

**バングラデッシュ人民共和国**

**洪水条件不利地域における生計向上のための農村開発計画**

**プロジェクトファインディング調査**

**平成 16 年 6 月**

**社団法人 海外農業開発コンサルタンツ協会**

## 序 文

この調査報告書は、(株)三祐コンサルタンツが社団法人 海外農業開発コンサルタンツ協会 (ADCA) の補助金を得て、実施したバングラデシュ国人民共和国「洪水条件不利地域における生計向上のための農村開発計画」に関わるプロジェクト・ファインディング調査の結果を取りまとめたものである。

本調査は ADCA の委託を受けた下記の団員によって、平成 16 年 4 月 27 日から 5 月 11 日 (15 日間) に亘って実施された。

団長	下地 富治	海外事業本部	副本部長
団員	津村 和光	海外事業本部	技術部課長
団員	マハブブ A. K. M. レジャ	海外事業本部	技術部顧問

近い将来、この事業計画が日本政府の協力案件として取り上げられ、我国とバングラデシュ国との技術・経済協力として推進されることを期待する。

本調査の実施にあたって、多大のご協力を戴いたバングラデシュ国政府地方自治・農村開発・協同組合省地方政府技術局 (LGED)、日本大使館、JICA バングラデシュ事務所、JICA 専門家の関係各位に対して深い謝意を表す次第である。

平成 16 年 6 月

株式会社 三祐コンサルタンツ

取締役社長 久野 格彦

# 調査対象地域位置図

## Bangladesh

- International boundary
- - - Division boundary
- ★ National capital
- ⊙ Division capital
- +— Railroad
- Road
- - - Track

0 20 40 60 Kilometers  
0 20 40 60 Miles

Lambert Conformal Conic Projection, SP 22N/26N

チャール地域

ハオール地域

ダッカ



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### 要請書（案）



## 1. 事業の背景

バングラデシュ国（以下、「バ」国）における農業部門は、その GDP 比率は低下傾向にあるが、依然 30%に及び、農業従事者が全人口の 60%を占めており、「バ」国経済の最重要産業である。また、第 5 次 5 ヶ年計画（1987/98～2001/02 年度）の中でも食糧自給の達成、農業関連分野における所得創出、地域格差の是正、農業・農村開発を推進することが重要課題とされている。

主要 3 河川であるガンジス川、ブラマプトラ川、およびメグナ川によって形成されたベンガルデルタに位置する「バ」国は、河川の氾濫、あるいは、雨期の降雨の排水不良により毎年、洪水の被害を受けている。慢性的な洪水被害に対処するために 1964 年に主に洪水防御のための 58 の大規模プロジェクトよりなる「Flood Control, Drainage and Irrigation Project(FCD/I)」が計画され、その一部が実施された。しかし、高額な工事費、長期の工事期間、そして技術的な問題により実施の継続が難しくなっている。

その後、1987 年、1988 年と連続的な大洪水の後、「バ」国は世界銀行の主唱の下、海外の援助国および援助機関と協力し、洪水に対する全国的な総合計画として、「Flood Action Plan(FAP)」を開始し、26 の調査がなされた。構造的な洪水防御、あるいは制御のための多くの調査がなされる一方、洪水を制御するのではなく、洪水に適応する生活環境を創設する洪水適応（Flood Proofing）の概念も導入された。FAP は現在までその一部が実施されている。国際社会の援助・支援の継続が強く望まれるものの、自然災害の規模があまりにも大きいことから、「バ」国政府、NGO、住民自身の自助努力が不可欠な要件となっている。

このような背景のもと、「バ」国政府は 1992 年地方自治・農村開発・協同組合省(Ministry of Local Government, Rural Development and Cooperatives : MLGRD&C)の傘下に地方開発、技術普及、地方基盤施設開発を目的に地方政府技術局(Local Government Engineering Department : LGED) を設立した。LGED は農村における洪水シェルターや潜水路の建設などの小規模構造物対策を行うとともに、地方教育、衛生啓発等の非構造的対策も実施している。

本事業対象地区はチャール、ハオールと呼ばれる「バ」国の中でも洪水被害に対して最も脆弱な地域である。チャール地域には「バ」国の人口圧迫に起因して、世界最大級のブラマプトラ河川敷きに生計の糧をおく人々が居住しており、日々農地、村落居住地の浸食に不安を抱えている。またハオール地域は北東部インド国境の豪雨地帯に発する降雨がメグナ河に滞留し、毎年雨期の約 5 ヶ月間 6,500 km<sup>2</sup>にわたって水没する地域であり、村落住民は土盛による高台に居住し、強風時には波浪による高台浸食と戦いながら生活している。LGED は、これら地域の生計向上を推進すべく、洪水に適応した生活環境と住民による自立した農村社会を構築することを目標に、我国に M/P および F/S 作成に係る技術協力を要請し、JICA が 2002 年 8 月「洪水適応型生計向上計画」報告書を取り纏めるに至った。

本報告書では 8 県に亘るチャール地域、ハオール地域各々に対して洪水適応型生計向上 M/P を作成するとともに、F/S では小規模構造物を中心とした住民主導による実施が実現可能なモデル・プロジェクトを構築した。また、本格的な事業実施に向けて、Project Management Office (PMO)を立ち上げ、Model Project を早期に実施することを提案している。本報告書をもとに、「バ」国 LGED は、JICA 個別専門家の支援によりモデル・プロジェクト地区において、小規模構造物の建設およびそれに係る住民の合意形成が進められている。

LGED は上記 M/P に基づき、我国の無償資金協力事業とカウンターパート・ファンドによるソフトコンポーネントの実施の可能性を検証し、チャール、ハオール地域における洪水条件不利地域の生計向上に寄与すべく、農村開発事業を実施したい意向である。

## 2. 対象地域の概要

### (1) 人口と社会状況

チャール地域は人口 140 万、面積 2,665 km<sup>2</sup>、人口密度 525 人/km<sup>2</sup> (同県平均 1,046 人/km<sup>2</sup>) であり、ハオール地域は人口 350 万、面積 6,502 km<sup>2</sup>、人口密度 535 人/km<sup>2</sup> (同県平均 744 人/km<sup>2</sup>) である。

チャール、ハオール地域の県別面積、人口

A. チャール地域	面積 (km <sup>2</sup> )	人口 (2001 年)	人口密度 (人/ km <sup>2</sup> )	B. ハオール地域	面積 (km <sup>2</sup> )	人口 (2001 年)	人口密度 (人/ km <sup>2</sup> )
カイハント	504	201,000	399	ホビゴンジ	1,394	749,000	538
シヤマルプール	528	377,000	715	キシホルゴンジ	1,694	1,255,000	741
クリケラム	854	335,000	392	ネトロナ	701	272,000	387
シラジゴンジ	779	486,000	623	シュナムゴンジ	2,713	1,201,000	443
A. チャール計	2,665	1,399,000	525	B. ハオール計	6,502	3,477,000	535

出典：洪水適応型生計向上計画調査 (JICA 開調、2002 年)

住民の移動は河川による浸食が顕著なチャール地域の方が、ハオール地域より頻繁である。転入の理由としては、親戚縁者の存在や雇用条件、転出に関しては土地不足、洪水、雇用の欠如が主な理由である。チャール地域においては、浸食もその転出の理由に加わる。

識字率はチャール地域で 18%、ハオール地域で 25%で、全国値(1997 年 : 51%)および村落部の平均値(38%)に比べ低い。両地区ともに女性の識字率は男性に比べ著しく低い。子供の教育レベルは低く、ドロップアウト率も高い。その理由として、貧困、保護者の無知、頻繁な学校の休校があげられる。また、学校の建物の荒廃、学校設備の不備、教員の欠如、女性教員の不足、学校までの距離が遠いなどが阻害要因として挙げられる。

栄養失調は一般に女性、子供の間で見られる。カロリーとビタミンの不足により貧血、夜盲症、甲状腺腫などの発生率が高い。報告されている主要疾患は、風邪、赤痢、下痢、黄疸などである。医療面の問題点は、ヘルスワーカーの定期巡回の欠如、医療施設へのアクセスの困難さ、薬品の不足、疾病予防対策の欠如、栄養不足による地域住民の体力低下などがあげられる。ヘルスワーカーによる妊婦への産前ケアはなされるものの、産後の医療サービスが存在しないため乳幼児死亡率が高い。

両地域の多くの人が年間を通して井戸を飲料水用として使用している。しかし、多くの井戸は、雨期には水没し、使用不能となる。

調理用燃料の収集問題は両地域民にとって関心が高い。牛糞とわらが、調理のための主要燃料である。雨期には、燃料の調達が困難になり調理の回数が減る。

## (2) 貧困状況

下表のとおりチャール、ハオール両地域とも 70%以上の世帯で年間所得が 30,000 タカ (約 60,000 円)以下である。年間所得 30,000 タカの世帯の収入を家族 1 人あたりに換算すると 4,290 タカ(約 8,500 円)を超えず、全国平均の約 30%である。チャール地域の住民は 61%の世帯が年間所得 Tk.20,000 タカ(約 40,000 円)以下で、一方でハオール地域のそれは 43%である。

チャール地域とハオール地域の 1 世帯あたり平均年間収入

県	年間農家所得 (タカ)					
	<10,000	10,001-20,000	20,001-30,000	30,001-50,000	50,001-100,000	>100,000
ガイバング	41%	31%	16%	10%	2%	0%
ジャマルプー	32%	27%	20%	16%	4%	1%
クリガム	33%	34%	22%	8%	3%	0%
シラゴング	14%	35%	29%	15%	6%	2%
A. チャール計	29%	32%	22%	12%	4%	1%
ホゴング	23%	28%	24%	15%	7%	3%
キヨルゴング	11%	30%	27%	18%	10%	4%
ネロコ	12%	23%	29%	21%	12%	3%
シュムゴング	18%	25%	25%	18%	9%	5%
B. ハオール計	16%	27%	26%	18%	9%	4%

出典：洪水適応型生計向上計画調査 (JICA 開調、2002 年)

## (3) 農業・村落インフラ状況

灌漑は、プライベートセクターで様々な種類のポンプが使用されており、乾期作に使用されているが、その収量は洪水、種子の不足、不適切な水管理などによって、しばしば低下する。両地域の乾燥場、脱穀機、倉庫などの農業インフラはほとんど整備されていない。

流通施設は、数・質・規模ともに十分とはいえない。LGED は Open Yard Hat Bazar (露店) を拡大・改良し公設市場 (Growth Center) への格上げを推奨しているが、全流通施設に占める公設市場の割合は、チャール地域においては 6.5%、ハオール地域においては 23%程度である。商品流通の不確実性や高価で質の悪い商品は地元民の購買意欲を制限し、一方、ディーラー側も地元民の低い購買力と地元民の出荷する生産物の品質および安全性(例えば、農薬使用に関する知識の低さ)に不満を抱いている。

農民は、公設市場の欠如、交通手段・通信手段の不備により生産物を地元で売るしか方法はない。ハオール地域では、米の流通に仲買人が関わることが多い。村落への道路整備状況は、両地域とも全国平均に比べ低い。特に、クラス 2 レベル (村とユニオンの中心であるユニオン評議会が設置されている村をつなぐ) の村落道路の整備水準が低い。

## (4) 河川状況

チャール地域は、ブラマプトラ川流域の活発な氾濫原に位置している。川筋は複雑に絡み合いながら蛇行しており、河道は毎年変わり安定しない。同河川は大量の砂やシルトを上流部より運び、これが堆積してチャール地域を形成している。一方、ハオール地域は皿状の地形が雨期に湛水する地域である。主河川はメグナ川の支流の Surma, Kalni, Kushiya、Baulai、Dhanu である。モンスーン期は Surma や Kushiya 川の支流が大規模な湛水を引き起こす。

## (5) 営農状況

JICA 開発調査の営農状況に係るサンプル・サーベイ結果からチャール、ハオール地域各

県の作物毎の年間収穫面積を示せば以下のとおりとなる。

チャール地域における各作物の収穫面積とその比率

県 作物	ガイバンダ		ジャマルプール		クリグラム		シラジゴンジ		チャール地域計	
	面積 (ha)	比率 (%)	面積 (ha)	比率 (%)	面積 (ha)	比率 (%)	面積 (ha)	比率 (%)	面積 (ha)	比率 (%)
ボロ米 (ローカル)	2,420	6%	4,779	15%	2,199	5%	1,632	3%	11,030	7%
ボロ米 (HYV)	9,426	25%	10,757	31%	6,658	17%	11,770	23%	38,611	23%
アウス米 (ローカル)	276	1%	843	3%	2,954	7%	2,837	5%	6,910	4%
アウス米 (HYV)	1,434	4%	1,163	4%	116	0%	71	0%	2,784	2%
アマン米 (ローカル)	7,483	20%	1,525	5%	3,936	9%	9,361	18%	22,305	14%
アマン米 (HYV)	7,692	20%	1,525	5%	4,284	10%	-	-	13,501	8%
稲作小計	28,731	76%	20,592	63%	20,147	48%	25,671	49%	95,141	58%
小麦	3,515	9%	3,774	12%	7,294	18%	2,128	4%	16,711	10%
落花生	1,715	5%	2,368	7%	2,199	5%	2,198	4%	8,480	5%
豆類	644	2%	964	3%	2,662	6%	4,043	8%	8,313	5%
サトウキビ	387	1%	602	2%	695	2%	639	1%	2,323	1%
油糧作物	566	1%	1,325	4%	3,010	7%	5,177	10%	10,078	6%
ジュート	2,205	6%	2,931	9%	6,078	14%	12,411	24%	23,625	15%
A. チャール計	37,763	100%	32,556	100%	42,085	100%	52,267	100%	164,671	100%

出典：洪水適応型生計向上計画調査（JICA 開調、2002 年）

チャール地域では、総収穫面積 164,671 ha の内、稲作面積は 58%に留まっており、水稻には適していない砂質土壌の土地が多く、落花生、豆類作物の多様化が進んでいることが伺える。

