6.5. Comparison of Alternative Implementation Procedures

6.5.1 Alternatives of construction methods

The following construction method were considered as practical;

- Mechanical construction by international or local contractors (Method-1)
- Manual construction by local contractors (Method-2)
- Manual construction by contracting societies consisting of landless labour (Method-3)

The comparison of the alternative construction methods above was made taking account of various factors perceived in engineering and socio-economical viewpoints.

(1) Evaluation from engineering aspect

The three methods were examined and evaluated from the engineering aspect as tabulated below;

Technical Item	Method-1	Method-2	Method-3
Executed by	International/local contractors	Local contractors	Contracting society
Tendering procedure	Required	Required	Required (but so set an average rate based on rates from contractors)
Preparatory works	Much (construction road & others in relation with mechanical construction)		Less
Quality of work	Good	on supervision	Possibly poor but depends on supervision
Construction cost	Very costly	Not costly but not so cheap	Cheap
Progress of work	Constant (less affected by availability of labour)	labours available (no	Depends on the number of labours available (no progress during works on farm) & also types of works
Construction period	Reasonably short	Long	Long
Time schedule	Certain and reliable	Probably certain but unreliable	Probably certain but unreliable
Special organization for implementation	No need	No need	Required

The method-1 (mechanical construction by international/local contractors) is the most appropriate and recommendable method in the technical items of quality of work, progress of work, construction period and time schedule when the contractors selected through the bidding be reliable and capable. Manual construction methods (Method-2 & 3) are behind the method-1 in those items because of labour intensive type works without use of machineries. Availability of labour depends on work site and work season. Demand of labour at peak time and normal time may not be in conformity with the actual supply. Besides, the Method-3 requires an organization of contracting society to be established in advance of the commencement of works. This will be accomplished with assistance from NGOs or other alternatives. It is reported that some EIP projects have been disturbed due to lack of strong and well-linked NGOs.

For this reason, the Method-2 and/or Method-3 is recommendable for such minor works as excavation of side drain and future maintenance works of slope repair including observational patrol after the completion of construction phase. Those types of works do not require so high quality of construction

output, and delay of the works behind the time schedule will not disturb major construction works as a whole.

But the Method-1 requires a network of construction road which must be distributed over the GIP area due to no access or hard access, while the other alternative methods do not need it. Construction road may likewise require the additional land to be acquired. For this reason, the area subject to the mechanical construction shall be those accessible as much as possible. Since the availability of equipment in the Government is rather poor, the additional equipment shall be prepared by the contractors. When procured and leased by the Government, the appropriate agreement for the lease is necessary. These circumstances might make the project costly.

(2) Evaluation from socio-economic aspect

The three alternative methods are also examined and evaluated from socio-economic aspect as shown below;

Socio-economic Item	Method-1	Method-2	Method-3
Executed by	International/local contractors	Local contractors	Contracting society
Profit or benefit to	Contractors/local people to lesser extent as compared with the Method-2	Contractors/local people	Local people
People's participation	A few	Plenty	Plenty & better for labour
Creation of employment opportunity	Irregular	Seasonal for construction Regular for maintenance	Seasonal for construction Regular for maintenance
Involvement of local community	None or a little	Moderate	Large
Appreciation of the project by people	None or a little	Moderate	Great
Training to local people	None or a little	None or a little	With training program

Above table suggests that the Method-3 is the most appropriate construction method from socioeconomic viewpoint, while the Method-1 does not satisfy the items provided above. But there are many assumptions to realize the above conditions of the Method-3, they are;

- A strong organization is necessary to establish a contracting society, which has never existed before the commencement of a project, and the delay of the establishment may induce the substantial delay of the project. A case of no establishment, which means no performance of the project, is expected at the worst.
- It is still unknown factor that a large number of local landless people is ready to undertake construction works simultaneously in accordance with the demand from the project side.
- Contracting society may not essentially be accustomed to a contract system. The performance of construction works is supported by the solidity of the society, but occasional events in personal affairs can easily loosen the foundation of the society. For example, when many labourers, each of whom may have a choice to work as an assigned labourer or as a farmer, cancel their duties on the contract, the society fails to perform the allotted works and the project is eventually unable to proceed for a long time unless alternatives are provided. It is unpractical and unreasonable to impose a penalty because the concept of the penalty does not comply with the policy.

Difference between the Method-2 and Method-3 appears to be a little in need of organizing a contracting society, but it is actually rather different. A contracting society in the Method-3 is not subject to, and not controlled by contractors. A contracting society shall be considered as a contractor consisting of local labourers and beneficiaries landless, and it contributes to their own income-generating activities.

It is reported that local contractors try to make profit in producing low quality work and depriving labourers of their wages. Contractors commonly offer very lower bid than the estimated cost in tendering procedure, and this results in their evil-doing. According to the recent reports, the project done by contracting societies deems better in quality of work than contractors aside from the progress of works. Payment is made rightly therein.

The contracting society is recommendable as far as its formation is available based on the observation in the recent reports, once manual construction method is proposed. But the full coverage of construction works only by contracting societies might be difficult. Content of construction works will be shared with the other methods (Method-1 and Method-2).

(3) Issues to be resolved

It is rather difficult to identify the construction method appropriate for our project for the time being because the bases of considerations and evaluations for both manual construction and mechanical construction are quite different. Manual construction method is likely to have been evaluated only from a socio-economic aspect, while mechanical construction method has been very attractive from a engineering aspect as in the previous discussion. A further study which incorporates engineering, sociological, economical and environmental considerations from the broad standpoints will be necessary to present a due desirable construction method in the project area based on a future development of the country. Further inquiries for the following matters will be clarified for a reasonable conclusion by implementation stage of GIP;

- Flood control and drainage facilities required for the GIP area are firm structures which withstand erosive and scouring action of flood water, and likewise need not frequent maintenance and rehabilitation works. Benefits as well as environmental impacts as might accrue from flood control works will not actually be achieved without provision of the firm structures. Continuous repair and restoration create opportunity of temporary employment for a large number of local landless people, but these works will not contribute to improve their situations. Provision of the firm structures will stabilize people's livelihood and promote people's welfare through a future development expected when the area is free from floods. It is necessary to clarify our situations that we would put emphasis still on keeping or improving people's living, and also put emphasis on creation of employment or provision of facilities through the implementation of GIP.
- Present availability of construction machineries is very poor both in the governmental agencies and most of local contractors, and so capability of contractors for executing mechanical construction is rather low as compared with that for manual construction. But some local contractors own sufficient construction machineries for execution of most of civil works, and those machineries have been procured by the contractors as per the requirement from projects. This implies that an intention of the government to adopt a mechanical construction method be necessary for the growth of technical skills of local contractors. Local contractors shall follow the intention of the government when the use of the machineries is conditional for contracts. The governmental policy for motivating local contractors to execute mechanical construction works is

required for performance of reliable and high quality works by local contractors. It is necessary to clarify whether we promote the growth of technical skills of local contractors or we have no interest on this matter.

- Low quality of work by local contractors are often pointed out by other FAP studies. The root of this unfavourable criticism is deemed to heavily lie upon a rather low engineering estimate which is prepared for tender. Low engineering estimate results in low bidding by many contractors, and a contractor awarded a tender tries to make his profit through a low quality work or deprivation of labour wages, accordingly. Another root of the problem is budgetary constraint of the governmental agencies. The payment for the work by the Government is normally delayed so that local contractors can not run the construction work following an order from the Government. Since most of local contractors are financially not solvent, they are not capable to complete the work in time by their own money. Besides, contractors would not ask the loan from any bank until a sufficient amount for the payment is assured in the Government in order to make the bank interest minimum. Usually the payment is assured before the end of a fiscal year, that is, June or July, and the local contractors can not get enough time for construction due to a coming monsoon period. Those situations result in a substantial delay of construction, a production of low quality work, and poor rates as well as delayed payment to labour. Problem of a low quality work is not solved only by the exclusion of vicious contractors. Proper evaluation of local contractors can not be made without a presentation of reasonable engineering estimate and likewise without a establishment of certain payment process to local contractors. It shall be noted that the execution of construction works by local contractors has been a standard practice in the country for a long time as a better choice. Further investigation would be required to confirm all the possible reason for low quality work by local contractors.
- Labour wages are deemed to be unfairly low, and the cost for manual construction method is a rather low accordingly. The Government may be likely to generate and adopt labour intensive type of works for this reason. Labour wages has eventually not been raised up for a long time. Shadow wage rates as well as the same approach for material and equipment is adopted for the economic assessment of a project. But another approach to evaluate the due wages from a labour side, that is, from viewpoints of people's welfare and livelihood is necessary to get the wage rates reasonable if our consensus for implementation is put on increasing people's standard of living. This may result in the increase of the project cost by manual construction method.
- Formation of contracting society for the implementation is a fruitful method to bring a direct benefit to local landless people. Nevertheless the appropriate approaches in organization and execution have never been established yet as shown in other ongoing projects. It takes a time for the establishment, and special considerations will be necessary in the various phases of the implementation. Besides, this type of project might possibly be disturbed by unexpected events which has never been appeared, because the contracting society has never been a practice in execution of works. It is necessary to clarify that we intend to adopt the contracting society as it is, or to consider only the concept for the implementation.

(4) Construction method preliminarily proposed

Aside from the further study to be followed, the previous discussion so far made leads the following facts;

- Effective as well as reliable performance of such major works as flood embankment and channel excavation can be attained by mechanical construction method. In principle manual construction method is a proper method for minor works during construction phase and maintenance works after the completion.
- Flood embankment for prevention of the project area from external flooding and likewise flooding from major drainage channels is the key flood control facilities. Flood control benefit expected to the project area will be nil once the key facilities are breached, while damage to minor facilities results in local flooding problems only. The key facilities are not allowed to easily be destroyed like other minor facilities.
- Full coverage of the project works by mechanical construction method is costly, and requires land to be acquired in addition to the land in the locations of flood control facilities.
- The Method-3, which adopts the execution by the contracting societies, is unable to cover the full components of the project works not only in types of works but also in quantity of works as per the implementation schedule, while the remaining methods may execute the full components.
- Formation of the contracting societies is still uncertain. This might substantially delay the commencement of the project works due to lacking of available NGOs or other alternatives. Even during construction phase capable and reliable supervisors will be lacking. Adoption of the contracting society is originally deemed to be appropriate for such a project which allows a flexible implementation programme in work components and time schedule. It may take time to establish the strong contracting society adoptable for civil works.
- Project Management Unit (PMU) is necessary in particular for the work by the contracting society. Function of PMU is;
 - to plan and manage the implementation of a project in association with local agencies,
 - · to organize establishment and strengthening of LCS (through NGOs),
 - · to ensure quality control,
 - to transfer skills (management, construction, etc.).

PMU will yield varied benefits in institution building, technology transfer and local participation.

Consequently, the following two construction methods are selected for further examination based on the previous discussions;

(i) Manual construction method

It is considered that the adoption of the manual construction method is much more beneficial to the Gaibandha area than the mechanical one from the socio-economical point of view, but it is associated with a lot of unknown factors in connection with the technical quality in earth works, especially compaction works of embankment, as well as the organizational issues on LCS to keep the favourable progress during the construction period. Neverthless, the manual construction method is retained as one of the alternatives on the condition that these issues be resolved before the commencement of implementation;

The organizational issues are to be improved in line with the Government's guidelines to be set

in relation to the implementation of projects of FAP.

The construction quality of the compaction works is to be raise up through implementation of the conventional compaction with the rammer or use of equipment locally available (handoperating roller, agricultural machineries equipped with compaction equipment like the roller)

(ii) Mechanical construction method (the aforesaid Method-1)

This method requires a large amount of fund but most reliable. Execution of the works will be done by international contractors and/or qualified local contractors with ample experience of mechanical construction even as subcontractors. They will be selected following a proper guideline or through an appropriate method for procurement. Although this is a mechanical construction method, some easy earthworks are executed manually by local labour taking the local situations into account. In this respect, the following earthworks are perceived as suitable for the manual works:

- Short distance transportation of excavated earth to the embankment site and structure site including earth filling, and likewise to the spoil bank for disposal,
- Short distance transportation of earth resulted from clearing, grubbing and stripping works including disposal,
- Turfing, and
- other earthworks in narrow area.

The number of local landless people supplied depends on the seasonal demand of the implementation schedule unilaterally. All the elements of the work is supervised by the international and/or local contractors, and no NGOs or other equivalent organizations are necessary.

(iii) Combination of manual and mechanical construction method (the combination of the aforesaid Method-1,2 & 3)

This method will be performed by international contractors and/or qualified local contractors for mechanical construction works (first party) and likewise by ordinary local contractors, but limited to class-A, and/or contracting societies for manual construction works (second party). This method may yield two alternatives in allotment of works.

Alternative-a

Alternative-a demarcates the construction works to the mechanical construction component and the manual construction component. Construction reaches allotted to those two parties are completely separated without overlapping. Another demarcation will be necessary in the manual construction component to allot the work appropriately to the ordinary contractors and contracting societies, and the demarcation will be made in consideration of availability as well as capability of the contracting societies to be shared with. Technical supervision will be done by the contractors in the mechanical construction component and also part of manual construction component allotted to the ordinary local contractors, while the remaining manual construction component will be done by the contracting societies, respectively. In the mechanical construction component, some manual works are devised as per the consideration in the aforementioned Method-1. No equipment except simple machineries is used in the manual construction component due to no availability of equipment. Besides, the local landless people

are incapable of operating any types of the machineries necessary for executing the works allotted to the contracting societies.

