter)	2003	2004	2005 (except 4th Quarter)	
1	Project Cost	437,500	4,026,020	5,789,757	4,102,739	14,356,016
2	Office Expence	363,600	2,368,679	2,429,743	3,474,531	8,636,553
3	Cost of Equipment with Expert	0	312,000	0	0	312,000
4	Cost of Equipment by Grant	3,186,400	12,857,670	9,875,000	0	25,919,070
5	Technical Information Exchange	0	784,000	980,000	1,758,086	3,522,086
6						
7						
8						
Amount		3,987,500	20,348,369	19,074,500	9,335,356	52,745,725

Annex 9 Seminars organized by the Project

Implemented Seminar during Project Period

RDEC Setting up Project

No.	Name of Seminar	Date	Participants	Place	Participated Organization	Remarks
1	Integrated Rural Development Seminar	2003/7/19-20	75	LGED H.Q. Conference Room	MOP,LGD,FAO,BARC,BRRI,BWDB,BARD,RDA,DAE,EOJ,JBIC,JICA *1	
2	Dissemination Seminar on Rural Development of output of TIEP in Cambodia	2004/3/9-10	60	LGED Cox's Bazar Office	LGED Officer Cox'sBazar、CHT Dist.	
3	Seminar on GIS & RS for Development (Prof. Yamaji)	2004/9/21	90	LGED H.Q. Conference Room	MoLGRD&C,LGD,SPARRSO,BARC,DOE, IWM,SOB,DLRS,BWDB,CEGIS,DU,*2	
4	Dissemination Seminar on Rural Development of output of TIEP in Philippine	2005/3/8-9	50	Comilla Dist. Hotel Noorjahan	LGED Officer whole Comilla District.	
5	International Seminar for Sustainable Rural Developme	2005/9/3-5	200	LGED H.Q. & RDEC Conference	India, SriLanka, Nepal, Indonesia, Cambodia, Phlippine, Thailand and Bangladesh	
			475			

*1:

MOP: Ministry of Planning
LGD : Local Government Division
FAO: Food Agriculture Organization
BARC: Bangaldesh Agricultural Research Council
BRRI: Bangladesh Rice Research Institute
BWDB: Bangladesh Water Development Boa
BARD: Bangladesh Academy for Rural Development
RDA: Rural Development Academy, Bogra
DAE: Department of Agricultural Extensio
EOJ: Embassy of Japan
JBIC: Japan Bank for International Cooperation
JICA: Japan Internatiuonal Cooperation Agency

*2

MOLGRD&C	Ministry of Local Government, Rural Development and Cooperative
LGD	Local Government Division
ICIMOD	International Center for integrated Mountain Development, Nepal
SPARRSO	Space Research & Remote Sensing Organization
BARC	Bangaldesh Agricultural Research Council
DOE	Department of Environment
IOM	Institute of Water Modeling
SOB	Survey of Bangladesh
DLRS	Director of Land Record Survey
BWDB	Bangladesh Water Development Board
CEGIS	Center for Environmental Geographic Information Services
DU	Dhaka University

Annex 10 Workshops organized by the Project

Implemented Workshop during Project Period

RDEC Setting up Project

No.	Namer of Workshop	Date	Participan	Place	Participated Organization
1	Participatory Rural Planning Workshop	2004/1/18-19	105	Bhedorgonji, Shariatpur	EmbassyofJapan,JBIC,JICA,LGED,BRDB, DC, Upazila, Union
2	Workshop on Rural Development (Counterpart Training in Japan & Technical Information Exchange Program in Cambodia)	2004/1/9	60	LGED H.Q. Conference room	LGED & JICA
3	Intensive Program on Test & Quality Control (Dr. Kougo)	2004/2/7	55	LGED H.Q. Conference room	LGED & JICA
4	Strategy Workshop on GIS (Mr. Kiyota)	2004/2/24	60	LGED H.Q. Conference room	LGED & JICA
5	Strategy Workshop on Training (Mr. Yamaguchi)	2004/2/29	65	LGED H.Q. Conference room	LGED & JICA
6	Workshop on 2nd Training Need Assessment	2004/2/29	64	LGED H.Q. Conference room	LGED & JICA
7	Participatory Workshop for Prioritizing Proposed Program	2004/12/12	32	Bhedorgonji, Shariatpur	LGED & JICA
8	Workshop on Rural Development (Counterpart Training in Japan & Technical Information Exchange Program in Philippine)	2005/1/26	51	LGED H.Q. Conference room	LGED & JICA
9	Workshop on laboratory Test & Quality (Mr. Iseki)	2005/2/1	50	LGED H.Q. Conference room	LGED & JICA
10	Workshop on Application GIS (Mr. Gomi)	2005/2/26	60	LGED H.Q. Conference room	LGED & JICA
11	Workshop on Technical Information Management (Mr. Fukuda)	2005/3/16	40	LGED H.Q. Conference room	LGED & JICA
12	Workshop on 3rd Training Need Assessment	2005/3/30	50	LGED H.Q. Conference room	LGED & JICA
13	Workshop on Training (Dr. Kanamori)	2005/4/11	50	LGED H.Q. Conference room	LGED & JICA
14	Workshop on Material Test for Asphalt (Mr. Hoshino)	2005/6/26	60	LGED H.Q. Conference room	LGED & JICA
15	Workshop on Technical Information Management (Mr. Fukuda)	2005/8/27	40	LGED H.Q. Conference room	LGED & JICA
16	Workshop on Step-up Plan (Mr. Ikewada)	2005/10/9	30	LGED H.Q. Conference room	LGED & JICA
17	Workshop on Advanced Test for Concrete (Dr. Nakajima)	2005/10/11	50	LGED H.Q. Conference room	LGED & JICA
18	Workshop on Design Standard for Rural Road (Dr. Tani)	2005/10/30	45	LGED H.Q. Conference room	LGED & JICA
19	Workshop on Advanced Test for Soil (Dr. Kohgo)	2005/11/28	50	LGED H.Q. Conference room	LGED & JICA

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Annex 11 Trainings organized by the Project

Implemented Training during Projeot Period — RDEC Setting-up Project

No.	Name of Training	Number of Participants			Duration	Days	Place	Organised Unit
		H.Q	Dist.	Total				
1	Auto CAD (1st)	5	10	15	03/8/9-18	10	ICT Room, RDEC	Design
2	Quality Control	1	12	13	04/2/14-19	6	Tangail District	Quality Control
3	STAAD Pro Software	6	0	6	04/2/23-3/13	12	Level-2, RDEC	Design
4	Arc GIS	12	0	12	04/7/1-18	15	CEGIS, ICT,RDEC	GIS
5	Auto CAD (2nd)	5	15	20	04/8/21-31	10	ICT Room, RDEC	Design
6	Quality Control	1	14	15	04/10/2-7	6	Tangail District	Quality Control
7	Road Roughness Survey (Dhaka)	0	10	10	04/11/20-25	6	Dhaka	Maintenance
8	Road Roughness Survey (Kishorgonj)	0	12	12	04/11/30-12/9	9	Kishorgonji District	Maintenance
9	Road Roughness Survey (Comilla)	0	12	12	04/12/7-17	10	Comilla District	Maintenance
10	Road Roughness Survey (NoaKhali)	0	11	11	04/12/11-22	10	Noakhali District	Maintenance
11	Road Roughness Survey (Shariatpur)	0	10	10	05/1/11-21	10	Shariatpur, District	Maintenance
12	Road Roughness Survey (Cox's Bazar)	0	11	11	05/2/13-21	9	Cox'sBazar District	Maintenance
13	Auto CAD (3rd)	2	17	19	05/2/7-17	10	ICT Room, RDEC	Design
14	GIS Software	0	2	2	05/3/12-15	4	GIS Unit ,HQ	GIS
15	Total Station	0	12	12	05/3/19-24	6	ICT Room, RDEC	GIS
16	Trainer's Training	3	0	3	05/3/29-31	3	Q/C Lab, ICT Room	Q/C & Training
17	Trainer's Training	0	4	4	05/4/2-4	3	Q/C Lab, ICT Room	Q/C & Training
18	Trainer's Training	0	4	4	05/4/5-7	3	Q/C Lab, ICT Room	Q/C & Training
19	Auto CAD (4th)	0	18	18	05/7/10-20	10	ICT Room, RDEC	Design
20	Progress Monitoring Software (12 BATCH)	171	130	301	05/7/23-/9/04	38	ICT Room, RDEC	Monitoring
21	Basic Computer & Book CAT	9	0	9	05/8/7-10	4	Library,RDEC	Library
22	HDM-4	12	1	13	05/9/6-9	4	ICT Room, RDEC	Rural Road Maintenance
23	Auto CAD (5th)	6	14	20	05/9/11-22	10	ICT Room, RDEC	Design
24	Advanced Concrete Test	10	8	18	05/10/9-10	2	Q/C Lab, ICT Room	Quality Control
25	Advanced Soil Test	8	1	9	05/11/21-27	6	Q/C Lab, ICT Room	Quality Control
26	Project Management	20	10	30	05/12/3-5	3	ICT Room, RDEC	Training
27	STAAD Pro Software(Advanced Cource)	6	0	6	05/12/11-22	3	ICT Room, RDEC	Design
28	Construction Management	10	20	30	05/12/17-19	12	Level-12, RDEC	Training
		287	358	645		234		