ハオール地域における各作物の収穫面積とその比率

県 作物	ホビゴンジ		キシホルゴンジ		ネトロコナ		シュナムゴンジ		ハオール地域計	
	面積 (ha)	比率 (%)	面積 (ha)	比率 (%)	面積 (ha)	比率 (%)	面積 (ha)	比率 (%)	面積 (ha)	比率 (%)
ボロ米 (ローカル)	242	0%	10,604	8%	11,104	27%	71,462	35%	93,412	19%
ボロ米 (HYV)	97,210	86%	106,185	83%	27,467	66%	119,105	58%	349,967	72%
アウス米 (ローカル)	3,869	3%	-	-	362	1%	422	0%	4,653	1%
アウス米 (HYV)	1,209	1%	276	0%	-	-	-	-	1,485	0%
アマン米 (ローカル)	1,209	1%	1,377	1%	228	1%	1,687	1%	4,501	1%
アマン米 (HYV)	7,375	6%	3,307	3%	-	-	7,800	4%	18,482	4%
稲作小計	111,114	97%	121,749	95%	39,161	95%	200,476	98%	472,500	97%
小麦	2,055	2%	137	0%	90	0%	-	-	2,282	0%
スパイス	-	-	964	1%	453	1%	1,897	1%	3,314	1%
油糧作物	1,572	1%	5,371	4%	1,496	4%	1,897	1%	10,336	2%
B. ハオール計	114,741	100%	128,221	100%	41,200	100%	204,270	100%	488,432	100%

出典：洪水適応型生計向上計画調査（JICA 開調、2002 年）

ハオール地域では総収穫面積 488,432 ha の内、稲作面積が 97%にも及び、特に乾期作であるボロ作が 90%（ローカル米：93,400ha(19%)、HYV：約 350,000ha(72%)) を超え、ハオール地域住民の生計を支えていることは明白である。

一方でボロ作の収穫期（3～4 月）前の雨期の初め、インド国境の集中豪雨に起因する Early Flood と呼ばれる洪水がハオール地域の河川水位を一気に引き上げ、ボロ作に多大な被害を及ぼす。稲の出穂期に 3 日間以上冠水すると 50～75%の収量が下がると言われる。

Early Flood が 3 年に一度程度、起こるとされることから、モミ単位収量が 3 トン/ha のボロ作が 3 年に一度 75%の被害を受けるとすれば、262,500 トン（350,000ha/3 年 x 3 トン/ha x 75%）の損害となる。これは約 5.25 百万タカ（262,500 トン x 20 タカ/トン：約 10.5 百万円）の被害額となる。



## (6) 土壌条件

チャール地域は砂とシルトの沖積土で覆われ、僅かにアルカリ性でミネラルを多く含んでいる。土壌は非石灰質の沖積土壌が大勢を占めている。その組成は粗く、または中程度で、水や栄養分の保持性が低い。この地域では、窒素不足が最も重大な植物の成長制限因子で、カリウム、硫黄がそれに次いでいる。

ハオール地域の土壌は、湿った盆地地帯では灰色粘土、比較的高地の季節的に乾燥する地域では、ローム土、またはシルト質ローム土である。非石灰質の氾濫源の土壌や酸性盆地土壌で一般的な土壌組成をしている。それは、通常酸性で中程度の有機物含有量である。洪水により運ばれた堆積物に栄養分が多く、土の養分保持能力が高いことから土壌の肥沃度は、中から高レベルである。

## (7) 洪水環境

チャール地域は、河川からの浸食に対する安定性の観点より、(i)安定地、(ii)非安定地と分けられる。前者は、植生豊かな比較的高地に存在するチャールで少なくとも 10 年以上は住民が居住している。一方後者は低地にあり、その位置が安定せず、陸地は河川の流れに応じて消滅と出現を繰り返している。チャール地域における安定地への浸水と非安定地への浸食は、住民の立場をより脆弱なものとしており、居住地を失った住民による移住が繰り返されている。

ハオール地域は(a)深い地域(Deep Haor areas : 標高 4m 以下)、(b)浅い地域(Shallow Haor areas : 標高 4-6m)の二つに分けられる。洪水時の湛水深度は、深い地域は 3m 以上、浅い地域は 3m 以下である。ハオール地区における湛水は、年間 6 ヶ月に及ぶ。ハオール地域での住民による洪水対策は、伝統的な方法(竹柵や土嚢)によるマウンド保護、家屋の床の嵩上げ、家屋・食糧倉庫の構造強化などである。洪水時期には住民は彼らの家屋やマウンドを波浪による浸食から守ることに集中せねばならない。

## (8) 洪水被害

洪水の時期、大きさ、予防手段をとっているか否かにより被害の規模は異なる。最近においては、下表のとおり 1998 年の洪水の被害が湛水面積、死亡した牛の数、被災家屋数、死傷者数の面で最大であった。1999 年、2000 年の洪水時の死傷者数は比較的少ない。

1998 年、1999 年および 2000 年のハオール、チャール地域の洪水被害

	全面積 (km <sup>2</sup> )	冠水面積(%)			家畜被害(頭)			被害家屋(戸)			死亡者(人)		
		1998	1999	2000	1998	1999	2000	1998	1999	2000	1998	1999	2000
カバゴン	504	75	49	42	506	0	0	1,028	19	14	0	0	0
ジャマール	528	84	74	75	1,310	20	0	1,855	90	25	4	0	0
クリクラム	854	82	62	67	2,903	1,359	1,310	3,435	1,743	1,494	12	0	1
シラゴン	779	37	26	30	539	290	208	629	396	330	16	1	1
チャール計	2,665	74	57	58	5,258	1,669	1,518	6,947	2,248	1,863	32	1	2
ホビゴン	1,394	48	28	33	3,140	1,680	1,425	677	371	455	16	3	7
キョルゴン	1,694	87	61	72	3,962	316	679	11,332	1,401	2,569	35	0	0
ネロコナ	701	92	80	91	1,816	1,216	2,613	1,347	598	1,173	7	0	0
シュナムゴン	2,713	71	51	36	1,644	161	289	3,100	475	385	0	0	0
ハオール計	6,502	80	58	63	10,562	3,373	5,006	16,456	2,845	4,582	58	3	7

出典：洪水適応型生計向上計画調査（JICA 開調、2002 年）

洪水時における住民の対応は、(i) Macha（竹の床）の建設による床の嵩上げ、(ii) 土塁による家屋への浸水防止、(iii) 高台、道路、堤防、洪水のない地域にある親戚の家などへ



の避難である。洪水シェルターは、チャール、ハオール両地域にあるが、その人員収容能力は不十分である。シェルターの収容力が不足していることに加えて、通信手段の欠如により、末端レベルの洪水警報システムが存在しない。そのため、過去の経験のみによって、住民は避難を決定する。

#### (9) 行政

チャール地域は4 県 (District) 19 ウボジラ、98 ユニオン、一方ハオール地域は4 県 (District) 29 ウボジラ、201 ユニオンで構成されている。

「バ」国の政治システムは、地方分権化を唱えているにもかかわらず、依然として中央集権化している。ウボジラ評議会が地域の開発全般に責任を負う。ウボジラ評議会の Chairman は地域住民の選挙により選出されることになっているが、選挙が実施されたことはない。中央政府の統制のもと、Upazila Nirbani Officer(UNO)が1 人と様々なランクのその他の officer が働いている。それゆえ、ウボジラ評議会は、地域住民の開発を目指すよりも中央政府の政治に関心を持っている。

制度上、ユニオン評議会 (UP) はユニオン(村落)の諸手続きに加え開発の計画実施に責任を持つ。行政組織上はウボジラの下部組織となりウボジラ評議会と連携する。UP は、チェアマン、9 人の男性メンバー、3 人の女性メンバーより構成される。チェアマンと男性メンバーは投票により選ばれ、女性メンバーは住民に直接選ばれる。

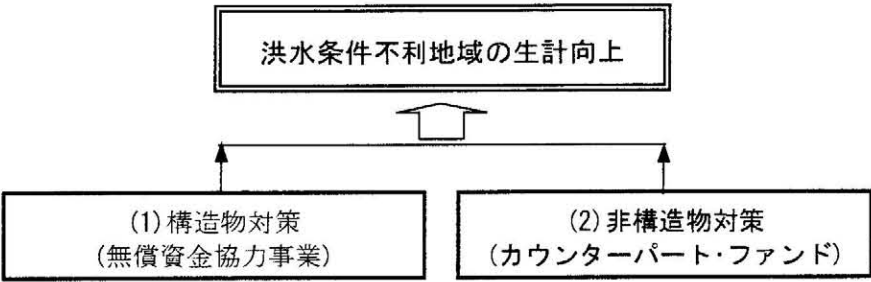
UP には実質的な自治能力はなく、政府の年間開発計画の予算からの助成金を活動資金としている。UP には各種税金を集める役割があるが、十分に機能していない。

UP の下にグラム(村)が存在する。しかしながらグラムは、過去何度もグラム評議会の設立を試みたにもかかわらず、行政組織として機能しなかった。地域住民の意見を UP がくみ上げるシステムは確立されていない。また、政府からの活動資金は UP のメンバーの出身地を中心に配分される傾向がある。

3. 計画の概要

3.1 全体の計画概要

本事業の目標である洪水不利地域における生計向上を我国の(1)無償資金協力事業と(2)カウンターパート・ファンド(見返り資金)を資金源とした「バ」国政府資金 (GOB 基金) の2本立てにより実現する。無償資金協力ではチャール地域における「洪水避難場所の嵩上げ」やハオール地域の「集落居住区浸食防止壁の建設」などの構造物対策を実施する。また、構造物対策の効果を効率的に発現させるべく、非構造物対策である「職業訓練プログラム」や「識字教育および衛生教育」を GOB 基金により行うことを提案する。



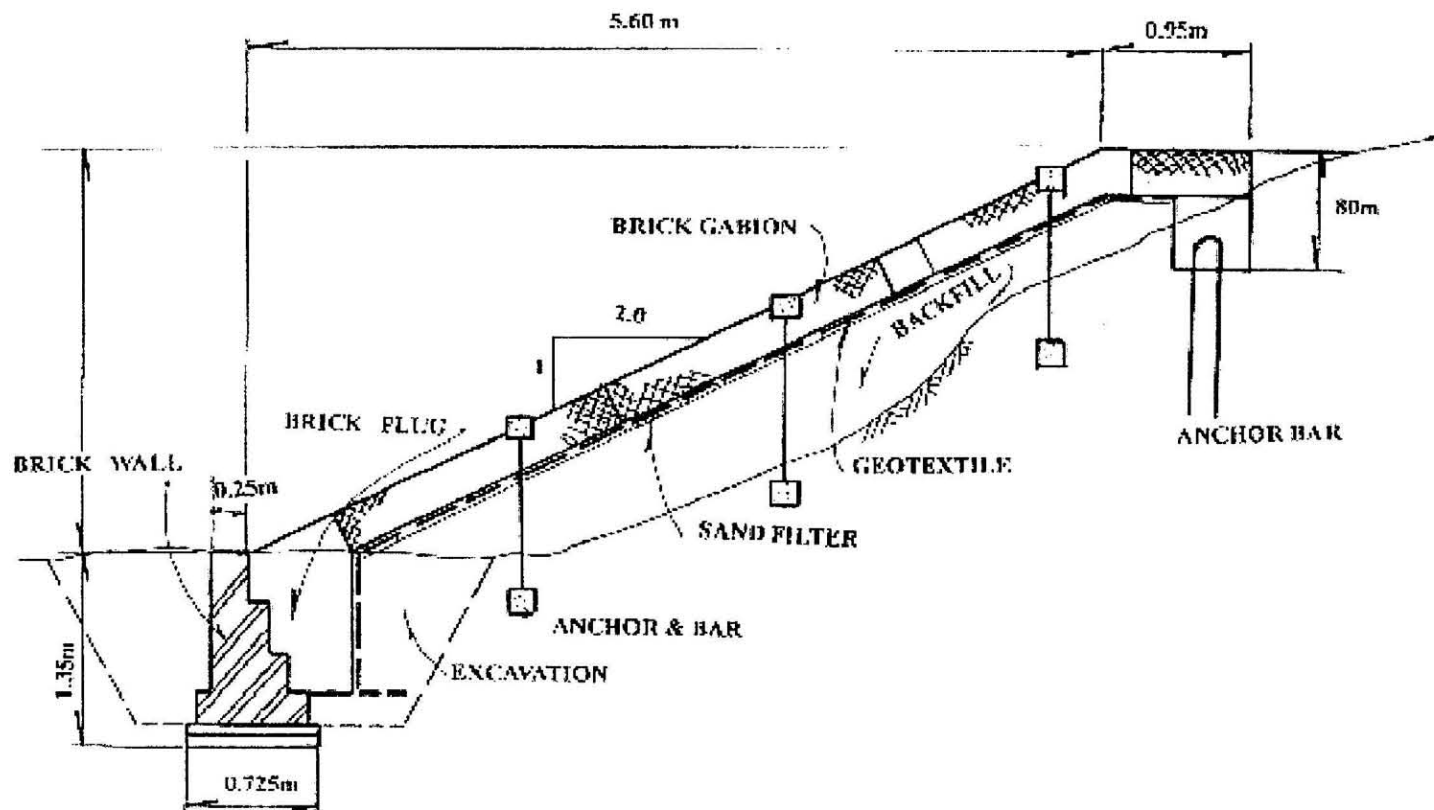
3.2 構造物対策の概要

チャール、ハオール地域各々の特性を考慮し、以下の構造物対策を実施する。主な対策の計画概要図は、次頁以降に示すとおりである。

チャール、ハオール地域の構造物対策

A. チャール地域	B. ハオール地域
a) 洪水避難場所の嵩上げ b) 避難場所アクセス道の嵩上げ・法面補強・整備 c) 集落を連結する農道整備・強化 d) ポストハーベスト(籾乾燥用ドライヤード)施設の建設 e) 公設市場（マーケット）の整備	a) 集落居住区浸食防止壁(鉄筋コンクリート)の建設 b) 収穫期湛水被害(Early Flood)防止用圃場内堤防の建設 c) 潜水集落連結農道の建設 d) 集落内農道の整備 e) 舟着場の整備 f) ポストハーベスト(籾乾燥用ドライヤード)施設の建設 g) 公設市場(マーケット)の整備 h) 灌漑用低揚程ポンプ(LLP)の調達（コミュニティ負担）