Alternative-b

Alternative-b does not demarcate the construction works by the above components but divides each work element into mechanical construction part and manual construction part. Consequently no boundary exists between the mechanical and manual construction works along the construction reaches. For example in the performance of flood embankment, the compaction is carried out by the mechanical equipment and required excavation including hauling is accomplished manually. In this alternative the international contractor and/or the qualified local contractors supervise all of the works, and the ordinary local contractors and the contracting societies will be regarded as subcontractors. NGOs or equivalent organization will assist the contracting society not only in the formation of the society but also in settling of problems including negotiation of a contract with the prime contractors. No supervision is necessary by NGOs or equivalent organization.

The alternative-a might be rather attractive from socio-economical viewpoint because the contracting societies are not subject to control of the contractors, while the better technical appropriateness is expected in the alternative-b in respect of quality of works and schedule of implementation. The low quality works and the delay of implementation schedule might be unavoidable in the alternative-a especially in the reaches allotted to the contracting societies even though the contracting societies are allotted only the technically easy works and sites which do not involve problematic factors. Such problems will not arise in the alternative-b due to the availability of capable supervisors and equipment use in all of the work elements. A solution to the problems of the alternative-a in respect of the work quality might be the conclusion of a lease contract of the mechanical equipment from the governmental agencies inclusive of operators and drivers during the construction phase although the equipment is very poor in those agencies. Another solution might be the temporary hire of supervisors from the government agencies or local contractors based on a contract with a contracting society. But these attempts may cause many problems. It is rather recommendable to adopt the alternative-b from a engineering viewpoint. The availability and willingness of local landless people shall be surveyed in advance of the commencement of the project for the formation of the contracting societies and likewise for the estimate of construction works to be allotted to them.

(5) Recommended construction methods preliminarily proposed

Based on the above comparison, the following methods for earth work are retained;

- Manual construction method with the improved compaction
- Combination of mechanical and manual construction method corresponding to the alternative-b (execution by mechanical construction part and manual construction part)

Selection of the above construction methods will be further examined in the project implementation stage.

6.5.2 Implementation Procedures

(1) Phasing of construction work

For implementation of GIP, phased construction is recommendable for the following reasons;

- The project area has been susceptible to both external and internal flooding, out of which the former has caused the significant damage in the GIP area. Substantial reduction of the flood damage is expected by the sealing of TRE and GLE. At the commencement of the implementation, countermeasures for the external flooding will urgently be required than those for the internal flooding,
- Flooding and drainage mechanism in the internal drainage area is rather complex, and the further hydrological investigation might be necessary to know the detailed mechanism before the implementation,
- Land acquisition and resettlement are deemed to be quite difficult. Enough time should be taken to solve it through negotiation, and
- Annual disbursement cost for the implementation period is preferred to be decreased as much as possible taking budgetary constraint of the Government into account.

The proposed major components of GIP are divided into the following sections by rivers or areas;

(a)	Teesta river			
	- Flood embankment	: .	46.6	km
	- Revetment	;	4.9	km
	- Groyne	:	2,820	m
	- Regulator/sluiceway	:	14	nos
(b)	Ghagot river			
1.5	- Channel excavation	:	1.7	km
(c)	Ghagot left bank			
` '	- Flood embankment	:	75.9	km
	- Regulator/sluiceway	:	25	nos
(d)	Ghagot right bank			
	- Flood embankment	: '	32.7	km
	- Regulator/sluiceway	:	12	nos
(e)				
(-)	- Compartment embankment	:	6.3	km
	- Closure of opening	:	.12	places
	- Drain pipes	:	450	nos
	- Regulator	:	1	no (BRE)

Demarcation of construction reaches for the phasing is made from both engineering and socio-economic viewpoints. In principle, the implementation will be set out from the first priority component which reveals rather higher economic viability than other components. Besides, every phase demarcated needs to satisfy the following conditions from the financial and engineering aspects;

- Its construction cost not too high or too low as compared with those of other phases,

- Construction work in the preceded phase shall not worsen flooding and drainage conditions in any other part of the GIP area, and
- All components included therein can function effectively without realization of the following phases.

On the basis of the aforesaid principles, the components of GIP are divided into three phases as summarized below;

Phase-1	Phase2	Phase3
Teesta a) Sealing of TRE by flood embankment (46.6 km) b) Revetments (4.9 km) c) Groynes (2,820 l.m) d) Regulators/sluices (14 nos)	Ghagot a) Construction of backwater embankment (left bank: 25 k to downstream) (right bank: 32.7 k to downstream) b) Channel excavation (1.7 km) c) Regulators/sluices (21 nos)	Ghagot a) Resectioning of Ghagot left embankment (43.0 k to 75.9 k) b) Extension of Ghagot left embankment (43.0 k to 75.9 k) c) Regulators/sluices (16 nos) Compartmentalisation a) Compartment embankment (6.3 km) b) Closure of existing openings (12 places) c) Drain pipes (450 nos) d) Regulator (1 no for BRE) e) Construction of regulator (1 no)

During implementation period, the construction works of each phase will be executed further dividing into certain number of construction packages (lots). The number of the packages may depend on construction methods and work values to be allotted to contractors/contracting societies.

(2) Time schedule of implementation

The implementation time schedule was prepared taking into account quantities of the construction works and the requirement for the detailed design in each phase as explained below;

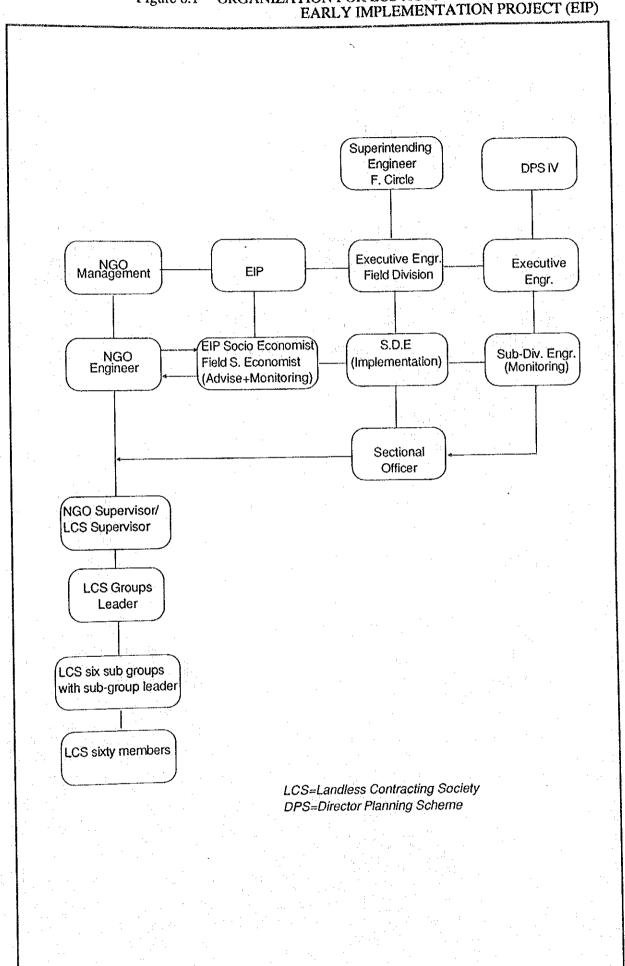
- Detailed design inclusive of tendering procedure will take two years for each of the three phases,
- Construction will take four years for the Phases-1 and 2, and three years for the Phase-3.
- Erosion to Manas regulator site will be observed before detailed design for the Phase-2 work,
- Hydraulic and hydrological observation will be continued for six years after the commencement of the Phase-1 implementation of GIP for updating the hydraulic analysis for compartmentalisation which constitutes one of major components of Phase-3.
- The strengthening of upstream TRE are proposed to be implemented in parallel with Phase-1 since this work would be indispensable components of GIP as clarified through the hydraulic modelling analysis and engineering study for GIP in the foregoing Chapter 4. However, the study of strengthening of upstream TRE is at the preliminary level and therefore the pre-design study is required to review the current study based on the topographic survey and geotechnical

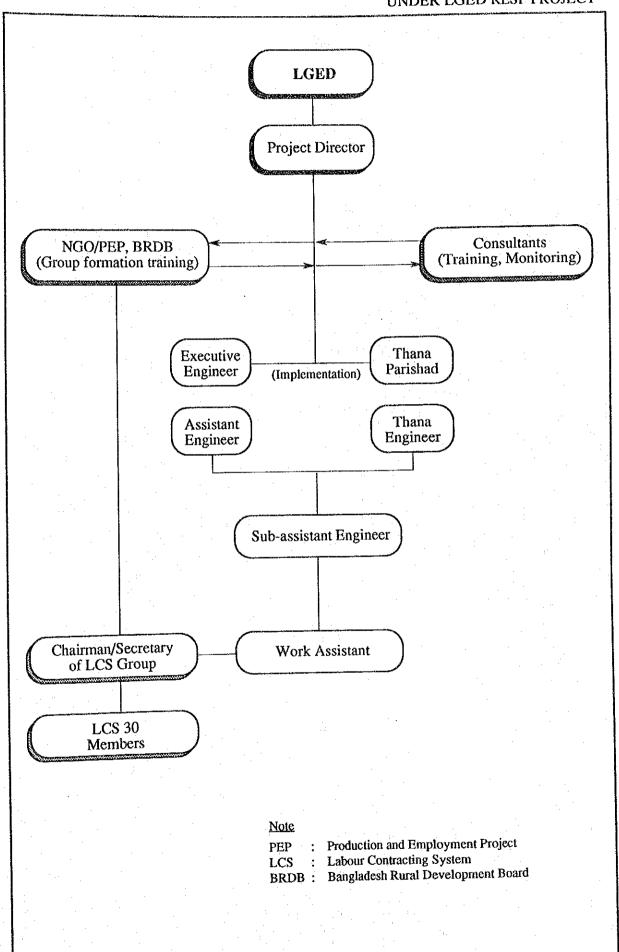
investigation to be carried out in the study and to prepare a definitive plan for the strengthening of upstream TRE. The construction works and costs are summarized as follows and the layout plan of the proposed structures is shown in Figure 6.3 (refer to Vol.4, "Engineering on Regional Planning Study"):

a)	Strengthening of TRE between the Kaunia bridge and Teesta barrage	:	59.25	km
b)	Provision of impermeable groyne with a crest length of 500 m			
	1. 4 km long bank stretch between Haragacha to Mohipur	: .	5	nos
	2. 2 km long bank stretch at Godownerhat	:	3	nos
c)	Land acquisition including borrow area	.:	167	ha
d)	Capital cost (unit: million TK)			
	1. Construction cost	:	409	
	2. Administration cost	:	12	
	3. Physical contingency	:	102	4
	4. Engineering service cost	:	77	
	4. Land acquisition	:	33	
	5. Total cost	:	633	
	6. O&M cost	:	15	

The implementation time schedule thus established is shown in Figure 6.4.

ORGANIZATION FOR LCS ACTIVITIES UNDER BWDB-EARLY IMPLEMENTATION PROJECT (EIP) Figure 6.1





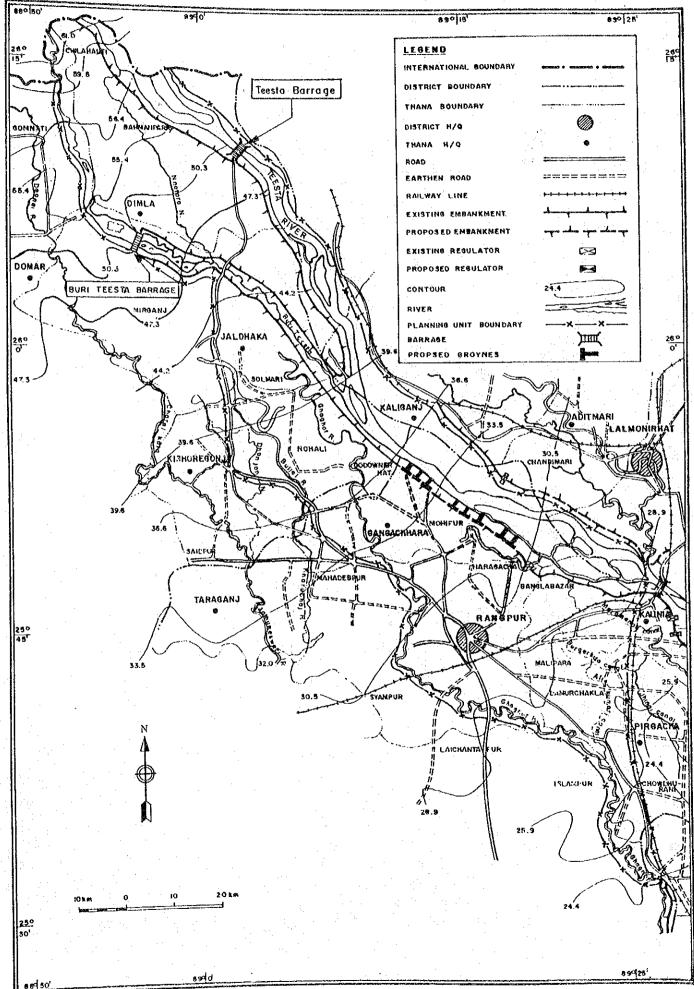
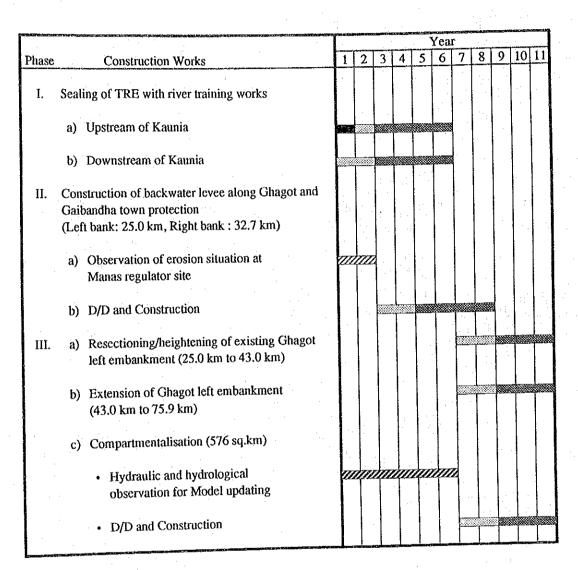


Figure 6.4 IMPLEMENTATION SCHEDULE



Legend

Pre-design

Detailed Design

Construction

Observation works

7. COST ESTIMATE AND CONSTRUCTION PLAN

7.1 General

This chapter deals with a construction plan and cost estimate for the whole works involved in the Gaibandha Improvement Project (GIP), which are scheduled to be implemented in the three Phases as discussed in the foregoing Chapter 6. Besides, a variety of construction methods for earth works such as manual and mechanical construction methods and combined one of these are taken up in Chapter 6 in order to examine and compare them from engineering and sociological point of views. Since it is not still mature to determine the optimum construction method in this study stage, the cost estimate for embankment works was made for each of the two alternatives for earth works, namely; manual construction method and combination of manual and mechanical ones.