Implemented Training during Project Period 3,418 RDEC Setting-up Project

No.	Name of Training	Number of Participants H.Q	Dist.	Total	Duration	Days	No. Person	Place	Organised Unit
Design 1,064									
1	Auto CAD (1st)	5	10	15	03/8/9-18	10	150	ICT Room, RDEC	Design
5	Auto CAD (2nd)	5	15	20	04/8/21-31	10	200	ICT Room, RDEC	Design
13	Auto CAD (3rd)	2	17	19	05/2/7-17	10	190	ICT Room, RDEC	Design
19	Auto CAD (4th)	0	18	18	05/7/10-20	10	180	ICT Room, RDEC	Design
23	Auto CAD (5th)	6	14	20	05/9/11-22	10	200	ICT Room, RDEC	Design
							920		
3	STAAD Pro Software	6	0	6	04/2/23-3/13	12	72	Level-2, RDEC	Design
27	STAAD Pro Software(	6	0	6	05/12/11-22	12	72	ICT Room, RDEC	Design
							144		
Quality Control 258									
2	Quality Control	1	12	13	04/2/14-19	6	78	Tangail District	Quality Control
6	Quality Control	1	14	15	04/10/2-7	6	90	Tangail District	Quality Control
							168		208000
24	Advanced Concrete T	10	8	18	05/10/9-10	2	36	Q/C Lab, ICT Room	Quality Control
25	Advanced Soil Test	8	1	9	05/11/21-27	6	54	Q/C Lab, ICT Room	Quality Control
							90		
Training 213									
16	Trainer's Training	3	0	3	05/3/29-31	3	9	Q/C Lab, ICT Room	Q/C & Training
17	Trainer's Training	0	4	4	05/4/2-4	3	12	Q/C Lab, ICT Room	Q/C & Training
18	Trainer's Training	0	4	4	05/4/5-7	3	12	Q/C Lab, ICT Room	Q/C & Training
							33		33,000
26	Project Management	20	10	30	05/12/3-5	3	90	ICT Room, RDEC	Training
28	Construction Manager	10	20	30	05/12/17-19	3	90	Level-12, RDEC	Training
							180		
Monitoring 974									
20—1	Progress Monitoring S	0	26	26	05/7/23-26	4	104	ICT Room, RDEC	Monitoring
20—2	Progress Monitoring S	0	25	25	05/7/27-31	4	100	ICT Room, RDEC	Monitoring
20—3	Progress Monitoring S	0	26	26	05/8/1-4	4	104	ICT Room, RDEC	Monitoring
20—4	Progress Monitoring S	0	26	26	05/8/6-9	4	104	ICT Room, RDEC	Monitoring
20—5	Progress Monitoring S	0	29	29	05/8/10-14	4	116	ICT Room, RDEC	Monitoring
20—6	Progress Monitoring S	8	15	23	05/8/15-18	4	92	ICT Room, RDEC	Monitoring
20—7	Progress Monitoring S	0	24	24	05/8/20-23	4	96	ICT Room, RDEC	Monitoring
20—8	Progress Monitoring S	26	0	26	05/8/24-25	2	52	ICT Room, RDEC	Monitoring
20—9	Progress Monitoring S	25	0	25	05/8/27-28	2	50	ICT Room, RDEC	Monitoring
20—10	Progress Monitoring S	26	0	26	05/8/29-30	2	52	ICT Room, RDEC	Monitoring
20—11	Progress Monitoring S	26	0	26	05/8/31-9/1	2	52	ICT Room, RDEC	Monitoring
20—12	Progress Monitoring S	21	0	21	05/9/3-4	2	52	ICT Room, RDEC	Monitoring
							974		
Maintenance 649									
7	Road Roughness Surv	0	10	10	04/11/20-25	6	60	Dhaka	Maintenance
8	Road Roughness Surv	0	12	12	04/11/30-12/9	9	108	Kishorgonji District	Maintenance
9	Road Roughness Surv	0	12	12	04/12/7-17	10	120	Comilla District	Maintenance
10	Road Roughness Surv	0	11	11	04/12/11-22	10	110	Noakhali District	Maintenance
11	Road Roughness Surv	0	10	10	05/1/11-21	10	100	Shariatpur, District	Maintenance
12	Road Roughness Surv	0	11	11	05/2/13-21	9	99	Cox'sBazar District	Maintenance
							597		
22	HDM-4	12	1	13	05/9/6-9	4	52	ICT Room, RDEC	Maintenance
GIS 224									
4	Arc GIS	12	0	12	04/7/1-18	12	144	CEGIS, ICT,RDEC	GIS
14	GIS Software	0	2	2	05/3/12-15	4	8	GIS Unit ,HQ	GIS
15	Total Station	0	12	12	05/3/19-24	6	72	ICT Room, RDEC	GIS
							224		
Library 36									
21	Basic Computer & Boo	9	0	9	05/8/7-10	4	36	Library, RDEC	Library

Training Material made by or published for RDEC Setting-up Project's training

No.	Training Material Name	Training Name	Made or Published Date
1	AutoCAD Training Manual Volume 1	AutoCAD training	August-03
2	〃 2	AutoCAD training	August-03
3	AutoCAD Training Manual	AutoCAD training	August-03
4	Quality Control Training for Lab Technicians	QC Training	February-04
5	ArcView GIS with Network & Spatial Analyst	ArcGIS Training	August-03
6	Training on Quality Control of Construction Materials(QCT-1 Course)	QC Training	October-04
7	Road Roughness Survey Manual	RRS Training	November-04
8	Global Positioning System(GPS)	GIS Software	March-05
9	Geographic Imformation System(GIS) (ARCINFO)	GIS Software	March-05
10	Non-destructive test by Schmidt hammer	Trainer's Training	April-05
11	Slump test	Trainer's Training	April-05
12	Tensile Test on Steel Bars	Trainer's Training	April-05
13	〃 (Digital Video)	Trainer's Training	April-05
14	Moisture content test of soil	Trainer's Training	April-05
15	LAA test for brick chips	Trainer's Training	April-05
16	Test for compressive strength of concrete	Trainer's Training	April-05
17	Aggregate impact value (AIV) test (BS-812)	Trainer's Training	April-05
18	Particle size analysis	Trainer's Training	April-05
19	Dynamic cone penetration test	Trainer's Training	April-05
20	Soil compaction test by cone-cutter	Trainer's Training	April-05
21	Aggregate crushing value (ACV) test	Trainer's Training	April-05
22	Standard test method for California Bearing Ratio (CBR)	Trainer's Training	April-05
23	User Manual on Progress Monitoring System	PMS Training	June-05

No.	Training Material Name	Training Name	Made or Published Date
24	Basic Computer Software & "BookCAT(Library Software), Textbook	BookCAT Training	August-05
25	〃 , BookCAT Tutorial	BookCAT Training	August-05
26	HDM(Highway Development & Maintenance) -4 Application and Economic Analysis	HDM-4 Training	September-05
27	Training Module on STAAD-Pro Software	STAAD-Pro Training	December-05
28	Training on Project Management	PM Training	December-05
29	Training on Construction Management	CM Training	December-05

Annex 12 Publications by the Project

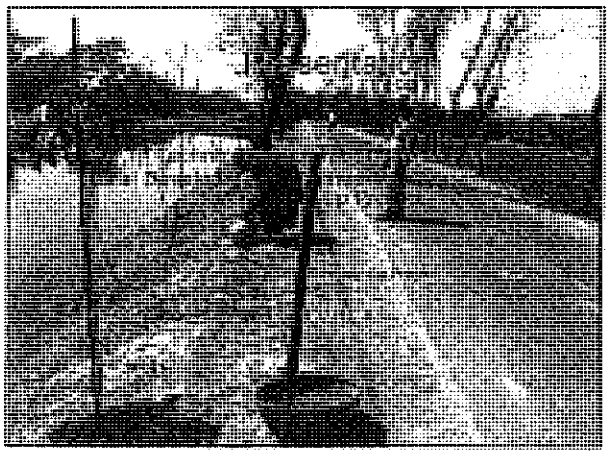
Outputs during Project Period **RDEC Setting-up Project**