# Typical Section of Revetment by Gabion Brick Chips

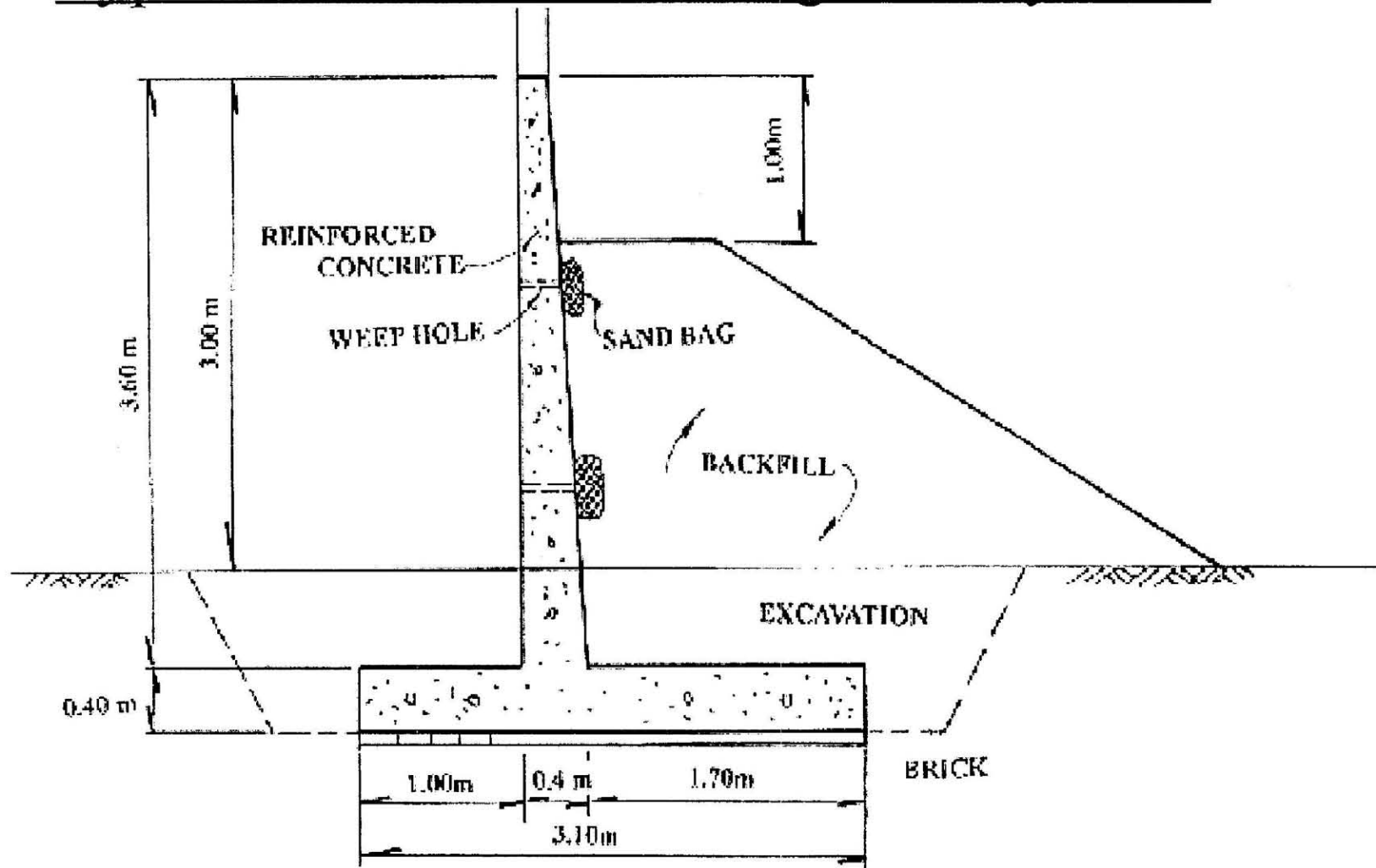


TYPICAL SECTION OF REVETMENT BY GABION BRICK CHIPS

-Slope Protection of the Access Road to Evacuation Place  
-Agricultural Road with Slope Protection in the Village

避難場所アクセス道の嵩上げ・法面補強・整備

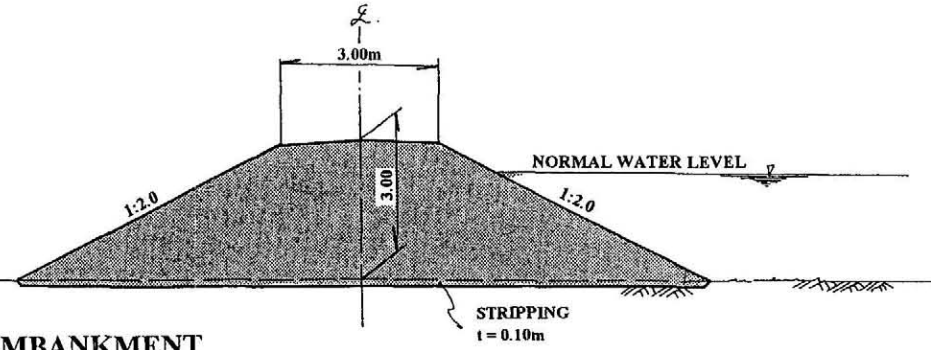
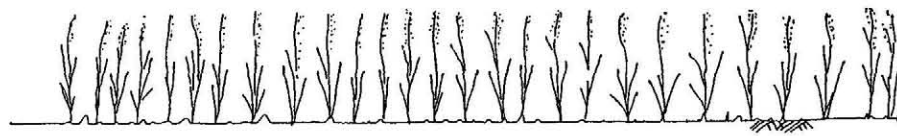
# Typical Section of Retaining Wall by RCC



RCC Retaining Wall for Wave Protection

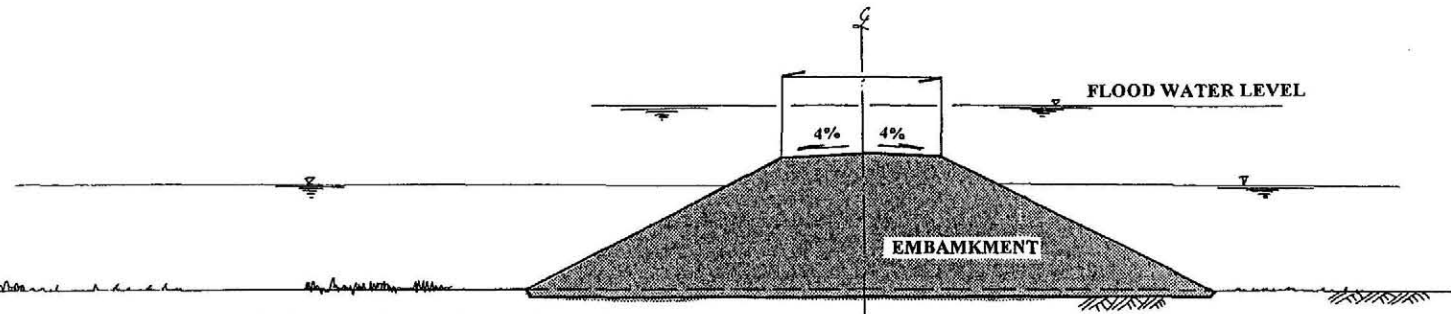
集落居住区浸食防止壁(鉄筋コンクリート)の建設

PLANTATION AREA

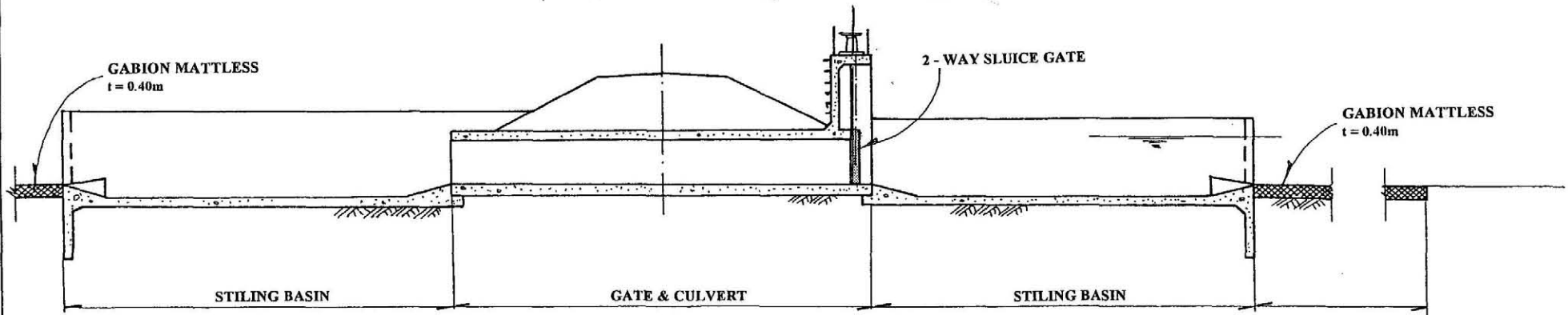


**SUBMERSIBLE EMBANKMENT  
(BEFORE HARVEST)** NO SCALE

NOTE: BASED ON THE INUNDATION AREA AND FLOOD  
PEPTH, THE DIMENSIONS OF CULVERT ON WATER  
REGULATION STRUCTURE SHALL BE MODIFIED.



**SUBMERSIBLE EMBANKMENT  
(AFTER HARVEST)** NO SCALE

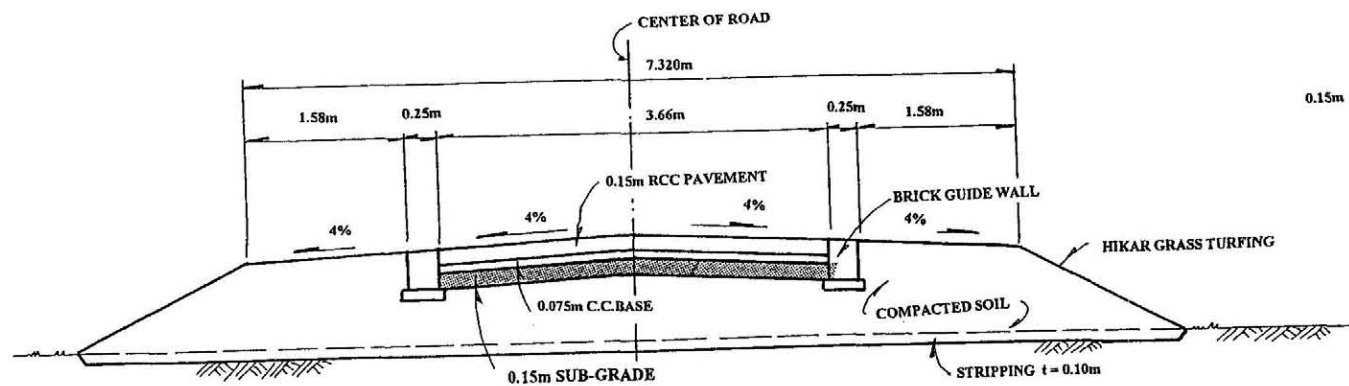


**TYPICAL WATER REGULATING STUCTURE**

- Submersible Embankment to Protect Early Flood
- Sluice Gates for the Submersible Embankment

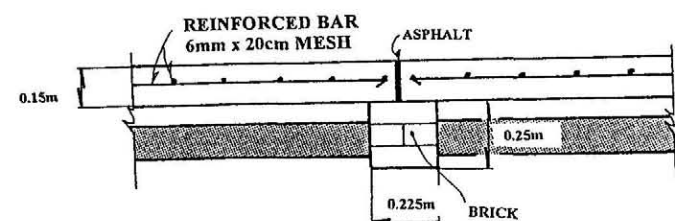
收穫期湛水被害 (Early Flood) 防止用圃場内堤防の建設



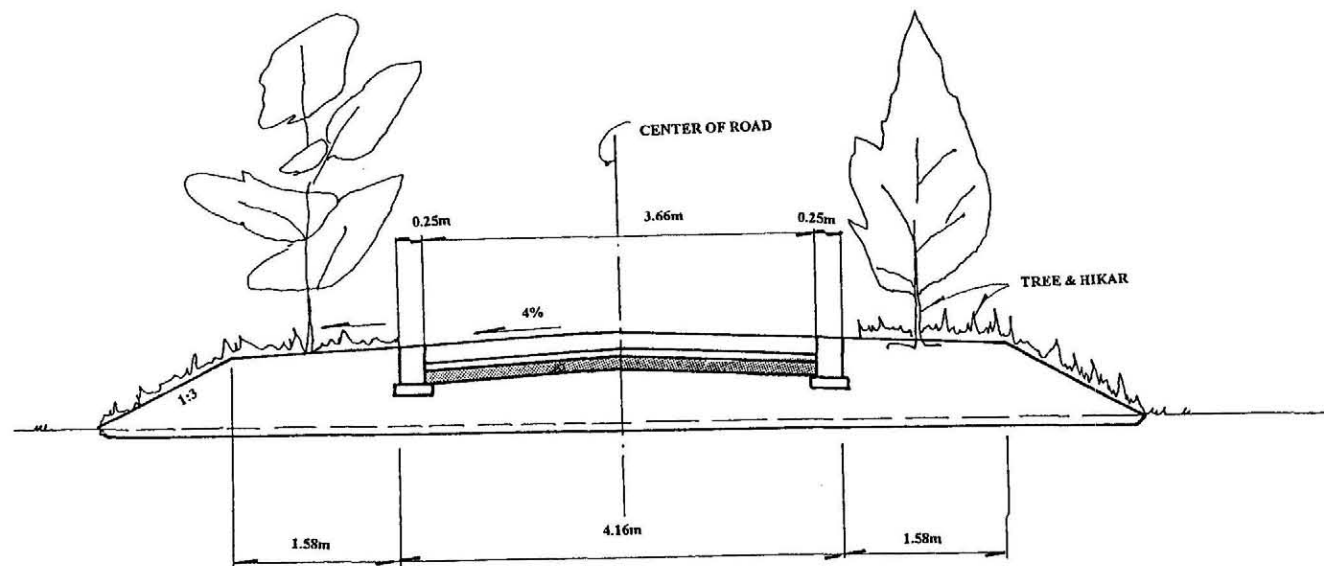


SECTION OF PAVED ROAD

NO SCALE



DETAILS OF ROAD JOINT

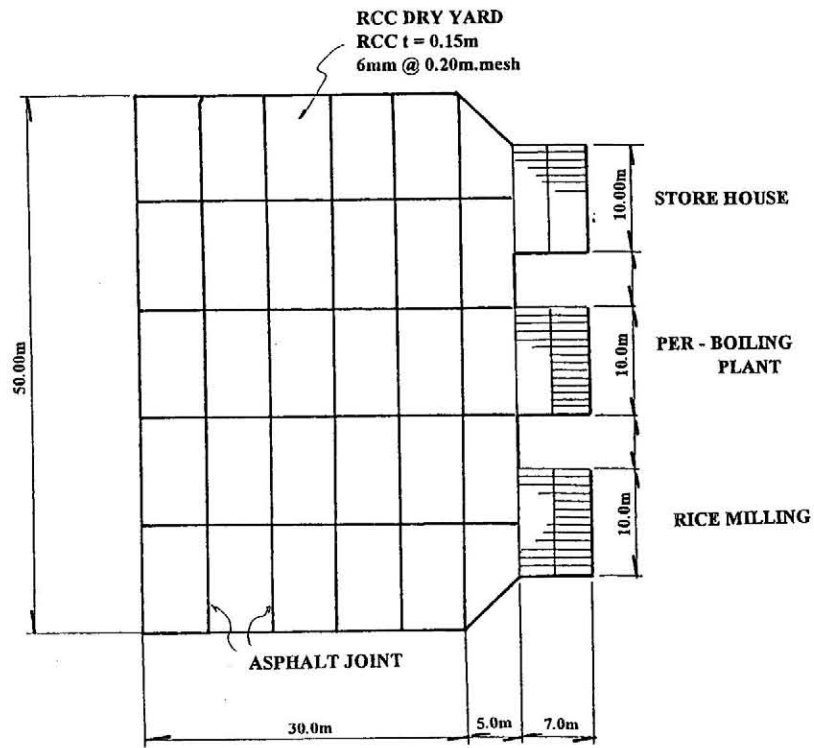


SECTION OF SUBMERSIBLE ROAD

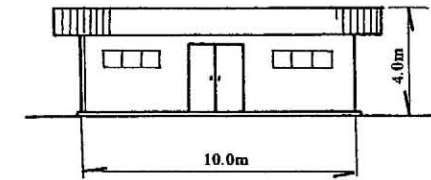
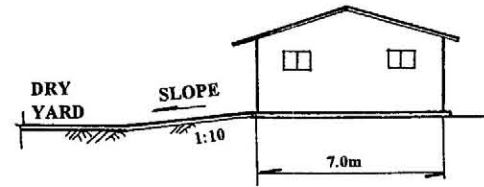
NO SCALE