7.2. Work Items and Quantities

Items of construction works proposed by the engineering studies in the foregoing Chapter 5 and their quantities are summarized below;

Configuration of the above construction works is summarized by the subject rivers or areas. They are as follows;

Item	Phase-1	Phase-2	Phase-3
Location	Teesta	Ghgaot downstream of Sadullapur (left and right banks)	Ghagot upstream of Sadullapur (left bank) and whole GIP area
Work item 1. Flood embankment - New embankment - Resectioning/heightening of existing flood embankment	46.6 km 13.2 km 33.4 km	57.7 km Left bank : 1.2 km Right bank : 26.3 km Left bank : 23.8 km Right bank : 6.4 km	50.9 km 14.5 km 36.4 km
2. Revetment (concrete blocks w/ jute mat)	4.9 km	· ·	• • • • • • • • • • • • • • • • • • •
3. Groynes (jute embankment & compacted embankment)	2,920 m	•	
4. Regulators (1.52 m x 1.83 m) New regulator	3 nos	Left bank : 5 nos Right bank : 1 nos	3 nos
- Rehabilitation of regulator	5 nos	Left bank : 2 nos Right bank: -	
- Additional provision of vent for regulator	1 no	Left bank : 2 nos Right bank : -	2nos
5. New sluiceway (1.0 m x 1.0 m)	5 nos	Left bank : 2 nos Right bank: 11 nos	11 nos
6. Channel excavation		Outfall : 1.2 km Gaibandha : 0.5 km	•
7. New road bridge at Gaibandha		1 no	
Compartmentalisation Sluiceway Drain pipe New embankment Regulator at u/s of Sreepur on BRE	• • .		5 nos 450 nos 6.3 km 1 no

7.3 Construction Planning

7.3.1 Basic conditions for construction planning

(1) Workable days

Annual workable days are estimated to be 150 days for earthwork and 210 days for concrete and other works, respectively as shown in Table 7.1. The construction conditions applied to the estimate is as follows:

- In principle, earthwork is suspended if daily rainfall depths exceeds 10 mm, but no work is executed in a duration of five (5) months from the beginning of June to the end of October since it is very difficult to keep on the construction quality during the monsoon season,
- Likewise, concrete and other structural works are suspended in case rainfall depth of more than 20 mm takes place, but no work is executed for 2.5 months from the beginning of July through the middle of September,
- No work is executed on regular Fridays and the following national holidays,
 - 1) Shab-e-Barat (Feb.20),
 - 3) Independence day (Mar.26)
 - 5) Jumat-ul-Bida (Apr.3)
 - 7) Buddha purnima (Apr. 18)
 - 9) Muharram (July 12)
 - 11) Durgapuja (Oct.7)
 - 13) Bijoy Dibash (Dec.16)
 - 15) Eid-ul-Fitr (3 days) & Eid-ul-Azha (3 days)

- 2) Shaheed Dibash (Feb.21)
- 4) Shab-e-Qudar (Apr.1)
- 6) Bengali new year's day (Apr.14)
- 8) May Day (May.1)
- 10) Eid-e-Milad-un-Nabi (Sept.11)
- 12) Biplab Dibash (Nov.7)
- 14) X-mas Day (Dec.25)

(2) Labour source and working hours

Skilled and unskilled labour will be recruited in and around the GIP area. Daily working hours are eight (8) hours for every type of works. Actual operation time of construction equipment is assumed to be 6.5 hours a day.

(3) Construction material

Earth material for flood embankment will be procured from borrow area near the embankment site. Where suitable earth material is not obtainable, earth will be transported by dump trucks from the nearby other borrow areas. The construction material for concrete placement such as cement, fine and coarse aggregates and timber for the form works, and bricks, bamboo and other wooden material are procured in and around the GIP area. Such material as structural steel and steel pipe will be produced in Dhaka and/or Chittagone or imported since they are not available in the local market.

(4) Construction equipment

Earthwork is the major work element as well as river training work and provision of such drainage facilities as regulators and sluiceways. Those works will be accomplished by use of heavy construction

equipment to keep the required quality and progress of work output. But the use of manpower will also be considered for all phases of construction as much as possible even in the combined construction method from the socioeconomic aspect. The following construction equipments are recommendable to carry out the construction works proposed;

No.	Equipment	Capacity
1	Bulldozer	11 t, 15 t, 21 t
2	Backhoe	0.35 cu.m
2 3	Backhoe	0.6 cu.m
4	Dump truck	11 t
5	Ordinary truck	6 t
6	Tire roller	10 t
7	Compaction roller	10 t
8	Crawler crane	30 t
9	Truck crane	10 t
10	Crawler pile driver	35 t
11	Diesel pile hammer	3.5 t
12	Vibration hammer	30 kw
13	Submersible pump	4 in.
14	Vibration compactor	80 kg
15	Concrete mixer	0.5 cu.m
16	Concrete vibrator	45 mm
.17	Diesel generator	125 kvA
18	Diesel generator	30 kvA

(5) Mode of construction

Construction work will practically be executed by international and/or local contractors. Contractors will be selected following the guidelines of the Government/Donor. A competitive bidding is preferable for selecting the contractor who will undertake a main part of the construction works.

(6) Utilization of local contracting society

The local contracting society is recommended to be organized and employed for execution of earth work following other ongoing projects, where appropriate.

(7) Access to site

Among the existing roads that link the GIP area with Bogra-Rangpur highway, there are four major roads through which it is accessible to the GIP area by vehicle for the time being. There are, from south to north, the Palashbari-Gaibandha, Mithapukur-Sadullapur, Rangpur-Kaunia and Rangpur-Pirgacha roads. Out of them, the Palashbari-Gaibandha and Rangpur-Kaunia roads are metalled and well maintained. While, in case of other two roads, the worse surface condition of road was observed during the site reconnaissance, especially in the Mithapukur-Sadullapur road.

There is a national road connecting Dhaka and Rangpur although there is no bridge to cross the Brahmaputra river where ferry service is available connecting Aricha and Nagarbari. From the national road provincial road is linked to the project area, but they are not all-weather type roads. In Saidpur there is an airport, and daily flight service is available.

On the commencement of the construction works, the heavy construction equipment will be carried into the project site through road network and ferry service. Since in general it is hard to access from the existing metal roads inside the GIP area to the surrounding rivers such as the Teesta and Ghagot because of the insufficient road network as well as the deterioration of existing rural roads therein, construction road for the equipment will be required in the stage of preparatory work.

(8) Others

27

Electric power supply is normally poor, and generator is requisite for stable operation of construction equipment. Water required for construction works and other uses will be supplied from deep wells to be constructed. Communication with telephone is possible only in the town area of Gaibandha. Therefore, the wireless communication system needs to be installed at the construction sites in case the present communication system is not likely to be improved until the implementation stage.

7.3.2 Construction method

(1) A combination of manual and mechanical ones

The key structure is flood embankment, of the components of GIP. Therefore, an emphasis is paid to construction of flood embankment in devising the combined construction method, but also the manual one which is discussed in the following Sub-section 7.3.3. The combined construction method for flood embankment and those for other related facilities are outlined below;

a) Flood embankment and compartment banks

Earth material for embankment is planned to be obtained through excavation at borrow areas located adjacent to the embankment site. The borrow areas needs to be designated in river side of the proposed flood embankment to ensure the stability thereof. Besides, the borrow areas will be spotted individually as much as possible, since much flood and rain water might concentrate at the construction site so that the construction works would be suspended due to the difficulty in the quality control. Excavation as well as hauling of earth material will be performed by construction equipment such as backhoes, bulldozers, and manpower. Dump trucks will be used for transportation of earth material from borrow areas to the embankment site where suitable material is not available in the neighborhood of the embankment site.

Earth material will be placed layer by layer in thickness of about 30 cm or less. Best quality of flood embankment will be accomplished by mechanical compaction using bulldozers. Moisture content of earth will be carefully controlled to meet the requirement on the optimum moisture content. After covering the entire process for a certain layer, the subsequent layer will be created in the same manner until the crest level is reached. Crest level shall include an allowance for settlement of embankment body and foundation. Extra embanking for this purpose is necessary, and height of the extra embanking will be equivalent to about 10 % of the design height of the flood embankment based on our geotechnical investigation.

In addition to the compaction of horizontal layers, slopes of embankment shall also be compacted. Since slopes of the proposed flood embankment are comparatively gentle, mechanical compaction by buildozers or backhoes is recommendable. Manual compaction with hand-operated equipment or conventional rammer will be adopted where it is not adequate to use such heavy compaction equipment because of the limited construction space (for instance, the portion adjacent to the drainage structure provided into the embankment.). Slopes of about 30 cm wide will be subject to compaction.

In resectioning the existing embankment, first, the deteriorated portions will be removed or compacted with the heavy compaction equipment. In succession, earthwork for raising the height or increasing the

width will be executed. The existing embankment will be bench-cut with several steps using backhoes, before additional earth material will be filled thereon in accordance with the design cross section.

Embankment for compartmentalisation will be constructed applying the same construction methods and procedures with above.

b) Channel excavation

The shortcut channels for the Ghagot are proposed to be constructed, out of which one is aligned to branch off downstream of the confluence with the Manas, while the other is to shortcut the meander of the Ghagot near the Gaibandha town. Channel excavation for this purpose will be executed by backhoes and bulldozers and also by means of the manual methods. The earth material to be produced through excavation of the shortcut channels will be utilized as embankment material for flood embankment near the location. No coffering will not be required except at the both ends of the new alignment, but dewatering might be necessary.

c) Groynes

The groyne body is planned to be made of jute bags fixed with steel bars to be driven into, compacted earth fill and concrete blocks with wire netting crates to be placed on the surface of the groynes. Since the groynes are constructed on the existing river bed, earth coffering, bypassing of the channel and dewatering by pumps will be required. Placing of jute bags and concrete blocks will be carried out manually, while bulldozers will be mobilized for earth filling with compaction.

d) Revetment work

The revetment works will be mainly executed by manpower with mobilization of heavy equipment for transportation of construction material where appropriate. The revetment works consist of slope protection and foot protection. All of these works shall be performed in the dry condition.

Concrete blocks will be manufactured at each construction site due to the poor accessibility thereto. Jute mat will first be laid on well compacted slopes, and concrete blocks will then be placed on the jute mat. Voids between concrete blocks will be filled with mortar. Back of revetment will be filled with gravel material for stability and drainage, and will also be well compacted.

The foot protection works consisting of placement of concrete blocks will be provided around toe of the revetment. During the construction thereof, the construction area will be made dry through provision of coffering as well as installation of submersible pumps.

e) Regulators and drainage sluices

Excavation and backfill with compaction for regulators and sluices will be carried out by bulldozers and backhoes or manually hand operated equipment. The construction works for the foundation of the regulator will be conducted in the driest season in order to avoid provision of dewatering works. Diesel pile hammers or vibration hammers will be mobilized for driving of RC piles to be provided for supporting the regulator.

Bending and cutting of reinforcement bars will be carried out at each construction site. Truck cranes will be used for arrangement of reinforcement bars and form work. Concrete will be mixed at work site

by concrete mixers and concrete vibrators will be used for placing,

Installation of gate and appurtenances will be performed using truck cranes and welding machine with generators.

f) Drain pipes

Drain pipes to be buried into road embankment for the improvement of local inundation will be installed by using truck crane.

g) Road bridge

Since the bridge is constructed over the shortcut channel to be newly excavated near Gaibandha town, no coffering work will be required. Substructures of piers and abutments will first be constructed. PC girders will be manufactured at the construction site. Thus, arrangement of reinforcement bars, form work, concreting, pre-stressing, grouting, etc. will be made on the substructures with scaffolding. After completion of all works, the girder will be shifted to the proper position by hydraulic jacks. No crane will be required for construction.

h) Others

Coffering will be made with earth material. Dewatering will be carried out by submersible pumps. For effective dewatering, the pumps will be installed in a cell of the earth coffer.