No.	Date	Name of Publication
1	Mar-03	Brochure of RDEC Setting-up Project
2	Aug-03	Documentation of Integrated Rural Development Seminar 2003
3	Dec-03	Proceeding of Integrated Rural Development Seminar 2003
4	Mar-04	Documentation of "Strategy Workshop Training Need Assessment 2004"
5	Mar-04	Survey Report of Equipment & Facilities for Soil tests at Laboratories in LGED
6	Apr-04	Technical Specifications for Bridges on the Upazila and Union Roads
7	Apr-04	Report of Exparticipants of Counterpart Training in Japan and Technical Information Exchanging Programe in Cambodia
8	Sep-04	Documentation of Participatory Rural Planning Workshop, Bhedorgonji, Shariatpur
9	Oct-04	Training on Quality Control and Construction Materials
10	Dec-04	Proceeding of Participatory Rural Planning Workshop, Bhedorgonji, Shariatpur
11	Feb-05	Technical Specifications for Buildings
12	Mar-05	Water Level Data in Ganges Padma River Basin for Participatory Rural Planning in Shariatpur District
13	Mar-05	Inventory of LGED Road Network in **Dhaka Division**
14	Mar-05	Inventory of LGED Road Network in **Sylhet Division**
15	Jun-05	Inventory of LGED Road Network in **Rajshahi Division**
16	Jun-05	Inventory of LGED Road Network in **Khulna Division**
17	Jun-05	Inventory of LGED Road Network in **Chittagong Division**
18	Jun-05	Inventory of LGED Road Network in **Barisal Division**
19	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume I Main Text & Core Appendix (Mr. ISEKI)
20	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book (Mr. ISEKI)
21	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Barisal** (Mr. ISEKI)
22	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Chittagong** (Mr. ISEKI)
23	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Comilla** (Mr. ISEKI)
24	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Sylhet** (Mr. ISEKI)
25	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Dhaka** (Mr. ISEKI)
26	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Faridpur** (Mr. ISEKI)
27	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Mymensingh** (Mr. ISEKI)
28	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Khulna** (Mr. ISEKI)
29	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Rajshahi** (Mr. ISEKI)
30	Jun-05	Survey Report of Testing Equipment & Facilities in LGED Laboratories Volume II Annex Data Book **Rangpur** (Mr. ISEKI)
31	Jun-05	Report of Trainig Needs Assessment of LGED Staff (2004～2005) Volume I
32	Jun-05	Report of Trainig Needs Assessment of LGED Staff (2004～2005) Volume II
33	Jun-05	Report of Trainig Needs Assessment of LGED Staff (2004～2005) Volume III
34	Jun-05	Rural Road and Structure Maintenance Manual
35	Jun-05	*Proceedings of Seminar on Geographic Information System and* Remote Sencing for Development
36	Jun-05	Report on Developed Software for Progress Monitoring System

Annex 12 Publications by the Project (continued)

Outputs during Project Period **RDEC Setting-up Project**

No.	Date	Name of Publication
37	Jul-05	User Manual on Progress Monitoring System
38	Jul-05	Water Resources Laws in Bangladesh
39	Sep-05	Report on Technical Information Exchange Program,Counterpart Training , and Dissemination Seminar
40	Oct-05	Road Design Standard for Rural Road
41	Oct-05	Quality Control Manual
42	Oct-05	Report on Application of GIS for Rural Planning
43	Nov-05	Develop the Soft Copy into CD of Specification of Implementation, Design Manual, Planning Manual and Quality Control Manual
44	Nov-05	Report on Material Test on Rural Road Pavement
45	Nov-05	Meteorological Data in Bangladesh (13 Station)
46	Dec-05	Report on Concrete test & Rural Road Safty
47	Dec-05	Report on Laboratory Test & Quality Control in LGED
48	Dec-05	Report on Technical Library
49	Dec-05	Develop the Soft Copy into CD Digitized Drawings of Bridges/ Culverts /Union Parishad Complex/Growth Center implemented under RDP-21
50	Dec-05	Survey Data(CD) of Upazila Township Map Bhedorganji Pourashava, Shariatpur District
51	Dec-05	Develop the Soft Copy into CD Inventry of LGED Raod Network
52	Dec-05	Develop the Soft Copy into CD Meteorological Data in Bangladesh
53	Dec-05	Summary Report on Participatry Rural Planing
54	Dec-05	Proccedings of International Seminar for Sustainable Rural Development 2005

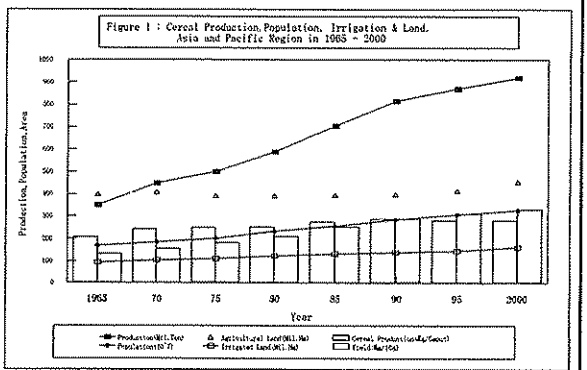


Contents

1. Agriculture & Rural Development in Asia
2. Record and Achievement of RDEC Setting-up Project

1. Agriculture & Rural Development in Asia

I. Overview of Agricultural & Irrigation Development in Asia



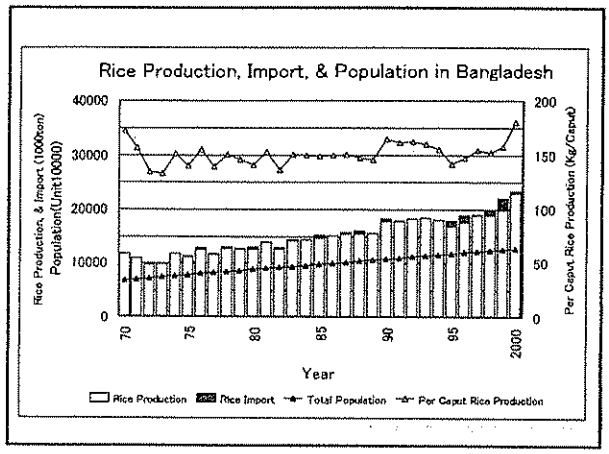
Process and Policy in Agricultural Development in Japan

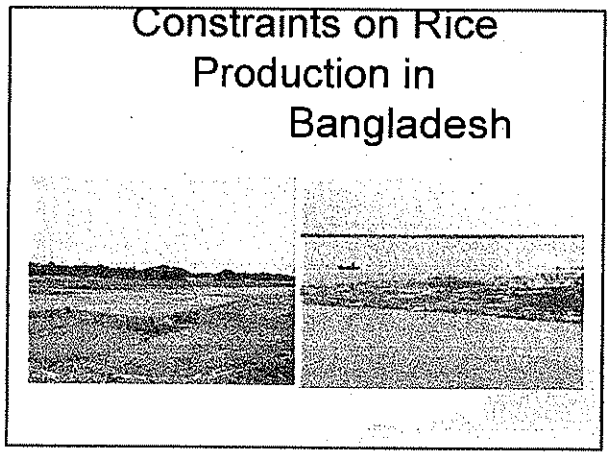
First Stage (~1960) : Development Stage:
Main objectives: Increase of Food Production
1946:Amendment of Agricultural Land Adjustment Act : Agrarian Reform
1949:Land Improvement Act
1952:Agricultural Land Act

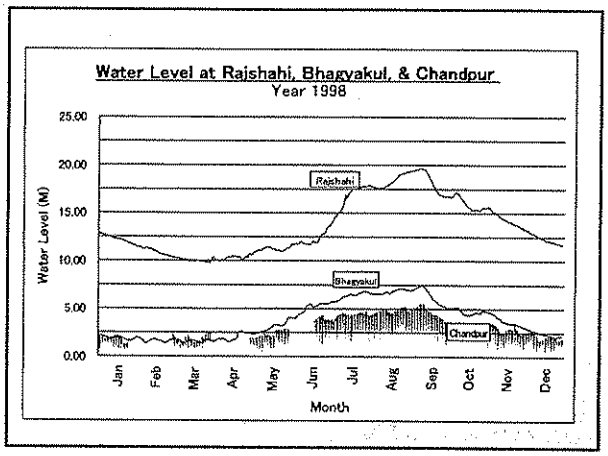
Second Stage (1961~90):Adjustment Period
1. Selective Expansion of Agricultural Products (Crop Diversification)
2. Income Gap Adjustment by the Improvement of Productivity, and by the adoption of Price Policy
3. Adjustment for Conservation of Ecology and Environment
1961: Agricultural Basic Act
1972: Natural Environment Preservation Act