Submersible Agriculture Road

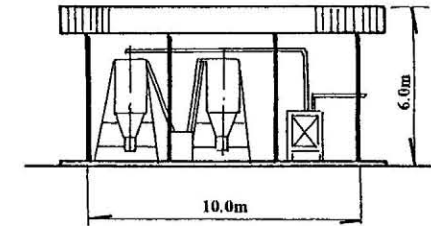
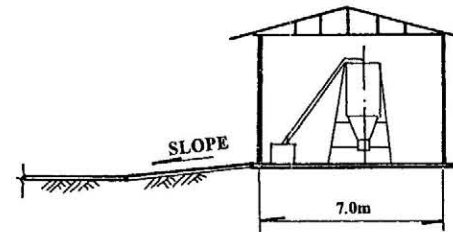
潜水集落連結農道の建設



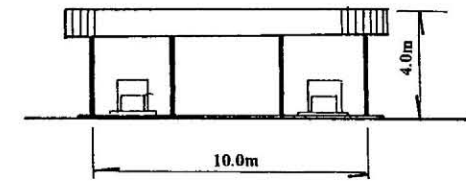
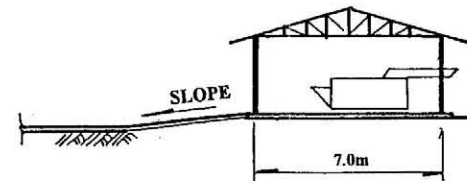
LAYOUT PLAN OF DRY YARD AREA NO SCALE



STORE HOUSE



PER - BOILING PLANT



RICE MILLING NO SCALE

Drying Yard with Parboil Plant for Post Harvest

ポストハーベスト(籾乾燥用ドライヤード)施設の建設

### 3.3 ウポジラ別の事業概要

#### (1) 優先対象地区の選定

JICA 開発調査のマスタープランで提案されている優先地区の選定クライテリアを基に各県別に以下のユニオンを選定した。

優先対象地区

地 域	県 名	ウボヅラ名	ユニオン名	ユニオン 面積 (ha)	ユニオン人口 (2001 年)
A. チャール	ガイバンダ	フルチャリ	エレンダバリ	8,884	25,333
	ジャマルプール	イスランプール	ノアパラ、チ ナデウリ	3,402	24,283
	クリグラム	ウリプール	ブラブリ	2,845	15,049
	シラジゴンジ	チョウハリ	ミルクチア	5,115	46,731
	小計			20, 246	111, 396
B. ハオール	ホビゴンジ	ラカイ	ラカイ	4,944	25,621
	キシオルゴンジ	ニクリ	グライ	4,776	28,830
	ネトロコナ	カリアジュリ	チャクワ	7,802	17,686
	シュナムゴンジ	ダマルパシヤ	ジョイスリ	5,819	17,772
	小計			23, 341	89, 909
合計				43, 587	201, 305

#### (2) 優先地区別の事業内容

現地調査の結果および LGED との協議を踏まえ、各ユニオンの事業内容を以下のとおり提案する。

##### A. チャール地域

県	ガイバンダ	ジャマルプール	クリグラム	シラジゴンジ
ウポジラ	フルチャリ	エレンダバリ	ウリプール	チョウハリ
ユニオン	エレンダバリ	ノアパラ、チナデウリ	チョウハリ	ミルクチア
事業内容	b)アクセス道嵩上げ d)ドライヤード建設	a)避難場所嵩上げ b)アクセス道嵩上げ c)公設市場	a)避難場所嵩上げ b)アクセス道嵩上げ c)公設市場	a)避難場所嵩上げ b)アクセス道嵩上げ c)公設市場

##### B. ハオール地域

県	ホビゴンジ	キシオルゴンジ	ネトロコナ	シュナムゴンジ
ウポジラ	ラカイ	ニクリ	カリアジュリ	ダマルパシヤ
ユニオン	ラカイ	グライ	チャクワ	ジョイスリ
事業内容	a)浸食防止壁 d)集落内農道 e)舟着場整備 f)ドライヤード建設	a)浸食防止壁 b)湛水防止堤防 c)潜水農道建設 d)集落内農道建設 f)ドライヤード建設 h)灌漑用ポンプ	a)浸食防止壁 b)湛水防止堤防 c)潜水農道建設 e)舟着場整備 h)灌漑用ポンプ	a)浸食防止壁 b)湛水防止堤防 c)潜水農道建設 d)集落内農道建設 e)舟着場整備 f)ドライヤード建設 h)灌漑用ポンプ

### 3.4 非構造物対策（カウンターパート・ファンド）の内容

本事業実施機関である LGED は、JICA 開発調査報告書「洪水適応型生計向上計画調査」に基づき、PMO(Project Management Office)を LGED 内に立ち上げ、先ずハオール地域におけるキショルゴンジ県グライ・ユニオン(村)で PIU (Project Implementation Unit)を発足した。NGO の協力を得て、住民負担等にかかる合意形成を持ちつつ、小規模ながら住民参加による「村落居住区浸食防止壁の建設」および「職業技能研修プログラム」を実施した。また、チャール地域でもガイバンダ県アルガチャール村において現在実施中である。LGED はこれら住民合意形成の成果に自身を深め、同モデル・プロジェクト地区で提案されているその他事業の継続、さらには M/P で提案されている洪水適応型構造物の建設にも着手し、非構造物であるソフトコンポーネントを組み合わせ、モデル・プロジェクト地区以外でも実践したい意向である。

この成果を受けて、チャール、ハオール両地域の対象ユニオンに対して、構造物対策に並行し、カウンターパート・ファンドを活用し、以下のソフト・コンポーネントを実施する。

- a) 職業技能訓練プログラム
- b) 非識字者への識字教育および衛生教育
- c) マイクロクレジット
- d) 医薬品の無料提供サービス

### 3.5 事業実施計画

チャール地域とハオール地域を期分けし、ハオール地域の対象事業を第 1 期、チャール地域を第 2 期とする事業実施計画とする。全工程を 5 カ年とする。

実施スケジュール

年度	2005/06	2006/07	2007/08	2008/09	2009/10
<b>B. ハオール地域(第 1 期)</b>					
1) 構造物対策					
- 基本設計	■				
- 詳細設計、実施		■	■		
2) 非構造物対策	●	●	●		
<b>A. チャール地域(第 2 期)</b>					
1) 構造物対策					
- 基本設計			■		
- 詳細設計、実施				■	■
2) 非構造物対策			●	●	●

備考：非構造物対策はカウンターファンドで実施される。

#### 4. 総合所見

本事業は、2002 年 8 月に作成された JICA 開発調査報告書「洪水適応型生計向上計画調査」マスタープラン（M/P）に基づき、優先地区を決定しており、今回の現地調査および LGED 側との協議により、優先事業の内容を確認した。

構造物対策として、チャール地域では a)洪水避難場所の嵩上げ、b)避難場所アクセス道の嵩上げ、c)籾乾燥用のドライヤードなどが含まれる。また、ハオール地域では、農村住民の最低限の生計を確保するための波浪対策としての a)集落居住区浸食防止壁、また農民の所得収入源のほとんどを占めるボロ作の被害を緩和する b)収穫期湛水被害防止用圃場内堤防、c)潜水集落連結農道の建設など、小規模な施設内容を事業の核としている。

チャール、ハオール全地域の生計向上に寄与するには十分な村落数ではないが、全 8 県から各 1 村落ずつの優先地区を選定しており、LGED は本事業実施後、これをモデルとして、洪水条件不利地域における農村開発事業の範囲を広げて行くとしている。これら事業内容は、M/P で提案されている施設の範囲内であるとともに、建設費も我国の無償資金協力事業に合致した規模になると想定される。

また、上記構造物対策に加え、効率的な事業効果の発現を目指すべく、カウンターパート・ファンド(見返り資金)を活用し、a)職業技能訓練プログラムや、b)非識字者への識字教育および衛生教育、c)マイクロクレジット支援など、「バ」国側自身でソフトコンポーネントを行い、積極的に事業に参加する意向である。

事業実施計画について 2 期分けとし、第 1 期でハオール地域を先行して事業化し、第 2 期においてチャール地域に着手する行程としている。これは、チャール地域に対して幾つかのドナー国が支援表明をしており、これらの動向を確認の上、事業化することを望んでいる。

以上のとおり、「バ」国政府は本事業の早期推進を期待しており、無償資金協力とカウンターパート・ファンドにより、我国の技術協力ならびに経済協力を実施することは妥当であると考ええる。



添付資料

1) 調査団員の構成

団長：下地 富治           株式会社 三祐コンサルタンツ 海外技術部副本部長  
団員：津村 和光           同 上                           海外技術部 2 課 課長  
団員：マハブブ・レジャ 同 上                           海外技術部 1 課 顧問

2) 調査行程

マハブブ・レジャ（調査従事期間：平成 16 年 4 月 27 日～5 月 10 日）

順	月日	曜日	行 程	レジャ
1.	4/27	火	成田ーバンコク	移動
2.	4/28	水	バンコクーダッカ	移動、地方政府技術局(LGED)、農業省打合せ、資料収集
3.	4/29	木	ダッカ	LGED 打合せ、資料収集
4.	4/30	金	ダッカ	資料収集・整理
5.	5/1	土	ダッカ	LGED 打合せ、資料収集
以降、下地、津村に合流				

下地富治、津村和光（調査従事期間：平成 16 年 4 月 30 日～5 月 11 日）

順	月日	曜日	行 程	下地、津村、レジャ
4.	4/30	金	成田(名古屋)ーバンコク	移動(下地は名古屋より出国)
5.	5/1	土	ダッカ	移動、LGED 打合せ、資料収集（レジャ合流）
6.	5/2	日	ダッカ	大使館、JICA 表敬、打合せ
7.	5/3	月	ダッカーホビゴソジ	ホビゴソジ LGED 地方局打合せ、現地調査
8.	5/4	火	ホビゴソジーキシヨルゴソジ	キシヨルゴソジ LGED 地方局打合せ、現地調査
9.	5/5	水	キシヨルゴソジーネトロコナ	ネトロコナ LGED 地方局打合せ、現地調査
10.	5/6	木	ネトロコナージヤマルプール	ジヤマルプール LGED 地方局打合せ、現地調査
11.	5/7	金	ジヤマルプールーダッカ	現地調査、移動
12.	5/8	土	ダッカ	地方政府技術局(LGED)、農業省打合せ、資料収集・整理
13.	5/9	日	ダッカ(ーバンコク)	大使館、JICA 報告（下地、レジャはバンコクへ移動）
14.	5/10	月	ダッカーバンコク	移動
15.	5/11	火	バンコクー成田	移動

3) 収集資料

	資料名	発行機関
1.	Statistical Year Book of Bangladesh	Bangladesh Bureau of Statistics
2.	Agricultural Census	Bangladesh Burcau of Statistics
3.	The Fifth Year Development Plan (1997-2002)	Planning Commission
4.	Bangladesh Population Census (Zila Series)	Bangladesh Bureau of Statistics
5.	Bangladesh Population Census (Community Series)	Bangladesh Bureau of Statistics
6.	Zila Base Map	GIS Section, LGED, Bangladesh
7.	Upazila Base Map	GIS Section, LGED, Bangladesh

#### 4) 関係省庁など主要面会者名簿

氏 名	役 職
1. 日本大使館	
・ 木村 安邦	2 等書記官
2. 地方行政技術局 (LGED)	
・ Mr. Md. Zahangir Alam	Project Director, JICA assisted Cyclone Shelter Construction Project
・ Mr. Shah Nurul Quadir	Assistant Engineer, LGED
・ 上潟口 芳隆	JICA Adviser, LGED
3. バングラデシュ農村開発技術センター	
・ 竹内 兼蔵	チーフ・アドバイザー
・ 西野 徳康	専門家 (設計)
4. 水資源開発公社 (BWDB)	
・ 井上 雅之	JICA Adviser, LGED
5. LGED 地方局	
<u>ホビゴンジ LGED</u>	
・ Mr. Md. Joynal Uddin Khan	Executive Engineer, Habiganj LGED
・ Mr. Taufique Kibra	Assistant Engineer, Habiganj LGED
・ Mr. Md. Sultan Ashmed	Upazila Engineer, Lakhai UZ, Habiganj LGED
<u>キシヨルゴンジ LGED</u>	
・ Mr. Ali Sidic	Executive Engineer, Kishorganj LGED
・ Mr. Gropal Chandra Sarker	Assistant Engineer, Kishorganj LGED
・ Mr. Nazul Islam	Upazila Engineer, Nikli UZ, Kishorganj LGED
・ Dr. Kazi Nazrul Islam	Upazila Livestock Officer, Kishorganj
<u>ネトロコナ LGED</u>	
・ Mr. Monzur Quder Choudhury	Executive Engineer, Netrokona LGED
・ Mr. Md. Zahangir Alam	Sub-assistant Engineer, Madan UZ, Netrokona LGED
・ Mr. Md. Iman Ali	Upazila Engineer, Khaliajuri UZ, Netrokona LGED
・ Mr. Md. Golam Faruk Akanda	Sub-assistant Engineer, Khaliajuri UZ, Netrokona LGED
・ Mr. Md. Fazlur Rahman	Agricultural Officer, Khaliajuri UZ, Netrokona
・ Mr. Sharif Murtaza Mamun	UNO (Upazila Nirbahi Officer), Khaliajuri UZ, Netrokona
<u>ジャマルプール LGED</u>	
・ Mr. Md. Rafique Uddin	Executive Engineer, Jamalpur LGED
・ Mr. Mizanur Rahman	Assistant Engineer, Jamalpur LGED
・ Mr. Md. Majibur Rahman Shikder	Upazila Engineer, Islampur UZ Jamalpur LGED
・ Mr. Nesar Ashmed	UNO Islampur UZ, Jamalpur
・ Mr. Md. Asaduzzaman	Chairman, Noapara Union, Jamalpur
・ Mr. Md. Kamnuzzaman	
6. NGO	
・ Mr. Doha Baksha Shaikh	Senior Trainer & In-charge, BRAC Sreemongol
・ Mr. Md. Isaha	District Manager, BRAC Sreemongol
・ Mr. Md. Guasuddin	Program Organizer, BRAC Sreemongol