(2) Manual construction method

Concerning other construction works than earthwork, there is no difference between the manual construction method and the aforesaid combined one of manual and mechanical method. In case the flood embankment is constructed by means of the manual method, a great attention needs to be paid to the compaction works. There are many cases in the existing embankment that the specifications of compaction works in the conventional method which are described in the foregoing Section 6.2 have not been followed in the construction stage. As explained in the foregoing Chapter 6, one of the major causes is the unreasonably low bid price. Thus, the unit rate has to be set up to allow the sufficient compaction works. It is considered that, if the specification are strictly observed during the construction, the existing embankments would not be deteriorated to the present state. The compaction method preliminarily applied is that thickness of spreading in each embankment layer is limited to 15 cm (22.5 cm in the conventional practice), which is compacted for earth material to come to about 85 % of its maximum dry density through intensive input of common labours. The compaction works will be done under the strict quality control in accordance with the specifications to be prepared in the detailed design stage.

7.3.3 Production rates of construction equipment

Work output of different construction equipment depends on site condition and capacities and types of equipment. Hourly production rates of major construction equipment are worked out as follows;

(1) Backhoe (capacity:0.6 cu.m)

$$Q = (3600 \cdot q \cdot E / C_m) = (3600 \cdot 0.59 \cdot 0.65 / 31) = 44.5$$

where, Q: Hourly production (cu.m/hr.)

q: Production volume during a cycle time (=0.6 • 0.98)

E: Working efficiency (=0.65)

C_m: Cycle time (=31 sec.for swing angle of 135 degrees)

(2) Bulldozer (capacity:11 ton)

a) Compaction for embankment

$$Q = V \cdot W D E / N = 3500 \cdot 0.7 \ 0.25 \ 0.6 / 5 = 73.5$$

where, Q: Hourly production (cu.m/hr.)

V: Working velocity (=3,500 m/hr.)

W: Effective width of compaction work (=0.7 m)
 D: Thickness of a layer to be compacted (=0.25 m)

D: Thickness of a layer to be con E: Working efficiency (=0.6)

N : Number of times for compaction of a layer (=5)

b) Spreading for embankment

$$Q = 10 \cdot E \cdot (11 \cdot D + 8) = 10 \cdot 0.6 \cdot (11 \cdot 0.25 + 8) = 64.5$$

where, Q: Hourly production (cu.m/hr.)

E: Working efficiency (=0.6)

D: Thickness of a spread layer (=0.25 m)

c) Compaction & spreading for embankment

$$Q = (Q_1 \circ Q_2) / (Q_1 + Q_2) = (73.5 \circ 64.5) / (73.5 + 64.5) = 34.4$$

where, Q: Hourly production of compaction and spreading (cu.m/hr.)

Q1: Hourly production of compaction (cu.m/hr.)

Q2: Hourly production of spreading (cu.m/hr.)

d) Shaping of embankment slope

$$Q = V \cdot W \cdot E / N = 3500 \cdot 0.7 \cdot 0.35 / 5 = 171.5$$

where, Q: Hourly production (sq.m/hr.)

V: Working velocity (=3,500 m/hr.)

W: Effective width of work (=0.7 m)

E: Working efficiency (=0.35)

N : Number of times for slope compaction (=5)

(3) Dump truck (11 ton)

$$Q = 60 \cdot q \cdot E/C_m$$

where, Q: Hourly production (cu.m/hr.)

q : Loading capacity (=6.1 cu.m)

E : Working efficiency (=0.9)

C_m: Cycle time (=b*L+a)

L : Hauling distance (km)b : Coefficient of traffic condition (=4.6)

a : Loading and unloading time (=18 min., loaded by backhoe)

Hauling distance	Cycle time	Hourly production
(km)	(min.)	(cu.m/hr.)
0.5	20.3	16.3
1.0	22.6	14.6
2.0	27.2	12.1
3.0	31.8	10.4
4.0	36.4	9.0
5.0	41.0	8.0

7.4 Construction Cost Estimate

7.4.1 Basic conditions for costing

For costing, the following conditions and assumptions are taken into consideration;

(1) Components of cost

The following costs will be required for performing the project;

- a) Direct construction cost covers preparatory work, civil work, and procurement and installation of equipment. The construction cost accords to a contract price. Estimation of the cost is made on the unit price or lump sum basis.
- b) Administration cost covers the cost of construction and maintenance of project office, technical staff, departmental overhead, and of other activities in relation to the project. The administration cost is estimated to be 3 % of the direct construction cost.
- c) Physical contingencies cover cost for unforeseen works and events during construction phases. The physical contingencies are estimated to be 15 % of the direct construction cost.
- d) Engineering cost covers cost of survey, investigation, design, preparation of tender documents, supervision of construction, etc. The engineering service cost is estimated to be 10 % of the construction cost plus physical contingencies.
- e) Land acquisition cost covers the cost of land required for construction, and of other properties to be acquired in association with construction. Unit rate of land is determined based on prevailing prices in and around the GIP area.
- f) O & M cost comprises cost for the following activities and items after completion of construction;
 - Cost of technical staff,
 - Departmental overheads,

- Labour and materials.
- Operation and maintenance of equipment, and
- Annual repair and periodic replacement of FCD facilities.

(2) Reference source of cost estimate

In estimating the above costs, the following is referred to:

- Schedule of Rates for Bogra O & M Circle, 1988, BWDB, Bogra
- Schedule of Rates for Comilla O & M Circle, 1988, BWDB, Comilla
- Schedule of Rates for Project-IV, 1989, BWDB, Rangpur
- Schedule of Rates for Road & Bridge Works, 1990, RHD, Dhaka Zone
- Schedule of Rates prepared by World Bank Resident Mission in Bangladesh, Sept. 1991
- FAP5 & FAP8A reports (1991), FAP1, FAP7 & FAP9A reports (1992)

Besides, those rates adopted in recent projects in Bangladesh are also referred to. Our own estimate derived from the sources is adjusted and finalized through a rigorous check with those from ongoing projects.

(3) Price level and exchange rate

Prevailing market prices of labour, materials, and construction equipment as of September 1992 are adopted for cost estimate. The official exchange rate as of first of September, 1992 (US1.0 = Tk 38.9 = Yen 123) is adopted as the exchange rate for costing purpose.

(4) Currencies of cost estimate

Cost is estimated dividing into local currency portion and foreign currency portion, which cover the following cost items respectively;

Foreign currency portion	Local currency portion
 Imported construction equipment and materials Overhead for foreign contractor Expense to foreign consultant 	 Local materials Land acquisition and resettlement Administration Overhead for local contractor Expense to local consultant Salary and labour wages for local employee Taxes

(5) Mode of contract

Construction will mainly be executed by contractor(s). The contractor will be selected through the competitive bidding, and a contract value will be negotiated with the successful contractor after the tendering. Where appropriate, contracting society will be employed for the execution of GIP. The procedures to select contracting society will be devised in line with the Government policy before the commencement of construction works, separately from the Tender.

(6) Unit rate of construction work

Unit rate of construction work consists of unit rates of labour wages, materials and construction equipment for operation of unit work elements such as embankment and excavation. In estimating the

unit rate of each work item, cost of miscellaneous work is estimated to be 5 % of the unit rate for executing unit work element, and overhead of contractor is counted at 20 % of the unit rate inclusive of the cost of miscellaneous work.

7.4.2 Cost estimate

(1) Unit rates

Unit rates of labour, materials and construction equipment are shown in Tables 7.2 to 7.4. Unit rates of construction works are estimated based on the construction plan proposed. In the estimation, it is envisaged that the two alternatives in terms of the construction method, namely; manual/mechanical and manual construction, are separately costed to provide a proper basis for comparison.

In the combined construction method, the construction work is executed by use of mechanical equipment/machineries for major part of works which require high quality output and certain time schedule without delay. But manual work is employed in every element of construction work where appropriate in order to motivate people's employment opportunity. In this context, manpower will be adopted in the following work items;

- hauling earth in excavation and embankment,
- hauling materials for structures,
- backfilling without compaction,
- spreading of stone materials for pavement work and foundation of structures,
- slope protection work and turfing,
- assistance in use of heavy equipment, and
- other works in narrow space where heavy equipment can not be operated.

On the other hand, the manual construction method puts priority on increase of people's employment. Earthwork including that for structures is executed manually without use of any heavy equipment but with hand-operated machineries or conventional equipment. The other construction works are executed in combination of manpower and mechanical equipment/machineries as same as the aforesaid combined construction method. Consequently, the following work items will be done by manpower in addition to those in the combined construction method;

- Clearing and stripping,
- Excavation of channel or structure site,
- Compaction and shaping of flood embankment, and
- Compaction of backfill materials.

Unit rates for these manual and combined construction methods are shown in Table 7.5.

(2) Direct construction cost

The construction cost for the GIP is worked out based on the unit rates of construction works and their quantities and on the lump sum basis. They are shown in Tables 7.6 to 7.8.

Construction cost is also worked out under the assumption that construction work be executed in the three phases as practical as discussed in the Chapter 6. Summary of construction cost for phased construction is shown in Table 7.9. A total of the construction cost by phase is as follows;

				· · · · · · · · · · · · · · · · · · ·		it: 1,000 Tk
Phase	Combination o Const	f Manual and ruction Meth		Manual (Construction M	<u> </u>
	F.C	L.C	Total	F.C	L.C	Total
Phase-1 Phase-2 Phase-3 Total	313,283 190,840 76,977 581,100	286,941 131,727 60,897 479,565	600,224 322,567 137,874 1,060,665	161,864 27,289 24,962 214,115	303,544 149,143 68,286 520,973	465,408 176,432 93,248 735,088

(3) Administration cost

Administration cost for the project is calculated to be 3 % of the construction cost showing the following breakdown;

			tage state of the			nit: 1,000 Tk
Phase		n of Manual and		Manua	l Construction	
2	F.C	L.C	Total	F.C	L.C	<u>Total</u>
Phase-1		18,007	18,007	-	13,962	13,962
Phase-2		9,677	9,677	± .	5,293	5,293
Phase-3	<u>.</u>	4,136	4,136		2,798	2,798
Total	_	31,820	31,820		22,053	22,053

(4) Physical contingencies

Physical contingencies to cover unforeseen works and events are calculated to be 15 % of the construction cost. A breakdown is as follows;

1.0				·		Jnit: 1,000 T
Phase	Combination Con	of Manual an struction Met	d Mechanical hods	Manual	Construction	
rnasc	F.C	L.C	Total	F.C	L.C	Total
Diana	46,993	43.041	90,034	24,280	45,531	69,811
Phase-1		19,759	48,385	4,093	22,372	26,465
Phase-2	28,626	9.134	20,681	3,744	10.243	13,987
Phase-3 Total	11,547 87,166	71,934	159,100	32,117	78,146	110,263

(5) Engineering service cost

The engineering service cost to cover detailed design, supervision and other related activities during the project preparation and construction phases is calculated to be 10 % of a sum of the construction cost and the physical contingency. It is calculated for each phase as shown below;

					U)	nit: 1,000 Tk
	Combination	of Manual an	d Mechanical	Manual	Construction	Method
Phase	F.C	L.C	Total	F.C	L.C	Total
Phase-1 Phase-2 Phase-3 Total	36,028 21,947 8,853 66,828	32,998 15,148 7,003 55,149	69,026 37,095 15,856 121,977	18,614 3,138 2,871 24,623	34,908 17,152 7,853 59,913	53,522 20,290 10,724 84,536

(6) Land acquisition cost

Cost to acquire land required for the construction is estimated based on the prevailing market prices.

There is no difference of unit rates for land acquisition over the GIP area according to our survey, and it is 20 Tk/sq.m (= equivalent to 200,000 Tk/ha.). Land acquisition cost amounts to 85,032,000 Tk in total as shown in Table 7.10, accordingly. They are summarized as follows;

Phase	Land Acquisition Cost (IK)
Phase-1	30,464,000
Phase-2	34,432,000
Phase-3	20,136,000
Total	85,032,000

(7) Project cost

Project cost totalling up the above costs is summarized below;

			•		- (ປ	nit: 1,000 Tk)
Phase	Combination o	f Manual and ruction Meth	Mechanical ods	Manual (Construction	<u> </u>
1 Hase	F.C	L.C	Total	F.C	L.C	Total
Phase-1 Phase-2 Phase-3 Total	396,304 241,413 97,377 735,094	411,451 210,743 101,306 723,500	807,755 452,156 198,683 1,458,594	204,758 34,520 31,577 270,855	428,409 228,392 109,316 766,117	633,167 262,912 140,893 1,036,972

(8) O & M cost

O & M cost is assumed to be proportional to the construction cost. O & M cost is estimated to be 5 % of construction cost for earthwork plus 3 % of construction cost for other work. Estimated annual O&M cost is as follows;

Manual and mechanical construction
 Manual construction
 43,734,000 Tk/year
 27,623,000 Tk/year

7.4.3 Disbursement of project cost

In accordance with the implementation schedule for GIP which is set up in the foregoing Chapter 6, a time schedule of construction is worked out as shown in Figure 7.1. Annual disbursement schedule is prepared as shown in Table 7.11 as per the time schedule of construction.