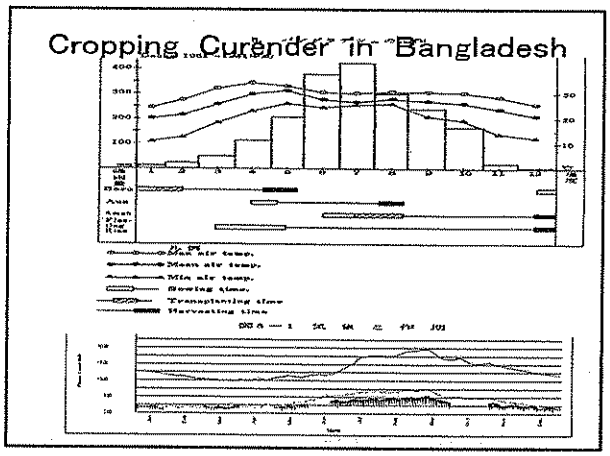
Third Stage(1990-)
International Issues, Food Security, and Multi-function of

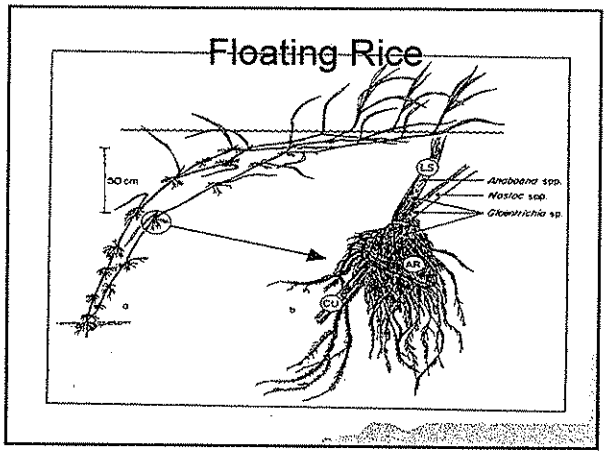
Agriculture in Bangladesh

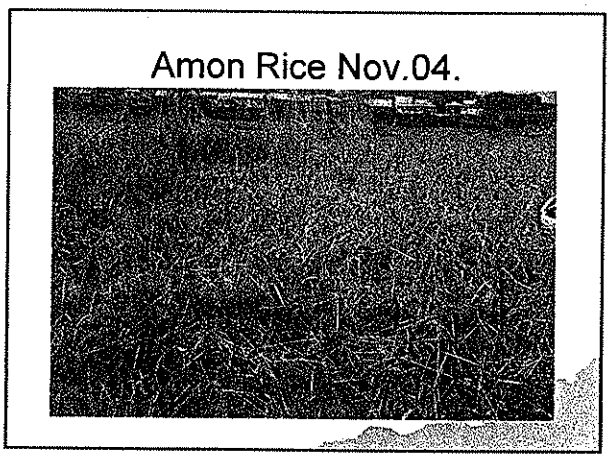

Rice Production, Import, & Population in Bangladesh
Rice Production, & Import (1000ton)
Population(Unit:10000)
Per Caput Rice Production (Kg/Caput)
Year
Rice Production
Rice Import
Total Population
Per Caput Rice Production


Constraints on Rice Production in Bangladesh


Water Level at Rajshahi, Bhagyakul, & Chandpur
Year 1998
Water Level (M)
Rajshahi
Bhagyakul
Chandpur
Month

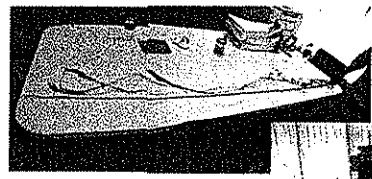

Cropping Curender in Bangladesh

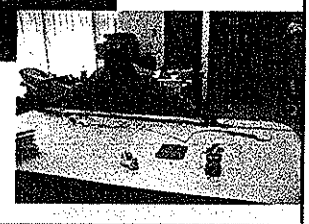

Floating Rice
30 cm
LS
AR
CO


Amon Rice Nov.04.

Amon Rice, Munsingonj

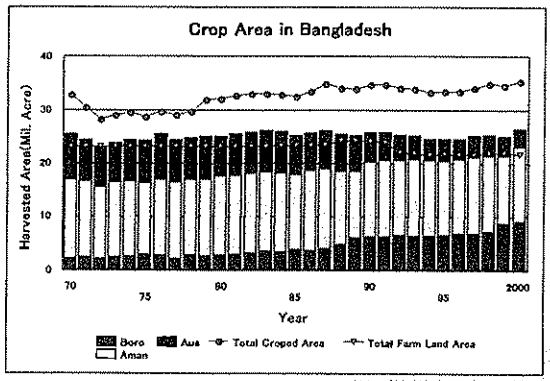
Floating Rice Cultivated in 2005





- Sampled at Bhedorganj Upazila provided By Mr. T. Itoh

Crop Area in Bangladesh



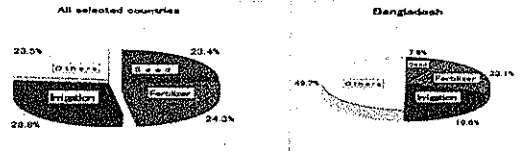
Contribution to Crop Production

1. Variety
2. Water (Irrigation)
3. Fertilizer
4. Others

Effects Analysis on Rice Paddy Production by applied inputs in selected countries in Asia (Duration:1985~1980)

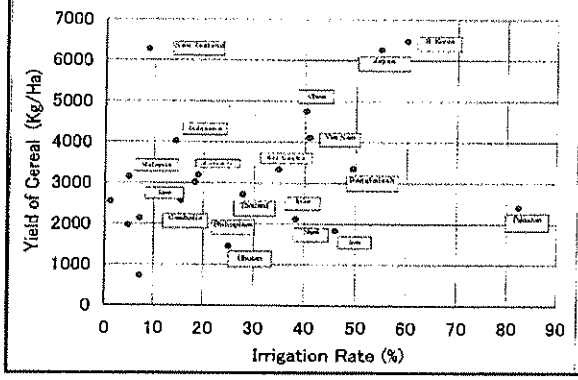
Country	Input Factors Seed	Fertilizer	Irrigation	Others	Total
Bangladesh	420	1,284	1,091	2,759	5,554
China	13,321	11,507	16,153	9,609	50,590
India	7,998	10,887	11,209	5,078	35,152
Indonesia	3,162	2,680	2,773	4,998	13,613
Myanmmar	647	353	685	167	1,852
Philippines	849	1,009	801	615	3,274
Sri Lanka	241	215	262	316	1,034
Thailand	822	682	865	4,031	6,400
Total	27,460	28,597	33,839	27,573	117,469
(Share%)	(23.3%)	(24.4%)	(28.8%)	(23.5%)	(100%)

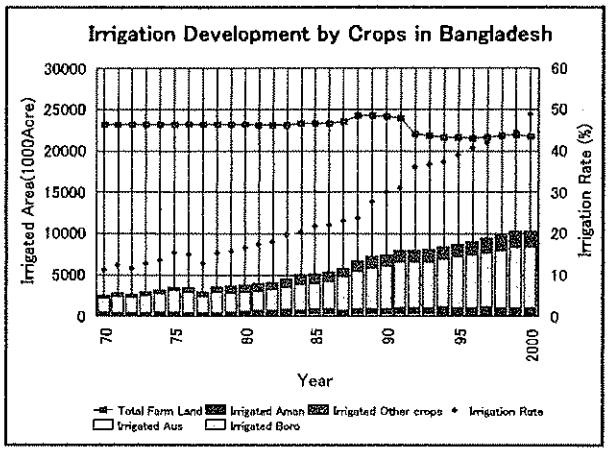
(Source: International Rice Commission Newsletter Vol.XXXIV No2)