## 現地写真

ジャマルプール県イスランプール・ウボジラ



毎年堤防もろとも土地を削り、居住区を奪うブラマプトラ河は住民にとって脅威である。チャール地域の堤内地を整備してもブラマプトラ河の脅威は拭い去れない。



公設市場（マーケット）間をつなぐ村落道路を嵩上げ中であるが、砂質土のため、洪水には脆弱である。



ナオパラ・ユニオン(村)の公設市場（マーケット）：バザールの日には多くの人で賑う。敷地内には排水施設、トイレがなく、特に雨期には不衛生な状況となる。



ホビゴンジ県ラカイ・ウポジラ



マウンド (Mound) と呼ばれる居住区の南東側、居住区土盛りの流出を防ぐ目的で建設されたレンガ積み擁壁が多く見られる。雨期の間、水位が上昇するだけでなく、南東モンスーンが吹けば波浪を伴い、レンガ積みの弱いところから崩壊が始まる。



マウンドの北西側は比較的波浪は弱い、侵食が徐々に進んでいる。



マウンドの外側をパーボイル後のモミ乾燥ヤードに利用しているが、雨期には水没してしまう。ハオール地域には収穫後処理施設が少なく、コメの品質は悪い。



キシオルゴンジ県ニクリ・ウポジラ



雨期の初め、インド国境の集中豪雨に起因する Early Flood と呼ばれる洪水がバングラデシュ国内の河川水位を一気に引き上げ、収穫前の水稻(ボロ作)に多大な被害を及ぼす。写真の水稻は辛うじて水没を免れたが、1週間後には湛水してしまうと考えられる。



グライ・ユニオン(村)の収穫期湛水被害(Early Flood)防止用堤防の建設計画地：橋の下に 0.5~1.0 m 程度のスルース・ゲート付堤防を建設することで、収穫期前の湛水被害を緩和できる。収穫完了後は、スルース・ゲートを開け、湛水を許容する。



グライ・ユニオン(村)内の農道：度重なる湛水の流入で法面の崩壊が進みマウンド(居住区)内にあるマーケットへの農作物の搬入に支障を来たしている。



ネトロコナ県カリアジュリ・ウボジラ



ハオール地域の雨期の交通手段はもっぱら船に頼っている。



雨期初め、海の孤島と化したチャクワ・ユニオン(村) :  
乾期は四輪駆動車による乗り入れは可能となる。



チャクワ・ユニオン(村)の舟着場 : 人が歩いている道路は、乾期はバス路線として使用されているが、雨期には冠水してしまうため、乾期の初めには道路の整備なくしてはバスの発着は難しい。舟着場の整備とともに Submersible Road (潜水道路 : コンクリート舗装により雨期開け後直ぐの使用が可能) の建設が計画されている。

## 要請書（案）

- 1) 無償資金協力事業
- 2) カウンターパート・ファンド

# **Application form for Japanese Grant Aid ( General )**

**1. Date of Entry** : 1<sup>st</sup> June, 2004

**2. Project Title, Sector and Sub-sector**

Project title: Project for Rural Development in the Most Vulnerable Area by Flood (Char and Haor)  
-Structural Measure-

Sector: Rural Development

Sub-sector: Agriculture and Rural Infrastructure Development

**3. Background of Request**

**(1) Relationship of the National Development Plan (Title of the development plan and the position of the requested sector in the development plan)**

Bangladesh Government has prepared a Poverty Reduction Strategy Paper (PRSP) as a guideline for future development program of the country. Adopting a comprehensive approach and taking into account the country's past international commitments (such as the MDGs) and evolving national realities, the strategy envisions that, by the year 2015, Bangladesh would achieve the following targets ;

- I. Remove the 'ugly faces' of poverty by eradicating hunger, chronic food-insecurity and extreme destitution.
- II. Reduce the number of people living below the poverty line by 50 percent
- III. Attain universal primary education for girls and boys of primary school age.
- IV. Eliminate gender disparity in primary and secondary education.
- V. Reduce infant and under five mortality rates by 65 percent and eliminate gender disparity in child mortality.
- VI. Reduce the proportion of malnourished children under five by 50 percent and eliminate gender disparity in child malnutrition.
- VII. Reduce maternal mortality rate by 75 percent.
- VIII. Ensure access of reproductive health service to all.
- IX. Reduce substantially, if not eliminate totally, social violence against the poor and disadvantaged groups, especially violence against women and children.
- X. Ensure disaster management and prevent environmental degradation for overcoming the persistence of deprivation.

In Bangladesh 80% population is living in rural areas where most of the people are poor and are living far below the poverty line. Much more initiatives are required to take for the development of rural

Bangladesh where significant damage occurs by flood. Poverty reduction is the top most priority in the PRSP which only possible through rural development program. The National Strategy strongly emphasized the role of physical infrastructure in accelerating the rate of poverty reduction, especially in rural areas. Thus, the Rural Development sector is very important in the National Strategy for Economic Growth, Poverty Reduction and Social Development.

**(2) Relationship of the Sector Program (Title of the program and position of the requested project, sector and sub sector in the program)**

The Government of Bangladesh formulated and adopted strategy for Rural Development (RD) projects (A Sectoral Policy Paper of the Planning Commission) in January, 1984. The RD strategy contained the following three(3) components ;

- i. Development of physical infrastructure including roads, storage and markets,
- ii. Irrigated agriculture, minor drainage and flood control works, and
- iii. Production and employment program for the rural poor.

The strategy has provided that RD projects may be taken up with any of the above components or in combination of the above components. The requested project covers all three(3) components of the Rural Development Strategy.

The rural road construction/reconstruction (including submergible agricultural road in Haor area) and market improvement are the important components of the Project which covers # i item of RD strategy. The # ii of the Sectoral Strategy is covered by construction of Retaining Wall for protecting wave Protection, Raising Evacuation Place during Flood, Submergible Embankment to protect Early Flood, Sluice gates for Submergible Embankment under the requested Project. The construction of Drying Yard with Parboil Plant for Post harvest is one of the component which is related to the crop production and will fulfill the # iii of the RD Strategy. Moreover, Skill Training & Micro-Credit Program for income generating activities under Counterpart Fund of the Project will provide employment opportunity for rural poor.

The Local Government Engineering Department (LGED) is plying a pivotal role in rural infrastructure development. People at large in rural Bangladesh are now enjoying the benefits of LGED's different rural development projects. Rural Infrastructure Development Projects undertaken by LGED are contributing a great deal towards the socio-economic development in the country along with the development of communication and market networks. Various activities under different projects have been creating short and long term employment opportunities for the poverty stricken people.

**(3) Present Situation of the Sector**

Bangladesh is one of the most densely populated countries of the world and a vast majority of the population lives in the rural areas. Poverty is widespread in the country and more so in the rural areas. It is estimated that around 50 percent of the population lives below poverty line and about half

of them is considered to be the hard-core poor. The rural poverty is characterized by landless, over-crowding in agriculture, under-development of rural non-farm sector, colossal unemployment, low savings and acute shortage of credit facilities. Women are the disadvantaged group in the country in their traditional setting with little literacy and almost no skill training. Rural infrastructure in the country that contributes towards rural development are mostly under-developed and poor maintained.

The rural areas of Char and Haor are neglected much among other parts of rural areas in Bangladesh. The people's sufferings of these areas by flood is alarming and incredible. Those people suffer a lot to fight against flood every year and their economic and social development are hindered seriously. Poor economic condition compel those rural poor to live in vulnerable areas by flood. So, the immediate infrastructure and livelihood development of these areas (Char and Haor) is very much required.

#### **4. Object of the Project (describe how the project is important, necessary and emergency to the presence situation of the sector)**

##### **(1) Necessary and Emergency to the Present Situation**

##### **(a) The most vulnerable areas by flood in the country**

Both Char and Haor areas are located in the most vulnerable area by flood in the country. Although the mechanism of flooding differs between the two types of areas, people in both areas are vulnerable to flood damages including property losses by inundation and/or erosion. Macro problem phenomena include;

- Loss of properties including houses with house furnishings, poultry, livestock, food, etc.,
- Loss of homestead land,
- Agricultural products, crop losses, and
- Disruption of economic and communication activities.

In Char area, inundation and land erosion are the major problems caused by flood. People who live in the low elevation Chars suffer from inundation almost every year during the wet season when water level of the Jamuna-Brahmaputra river is high. While many people move out of their houses to take evacuation to mainland areas far from their homestead, such as top of embankment, raised road, etc., others remain at their homestead areas to take care of their properties including houses, furnishings, animals, etc., because they have no idea where to evacuate within their villages.

In Haor area, the flood water remain for a prolonged period causing miseries to the population. In those low-lying areas, at the onset of monsoon's early flood in March to May, the paddy fields, bearing Boro at the harvesting stage, are threatened to be submerged. In some years, the floodwater inundates and damages the only crop (Boro) just a few days before harvesting. A hurried cropping at



an early stage may result in a poor output. During the entire monsoon period, people of the Haor areas live a miserable life due to inundation of homesteads, roads, markets and other infrastructure. The wave action from the vast mass of inundated water cause erosion to the villages, roads and other infrastructure during this period.

## (b) Agricultural product loss by early flood

### i) Harvested area

Harvested area of the crops in Char and Haor is estimated on the basis of the results of the agricultural survey conducted in selected sample areas, as following Tables for Char and Haor, respectively.

**Harvested Area of Crops in Char**

District Crops	Gaibandha		Jamalpur		Kurigram		Sirajganj		Char Total	
	Area (ha)	Share (%)	Area (%)	Share (%)	Area (ha)	Share (%)	Area (ha)	Share (%)	Area (ha)	Share (%)
Boro (LV*)	2,420	6%	4,779	15%	2,199	5%	1,632	3%	11,030	7%
Boro (HYV**)	9,426	25%	10,757	33%	6,658	16%	11,770	23%	38,611	23%
Wheat	3,515	9%	3,774	12%	7,294	17%	2,128	4%	16,711	10%
Pulses	644	2%	964	3%	2,662	6%	4,043	8%	8,313	5%
Groundnut	1,715	5%	2,368	7%	2,199	5%	2,198	4%	8,480	5%
Sugar Cane	387	1%	602	2%	695	2%	639	1%	2,323	1%
Oil Seeds	566	1%	1,325	4%	3,010	7%	5,177	10%	10,078	6%
Aus (LV*)	276	1%	843	3%	2,954	7%	2,837	5%	6,910	4%
Aus (HYV**)	1,434	4%	1,163	4%	116	0%	71	0%	2,784	2%
Jute	2,205	6%	2,931	9%	6,078	14%	12,411	24%	23,625	14%
Aman (LV*)	7,483	20%	1,525	5%	3,936	9%	9,361	18%	22,305	14%
Aman (HYV**)	7,692	20%	1,525	5%	4,284	10%	-	-	13,501	8%
<b>Char Total</b>	<b>37,763</b>	<b>100%</b>	<b>32,556</b>	<b>100%</b>	<b>42,085</b>	<b>100%</b>	<b>52,267</b>	<b>100%</b>	<b>164,671</b>	<b>100%</b>
Rice total***	28,731	76%	20,592	63%	20,147	48%	25,671	49%	95,141	58%

Remarks: \*: Local variety; \*\*: High yielding varieties; \*\*\*: Total of Boro, Aus and Aman.

Source: JICA Master Plan report, August 2002

In Char, cultivated crops are well diversified, although the rice is still the major crop. In Char area, 164,671 ha were harvested, 58% of which or 95,141 ha was rice. Other important crops in terms of harvested area include jute, wheat, oil seeds, groundnut and pulses.

### Harvested Area of Crops in Haor

District Crops	Habiganj		Kishoreganj		Netrokona		Sunamganj		Haor Total	
	Area (ha)	Share (%)	Area (ha)	Share (%)	Area (ha)	Share (%)	Area (ha)	Share (%)	Area (ha)	Share (%)
Boro (LV*)	242	0%	10,604	8%	11,104	27%	71,462	35%	93,412	19%
Boro (HYV**)	97,210	85%	106,185	83%	27,467	67%	119,105	58%	349,967	72%
Wheat	2,055	2%	137	0%	90	0%	-	-	2,282	0%
Spices	-	-	964	1%	453	1%	1,897	1%	3,314	1%
Oil Seed	1,572	1%	5,371	4%	1,496	4%	1,897	1%	10,336	2%
Aus (LV*)	3,869	3%	-	-	362	1%	422	0%	4,653	1%
Aus (HYV**)	1,209	1%	276	0%	-	-	-	-	1,485	0%
Aman (LV*)	1,209	1%	1,377	1%	228	1%	1,687	1%	4,501	1%
Aman (HYV**)	7,375	6%	3,307	3%	-	-	7,800	4%	18,482	4%
<b>Haor Total</b>	<b>114,741</b>	<b>100%</b>	<b>128,221</b>	<b>100%</b>	<b>41,200</b>	<b>100%</b>	<b>204,270</b>	<b>100%</b>	<b>488,432</b>	<b>100%</b>
Rice total***	111,114	97%	121,749	95%	39,161	95%	200,476	98%	472,500	97%

Remarks: \*: Local variety; \*\*: High yielding varieties; \*\*\*: Total of Boro, Aus and Aman.

Source: JICA Master Plan report, August 2002

In contrast to the Char area, crops in the Haor is very limited. The share of rice area in the total harvested area accounts for as high as 97%. Rabi crop during dry season can be cultivated in the Haor area. Moreover, due to the land being low and flat, soils are clayey and contain much water, which restricts crop cultivation only to rice. Aus and Aman rice are cultivated in limited land where floodwater depth is within the allowance of rice crop. This is why the cultivated crop is dominated by Boro rice. Among the varieties of Boro rice, high yielding varieties are dominant due to their relatively shorter growth duration and to higher yield potential emerged when farm management is done properly.