ESTIMATE OF WORKABLE DAYS Table 7.1

				TO CONTRACT OF					Holidays	Holidays	Workable	a days (d)
Rainy	days (Ra	angpur'86-	'90)	Cal.		Suspensio			fixed(b)	movable(c)	Earth w.	Conc.w.
Month	0-10mm	10-20mm	20mm-	days	Earth w.	:(adopted)	Conc.w.	(adopted):		Mostroinfel	26.6	26.6
Jan	31.0	0.0	0.0	31	0.0	0.0	0.0	0.0	4.4		21.0	21.6
Feb	27.2	0.6	0.4	28	1.0	1.0	0.4	0.4	6.0		24.6	24.6
Mar	30.0	0.0	1.0	31	1.0	1.0	1.0	1.0	5.4		17.9	19.9
Apr	26.2	2.0	1.8	30	3.8	3.8	1.8	1.8	8.3			19.6
May	22.2	2.8	6.0	31	8.8	8.8	6.0	6.0	5.4		16.8	19.7
·		3.0	6.0	30	9.0	30.0	6.0	6.0	4.3	j	0.0	
Jun	21.0			31	12.0	31.0		31.0	5.4]	0.0	0.0
Jul	19.0	3.8				31.0	<u> </u>	31.0	4.4	1	0.0	0.0
Aug	23.6	1.6		31	7.4			15.0	5.3	1	0.0	12.4
Sep	20.2	2.4	7.4	30	9.8	The state of the s			5.4		0.0	23.4
Oct	27.8	1.0	2.2	31	3.2	31.0		2.2		···	24.1	24.5
Nov	29.4	0.4	0.2	30	0.6	0.6	0.2				24.6	24.6
Dec	31.0	0.0	0.0	31	0.0	0.0	0.0	0.0			155.5	
Sum				365	56.6	168.2	39.0	94.6	66.1	0	149.5	
Total	i coo.o	dave excl	rainy da			very nation	al holiday					2100
		Cayo oxo	. runty a	.,.,.		•	•				3000	MARKETON .
(assu	ımed at)	400 400 2.						-				

Note:

- Earth work (more than 10 mm), Concrete work (more than 20 mm) But no earth work during 5 months (June-October), and no concrete work during 2.5 months (July-September)
- Regular holidays = (Regular Sundays) + (National holidays fixed) Regular Sundays = (days in each month)/7 National holidays fixed(or almost fixed) are: Shab-e-Barat(Feb.20), Shaheed Dibash(Feb.21), Independence day(Mar.26), Shab-e-Qudar(Apr.1), Jumat-ul-Bida(Apr.3), Bengali New year's day(Apr.14), Buddha pumima(Apr.18), May Day(May.1), Muharram(Jul.12), Eid-e-Milad-un-Nabi(Sep.11), Durgapuja(Oct.7), Biplab Dibash(Nov.7), Bijoy Dibash(Dec.16), X-mas day(Dec.25)
 - National holidays movable are: Eid-ul-Fitr(3days) and Eid-ul-Azha(3days)

Workable days incl.movable national holidays

LABOUR WAGES Table 7.2

(Unit: Taka)

	(Unit. Take
Type of labour	Labour wages (8 hours a day)
Foreman	170
	75
	55
	85
	85
	100
	85
	85
	75
	110
	110
	110
	110
	110
	110
	115
	Foreman Skilled labour Common labour Operator for heavy equipment Driver Mechanic Welder Electrician Concrete worker Carpenter Mason/Plasterer Steel worker Painter Plumber Pavement worker Surveyor

Source;

- "Schedule of Rates for Bogra O&M Circle, 1988", BWDB, Bogra
- "Schedule of Rates for Comilla O&M Circle, 1988", BWDB, Comilla
- "Schedule of Rates for Project-IV, 1989", BWDB, Rangpur
- "Schedule of Flates for Road & Bridge Works, 1990", RHD, Dhaka Zone
- FAP8A Reports, May 1992, JICA

Table 7.3 UNIT RATES OF MATERIALS

(Unit: Taka)

					10	mi. raka)
Type of materials	Unit	F.C	(%)	L.C	(%)	Total
l. Cement, aggregates & stones			_			<u> </u>
Portland cement	kg.	3	60	2	40	5
Sand	cu.m	68	15	383	85	450
Gravel	cu.m	158	15	893	85	1,050
Unscreened gravel	cu.m	158	15	893	85	1,050
Cobble stone	cu.m	171	15	969	85	1,140
Brick	1000pcs	420	20	1,680	80	2,100
Brick chips	cu.m	113	15	638	85	750
2. Steel materials			·	1 1 1 1 1 1		
Reinforcement bar	ton	13,000	50	13,000	50	26,000
Structural steel	ton	32,000	100	0		32,000
Steel sheet pile	ton	40,000	100	0		40,000
Steel pipe handrail	1.m	810	90	90	10	900
Expansion joint	l.m	10,800	90	1,200	10	12,000
Steel wire net	sq.m	55	50	55	50	110
3. Concrete products		1		<u> </u>	· · · · · · · · · · · · · · · · · · ·	
R.C pile (250 x 250)	l.m	257	33	523	67	780
R.C pile (300 x 300)	l.m	354	34	686	66	1,040
R.C pile (350 x 350)	l.m	469	35	871	65	1,340
R.C pile (400 x 400)	l <u>.</u> m	605	36	1,075	64	1,680
R.C pipe (d=700, 1=2.43m)	nos.	3,400	40	5,100	60	8,500
4. Others			· · · · · · · · · · · · · · · · · · ·	<u> </u>		
Wooden pile (d=100, l=3m)	nos.	60	10	540	90	600
Timber (class-a)	cu.m	5,000	20	20,000	80	25,000
Timber (class-b)	cu.m	0		15,000	100	15,00
Wooden plank (t=380)	sheet	40	20	160	80	20
Mortar (1:2)	cu.m	2,160		1,440	40	3,60
Bitumen	ton	6,600		4,400	40	11,00
Rubber bearing shoe (450 x 350)	sq.m	53,100		5,900	10	59,00
PVC pipe (diameter: 50)	l.m	35		35	50	7
PVC water stop (b=200)	I.m	250	50	250	50	50
Jute bag	pc.	0		15	100	1
Jute mat	sq.m	0	-	50		5
Bamboo	pc.	0		100		10
Gasoline	1	13.5		1.5		1
Diesel oil	i	13.05	90	1.5	10	14.

Source;

- "Schedule of Rates for Bogra O&M Circle, 1988", BWDB, Bogra
- "Schedule of Rates for Comilla O&M Circle, 1988", BWDB, Comilla
- "Schedule of Rates for Project-IV, 1989", BWDB, Rangpur
- "Schedule of Rates for Road & Bridge Works, 1990", RHD, Dhaka Zone
- FAP8A Reports, May 1992, JICA

Table 7.4 UNIT RATES FOR OPERATION OF CONSTRUCTION EQUIPMENT

		The Carlot of the Carlot	1 04	0000000	Charation	Depreciation	Mainten	Maintenance & repair	Wana	Management		OBL COST (CRUE)	31113
		2 N	_	(Cap 10)	1	-	- 0402	400	ater	tsos.	O.H.	O T	Total
Equipment	Capacity	delivery	year	o edup	dinbe io	ž	010	} 	}	;	į	٤	eșc-1
		cost (1000Tk)		(hr./yr.)	(a/\r)	(Tk/hr.)	(%)	(TK/hr.)	8	(IK/UL)			9
Independent	***	4 748	S	975	350	730	65	528	7	341	1,153	446	255°
Dulidozei		6 0.45	8	975	8	930	92	672	7	434	1,467	568	2,036
Dulidozer	2 6	0380	G.	975	8	1,444	65	1,043	7	674	2,279	883	3,182
BUIROZEI	W 10 85 0	3,627	L.	385	210	478	S	266	7	186	691	239	880
Backnoe	# 10 % C	5.00	G	1.365	210	790	အ	439	2	307	1,141		1,536
Backhoe Duma tanak	0.000	4 251	4	1.365	210	707	8	467	10	311	1,074		1,479
o Dump nach		2 191	4	1 365	210	361	33	221	10	161	538	205	742
Orginary Inck	3 0	2013	ď	975	150	464	ន	258	7	216	670	588	937
8 Compaction roller	100	0.000	,	975	150	1366	02	1.063	2	744	2,216	956	3,173
9 Crawler crane	13.5	10,000	- 6	1 265	210	573	38	223	2	312	751	357	1,108
Truck crane	101	00,00	14	1 365	250	2712	20	1.507	-	1,055	3,918	1,356	5,274
11 Crawler pile driver	-	700.02	n •	37.0	2 2	2,1,1,1	8	575	^	269	1,323	384	1,707
12 Diesel pile hammer	1	3,740		37.0	3	370	3 8	253	_	118	583	169	750
13 Vibration hammer	30 K₩	1,643		0/8	3	200	3 5	+	.5	3	13	S	23
Submersible pump	4 in.	8	٦	005,	212	°,	2 4		, 4	0	8	4	24
Vibration compactor	80 kg	8	က	1,365	210	4	Ç.		1	1 8	470	AE	8
16 Concrete mixer		811	S	1,365	210	107	2	8	2	3 (2/1	ę c	3
17 Concrete vibrator	45 mm	48	က	1,365	210	=	8	4	2	2 5	4	ာ မွ	2 8
18 Diesel cenerator	125 KVA	1,531	9	1,365	210	168	8	65	2	8	3	8 8	254
	AVV 06	690	9	1.365	210	9/	8	83	5	ß	S		

Note: - Salvage value is 10 %. - Life time as well as rates of maintenance & management are based on data from Ministry of construction, Japan,

⁻ For the estimate of annual operation hours/days, Japanese standard, other projects in overseas as well as rates from BWDB are referred to. - Foreign currency portion (F.C) covers depreciation cost and 80 % of a sum of maintenance & repair cost

Local currency portion (L.C) covers management cost and 20 % of a sum of maintenance & repair cost

Table 7.5 UNIT RATES OF CONSTRUCTION WORKS

WI_	Remarks	Unit	F.C	(%)	L.C	(%)	Total
Work item	CHAILS	JIII.		سلكتين		<u> جو را د د د د</u>	
arth works)			r	0	9	100	5
	manual	sq.m	11	73	4	27	1.5
	manual(disposal)/mechanical	sq.m		0	46	100	40
Channel excavation (transport.l=50m)	manual	cu.m		0	74	100	74
Channel excavation (transport.l=100m)	manual	cu.m			130	100	130
Channel excavation (transport.1=200m)	manual	cu.m		0		51	7
Channel excavation (transport.1=50m)	manual(transport.)/mecha.	cu.m	38	49	40		
Channel excavation (transport.l=100m)	manual(transport.)/mecha.	cu.m	38	36	68	64	10
Channel excavation (transport.l=200m)	manual(transport.)/mecha.	cu.m	38	24	123	76	16
Channel excavation (transport.1=500m)	mechanical	cu.m	135	75	46	25	18
Channel excavation (transport.l=1km)	mechanical	cu.m	147	75	50	25	19
	mechanical	çu.m	170	75	58	25	22
Channel excavation (transport.l=2km)	mechanical	cu.m	237	75	81	25	3
Channel excavation (transport.l=5km)		cu.m		0	23	100	
Embankment (compaction & shaping)	manual	cu.m	61	73	22	27	
Embankment (compaction & shaping)	mechanical			0	5	100	
Turfing	manual	sq.m		0	55	100	
Structural excavation (transport.1=50m)	manual	cu.m			83	100	
Structural excavation (transport.l=100m)	manual	cu.m		0			- 1
Structural excavation (transport.l=200m)	manual	cu.m		0	138	100	
Structural excavation (transport.l=50m)	manual(transport.)/mecha.	cu.m	42	51	41	49	<u> </u>
Structural excavation (transport.l=100m)	manual(transport.)/mecha.	cu.m	42	38	69	62	1
Structural excavation (transport.l=200m)	manual(transport.)/mecha.	cu.m	42	25	124	75	1
Structural excavation (transport.1=500m)	mechanical	cu.m	139	75	47	25	1
	mechanical	çu.m	150	75	51	25	2
Structural excavation (transport.l=1km)	manual(filling)/mechanical	cu.m	6	17	29	83	- 14
Backfilling of structure by local earth	mechanical	cu.m	42	74	15	26	
Backfilling of structure by local earth			154	15	873	85	1,0
Backfilling of structure by brick chips	manual(filling)/mechanical	cu.m	215	15	1,209	85	1,
Backfilling of structure by imported earth (gravels	manual(filling)/mechanical	cu.m		17	1,196	83	1,
Backfilling of structure by imported earth (gravels	mechanical	cu.m	253			32	2,
Dewatering (d=4 in., 3.7 kW, head=10m)	per work cell	day	1,561	68	738	32	۷,
Structural works)			:	······································			
Base gravels for structure	manual	cu.m	209	15	1,194		1,
Base sands for structure	manual	cu.m	90	15	519		
	300x300x300, manual	cu.m	1,589	- 59	1,122	41	2,
Slope protection (concrete blocks)	200x300x100, manual	cu.m	1,589	59	1,122	41	2,
Slope protection (concrete tiles)	for drain pipes, manual	çu.m	694	32	1,506	68	2,
Slope protection (brick masonry)	for groynes, 2 layers (t=600)	sq.m	1,245		964		2
Slope protection (concrete blocks mattress)				0	71	 	
Slope protection (jute mat placing)	for groynes & revetments	sq.m	210		476		
Foot protection (cobble stones for footing cover)	for bridge footing, mecha.	cu.m					
Jute bag embankment	for groynes, manual	cu.m		0			
Structural concrete (210 kg/sq.cm) for regulators	incl.scaffold & support & form	cu.m	1,685		3,236	· -	4
Structural concrete (210 kg/sq.cm) for bridges	incl.scaffold & support & form	cu.m	1,566		2,674		4
Structural concrete (210 kg/sq.cm) for sluices	incl.scaffold & support & form	cu.m	1,733	33	3,463	67	5
Structural concrete (210 kg/sq.cm) for revenuents		cu.m	1,376	32	2,923	68	4
Structural concrete (100 kg/sq.cm) for revention	manual	cu.m	734	40	1,124	60	1
Lean concrete (100 kg/sq.cm)	manual	ton	16,900				34
Reinforcement bar		1.m	2,121		2,82		
R.C pipe (d=700) with collar	mechanical(placing)	· · · · · · · · · · · · · · · · · · ·	782		; -		
Foundation work (R.C pile, 400x400)	material & driving(mecha.)	l.m					-
Post tension P.C girder (span 30m)	Fabrication & build, mecha.	nos	240,345				
Expansion joint	manual	l.m	14,016				
Rubber bearing shoe	manual	nos	10,85				
	manual	cu.m	1,29		+		+
Asphalt joint filler	manual	l.m	4				
PVC drain pipes (d=50, l=400)	manual	l.m	31	5 49	32	7 51	
PVC water stops (b=200)	for regulator, manual	l.m	1,02				
Steel pipe handrail	incl.spindle & hoist, mecha.	ton	522,50				·
Metal works for gate			1,10				
Damoval of siniciples	R.C structures(mechanical)	cu.m					
Base course of road pavement (brick chips, t=25)) manual(spreading) & mecha.	cu.m	19				
Road pavement (double layer bricks, t=140)	manual(spreading) to meene	sq.m	61		- +		
	manual(spreading) & mecha.	sq.m					