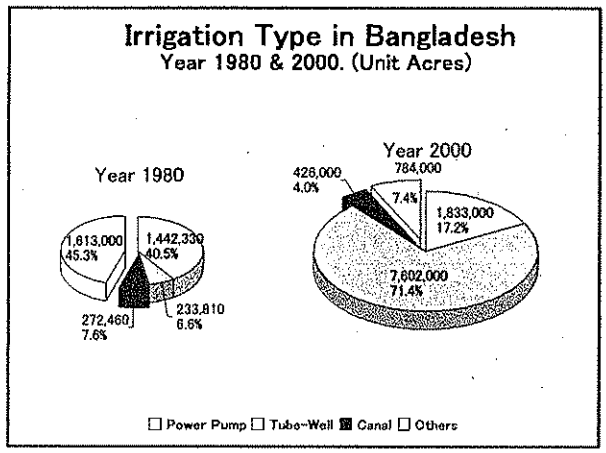


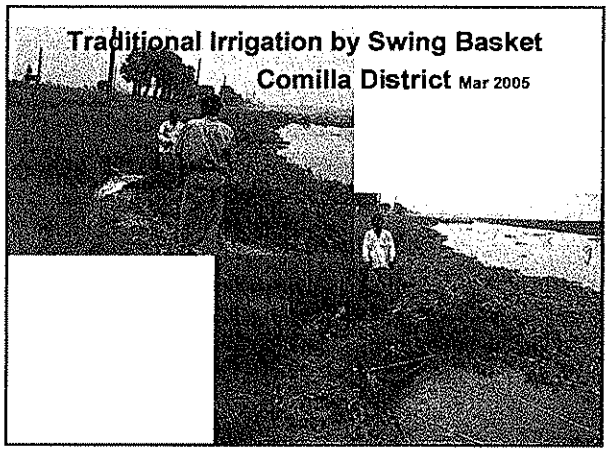
Irrigation Rate - Yield in Asia

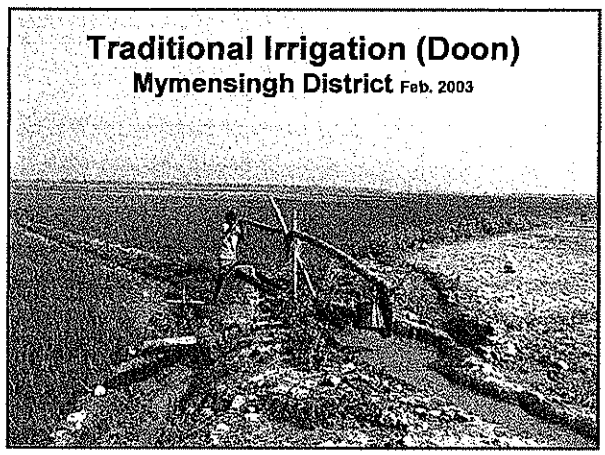
Year 2000

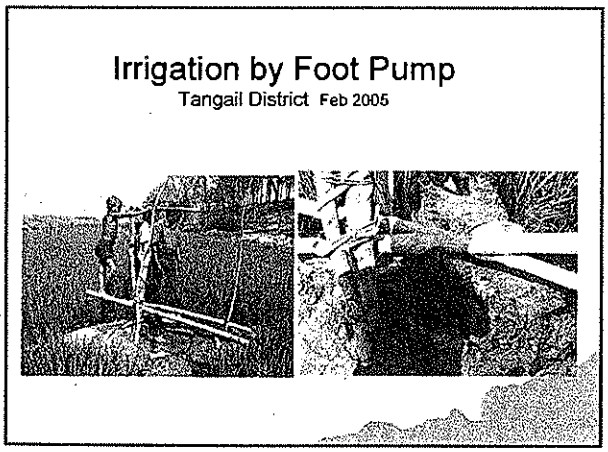


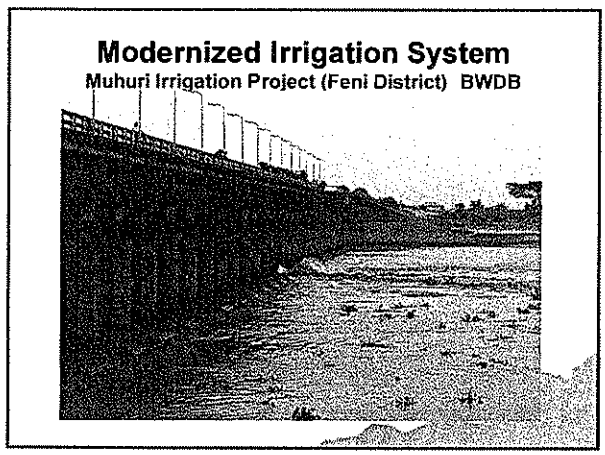

Irrigation Development by Crops in Bangladesh
Irrigated Area(1000Acre)
Irrigation Rate (%)
Year
Total Farm Land
Irrigated Aman
Irrigated Other crops
Irrigation Rate
Irrigated Aus
Irrigated Boro


Irrigation Type in Bangladesh
Year 1980 & 2000. (Unit Acres)
Year 1980
1,813,000
45.3%
1,442,330
40.5%
272,460
7.6%
233,810
6.6%
Year 2000
426,000
4.0%
784,000
7.4%
1,833,000
17.2%
7,602,000
71.4%
Power Pump
Tube-Well
Canal
Others


Traditional Irrigation by Swing Basket
Comilla District Mar 2005

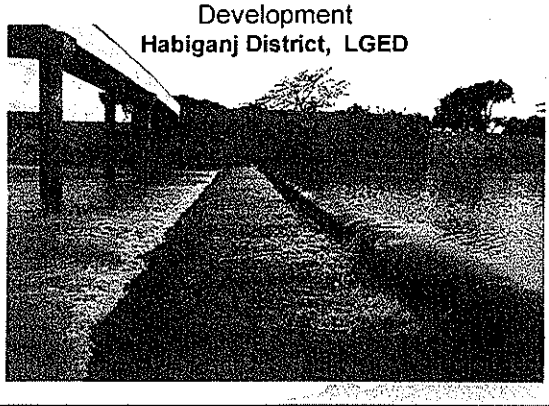

Traditional Irrigation (Doon)
Mymensingh District Feb. 2003


Irrigation by Foot Pump
Tangail District Feb 2005

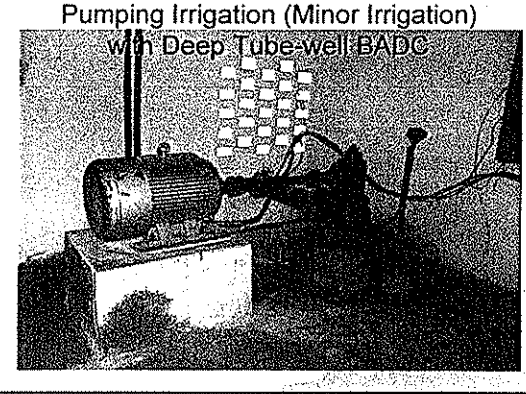

Modernized Irrigation System
Muhuri Irrigation Project (Feni District) BWDB

Rubber Dam for Small Scale Water Resources Development

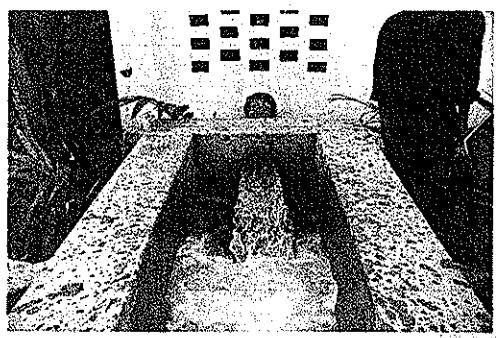
Habiganj District, LGED



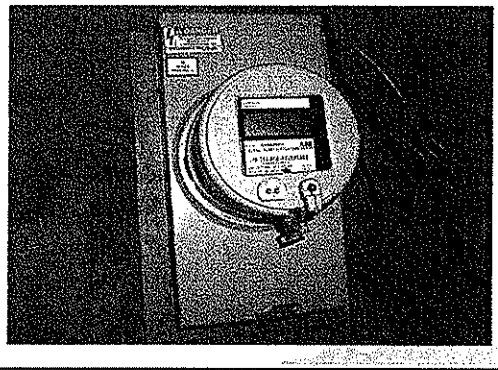
Pumping Irrigation (Minor Irrigation) with Deep Tube-well BADC