#### ii) Agricultural loss in Haor area

Yield of rice, in general, decreases by 50% if 75% of the plant in height is submerged for more than 3 days during the its ripening stage. Even paddy field completely submerged by early flood, villagers in Haor area harvest matured rice under water picking up to the boats for marketing with low price. According to the survey result of hearing by villagers, early flood comes every three(3) years in average and about 50 % of paddy area are completely damaged. Loss of Boro (HYV) is estimated about 292,000 ton/year ( =350,000ha /3years x 5 ton/ha x 50%) in Haor area in equivalent to about amount of Tk.5,840,000 (J.yen 10,500,000)/year (292,000 ton/year x Tk.20).

#### (c) Short of agricultural infrastructure

Agricultural infrastructure such as drying yard, parboil plant, rice milling and store house are found very few within Char and Haor areas. There is no drying yard in Char, and in Haor area, average area per yard is smaller with 250 m<sup>2</sup> as compared to the district average with 550m<sup>2</sup>. Those facilities belong to private ownership.

There is no storage facility within Char and Haor areas other than some food godowns located in the Upazila parishads, which are used as stockyard for government's food programs. People in the area have to stock their products in bamboo baskets at home, which is vulnerable to inundation in wet season.

#### **(d) Lack of farming technologies**

Land use characteristics in Char areas show the similar pattern with cropping intensity of 171%, while in Haor areas cropping intensity is only 105% due to inundation during the wet season. There is possibility to expand cropping intensity in Char areas, but farmers hesitate to extend cultivated area because flooding occurs frequently during the wet season. Shares of rice in the total harvested area are 58% in Char and 97% in Haor areas respectively, indicating mono-cropping in Haor areas and crop diversification in Char areas. The major problem in Haor area is early flood, which occurs once in three(3) years. It inflicts heavy damages to Boro crops harvested only once through a year. Moreover, there are very few drying yards with parboiling plants and storage in both Char and Haor areas so that farmers are forced to sell their products to middlemen at low prices just after the harvest.

#### **(e) Undeveloped fishery resources**

While fish has been one of the important protein sources for the people in Char and Haor areas, the fishery resources have decreased over the years. This is reported to be attributed to (i) indiscriminate fish catch; (ii) increase in commercial fishing; and (iii) lack of resource management efforts.

A significant number of people in Haor areas is engaged in fishing activities for their livelihood, but most of them are small in scale and do not have engine boats. Beels, major fishing places owned by the government, are not accessible for small fishermen, because fishing at beel areas requires fishing rights which needs much money to obtain. So small fishermen have to do fishing in rivers in dry season and Haor areas in the wet season using small fish nets with modest results. Their standard of living has become worse in terms of both economy and nutrition. In order to ensure small fishermen of steady fish catch as well as to improve nutrition conditions of local people, fish culture should be promoted with skill training program at the community level.

#### **(f) Undeveloped livestock and poultry**

During the flood season misery of the livestock are beyond description. Many of them are washed away every year by chronicle flood. However, the Char and Haor area people have the courage to defend against any natural calamities, as live animals are their valuable properties. They are adjusted to maintain livestock under adverse conditions. The main source of cattle feed is rice straw complemented with grazing in rice fields, roadside and communal grazing fields in winter. About 87% of all animal feeds come from cultivated land. Only 13% comes from other sources such as embankments, roadsides, and low lands which are usually used on a community basis. There is no managed forage available. The small areas of communal grazing lands are now over-grazed.

Fattening cattle thus takes time to grow up to marketable size. Veterinary services are hardly available although there are veterinary officers in Upazila offices.

#### **(g) Inconvenient agricultural communication road**

Geographical and natural conditions makes agricultural communication road in Char and Haor areas limited and in bad condition. And numbers of rivers, stream, khals and beels cut communication road at many places even during dry season. Existing Flood Control (FC) embankment constructed and maintained by BWDB plays an important part in the transportation in both Char and Haor areas. A number of Upazila parishad are located along the existing FC embankments, and some Upazilas link to other Upazilas and/or Union parishads through the embankment, and also many launch ghats attached with Growth center or local market are existed along FC embankments. Some sections, however, are having breaches or not accessible due to bad condition of embankment crest. Accordingly, improvement of pavement on embankment is likely to bring good results for communication, transportation as well as marketing distribution among Upazilas and Union parishads.

#### **(h) Water transport system**

Water transport is an essential communication means in Bangladesh. It is the sole means for Char people to communicate with mainland. In the Haor area, also, communication means is restricted only to water transport in the wet season. In some area in Haor, water transport is more convenient than other communication means even during the dry season. The number of Launch ghats and launch routes exist in Char and Haor areas. With higher number of launch ghats and routes, the district of Kurigram in Char, and Kishoreganj and Sunamganj in Haor depend more on water transport system.

#### **(i) Low income generating activities**

Most people in Char and Haor areas suffer from low income. While they are mainly engaged in agricultural activities, most of them are landless with less than 0.5 acres of land, far from sufficient to obtain income to meet their requirements. In the wet season when flood water inundates agricultural land, most people become idle because there are few employment opportunities other than agriculture in the areas. Being isolated and remote from urban areas, there is very limited information on income generating activities available in the areas.

#### **(j) Low literacy rate**

Char and Haor areas are characterized by lower level of education attainment as well as low literacy rate with 38% which is far lower than national average literacy rate of 51% (1997 census). Enrolment record of pupils at primary schools suggests very high drop out rate. This is attributable to dilapidation of school facilities, long distance from schools, lack of concerns by guardians and low income. Education is a basic right for all children, as the Government has set policy on “education for all”. Unless educated, children will partly lose their future possibilities by narrower the scope for

employment opportunities requiring educational background.

**(k) Lack of primary health care**

Health care

Medical care including medicines and health facilities is one of the top needs of local people in both Char and Haor areas. Indeed, people in Char and Haor areas have been suffering from various diseases. The reasons for this are various including: (i) unfavorable sanitary and hygiene conditions; (ii) lack of medicines; (iii) lack of health facilities; (iv) local people’s lack of knowledge on disease preventive measures; (v) poverty; (vi) disruption of regular visits by health workers in the wet season; and (vii) mal-nutrition in women and children. Major diseases reported in these areas are diarrhea, dysentery, flu/fever, etc., and many people die of these diseases. However, many of these diseases can be prevented or cured if proper measures are taken at the local level.

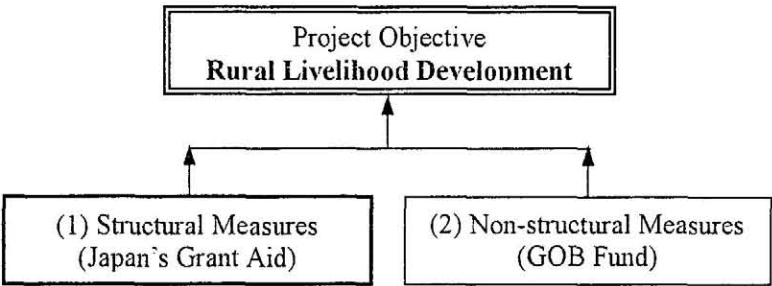
Nutrition status

Malnutrition prevails in the areas, which has brought about the increase in the number of diseases. The causes of the malnutrition are various including: (i) unfavorable food habit in terms of nutrition due to limited food crops cultivated; (ii) food shortage due to poverty; (iii) lack of knowledge on nutrition; and (iv) uneven distribution of food among family members favoring men.

Mal-nutrition brings about physical weakness of people, who tend to suffer vitamin deficiency symptoms including anemia, night blindness, angular stomatitis, goiter, etc. Pregnant women who suffer iron deficiency tend to die at delivery time due to bleeding as well as weakness. Mal-nutrition during childhood adversely affects the normal growth at subsequent stages. Improvement of nutrition status will therefore be the basic condition for promoting health care.

**(2) Objectives of the Project**

Overall program of the Project is consisted of two(2) measures. One is structural measure under Japan’s Grant aid scheme which was requested by this application. And other one is non-structural measure as a soft component to be funded by Government of Bangladesh which would be born from Counterpart fund. These two(2) measures should complement the overall Project.



The objectives of each measure are followings;

**(a) By Structural measures (under Japan's grant aid)**

- i) To improve living environment for the vulnerable people
- ii) To provide evacuation place for vulnerable people
- iii) To activate communication to marketing and agricultural extension services
- iv) To provide appropriate farming technologies

**(b) By Non-structural measures (under GOB fund)**

- v) To provide skill training, education and other services to the vulnerable people
- vi) To support the trained people accessing micro credit for income generating activities
- vii) To provide free medical services during the project period

**(3) Proposed Programs under Japan's Grant Aid**

**(a) Improvement of living environment program for Haor area**

Providing RCC retaining wall for protecting wave protection

The Government of Bangladesh has invested to construct protection embankment along the natural flow rivers. However, it has not been very effective because of budget constraint. As the structural measures for flood-proofing, CARE Bangladesh carried out Flood proofing project as pilot basis through the year 1996 to 1999. From these pilot projects, CARE has experienced through "Try and Error" the implementation of 1) Raising homestead above flood level, 2) Protection works of village mound etc. CARE is currently implementing a 5-years Flood proofing Project with modified pilot project in 325 villages of Haor areas. The proposed program is similar to that of CARE's project, so that it has a high possibility of success.

Main future of the components under Japan's Grant scheme is 2 to 3 m height of RCC retaining wall and providing hand tube-well for home gardening and drinking water. Providing hand tubewells could be in cooperation with the skill training for home gardening and education on health care and so on, with no-structural measures under GOB fund.

**(b) Provision of evacuation place program for Char areas**

BWDB has a Flood Forecasting and Warning Center (FFWC) to disseminate information and warning to the whole flood-prone areas of the country, however, proper information does not reach village people. The forecasting is announced only as a point level prediction, which tends to confuse people. Ensured to refuge safely, therefore, evacuation place within the village is proposed to raise up to use open-air space such as school ground or Union parishad, upto un-submerged level which flood occurred during 1988. And also access road with pavement and slope protection would be proposed for evacuating to the place.

The component under Japan's grant scheme includes an area of 8,000 m<sup>2</sup> for people and cattle,



involving, tubewells, community latrines, etc.

### **(c) Communication activation program for Char and Haor areas**

The program aims at cost-effective provision of improved communication means to serve vulnerable areas by flood. Three(3) main components are involved; 1)strengthening of rural road network to connect local market and to access agricultural extension services, 2) improvement of pontoon launch ghats for more effective water transport, and 3)the strengthening of agricultural road in the villages, would be prioritised under the Japan` Grant aid scheme.

Agricultural oad connections between Upazila parishads and Union parishads located along flood control embankments would be prioritised in Char area. And, connections between other Union parishads within Upazilas would be improved by constructing submersible agricultural roads with Pontoon ghats in Haor. Furthermore, agricultural road with slope protection in the village us proposed for internal transportation.

### **(c) Appropriate farming technologies program for Char and Haor areas**

#### Constructing submersible embankments with sluice gates

In Haor areas, construction of submersible embankments is a priority to protect Boro rice from early floods, while applied research is conducted to develop winter crops. Submersible embankment has dual purposes.

First purpose; early floods occur in March and May (end of dry season) in Haor areas. Early floods have given heavy damages to Boro crops just before the harvest time. This is a very serious problem because production of the Boro paddy is almost the sole income source for majority of people in Haor areas. Submersible embankment with height of 50 to 100 cm could protect Boro paddy from damages of early flood. And second; water retained within the submersible embankment during flood season, could be retain by controlling sluice gates attaching with embankment. The water would be used for puddling of paddy, and subsidized for usual irrigation period.

#### Providing community based Low Lift Pump

Low Lift Pumps (LLPs) is effective for irrigation to usage the retained water by controlling attached sluice gates within submersible embankment for Aman cultivation. Effective use of surface water could contribute to reduce amount of ground water use. These LLPs are proposed to be community based under Union parishads.

#### Providing drying yard with parboil plant

While there are a few drying yard which belong to private in Char and Haor areas, public one belong to Union parishad would be proposed within the parishad. One possibility for augment income in the Union is to establish a new drying yard with parboiling plant and rice mill for post harvest. Through

the training on entrepreneurship and business management, business minded enthusiastic villagers will be identified. The plant will be operated and maintained by organized village people. Owners of existing parboiling plants with dry yard in the Union will be fully involved in the business.

## **5. Outline of the Project (under Japan's Grant Aid)**

### **(1) Outline of the Requested Facilities**

#### **A. Char Area**

##### **1) Gaibandha D. Fulchhari Upazila, Erendhabari Union, Algarchar Gram**

- a) Access road pavement to evacuation place
- b) Slope protection of the access road to evacuation place
- c) Drying yard with parboil plant for post harvest

##### **2) Jamalpur D. Islampur Upazila, Noapara & Chinadulli Unions**

- a) Raised evacuation place
- b) Access road with pavement to evacuation place
- c) Slope protection of the access road to evacuation place
- d) Local market improvement

##### **3) Kurigram District, Ulipur Upazila, Braburi Union**

- a) Raised evacuation place
- b) Access road with pavement to evacuation place
- c) Slope protection of the access road to evacuation place
- d) Local market improvement

##### **4) Sirajganj District, Chauhari Upazila, Mirkutia Union**

- a) Raised evacuation place
- b) Access road with pavement to evacuation place
- c) Slope protection of the access road to evacuation place
- d) Local market improvement

#### **B. Haor Area**

##### **1) Habiganj District, Lakhai Upazila, Lakhai Union, Sazan Gram**

- a) RCC retaining wall for wave protection
- b) Drying yard with parboil plant for post harvest
- c) Pontoon launch ghat for local market

d) Agricultural road with slope protection in the village

**2) Kishoreganj District, Nikli Upazila, Gurai Union, Gurai Gram**

- a) RCC retaining wall for wave protection
- b) Drying yard with parboil plant for post harvest
- c) Submersible embankment to protect early flood
- d) Sluice gates for the submersible embankment
- e) Community based low lift pump
- f) Agricultural road with slope protection in the village

**3) Netrokona District, Khaliajuri Upazila, Chakuwa Union, Lipsha Gram**

- a) RCC retaining for wave protection
- b) Submersible agriculture road
- c) Pontoon ghat to connect the submersible roads
- d) Submersible embankment to protect early flood
- e) Sluice gates for the submersible embankment
- f) Community based low lift pump

**4) Sunamganj District, Dharmapasha Upazila, Joysree Union**

- a) RCC retaining wall for wave protection
- b) Drying yard with parboil plant for post harvest
- c) Submersible agriculture road
- d) Pontoon ghat to connect the submersible roads
- e) Submersible embankment to protect early flood
- f) Sluice gates for the submersible embankment
- g) Community based low lift pump
- h) Agricultural road with slope protection in the village

**(2) Request Amount for the Project**

Over US\$ 10 million

(Approximately US\$ 9.0 million for Char area and US\$ 11.0 million for Haor area)

**(3) Benefits, beneficiaries and benefit area from the Project / Program**

The benefits through the Project are expected as follows: The Project will occur benefits more effectively with income generating program for livelihood development under the Counterpart fund.