Table 7.6 CONSTRUCTION COST OF TRE (1/8)

sam-					earthantal areas	n) 	nanual + mechanic	(EI)
	The state of the s		and the same of th	Unit H			Amount	Total
	Work items	Unit	Quantity [F/G	L/C	F/C	IVC	7.74
				<u>(IK)</u>	(IK)	(ik)	(LK')	(TK.)
	Florad Control on A							
	Flood Embankment				4	12,956,900	4,711,600	17,688,500
	1 Stripping	m2	1,177,900	11		120,265,200	75,317,600	195,582,900
	2 Embankment	f m3	1,214,600	89	62	120,200,200	4,950,500	4,950,500
	3 Turfing	m2	990,100	0	5	•	84,979,700	218,201,800
	. Total of item A.				1	133,222,100	84,979,700	&10,E01,000
	Revelment by Concrete Block				·			
						i i	4	14.4
	1 Horipur (3,200 m)	ا ہے ا	51,200	38	40	1,945,600	2,048,000	3,993,600
	a) Excavation	m3	19,200	1,589	1,122	30,508,800	21,542,400	52,051,200
	b) Concrete block (300 x 300 x 300)	m2				5,392,000	10,355,200	15,747,20
	 c) Structural concrete 	m3	3,200	1,685	3,236	0,002,000	2,272,000	2,272,00
	d) Jute mat	m2	32,000	0	71		1,149,240	1,346,89
	e) Sase gravel	m3	. 960	209	1,194	200,640		75,410,88
	Total of item 1.					38,047,640	37,383,840	75,410,00
	a di la contra de la contra del la contra del la contra del la contra de la contra de la contra de la contra del la contra de la contra del la contra d	,						
	2 Sundargani (300 m)		0.400	36	40	91,200	96,000	187,20
	a) Excavation	m3	2,400			2,383,500	1,683,000	4,066,50
	 b) Concrete block (300 x 300 x 300) 	m2	1,500	1,589	1,122	2,383,500 505,500	970,800	1,476,30
	c) Structural concrete	m3	300	1,685	3,238		298,200	298,20
	d) Jute mat	m2	4,200	0.	.71	0		126,27
	e) Base gravel	m3	. 90	209	1,184	18,810	107,460	
	Total of item 2.			i .	1	2,999,010	3,155,460	8,154,47
	TOTAL OF HOME	1			1	· · · · · · · · · · · · · · · · · · ·		
	3 Tambulpur (700 m)	1		1	:	1.1		
		m3	6,300	. 38	40	239,400	252,000	491,40
	a) Excavation	m2	3,500	1,539	1,122	5,561,500	3,927,000	9,488,50
	b) Concrete block (300 x 300 x 300)		700	1,685	3,236	1,179,500	2,265,200	3,444,70
	c) Structural concrete	m3			71	1,110,000	347,900	347,90
	d) Jute mat	m2	4,900	0		. 40 000	250,740	294,63
	e) Base gravel	m3	210	209	1,194	43,890		14,067,13
	Total of item 3.	1		1		7,024,290	7,042,840	14,007,10
	Total of Item B.					48,070,340	47,562,140	95,632,48
	ICAN OF REAL D.	1	i .		- 1		· · · · · · · · · · · · · · · · · · ·	*
	Groyne				. 1	•		
	1 Belka (5 nos., 1050 m)	1	1	l				
	a) Excavation	m3	8,800	38	40	334,400	352,000	588,40
		m3	14,800	0	686	0	13,112,800	13,112,80
	b) Jute bag embankment	m3	8,000	61	22	488,000	176,000	664,00
	c) Compaction and shaping	m2	23,100	1,245	984	28,759,500	22,268,400	51,027,90
	d) Concrete block mattress			1,500	71	0	908,600	908,80
	e) Jute mat	m2	12,800			18,900	16,900	33,80
	f) Steel bar (09, 50 cm/no. @2,000)	ton	1.3	13,000	13,000		36,834,900	66,433,70
	Total of item 1		1		. [29,598,800	30,834,800	00,400,11
:	700		1.	1				
	2 Sundargani (8 nos., 700 m)	m3	7,700	38	40 أ	292,600	308,000	600,8
	a) Excavation		12,950	£	686	. 0	11,473,700	11,473,7
	 b) Jute bag embankment 	m3		1	22	427,000	154,000	581,0
	 c) Compaction and shaping 	m3	7,000		964	19,173,000	14,845,800	34,018,6
	d) Concrete block mattress	m2	15,400			19,173,000	785,200	795,2
	e) Jute mat	· m2	11,200		. 71			31,2
	f) Steel bar (D9, 50 cm/no. @2,000)	ton	1.2	13,000	13,000	15,600	15,600	
	Total of Item 2		1 .	1		19,906,200	27,592,100	47,500,3
				.]				
	3 Palnaighat (13 nos., 1420 m)			38	- 40	593,580	624,800	1,218,3
	a) Excavation	m3	15,620		886	355,500	23,275,220	23,275,2
	 b) Jute bag embankment 	m3	28,270					1,178,6
	c) Compaction and shaping	m3	14,200		22	888,200	312,400	
		m2	31,240	1,245	964	38,893,800	30,115,360	69,009,1
		m2	22,720	0	71	[0	1,613,120	1,613,
	e) Jute mat	ton	2.3		13,000	29,900	29,900	59,
	f) Steel bar (D9, 50 cm/no. @2,000)	143/11	1	,	,	40,383,460	55,970,800	96,354,
	,							
	Total of Item 3.	1	i	1 '		1 10,000,1		

Table 7.6 CONSTRUCTION COST OF TRE (2/8)

			No. of the last of the second control of the		C-COMMENSOR	n)	Amount	M) Organisation
	Work items	Unit .	Quantity	Unit F F/C	L/C	F/C	L/C	Total
	TOK RESIS	UHIL	Calainty	(LK').	(TK.)	(TK.)	(IK)	(LK:)
).	Pegulator				ļ			
	Additional regulator at Mirgani (Additional 2 vents)				1		4	4.3
	a) Excavation for structure	m3	554	38	40	21,052	22,160	43,212
	b) Base gravel	m3	10	209	1,194	2,090	11,940	14,030
	c) Lean concrete	m3	3	734	1,124	2,202	3,372	5,574
	d) Structural concrete	m3	145	1,685	3,238	244,325	489,220	713,545
	e) Reinforcing bar	ton	10.8	16,900	17,700	182,520	191,160	373,680 78,619
	f) Concrete tile (200 x 300 x 100)	m3	29	1,589	1,122	48,081	32,538 8,557	20,676
	g) Concrete block (300 x 300 x 300)	m3	8	1,589	1,122 873	12,119 3,368	19,090	22,457
	h) Brick chip	m3 _	22 32	154 44	45	1,417	1,481	2,898
	i) PVC drain pipe (050,400 in length) j) PVC water stop (200 in width)	m l	37	315	327	11,654	12,038	23,752
	j) PVC water stop (200 in width) k) Steel slide gate (1.9m x 1.6m)	ton	1.4	522,500	27,500	731,500	38,500	770,000
:	f) Steel pipe hand rail	m	.101	1,021	128	103,121	12,928	116,049
	m) FC-Precast concrete pile (400 x 400)	m ·	90	782	1,032	70,360	92,880	183,260
	n) Pavement (brick)	m2	33	109	235	3,597	7,755	11,352
	Total of Item 1.			1.		1,435,425	923,679	2,359,104
						12.1		1.4
	2 New regulator (G-7 basin : 3 vents)			10.00		07.004	28,520	55,614
	a) Excavation for structure	m3	713	38	40	27,094 2,926	18,716	19,642
	b) Base gravel	m3 -	. 14	209	1,194	3,670	5,620	9,290
	c) Lean concrete	m3	5 147	734 1,685	1,124 3,238	247,695	475,692	723,387
	d) Structural concrete	m3	11.3	18,900	17,700	190,970	200,010	390,980
	e) Reinforcing bar f) Concrete tile (200 x 300 x 100)	ton m3 :	6	1,589	1,122	9,534	8,732	16,266
	f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300)	m3	32	1,589	1,122	50,648	35,904	88,752
	h) Brick chip	m3	27	154	873	4,158	23,571	27,729
	i) PVC drain pipe (050,400 in length)	m	31	44	46	1,384	1,428	2,790
	j) FVC water stop (200 in width)	m	37	315	327	11,655	12,099	23,754
	k) Steel slide gate (1.9m x 1.6m)	ton	2.1	522,500	27,500	1,097,250	57,750	1,155,000
	 Steel pipe hand rail 	m	102	1,021	128	104,142	13,058 123,840	117,198 217,680
	m) RC-Precast concrete pile (400 x 400)	m	120	782	1,032	93,840	7,990	11,596
	n) Pavement (brick)	m2	34	109	235	3,706 1,848,852	1,008,926	2,857,778
	Total of item 2.					1,040,002	1,000,000	
	3 New regulator (G-6 basin : 3 vents)			ļ		14.0	• "	
	a) Excavation for structure	m3	713	38	40	27,094	28,520	55,614
	b) Base gravel	m3	14	209	1,194	2,926	18,716	19,642
	c) Lean concrete	m3	5	734	1,124	3,670	5,620	9,290
	d) Structural concrete	m3	139	1,685	3,236	234,215	449,804	684,019
	e) Reinforcing bar	ton	10.7	18,900	17,700	180,830	189,390	370,220
	f) Concrete tile (200 x 300 x 100)	m3	5	1,589	1,122	7,945	5,610 35,904	13,555 88,752
	g) Concrete block (300 x 300 x 300)	m3	32	1,589	1,122 873	50,848 3,696	20,952	24,648
	h) Brick chip	m3	24 29	154 44	· 48	1,276	1,334	2,810
	f) PVC drain pipe (D50,400 in length)	m	36	315	327	11,340	11,772	23,112
	PVC water stop (200 in width)	ton	2.1	522,500	27,500	1,097,250	57,750	1,155,000
	k) Steel slide gate (1.9m x 1.6m)	m	100		128	102,100	12,800	114,900
	n) Steel pipe hand rail m) RC-Precast concrete pile (400 x 400)	m	120		1,032	93,840	123,840	217,680
	m) SC-Precast concrete pile (400 x 400) n) Pavement (brick)	m2	.33	1	235	3,597	7,755	11,35
	Total of Item 3.					1,820,627	967,767	2,788,39
		1						•
	4 Rehabilitation of Kasiabari regulator	150	1	1			29,674	111,29
	a) Cocrete removal	m3	74	1	401	81,622 627	3,582	4,20
	b) Base gravel	m3	3	1 .	1,194 1,124	734	1,124	1,85
	c) Lean concrete	m3 m3	74		3,236	124,690	239,464	364,15
	d) Structural concrete	ton	2.6	1 '	17,700	43,940	46,020	89,96
	e) Reinforcing bar	m3	5	1	1,122	7,945	5,610	13,55
	f) Concrete title (200 x 300 x 100)	m3:	10		1,122	15,890	11,220	27,11
	g) Concrete block (300 x 300 x 300) h) Brick Chip	m3	28		873	4,312	24,444	28,75
	man and to touch	m	28			1,232	1,280	2,5
	anno	m	35	315	327	11,025	11,445	22,47
	"	ton	0.7	522,500		1	19,250	385,00
1	k) Steel slide gate (1.9m x 1.6m) N Steel pipe hand rail	m	C		128	1	0	
	m) RC-Precast concrete pile (400 x 400)	m		1 .			0	•
į .	n) Pavement (brick)	m2	0	109	235		0	1 0E0 00
	Total of item 4.		I			657,767	393,121	1,050,88

Table 7.6 CONSTRUCTION COST OF TRE (3/8)