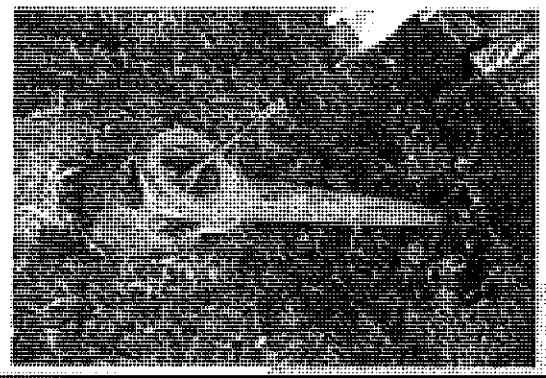
Irrigation Water from DTW



Electric Power Meter

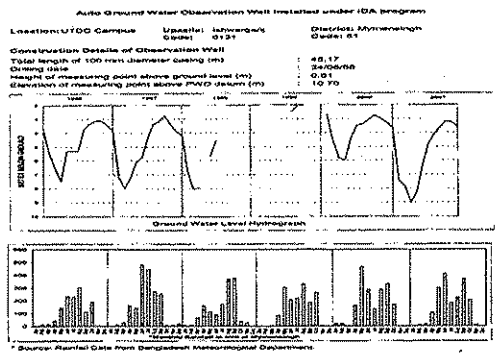


Deep Tube-well (Abandoned)

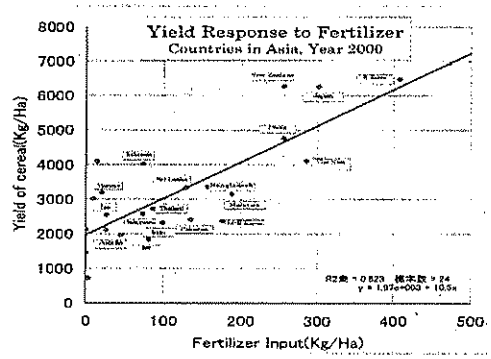


Location Map Showing Offices of Survey and Monitoring Project for Development of Minor Irrigation

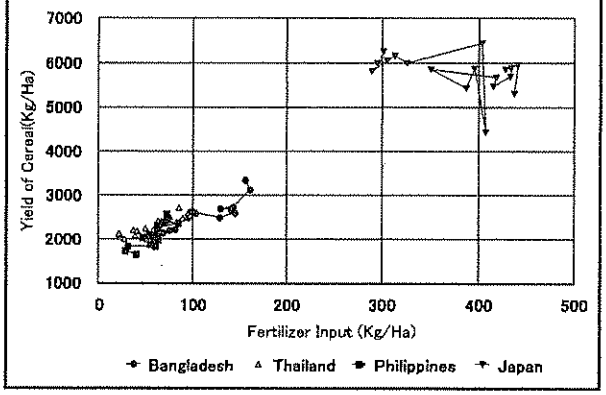
Groundwater Level, Mymensingh,1996~2001



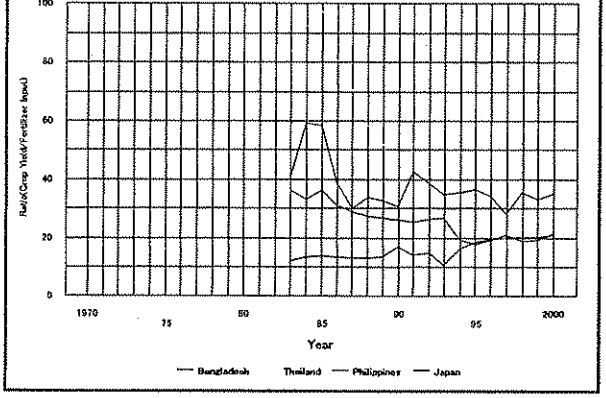
Yield Response to Fertilizer in 2000



Trend of Yield Responce to fertilizer in 4 Countries in Asia (1983–2000) Source: FAO



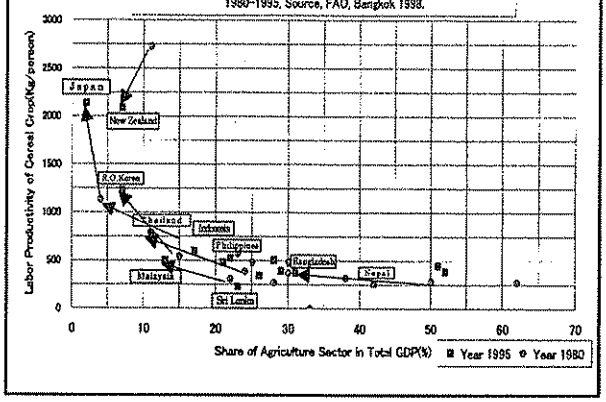
Effectiveness of Fertilizer



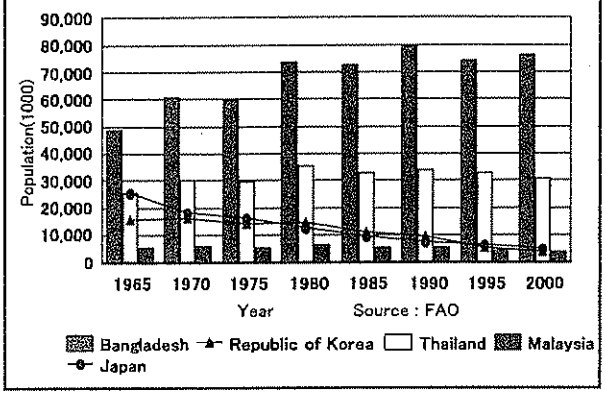
Direction of Agricultural Development in Bangladesh : MIHOSA

M: Middle
I : Input
H: High
O: Output
S: Sustainable
A: Agriculture

Labour Productivity – Structural Changing in Asia



Agricultural Population



Necessary Measures

- **Importance of Holistic Approach.**
- **Developing Rural Economy by Introducing other sectors, such as 2nd and 3rd Industry in the Rural areas**
- **Developing Rural Infra-Structure: "Key issue for Sustainable Economic & Social Development"**

Part 2

- RDEC Setting-up Project

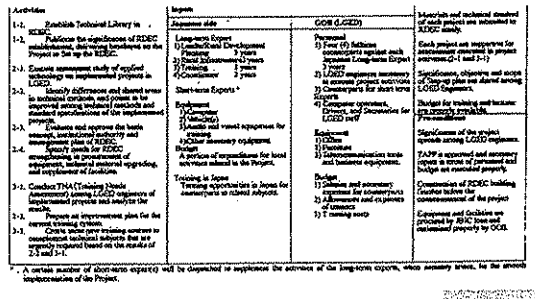
Condition on the Implementation

1. **Project Period: 3 Years**
2. **Input by JICA**
   - **(1):Dispatching Four Long-Term Experts and a number of Short Term Experts**
   - **(2): Acceptance of Trainees from LGED in Japan**
   - **(3):Providing Technical Equipment, and**
   - **(4):Some necessary amount of local cost**
3. **Facilities, (Building, Laboratory Equipments etc.) are to be provided through implementation of Construction Works supported by JBIC.**
4. **Outputs of the RDEC Setting-up Project should satisfy the required level**

Constraints

- Lack of Information in LGED on the Implementation of Project Type Technical Cooperation Program by JICA
- Unclearness of the Activities of the Project in the PDM,
- Progress of Construction Works of Related Facilities (Building and others,) for the Project

PDM of the Project



Methods to Activate the Project

- Build-up & Sharing Clear Image of Activities of RDEC Setting-up Project
- Needs of LGED/RDEC
- Implementation

Basic Strategy for Implementation of Setting-up the Project

- Collaboration was adopted for the identification of the Strategy Programs in the Workgroup Meeting.
- The Programs should be selected from the Interest and Needs in LGED, except Specific Strategic Topic.
- Capabilities of JICA Team.
- Sharing the contents of objectives, activities and goals of each Program among officers concerned.