Area	District	Upazila	Union	Area of Union (ha)	Population (year 2001)
A. Char	Gaibandha	Fulchhari	Erendhabari	8,884	25,333
	Jamalpur	Islampur	Naopara & Chinadulli	3,402	24,283
	Kurigram	Ulipur	Braburi	2,845	15,049
	Sirajganj	Chauhali	Mirkutia	5,115	46,731
	sub-total			20,246	111,396
B. Haor	Habiganj	Lakhai	Lakhai	4,944	25,621
	Kishoreganj	Nikli	Gurai	4,776	28,830
	Netrokona	Khaliajuri	Chakuwa	7,802	17,686
	Sunamganj	Dharmapasha	Joysree	5,819	17,772
	sub-total			23,341	89,909
Total				43,587	201,305

#### Direct beneficiaries

The number of direct beneficiaries in the above table, is estimated at approximately 201,000 people with about an area of 44,000 ha involving eight(8) Unions of eight(8) Upazilas in Char and Haor areas.

#### Indirect beneficiaries

Since improvement of road communication, agricultural technology, etc. and generating villagers' income by the Program of Counterpart fund at target Unions, their activities would be extent to other Unions within target Upazilas indirect, which estimate an area of 140,000 ha in Char and 120,000 ha in Haor, with population of 1,000,000 in Char and 500,000 in Haor respectively.

#### **(4) Targeted Site (map)**

Please refer to Annex-1 for the location map.

#### **(5) Project Implementation Period**

Project implementation period is scheduled for five(5) years to complete the construction implying non-structural measures. While the Project period is phased out two(2) stages, components of Haor is proposed for Phase-1 and Char area for Phase-2, due that this is a very serious problem because production of the Boro paddy is almost the sole income source for majority of people in Haor areas, and also some of structural measure for Pilot model project for Haor area funded by JICA expert and GOB were implemented earlier, and skill training is being started soon.

### Implementation Schedule

	F.Y.2005/06	F.Y.2006/07	F.Y.2007/08	F.Y.2008/09	F.Y.2009/10
<b>Haor Area (Phase-1)</b>					
1)Structural measure					
-Basic design survey	—				
-D/D and construction		—	—		
2)Non-structural measure	.....	.....	.....		
<b>Char Area (Phase-2)</b>					
1)Structural measure					
-Basic design survey			—		
-D/D and construction				—	—
2)Non-structural measure			.....	.....	.....

Remarks:

1)D/D: Detailed design survey

2)Non-structural measure is executed by GOB (under Counterpart fund)

## 6. Project Implementation Ministry / Agency:

### (1) Implementing Agency

Local Government Rural Development & Cooperatives, Local Government Division, Local Government Engineering Department

### (2) Person in Charge

Md. Zahangir Alam

- Position: Project Director, JICA assisted Cyclone Shelter Construction Project

- Address: Level-12, LGED Bhaban, Agragaon, Dhaka.

- Telephone No: 880-02-9110768

- Facsimile No: 880-02-9117136

### (3) Organization Chart for the LGED

Please refer to Annex-2 for organization chart of the LGED.

### (4) Duties of LGED

Local Government Engineering Department (LGED), established in 1992 under the Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C), as a responsible agency for rural development, technology extension and rural infrastructure development, etc., has implemented small scale structural measures against flood, such as flood shelter, submersible embankment, etc., as well as non-structural measures like rural development, education and sanitary enlightenment.

The major functions of LGED are as follows:

- Provide technical support to Union Parishads and Upazila level;

- Provide technical support to Zila Parishads;
- Provide technical support to Paurashavas;
- Implementation of infrastructure development projects with donor assistance and food aid;
- Planning, construction and maintenance of feeder road type B and rural roads including bridge/culvert;
- Planning, construction and maintenance of Growth Center /Market and river ghats;
- Planning, construction and maintenance of small scale water resource schemes;
- Construction of primary schools, cyclone shelters, Union Parishad offices and Community Health Clinics;
- Deal with socioeconomic and beneficiary participation issues concerning development of rural infrastructure;
- Prepare Upazila/Union/Paurashava Plan Books, maps, local level data base, design manuals; and
- Impart training to Contractors, Local Government representatives and beneficiaries;

#### **(5) Human Resource**

The manpower status of LGED is summarized as follows;

(May 2004)

Budget Year	Number
2000/2001	9,832
2001/2002	9,832
2002/2003	9,628
2002/2003	9,551

#### **(6) Annual Budget**

Annual budget of LGED for the last four(4) years is summarized as follows;

(Unit: lakh Tk.)

Budget Year	Budget
2000/2001	186,922
2001/2002	243,566
2002/2003	240,000
2002/2003	277,680

#### **(7) Budget for Maintenance**

Upazila level LGED technical staff will be available to look after the facilities. In every Upazila LGED has one(1) graduate engineer, three(3) diploma engineer, one surveyor and four(4) work assistance. LGED has strong maintenance cell in headquarters. Maintenance budget is allocated as per the request from the field.

The government allocate yearly maintenance budget to LGED for maintaining all facilities built under LGED supervision. The facilities which will be constructed under the proposed Project will be maintained from the government maintenance budget. More over, local level beneficiaries will borne



partial cost.

## **7. Relationship with Development Survey and Technical Co-operation from Japan**

### **(1) Development Survey**

With the JICA assistance a detail study was conducted on Rural Development Focusing on Flood Proofing in eight(8) districts of Char and Haor areas of Bangladesh and eventually a master plan was prepared for comprehensive development of the areas. The Master Plan recommended to implement two(2) pilot model projects to judge the success.

### **(2) Technical co-operation**

The Pilot Model projects were in the mean time successfully implemented with the assistance from JICA expert and GOB funds. So, Bangladesh Government feels to implement a complete project covering all eight(8) districts. However, GOB is unable to implement the project through it's own resources. As the JICA was involved from the beginning of this project activities, so Japan's Grant aid is requested to implement the Project.

## **8. Evaluation of Social Impact**

- It is not necessary to make residents move from the proposed site.
- There are no historical monuments around the project site.
- It is not necessary to carry out the environment assessment for the project.
- It is not necessary to consider a gender issue.

## **9. Others (Annexes)**

Annex-1 : Map of Target Sites

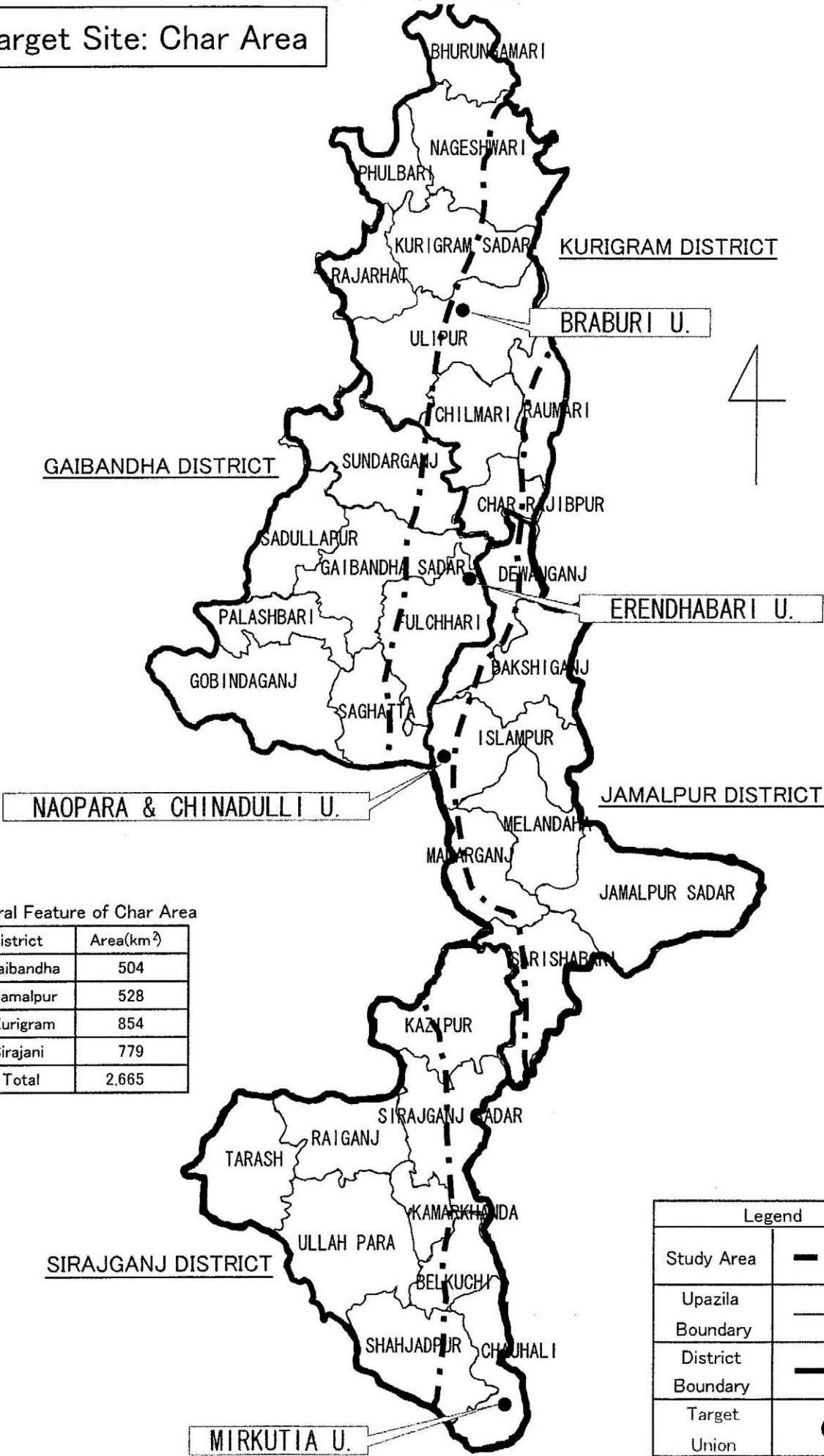
Annex-2 : Organization Chart for the LGED

Annex-3 : Drawings of Proposed Structure

Annex-4 : Photographs of Target sites

Maps of Target Sites (2/3)

Target Site: Char Area



General Feature of Char Area

District	Area(km <sup>2</sup> )
Gaibandha	504
Jamalpur	528
Kurigram	854
Sirajani	779
Total	2,665

## Maps of Target Sites (3/3)

## Target Site: Haor Area

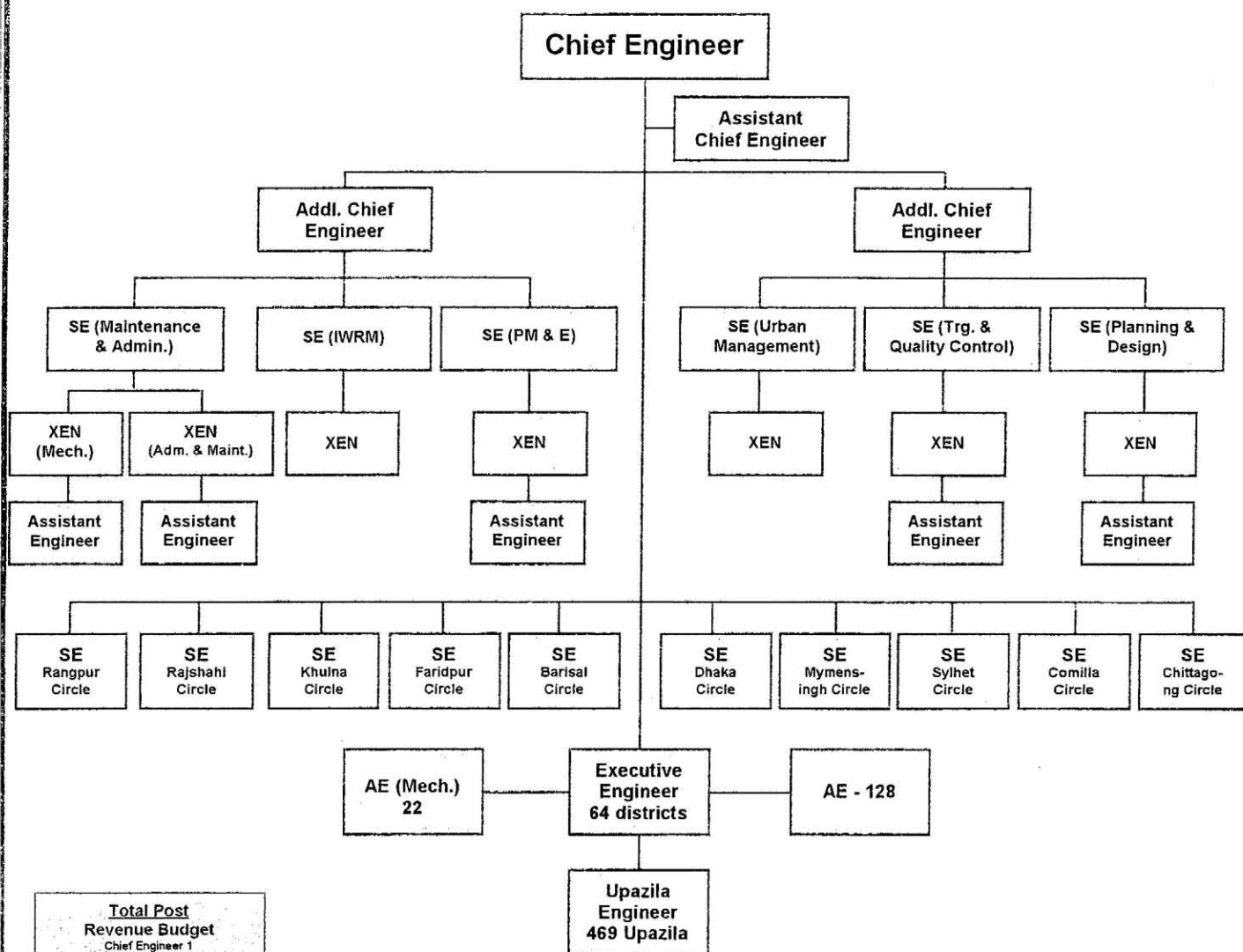


General Feature of Char Area

District	Area(km <sup>2</sup> )
Habiganj	1,394
Kishoreganji	1,694
Netrokona	701
Sunamgangi	2,713
Total	6,502