						Mn)	anual + mechanical	Menuncation and the
				Unit R	L/C	F/C	LC	Total
	Work items	Unit	Quantity	F/C . (TK.)	(IX)	(IK)	(IX.)	(IK)
							_	21
5 Reha	abilitation of Narayanpur regulator	1				40.054	7,218	27,072
a)	Cocrete removal	m3	18	1,103	401	19,854	3,582	4,209
b)	Bass gravel	m3	3	209	1,194	827	1,124	1,858
c)	Lean concrete	m3	. 1	734	1,124	734	32,380	49,210
g)	Structural concrete	m3	10	1,685	3,238	16,850	7,080	13,840
6)	Reinforcing bar	ton	0.4	18,900	17,700	6,760	080,7	0
ń	Concrete tile (200 x 300 x 100)	m3	0	1,589	1,122	0	-	18,977
•		m3	7	1,589	1,122	11,123	7,854	0,411
g)		m3	0	154	873	·· 0	0	ŏ
h)		m	0	44	46	0	0	10,914
ŋ	PVC drain pipe (050,400 in length)	m	17	315	327	5,355	5,559	
D	PVC water stop (200 in width)	ton	0.7	522,500	27,500	365,750	19,250	385,000
k)		m I	. 0	1,021	128	O	0	Q
D)	Steel pipe hand rall	1	ŏ	782	1,032	. 0	0	C
m)		m	. 0	109	235	0	0	Ç
u)		m2	Ü	"		427,053	84,027	511,080
	Total of Item 5.			1				
	16			1	- 1			
6 Nev	w regulator (G-2 basin : 8 vents)] _		38	40	212,800	224,000	436,800
a)		m3	5,600	!	40	45,220	47,600	92,820
b		m3	1,190	38		5,852	33,432	39,28
c		m3	. 28	209	1,194	8,606	10,116	18,72
ď		. m3	9		1,124	342,055	658,908	998,98
e		[m3	203		3,238		276 120	539,76
f	•	ton	15.8		17,700	283,840	4,488	10,84
		- m3 -	4	1,589	1,122	6,356		168,08
9		m3	62	1,589	1,122	98,518	69,564	28,70
h	The state of the s	m3	26	154	873	4,004	22,698	2,79
Ę	Brick chip	m	31	44	48	1,364	1,428	
î.		, m	46		327	14,490	15,042	29,53
k	PVC water stop (200 in width)	1	4.2	,	27,500	2,194,500	115,500	2,310,00
Ī		ton	121		128	123,541	15,488	139,02
п	n) Steel pipe hand rail	m	210		1,032	184,220	216,720	380,94
ſ	n) RC-Precast concrete pile (400 x 400)	m	"		235	4,798	10,340	15,13
) Pavement (orlck)	m2		109	200	3,487,962	1,719,442	5,207,40
٠.	Total of item 6.		1	1		0,707,002		
		1		. 1				
7 Re	habilitation of Bhalihat regulator	m3	J 50	1,103	401	\$5,077	23,659	88,73
1.4	a) Cocrete removal	m3		209	1,194	1,045	5,970	7,01
	b) Base gravei		i	2 734	1,124	1,468	2,248	3,71
	c) Lean concrete	m3	5	- 1	3,238	99,415	190,924	290,33
	d) Structural concrete	m3	2.		17,700	35,490	37,170	72,86
	e) Reinforcing bar	ton	1	1,589	1,122	1,589	1,122	2,7
	n Concrete tile (200 x 300 x 100)	m3	1			4,767	3,366	8,13
	g) Concrete block (300 x 300 x 300)	m3		3 1,599		2,772	15,714	18,4
	N Rock Chip	m3	1	8 154		792	828	1,6
	i) PVC drain plpe (050,400 in length)	m	1 '	8 44		8,506	8,829	17,3
	المطالب وممر	. n		7 315			19,250	385,0
		ton	0				19,200	
	k) Steel slide gate (1.5m x 1.5m)	m		0 1,021			0	
	n) Steel pipe hand rell n) PC-Precast concrete pile (400 x 400)	ITS.	1	0 782				
		m2		0 109	235		0	895,7
	n) Pavement (brick)	1	1	-		588,670	309,060	690,7
	Total of Item 7.	1	1	1.		**		
	The title annual story		1 .		1.5	1	0.017	25.3
8 P	ehabilitation of Ralib regulator		l	1,103			6,817	9,8
	a) Cocrete removal	m3	1	7 206			8,358	3,7
	b) Base gravel	m3	1	2 734	1,124		2,248	
	c) Lean concrete	m3	1	17 1,68			55,012	83,6
	Structural concrete	L L	i i	.6 16,900	* . *		10,620	20,
	A Painforcing bat	ton	1	0 1,58			0	
	A Concrete tile (200 x 300 x 100)	m3			*		3,366	6,
		m3				1 .	0	
	Li Dack Chin	m3	1 .	0 15		٠,	0	
	men and in length)	m		0 4		· }	5,559	. 10,
	and the state (200 in width)	m		17 31			19,250	365,
	pyC water stop (200 in water)	ton	- [•	0.7 522,50			19,233	230
	k) Steel slide gate (1.9m x 1.6m)	l m	1	0 1,02				
	n) Steel pipe hand rail	m		0 78			0	
	m) RC-Precast concrete pile (400 x 400) n) Pavement (brick)	m2		0 10	9 23		0	547
						436,339	111,230	

Table 7.6 CONSTRUCTION COST OF TRE (4/8)

					(0	nanual + mechanic	All
			UnitH	ale	Control of the second of the s	Amount	
Work items	Unit	Quantity	F/C	L/C	F/C	r/C	Total
HOLK KOLLS	"	Quantity	(IK.)	(TK.)	(TK.)	(TK.)	(IK.)
1							
 Pehabilitation of Kalimat regulator 	1 . 1			401	77,210	28.070	105,280
a) Cocrete removal	m3	70	1,103 209	1.184	1,463	8,358	9,82
b) Base gravel	m3	7	734	1,124	1,468	2,248	3,710
c) Lean concrete	m3	2		3,238	117,950	226,520	344,47
d) Structural concrete	m3	70	1,685	17,700	42,250	44,250	88,50
e) Reinforcing bar	ton	2.5	16,900		42,250	0	
f) Concrete tile (200 x 300 x 100)	m3	0	1,589	1,122	o .	0	
g) Concrete block (300 x 300 x 300)	m3	0	1,589	1,122	2,926	18,587	19,51
h) Brick Chip	m3	19	154	873	838	874	1,71
 i) PVC drain pipe (059,400 in length) 	m	. 19	44	46		9,158	17,97
 PVC water stop (200 in width) 	m	28	315	327	8,820		385,00
k) Steel slide gate (1.9m x 1.6m)	ton	0.7	522,500	27,500	365,750	19,250	363.00
Steel pipe hand rail	m	0	1,021	128	- 0	0	
m) RC-Precast concrete pile (400 x 400)	m	0	782	1,032	0	0	
n) Pavement (brick)	m2	o	109	235	0	0	
Total of item 9.					618,873	355,313	973.98
	1		1	-			
Total of Item D.	1		1	. [11,319,368	5,872,585	17,191,9
Sluiceway (5 nos.) Including drain ditch and	ŀ	l .			•		
approach channel	1	1			4		- 1 - 1 L
1 Excavation	m3	15,810	38	40	600,780	832,400	1,233,1
2 Base gravel	m3	50	209	1,194	10,366	59,222	69.5
3 Lean concrete	m3	19	734	1,124	13,652	20,906	34,5
4 Structural concrete	m3	229	1,733	3,463	397,550	794,412	1,191,9
	ton	21.7	16,900	17,700	366,730	384,090	750,8
5 Reinforcing bar	m3	19	1,589	1,122	29,555	20,869	50.4
6 Concrete tile (200 x 300 x 100)	m3	37	1,589	1,122	59,111	41,738	100,6
7 Concrete block (300 x 300 x 300)	m3	12	154	873	1,910	10,825	12,7
8 Brick chip		31	44	46	1,364	1,428	2,7
9 PVC drain pipe (050,400 in length)	ISI	112	315	327	35,154	36,493	71,6
** PVC water stop (200 in width)	m			27,500	783,750	41,250	825,0
** Steel flap gate (1.2m x 1.2m)	ton	1.5	522,500	. 21,500	2,299,923	2,043,633	4,343,5
Total of Item E.	İ		1	ļ	2,235,323	2,0-10,000	-,,-
		1	1	1	284,802,191	260.855.858	545,658,0
Total Construction Cost of TRE (Items A to E)	1	1	J	<u></u>	284,802,191	200,000,000	

Table 7.6 CONSTRUCTION COST OF TRE (5/8)

							(manual)
		Ĺ	บกเก			Amount	Total
Work items	Unit	Quantity	F/C	L/C	F/C	. DC	(TK.)
			(TK.)	(IK)	(TK.)	(TK.)	
Flood Embankment	ļ					4.	·
1 Stripping	m2	1,177,900	0	9	0	10,601,100	10,601,100
2 Embankment	m3	1,214,800	ō	69	0	63,821,200	83,821,200
	m2	990,100	ō	5	0	4,950,500	4,950,500
3 Turling Total of Item A	1112	000,100	·	- 1	. 0	99,372,800	99,372,800
Total of Rent A.		1		· 1			
Revetment by Concrete Block							
1 Horipur (3,200 m)		,		1	1.0		A 055 000
a) Excavation	m3 !	51,200	0	48	0	2,355,200	2,355,200
b) Concrete block (300 x 300 x 300)	m2	19,200	1,589	1,122	30,508,800	21,542,400	52,051,200
c) Structural concrete	m3	3,200	1,685	3,236	5,392,000	10,355,200	15,747,200
d) Jute mat	m2	32,000	0	71	0	2,272,000	2,272,000
e) Base gravel	m3	960	209	1,194	200,640	1,146,240	1,348,860
Yotal of Item 1.				1	36,101,440	37,671,040	73,772,480
Total of Rem 1.							
2 Sundarganj (300 m)		·			4.1		440 400
a) Excavation	m3	2,400	0	48	C	110,400	110,400
b) Concrete block (300 x 300 x 300)	m2	1,500	1,589	1,122	2,383,500	1,983,000	4,068,500
, ,	m3	300	1,685	3,236	505,500	970,800	1,478,300
	m2	4,200	. 0	71	. 0	298,200	298,200
	m3	90	209	1,194	18,810	107,480	126,270
e) Base gravel Total of Item 2.	1110	-		· 1	2,907,810	3,169,860	6,077,670
Total of item 2.						1	
3 Tambulpur (700 m)	İ	A 100 PM		I	C.,	and the first	
a) Excavation	m3	6,300	0	48	0	289,800	289,800
	m2	3,500	1,589	1,122	5,561,500	3,927,000	9,488,500
	m3	700	1,685	3,236	1,179,500	2,265,200	3,444,700
	m2	4,900	· · · o	71	0	347,900	347,900
	m3	210	209	1,194	43,890	250,740	294,630
e) Base grave! Total of item 3.	1110			· i	6,784,890	7,080,640	13,865,530
total of item o.			!	1	·		
Total of Item B.				- 1	45,794,140	47,921,540	93,715,680
		1					
C. Groyne			· .	,	•		
1 Belka (5 nos.,1050 m)			ľ .		0	404,800	404.800
a) Excavation	m3	3,800	0	48		13,112,600	13,112,80
 b) Jute bag embankment 	m3	14,800	0	686	0	176,000	664,00
c) Compaction and shaping	m3	8,000	61	22	488,000	22,268,400	51,027,90
d) Concrete block mattress	m2	23,100	1,245	964	28,759,500	908,800	906,80
e) Jute mat	m2	12,800] •.	. 71	0		33,80
f) Steel bar (D9, 50 cm/no. @2,000)	ton	1.3	13,000	13,000	16,900	16,900	66,152,10
Total of item 1.	1 .	1	1		29,264,400	36,887,700	00,132,10
		ł	l			•	
2 Sundarganj (8 nos., 700 m)	1	1	ł			251.000	354,20
a) Excavation	m3	7,700	0	46	. 0	354,200	11,473,70
b) Jute bag embankment	m3	12,950	0	886	0	11,473,700	581,00
	m3	7,000		22	427,000	154,000	34,018,60
	m2	15,400	1,245	964	19,173,000	14,845,600	
•	m2	11,200	0	71	. 0	795,200	795,20
e) Jute mat f) Steel bar (D9, 50 cm/no. @2,000)	ton	1.2	13,000	13,000	15,600	15,600	31,20
f) Steel bar (09, 50 cm/no. @2,000) Total of Item 2.		1			19,615,600	27,638,300	47,253,90
10/33 Or Held 5		i	1		ļ		
a. D-ilabet (12 nos. 1420 m)		1	1			_,,,,	
3 Painalghat (13 nos., 1420 m)	rn3	15,620	0	46	0	718,520	718,5
a) Excavation	m3	26,270		886	0	23,275,220	23,275,2
b) Jute bag embankment	m3	14,200		22	866,200	312,400	1,178,6
c) Compaction and shaping	m2	31,240		964	38,893,800	30,115,360	69,009,1
d) Concrete block mattress	m2	22.720		71	0	1,813,120	1,613,1
e) Jute mat	1	22.720		13,000	29,900	29,900	59,8
f) Steet bar (D9, 50 cm/no. @2,000)	ton	1	`[```,````	,,,,,,,,,	39,789,900	56,064,520	95,854,4
Total of Item 3.		1				• •	
	1	. [88,669,900	120,590,520	209,260,4
Total of Item C.	1	1			22,000,000		

Table 7.6 CONSTRUCTION COST OF TRE (6/8)