Priority Areas in RDEC Setting-up Project

- Strategy Programs
  1. Participatory Rural Planning by GIS,
  2. Monitoring and Evaluation,
  3. Rural Road Maintenance,
  4. Technical Information Management,
  5. Quality Control, and
  6. Training
- *Implementation Program was developed by Each Unit & Submitted to JICA HQ.*

Approval of the Proposed Programs

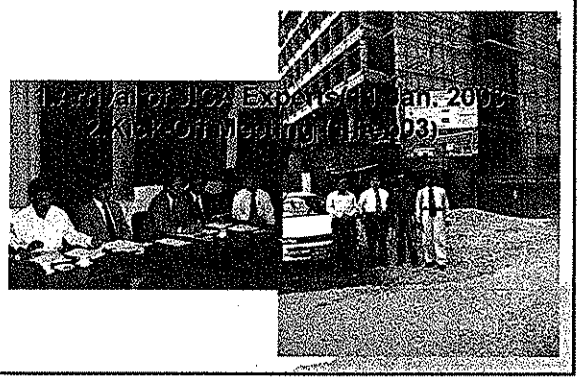
- **Progress Monitoring Mission by JICA HQ Sep 2003**

- **Inspection of Model Sites**

Signature on M/M for fine tuning of PDM

Record & Achievement of RDEC Setting-up Project Input by JICA (1)

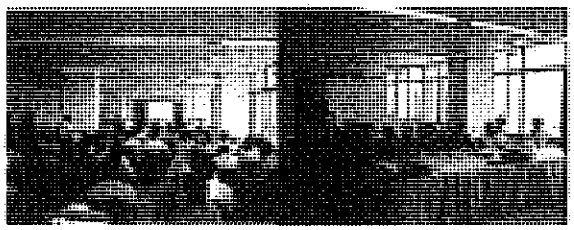
Major Programs of the RDEC Setting-up Project



Major Component of Typical Rural Development Project

	Bangladesh	Japan
1. Rural Road	⊗	⊗
2. G.C.		
3. Farm Land Improvement	⊗	⊗
4. Water Supply		⊗
5. Rural Sewerage		⊗
6. UPC	⊗	
7. Rural Center		⊗
8. Ferry Yard (Ghat)	⊗	
Executing Body	LGED,	LGI (Municipal Office)

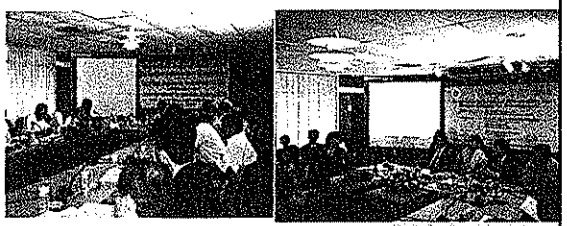
III. Opening of the Project Office in RDEC Building, April 2003



Seminar

1.Integrated Rural Dev. Seminar July 2003

2. GIS-RS Seminar: Sep. 2004



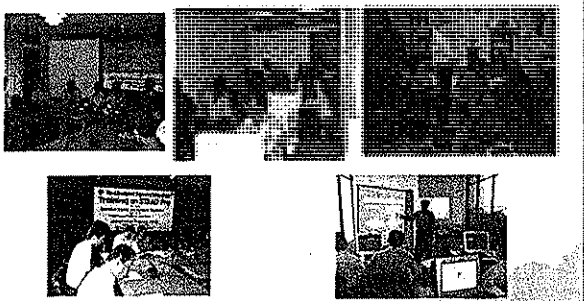
3. TIEP Dissemination Seminar

- 1. Cambodia Team 2. Philippine Team
- March 2004 at cox's Bazar March 2005, at Comilla

International seminar for Sustainable Rural Development Sep 2005

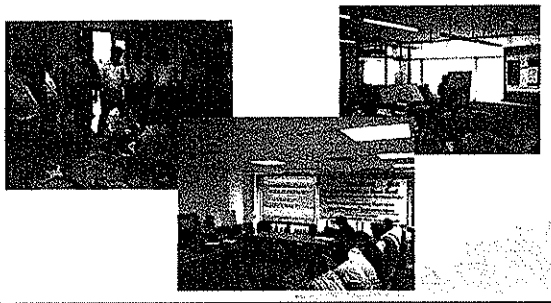
5.Training-1

1. Auto-Cad Training Aug.03,
2. Training for Laboratory-Technician-1, Feb.04,
3. STAAD-Pro Training, Mar. 04



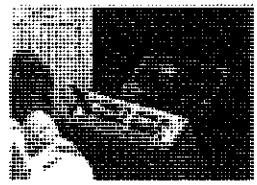
7. Training-2

4.GIS Training 1-18 July 2004
5.Auto-CAD training 2nd August 2004
6.QC Training 2nd, for Laboratory Technicians Oct. 2004



7. Training-3

7.Training on Rural Road Roughness Survey Nov. 04 ~Mar.05



8. Auto-Cad training 3rd (February 2005)

9. Auto-CAD Training 4th July 2005

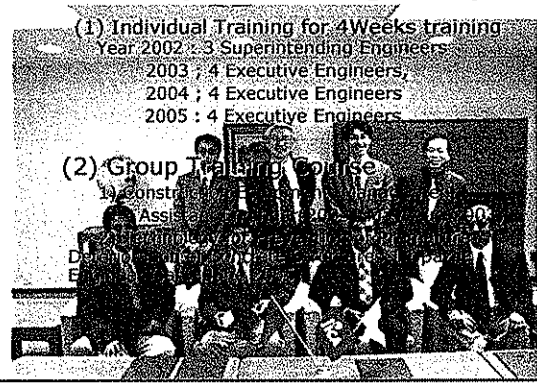
7. Training-4

- 10. PMS training (23 July~4 Sep 2005)
- 11. Basic Computer & BookCat Software (Aug.2005)
- 12. Auto-CAD training 5th Sep 05
- 13. Advanced Soil Test, Tri-axial Compression test (Nov. 2005)
- 14. Project management course Dec. 2005
- 15. STAAD Pro Training (Dec 2005)
- 16. Construction Management (Dec 2005)

8. Counterpart Training in Japan

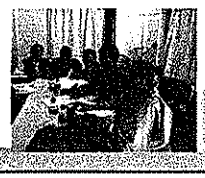
(1) Individual Training for 4Weeks training
Year 2002 : 3 Superintending Engineers
2003 ; 4 Executive Engineers,
2004 ; 4 Executive Engineers
2005 : 4 Executive Engineers

(2) Group Training Course



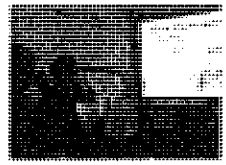
Participatory Rural Planning Workshop

1. Objective Site: Bhedarganj Upazila, Shariatpur District
2. Activities and Outputs Formulation Upazila Development Plan by the contribution by Officers related Bhedarganj Upazila.
3. 1st Workshop was completed 18~19 Jan. 04.
4. 2nd Workshop:12 Dec.04
5. 3rd Workshop: 29 Dec. 05
6. Formulation of Upazila Development Plan



10. Contribution to RDEC by Short Term Expert

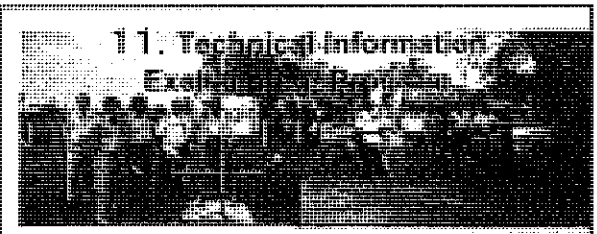
1. Rural Planning by GIS(Dec03~2.5Months)
2. Laboratory Test & Quality Control(Jan04~3Weeks)
3. Training Needs Assessment(Feb.04~2Weeks)
4. Key Note Speaker at the GIS Seminar (Sep. 04)
5. Rural Planning by GIS-II (Dec 04~Feb 05)
6. Laboratory Equipment (Dec 04~Jan 05:2months)
7. Technical Library (25 Feb. 05 : 3Weeks)

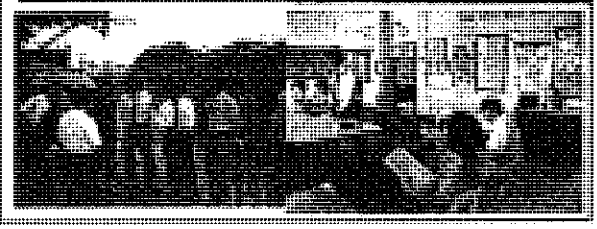


10. Contribution to RDEC by Short Term Expert -Continued

8.Trainers training
(Mar.05~4Weeks)
9. Asphalt Test
(Jun.05~4Weeks)
10. Technical Library
(Jul. 05 : 8Weeks)
11. Step-up Plan August 05 : 8 Weeks
12. Concrete Test September 05 : 3 Weeks
13. Design Standard : October 05:2 Weeks
14. Soil Test : November 05 : 2 Weeks

11. Technical Information Exchange Program





Issues Learned in Agriculture & Rural Development through TIEP

	Bangladesh	Philippines	Japan
1. Legal Framework			
Irrigation	**1867**	**1866**	**1900**
Agrarian Reform	**1984**	**1963/71/88**	**1946**
	60bighas (18Acres)	5Ha	1Ha
2. Project Scheme (Water, & Rural Development)			
☆Large Scheme	**1000Ha**	**1,000Ha**	**3,000Ha**
☆Implementing Body	◎	△	○
3. Participation in Development	○	◎	◎
4. Gender Issues	○	◎	○
5. LGI	△	◎	◎