Legend	
Study Area	---
Upazila Boundary	—
District Boundary	—
Target Union	●

# Organization Chart of LGED



## Total Post Revenue Budget

Chief Engineer 1  
 Addl Chief Engineer 2  
 Superintending Engineer 6  
 Architecture 1  
 Executive Engineer 70  
 Executive Engineer (Training) 4  
 Assistant Chief Engineer 1  
 XEN (Mechanical) 1  
 Computer Programmer 1  
 Transport Economist 1  
 Urban Planner 1  
 Sr. Socio Economist 1  
 System Analyst 1  
 Assistant Engineer 132  
 Assistant Engineer (Mech) 23  
 Upazila Engineer 469  
 Agronomist 1  
 Aqua culturist 1  
 Statistician 1  
 Accounts Officer 1  
 Sociologist 64  
 Estimator 2  
 Sub-Asstt. Engineer 996  
 Draftsman 471  
 Mechanical Foreman 1  
 Laboratory Technician 64  
 Head Assistant 1  
 Accountant 534  
 Stenographer 6  
 Steno Typist 70  
 UDA 68  
 Store Keeper 469  
 Surveyor 469  
 Work Assistant 1858  
 Electrician 469  
 Accounts Assistant 470  
 Office Assistant 469  
 Clerk cum Typist 475  
 Ammonia Machine Operator 1  
 Duplicating Machine Operator 1  
 Driver 76  
 Truck Driver 64  
 Road Roller Driver 64  
 Guard 458  
 MLSS 1010

**Total : 9347**

## Regional Level Development Budget

Superintending Engineer 1  
 Executive Engineer 1  
 Assistant Engineer 1  
 Estimator cum Draftsman 1  
 Stenographer 1  
 Driver 1  
 MLSS 1

**Total : 70**

## HQ Level

**Revenue Budget**  
 Chief Engineer 1  
 Addl Chief Engineer 2  
 Superintending Engineer 6  
 Architecture 1  
 XEN 6  
 XEN (Training) 4  
 Assistant Chief Engineer 1  
 XEN (Mechanical) 1  
 Computer Programmer 1  
 Transport Economist 1  
 Urban Planner 1  
 Sr. Socio Economist 1  
 System Analyst 1  
 Assistant Engineer 4  
 Assistant Engineer (Mech) 1  
 Agronomist 1  
 Aqua culturist 1  
 Statistician 1  
 Accounts Officer 1  
 Estimator 2  
 Draftsman 2  
 Mechanical Foreman 1  
 Head Assistant 1  
 Accountant 1  
 Stenographer 6  
 Steno Typist 6  
 UDA 4  
 Accounts Assistant 1  
 Clerk cum Typist 6  
 Ammonia Machine Operator 1  
 Duplicating Machine Operator 1  
 Driver 12  
 MLSS 21

**Total HQ 101**

## District Level Revenue Budget

XEN 1  
 Assistant Engineer 2  
 Assistant Engineer (Mech) 1  
 (in 22 greater district)  
 Sociologist 1  
 Sub-Asstt. Engineer 1  
 Laboratory Technician 1  
 Accountant 1  
 Steno Typist 1  
 UDA 1  
 Driver 1  
 Truck Driver 1  
 Road Roller Driver 1  
 MLSS 1

**District Total : 854**

## Upazila Level Revenue Budget

Upazila Engineer 1  
 Sub-Asstt. Engineer 2  
 Draftsman 1  
 Accountant 1  
 Store Keeper 1  
 Surveyor 1  
 Work Assistant 4  
 Electrician 1  
 Accounts Assistant 1  
 Clerk cum Typist 1  
 Guard 1  
 MLSS 2

**Upazila Total : 8392**

**Total : 9347 (Revenue) + 70 (Development) = 9417**

# **APPLICATION FORMAT FOR UTILIZATION OF THE COUNTERPART FUND OF DRGA, KR AND KR II**

## **A. Project Details :**

1. Title of the Project : PROJECT FOR RURAL DEVELOPMENT IN  
THE MOST VULNERABLE AREA BY FLOOD  
(CHAR AND HAOR) – **Non-structural Measure**
2. Date of Application : 01/06/2004 (Date/Month/Year)
3. Objectives of the Project
  - (1) Summary :
    - To support the livelihood development of poor people by providing skill training, education and other services.
    - To provide Micro-Credit to the trained people for income generating activities.
    - To provide free medical services to the destitute people during project period.
  - (2) Detailed Description : **Skill Training Program :**

The most of the people in Char and Haor areas are entirely dependent on agriculture activities for their income source. Most of them are landless with less than 0.50 acres of land. They usually work on other land to earn money for meeting up their daily expenses. But during wet season when flood water inundates agricultural land, these people become idle because there are few employment opportunities other than agriculture during dry season in the areas.

The program would support income- generating activities to the needy people during the off-farm period by providing skill training and credit. Those trainings would be on agriculture technology, marketing of products, tailoring, fish net making, bamboo & cane craft, poultry, dairy, duck raising, goat rearing, home gardening.

After completion of skill training the people will get micro credit to start up their income generating activities.



### **Training on education & other services :**

The significant numbers of poor people in Char and Haor areas are illiterate. But for receiving the skill training and carrying out the alternative income generating activities minimum level of education is required. For these reason, the project will provide literacy education to the illiterate adult people of the areas.

The Project will provide some hygienic training to the people also. The importance of using the sanitary latrines, pure drinking water and other related topics will be covered under this activity.

Population growth is one of the major constraint against the development of those people. They have too much children due to the lack of family planning knowledge. The project will provide training on family planning.

### **Micro Credit :**

The selected poor people of Char and Haor areas will first receive skill training under the Project. Then they will be provided micro credit on the basis of their program from the project fund. The Project Implementation Unit (PIU) consists of Upazila level government officials will provide all technical support to the people and PIU will work for recovery of loan. The budget for Micro Credit will be used as revolving fund.

### **Medical Services :**

Medical care including medicines and health facilities is one of the top needs of local people in both Char and Haor areas. In fact there are no health facilities in the locality in present. People need to move Upazila Headquarters to receive any type of medical treatment which is always not possible. Moreover, most of the people can not afford treatment as well as medicine cost.

So, many people are suffering from various diseases for days after days and become burden to the family as they can not work. The village women are suffering from lot of complicity due to ante-

natal care as well as post-natal care and trained delivery attendant and that causes the death even in some cases.

The Project will establish a medical centre in each Union (total eight(8) Unions) with necessary staff, medicine and other facilities with the assistance of NGOs. The house/rooms of medical centre will be provided by Union Council. The project will prepare a list of poor people within the Union to whom medical facilities (including medicine) will be provided free of cost during project period. After completion of the Project, Union Council will take over the responsibility to continue the program with the help of NGO and government assistance.

#### 4. Background of the Request

: The people living in the most vulnerable area by flood (Char & Haor) are struggling against lot of problems i.e. disruption of communication, inundation of settlement areas, loss of properties, loss of crops & cattle heads etc. and thus they are far behind from other parts of the country. The Government of Bangladesh has now taken special initiative to improve the living standard of those vulnerable people. As the part of the government policy, JICA has conducted a intensive field study on Rural Development Focusing on Flood Proofing in 8 (eight) districts of Char and Haor areas and prepared a Master Plan for the development of the areas.

In the Master Plan comprehensive infrastructure development as well as livelihood development by income generating activities have been proposed for improvement of the living standard of those destitute people.

For implementing the livelihood development for the people of char and haor area as recommended in the Master Plan the project is being requested.

Simultaneously the infrastructure development of the area is being requested under Japanese grant aid.

#### 5. Necessity of the project and the request

: The people living in the low lying areas of the country suffer extensively every year due to the flood. The flood is the regular phenomenon in Char and Haor areas of the country and the Haor

areas remain flooded almost six months of the year. The people lose their properties and even some times lives during the flood. Moreover, the people hardly find any job in the flood period except fishing. Most of the people do not arrange their daily food and remain hungry. So the people, specially the women and children suffer from malnutrition and other diseases. They are almost without any medical facilities due to lack of money.

For the development of these people the Project is very much required. The Project will provide skill training to the people, so that they can be involved in the income generating activities. The Project will provide micro-credit to the poor people, so that they utilize this capital in different sector (agriculture, poultry, fisheries, dairy etc.) and to enable to earn money. The project will provide free health service, so that they become good health and can utilize their optimum labour in different productive activities.

6. Implementation Term : From 1st July 2005 to 30<sup>th</sup> June 2010
7. Project Cost (Tk.) : 1000.00 lakh
8. Expected effects of the Project : IFAD assisted "COMMUNITY BASED  
(Kindly describe the related RESOURCE MANAGEMENT PROJECT" is  
project and the objectives on how started in 2003 under the supervision of LGED for  
the project would contribute to the livelihood development of poor people living in  
accomplishment of the objective) haor area of Sunamganj district. This Project is  
providing assistance for Labour Intensive  
Infrastructure Development of the area, Fisheries  
Development, Crop and Livestock Production,  
Credit Facilities for income generating activities.  
This Project has achieved remarkable respond and  
success in implementing the objectives.

The proposed Project has lot of similarity with the "Community Based Resource Management Project" in terms of objectives. The proposed Project will provide skill training, micro-credit and health care to the people. That will help the people to be involve in multi dimensional income generating activities. In this way the living standard of the people will improve and they will be capable to expend money in health care, education and other development including flood proofing activities of the locality. Thus the development of those rural areas will be ensured.

Master Plan on Rural Development Focusing on Flood Proofing has been prepared by JICA in the year 2002 after conducting a comprehensive survey in the Char and Haor areas of Bangladesh. Two Model Projects in two different villages of Char and Haor had been recommended in the Master Plan to judge the success and achievement of the program. Wave Protection Wall & Drinking Water Supply by installation of Tube Wells in Haor area and Road Improvement & Evacuation Place Development program in Char area have been successfully implemented with the assistance of JICA & GOB. More over Skill Training Program & Micro-Credit facilities for the destitute people are being implemented with the assistance of GOB. The local people are very much benefited with such program. JICA Expert to LGED and JICA Bangladesh officials visited the Project sites and appreciated for the initiatives.

9. Estimated population that would benefit from the project : 200,000
10. Other information with special remark if any (Kindly describe the utilization of the amount of the counterpart fund along with evaluation by GOB) : The Government of Bangladesh is also preparing the request for Japan's Grant Aid separately which will cover the structural measure of the project area.

(1) Utilization performed areas of the earlier approved project.

(2) Other related project/program

11. Project Site :

Area	District	Upazila	Union
<b>A. Char</b>	Gaibandha	Fulchhari	Erendhabari
	Jamalpur	Islampur	Naopara & Chinadulli
	Kurigram	Ulipur	Braburi
	Sirajganj	Chauhali	Mirkutia
<b>B. Haor</b>	Habiganj	Lakhai	Lakhai
	Kishoreganj	Nikli	Gurai
	Netrokona	Khaliajuri	Chakuwa
	Sunamganj	Dharmapasha	Joysree

12. Responsibility of Ministry or Implementation Agency : The Implementing Agency is Local Government Engineering Department (LGED). The

responsibility of LGED is to implement the Project smoothly with it's existing set up at district and upazila level and additional temporary staff employed for project period under GOB finance.

## **B. Utilization of the Counterpart Fund in detail:**

13. The amount of Counterpart Fund (year wise) Tk. (in principle it is possible to utilize the DRGA for two years) : 
 

1 <sup>st</sup> Year (2005-06) : 100.00 lakh
2 <sup>nd</sup> year (2006-07) : 300.00 lakh
3 <sup>rd</sup> year (2007-08) : 300.00 lakh
4 <sup>th</sup> year (2008-09) : 200.00 lakh
5 <sup>th</sup> year (2009-10) : 100.00 lakh
14. Duration of the utilization of the counterpart fund (in principle it is possible to utilize the DRGA for two years) : 5 (five) years
15. Kindly describe relation between the whole project and utilization of the counterpart fund (Appendix - 1) : A comprehensive project is planned to implement for the development of char and haor areas which include infrastructure development as well as livelihood improvement of the people living there. Infrastructure development portion will be covered from Japanese Grant Aid and GOB contribution. More over the project staff salary, contingency, bank commission, CD-VAT will be borne from GOB fund. Only Livelihood Development program will be financed from Counter Part Fund.
16. Expected effects of the utilization of the counterpart fund in project : It will bring socio-economic enhancement of at least 200,000 people living in Char and Haor areas. More over it will provide additional vegetable, fish, beef, mutton, egg supply to the national product. The people will get better health facilities under counter part fund which will contribute additional labour force for the development of the area.
17. Year wise Classification : DRGA / KR / KR II

### Implementation Schedule

	F.Y.2005/06	F.Y.2006/07	F.Y.2007/08	F.Y.2008/09	F.Y.2009/10
<b>Haor Area</b>					
1)Structural measure					
-Basic design survey	.....				
-D/D and construction		.....	.....		
2)Non-structural measure	.....	.....	.....		
<b>Char Area</b>					
1)Structural measure					
-Basic design survey			.....		
-D/D and construction				.....	.....
2)Non-structural measure	.....	.....	.....	.....	.....

- \*\* 1) Structural measure will be executed under Japan's Grant aid  
2) D/D: Detailed design survey

### 18. Breakdown of the facilities and equipment under Counterpart Fund (Year wise)

No.	FY	Items	Unit Cost (Tk.)	Quantity	Subtotal Amount (Tk in lakh)
1	1 <sup>st</sup> year	Skill Training	-	-	25.00
		Micro financing	-	-	50.00
		Health care	-	-	25.00
2.	2 <sup>nd</sup> year	Skill Training	-	-	75.00
		Micro financing	-	-	175.00
		Health care	-	-	50.00
3.	3 <sup>rd</sup> year	Skill Training	-	-	75.00
		Micro financing	-	-	175.00
		Health care	-	-	50.00
4.	4 <sup>th</sup> year	Skill Training	-	-	75.00
		Micro financing	-	-	175.00
		Health care	-	-	50.00
5.	5 <sup>th</sup> year	Skill Training	-	-	75.00
		Micro financing	-	-	175.00
		Health care	-	-	50.00
		<b>Grand Total :</b>			<b>1000.00</b>

(Md. Zahangir Alam)  
Project Director  
Cyclone Shelter Construction Project  
LGED

(Md. Shahidul Hassan)  
Chief Engineer  
LGED