Input by JICA (2) Provision Technical Equipment

By Mr. Oshima

Input by JICA (3)

- Local Cost Sharing
- Total Cost:52Milion Tk for 3 Years
- (1) Procurement of Equipment (50%)
  - Maintenance Unit:
  - Design Unit
  - GIS Unit
  - Training Unit
  - Monitoring Unit
  - QC Unit
- (2) Activities (50%)

Local Expenditure

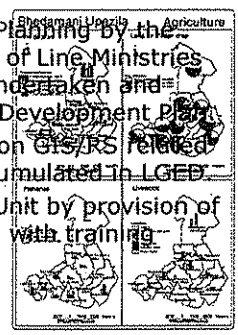
(Unit : .000Tk)

	Total 52,800	100%		2002	2003	2004	2005	Total
1 Equipment by Grant	25,021	49%		3,186	12,860	9,875	0	25,921
2 Technical Information Exchange	3,518	7%		0				
2003 Cambodia					780			780
2004 Philippine						980		980
2005 Bangladesh (International Seminar)							1,758	1,758
3 Training	3,480	7%		0	350	1,370	1,760	3,480
4 Publication	4,700	9%		30	330	1,051	3,289	4,700
5 Local Consultant	3,025	5%		0	350	1,277	1,388	3,025
6 Experts with equipment	4,840	9%		1,132	1,985	1,143	600	4,840
7 Procurment of Data	3,585	7%		0	2,351	1,234	0	3,585
8 Office Expence	3,720	7%		327	1,442	1,194	757	3,720
Sub-Total 2-7	20,148							
Total	52,789	100%		4,675	20,438	10,124	9,552	52,789

Achievement

Achievement (Participatory Rural Planning Unit)

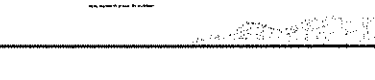
1. Comprehensive Rural Planning by the Contribution of Officers of Line Ministries in Upazila Level was undertaken and Formulation of Upazila Development Plan.
2. Advanced Techniques on GIS/RS related Rural Planning was accumulated in LGED.
3. Strengthening of GIS Unit by provision of Equipments & Software with training



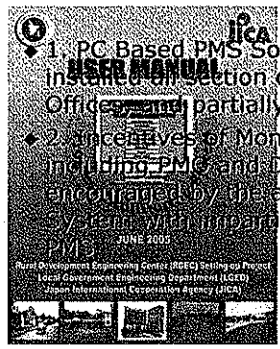
Achievement(1)
(Participatory Rural Planning – 2)

- Participatory Rural Planning (Coninued)

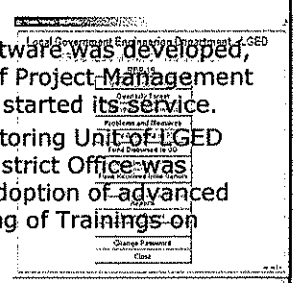
4, Basic Data for rural planning such as Hydrology, meteorology, and Satellite Image etc. were procured, processed, developed and accumulated.



Achievement (2) Project Monitoring Unit



- 1. PC Based PMS Software was developed, installed in Section of Project Management Offices and partially started its service.
- 2. Incentives of Monitoring Unit of LGED including PMO and District Office was encouraged by the adoption of advanced system with improving of Trainings on PMS.



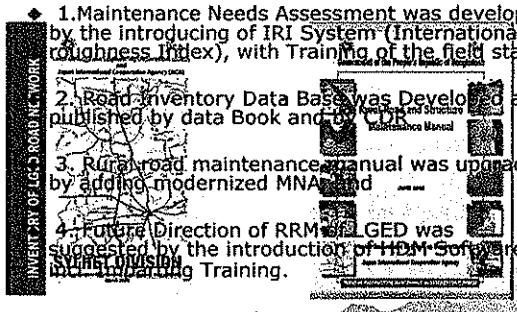
Achievement (3)
(Rural Road Maintenance)

- 1.Maintenance Needs Assessment was developed by the introducing of IRI System (International roughness Index), with Training of the field staffs.

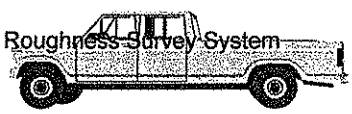
2. Road Inventory Data Bass was Developed and published by data Book and by CDR.

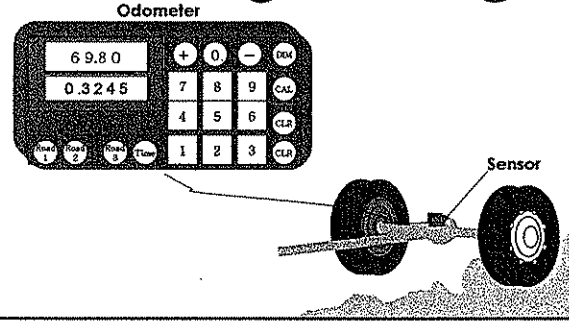
3. Rural road maintenance manual was upgraded by adding modernized MNA and

4. Future Direction of RRM of LGED was suggested by the introduction of HDM Software and Imparting Training.



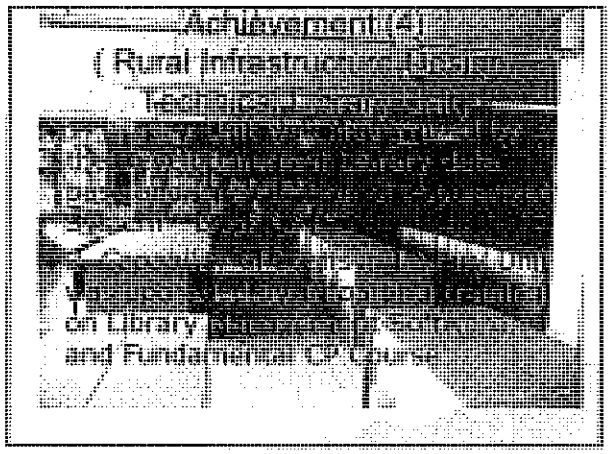
Applied Road Roughness Survey System





Achievement(4)
(Rural Infrastructure Design)

- 1. Capability of Design Unit of LGED was upgraded by the introducing of modern equipment. (Manual design- CAD System)
- 2. Technical Information management System was established and be contributing compilation & Provision of technical data in/from Technical Unit and Technical Library to District Offices in LGED
- 3. Technical standards/ Specifications were collected, and compiled in the Form of CD and being disseminated to all offices of LGED
- Standard and Specifications were developed and [illegible] LGED standards
- Technical staffs of LGED HQ and District Offices were upgraded by the series of imparted training on Auto-CAD and STAADPRO software.

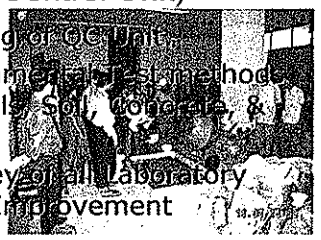


Achievement (5)
(Training Unit)

- 1. Encouragement the Training Unit of LGED through conducting Training Needs Assessment (TNA) & Followed Strategy Training Programs
- 2. Capability of Trainers was upgraded by the implementation of experimental trainers training program by Process Description Method (PD method)
- 3. Capability of Training Unit, including Training room was upgraded by the provision & procurement of equipment & Developed Training Manuals

Achievement (6)
(Quality Control Unit)

- Capacity Building of QC Unit
- Acquiring Fundamental test methods of basic materials: Soil, Concrete, & Asphalt
- Inventory Survey of all Laboratory Unit for Future Improvement



11. Ending Remark and Future Prospect of RDEC Setting-up Project

1. Satisfactory Progress of the Programs.
2. The activities of the Project has been made under the Collaboration Principle throughout the Project Period. (Participatory)
3. The capabilities of RDEC/LGED was encouraged through pursuing the targets of Six Strategy programs, international programs in CP Training and TIEP. (Variety)
4. The establishing the system for formulation of rural planning by the participation and the contribution of LGI officers, may require considerable time. (Time Factor & Continuity)
5. Further effort is stressed to be continued.

Ending Remark and Future Prospect of RDEC Setting-up Project

- LGED's Strength & Role as a Executing Body of RDP with Engineering Organization, Key Issues : HRD, Research & Development
- Upgrading of Technical Level of LGED
- RD activities & HRD by Various Programs
- Establishment of RD Fund, & Training Fund in LGED