 				Unit R			Amount	(manual)
	Had None	l lasa	Quantity	F/C	"uc 1	F/C	L/C	Total
	Work Items	Unit	Coantry	(TK.)	(TK.)	(TK.)	(TK.)	(IK.)
 					-			
Regulator		İ						
	tional regulator at Mirgani							
(A)	Itional 2 vents) Excavation for structure	m3	554	- 0	48	0	25,484	25,484
		m3	10	209	1,194	2,090	11,940	14,030
b)	Base gravel	m3	3	734	1,124	2,202	3,372	5,574
c)	Lean concrete		145	1,685	3,238	244,325	469,220	713,54
d)	Structural concrete	m3	10.8	16,900	17,700	182,520	191,180	373,680
a)	Peinforcing bar	ton	29	1,589	1,122	48,081	32,538	78,611
ŋ	Concrete tile (200 x 300 x 100)	m3		1,589	1 122	12,119	8,557	20,67
9)	Concrete block (300 x 300 x 300)	m3	8	154	873	3,368	19,090	22,45
h)	Brick chip	m3	22	44	48	1,417	1,481	2,89
i).	PVC drain pipe (D50,400 in length)	m	32	I	327	11,654	12,098	23,75
Ð	PVC water stop (200 in width)	m	37	315		731,500	38,500	770,00
k)	Steel slide gate (1.9m x 1.6m)	ton	1.4	522,500	27,500		12,928	116,04
ŋ	Steel pipe hand rail	m	101	1,021	128	103,121	92,880	163,26
m)	AC-Precast concrete pile (400 x 400)	m l	90	762	1,032	70,380		11,35
n)	Pavement (brick)	m2	33	109	235	3,597	7,755	2,341,37
	Total of item 1.	i I		1	1	1,414,373	927,003	2,341,07
	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	j i			1"	and the second		
2 New	regulator (G-7 basin : 3 vents)	1 1	•	1		100		60.70
a)		m3	713	0	48	0	32,798	32,79
p)		m3	14	209	1,194	2,926	18,716	19,64
c)		m3	5	734	1,124	3,670	5,620	9,29
o)	to the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of	m3	147	1,685	3,236	247,695	475,692	723,38
		ton	11.3	16,900	17,700	190,970	200,010	390,98
e)		m3	6	1,589	1,122	9,534	6,732	16,20
Ŋ	Concrete tile (200 x 300 x 100)	m3	32		1,122	50,848	35,904	86,75
. g)		m3	27	154	873	4,158	23,571	27,72
h)			31	44	48	1,364	1,426	2,79
1)	PVC drain pipe (D50,400 in length)	m	37	1	327	11,655	12,099	23,75
. 0		m		1	27,500	1,097,250	57,750	1,155,00
k)	Steel slide gate (1.9m x 1.6m)	ton	2.1		128	104,142	13,058	117,19
ŋ		m. j	102			93,840	123,840	217,68
. m	FC-Precast concrete pile (400 x 400)	m	120	ł	1,032	3,708	7,990	11,6
n)	Pavement (brick)	m2	. 34	109	235	-	1,013,204	2,834,96
	Total of item 2.	İ		.		1,821,758	1,010,204	2,02 ,0.
3 Nev	w regulator (G-6 basin : 3 vents)			1				
		m3	713	. 0	48	0	32,799	32,79
a		m3	14	209	1,194	2,926	16,718	19.8
b)		cm		1	1,124	3,670	5,620	9,2
c		m3	139		3,236	234,215	449,804	684,0
ď		ton	10.7		17,700	180,830	189,390	370,2
e				1	1,122	7,945	5,610	13,5
ŋ		m3	3		1,122	50,848	35,904	88,7
g) Concrete block (300 x 300 x 300)	m3	í		873	3,898	20,952	24,8
h) Brick chip	m3	2.		46	1,278	1,334	2,6
ŋ	PVC drain pipe (D50,400 in length)	m	21	1 .	327	11,340	11,772	23,1
0	PVC water stop (200 in width)	m ·	34			1.	57,750	1,155,0
k		ton	2.		27,500	1,097,250 102,100	12,800	114,9
ŋ	Steel pipe hand rail	m	10		128		123,840	217,5
LL.		m	12		1,032	93,840		11,3
n		m2] 3:	3 109	235	3,597	7,755	2,765,5
	Total of Item 3.	1				1,793,533	972,045	2,100,0
4 Rei	habilitation of Kasiabari regulator				401	81,622	29,674	111,2
	Cocrete removal	m3	7			The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	3,582	4,2
) Base gravel	m3		3 209	1,194		1,124	1.0
	•	m3		1 734	1,124			364,
	n Structural concrete	m3	7				239,464	
		ton	2.				48,020	89,
		m3	1	5 1,589	1,122		5,610	13,
	Concrete title (200 x 300 x 100)	m3	.1		1,122	15,890	11,220	27,
	Concrete block (300 x 300 x 300)	m3		8 154			24,444	28,
	n) Brick Chip	m		8 44		1	1,288	2.
i) PVC drain pipe (D50,400 in length)	1		5 315		1	11,445	22,
	PVC water stop (200 in width)	m	0				19,250	385,
	k) Steel slide gate (1.9m x 1.6m)	ton	1				0	•
	n Steel nine hand fail	m.	1	0 1,021		1	0	-
	n) RC-Precast concrete pile (400 x 400)	n .	I	0 782		1	ŏ	
		m2	i	0 109	235	1		1,050.
	n) Pavement (onck) Total of item 4.	1	1	1		657,787	393,121	1,000

Table 7.6 CONSTRUCTION COST OF TRE (7/8)

TO MODERN		en and an array of the second		4	Unit Ha				Amount	
	337- 4-44	Unit	Quantity		F/C	"Lo	F/C		L/C	Total
	Work items	Unit	Quantity		(TK.)	(TK)	(TK)		(IK)	(IK.)
	·		************	_						
5 Reha	bilitation of Narayanpur regulator	1			1.11			,854	7,218	27,07
a)	Cocrete removal	m3		8	1,103	401	19	827	3,582	4,200
b)	Base gravel	m3		3	209	1,194		734	1,124	1 85
c)	Lean concrete	m3		1	734	1,124	40		32,360	49 21
ď)	Structural concrete	m3		i0	1,685	3,233		,650	7,060	13,84
e)	Reinforcing bar	ton	0.	.4	10,900	17,700	· ·	760	7,000	
ŋ	Concrete tile (200 x 300 x 100)	m3		0	1,589	1,122		0	7,854	18,97
g)	Concrete block (300 x 300 x 300)	m3		7	1,589	1,122	11	,123	7,654	
h)	Brick Chip	m3		0	154	873		0	. 0	
ŋ	PVC drain pipe (D50,400 in length)	m		0	44	48		0	-	10,91
. Ď	PVC water stop (200 in width)	m	1	17	315	327		355	5,559	385,00
ĸ,	Steel slide gate (1.9m x 1.8m)	ton	0	.7 5	22,500	27,500	36	5,750	19,250	300,00
1)	Steel pipe hand reil	m		0	1,021	128		0.	0	
m)		l m		0	782	1,032		0.	0	
n)	Pavement (brick)	m2		0	109	235		. 0	0	
. 49	Total of item 5.	"""		- 1			42	7,053	84,027	511,06
	(Oct of Rent of	Į.								
	and the bank of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of th	1		1				2		
	regulator (G-2 basin : 6 vents)	m3	5,6	oo l	0 -	48		0	257,600	257,60
, a)	Channel excavation (400 m)	m3	1,1		. 0	46	-4	0	54,740	54,74
b)		m3	•	28	209	1,194		5,852	33,432	39,26
c)		1	1	9	734	1,124		8,608	10,118	16,77
d)		m3	١,	03	1,685	3,236		2,055	656,908	998,96
e)	Structural concrete	m3	4	4.4	18,900	17,700		3,640	276,120	539,76
. 1)	Reinforcing oar	ton	"	5.6	-	1,122		6,356	4,488	10,84
9)	Concrete tile (200 x 300 x 100)	m3		4	1,589			9,518	69,564	168,0
h)	Concrete block (300 x 300 x 300)	m3		62	1,589	1,122		4,004	22,698	28,7
'n	Brick chip	m3		26	154	873		1,364	1,428	2,7
Ó	PVC drain pipe (D50,400 in length)	m	1	31]	44	. 46			15,042	29,5
ќ		m	1	46	315	327		4,490	115,500	2,310,0
D,	Steel slide gate (1.9m x 1.6m)	ton	1	4.2 j	522,500	27,500		4,500		139,0
m)] m	1	121	1,021	128		3,541	15,488	380.9
n)	H. (455-455)	m] 2	210	782	1,032	16	4,220	218,720	: 15,1
		m2	i .	44	109	235	1	4,796	10,340	
0)	Total of item 6.		1.	-			3,22	9,942	1,780,182	4,990,1
		1		-	25					
7 Ref	nabilitation of Bhairnat regulator	m3	1	59	1,103	401		5,077	23,659	89,7
8)			1	5	208	1,194	1	1,045	5,970	7,0
b) Base gravel	m3	1	2	734	1,124	1	1,468	2,248	3,7
¢.	Lean concrete	m3	1	59	1,685	3,236		9,415	190,924	290,3
d		m3	1	2.1	18,900	17,700		35,490	37,170	72,6
. 6	Reinforcing bar	ton	1		1,589	1,122		1,589	1,122	2,7
, f	Concrete tile (200 x 300 x 100)	m3	Į.	1	•	1,122		4,767	3,366	8,1
9		m3	1	3	1,589			2,772	15,714	18,4
h	N Brick Chip	m3	1	18	154	873		792	828	1,6
,	" mra and la leadh?	Į m	1 .	18	44	48		8,505	8,829	17,3
		m	1	27	315	327			19,250	385,0
, u	'	ton		0.7	522,500	27,500		65,750	19,230	4.00,0
		m	1	0	1,021	128	1	0	. 0	:
Ţ		m .	.1 * .	0	782	1,032		0	0	
rr		m2	1	0	109	235		0		895,
r	Total of item 7.		1	1			5	66,670	309,080	560,
							. [
8 Re	habilitation of Rajib regulator	1 _	. 1	۱,,	1,103	401	. 1	18,751	6,817	25,
	Cocrete removat	m3	ı	17		1,19		1,463	8,358	9,
) Base gravel	m3	1	7	209			1,468	2,248	3,
	c) Lean concrete	m3	1	2.	734	1,12		28,645	55,012	83,
	f) Structural concrete	m3	· [17	1,685				10,620	20,
	n) Reinforcing bar	ton	1 .	0.6	18,900			10,140	0	
		m3	1	0	1,589			0		8
	n Concrete the (200 x 300 x 100)	m3	1	3	1,589	1,12	2	4,767	3,366	
. 1	g) Concrete block (300 x 300 x 300)	m3	1	0	154		3	0	0	11.
- 1	h) Brick Chip			o	44		L	0	. 0	
	n PVC drain pipe (D50, 400 in length)	m)	1	17	315		1	5,355	5,559	10
	n PVC water stop (200 in width)	m		0.7	522,500			365,750	19,250	385
	Steel stide gate (1.8m x 1.6m)	ton			1,021		1	0	0	
	n Check nine hand fall	·, m		0	762			o	0	
				0 1	/152	1.03	a. 1	~	-	
	m) PC-Precast concrete pile (400 x 400)	n m		ŏ	109			0	. 0	

Table 7.6 CONSTRUCTION COST OF TRE (8/8)

							(manua)
			The I			Amount	
		Quantity	F/C	"CC T	F/C	r\c	Total
. Work items	Unit	Guantity	(TK)	(TK)	(TK.)	(TK)	(IK)
				·	* .		1
 Rehabilitation of Kalirhat regulator 		70	1,103	401	77,210	26,070	105,28
 a) Cocrete removal 	m3	70	209	1.194	1,483	8,358	9,63
b) Base gravel	m3	2	734	1 124	1,468	2,248	3,71
c) Lean concrete	m3	70	1.685	3 238	117,950	226,520	344,47
d) Structural concrete	m3		16,900	17,700	42,250	44,250	88,56
e) Fleinfording bar	ton	2.5		1,122	0	0	
f) Concrete tile (200 x 300 x 100)	m3	0	1,589		. 0	. 0	
g) Concrete block (300 x 300 x 300)	j m3	0	1,589	1,122	2,926	16.587	19,5
h) Brick Chip	m3	19	154	873	836	874	1,7
l) PVC drain pipe (050,400 in length)	m	19	44	48	8,820	9,158	17,9
p PVC water stop (200 in width)	m	28	315	327		19,250	385,0
k) Steel slide gate (1.9m x 1.6m)	ton	0.7	522,500	27,500	365,750	18,200	
Steel pipe hand rail		0	1,021	128	0	. 0	
m) FIC-Precest concrete pile (400 x 40	o) m	0	782	1,032	0 .	Ö	
n) Pavement (brick)		. 0	109	235	0	355,313	973,9
Total of item 9.	ļ	ŀ	Į	·	618,673	330,313	
Total of item 0.		1			10,986,108	5,925,205	15,911,3
TOTAL OF INCHIO	1	1]		•	
Sluiceway (5 nos.) including drain ditch and		ļ ·					
approach channel	1 _	45.000	0	46	0	727,260	727,
1 Excavation	m3	15,810	209	1,194	10,388	59,222	69,
2 Base gravel	m3	50	734	1,124	13,652	20,806	34,
3 Lean concrete	m3	19			397,550	794,412	1,191,
4 Structural concrete	m3	229	1,733	3,463	368,730	384,090	750,
5 Reinforcing bar	ton	21.7	16,900	17,700	29,555	20,869	50,
6 Concrete tile (200 x 300 x 100)	m3	19		1,122	59,111	41,738	100,
7 Concrete block (300 x 300 x 300)	m3] 37	1,589	1,122	1,910	10,825	12,
B Brick chip	mS	12	1	873		1,426	2,
9 PVC drain pipe (050,400 in length)	m	31		46	1,364	36,493	71,
* PVC water stop (200 in width)	m	112		327	35,154	41,250	825,
** Steel flap gata (1.2m x 1.2m)	ton	1.5	522,500	27,500	783,750	2,138,493	3,637,
Total of Item E.			\ \		1,699,143	2,130,453	۰,۰۰۰,
IOEI G IOII C	Į.	1	1	į	147 149,291	275,948,558	423,097,
. Total Construction Cost of TRE (items A to E)	l ·	l l		1	141,149,251	£10/010/000	

Table 7.7 CONSTRUCTION COST OF GHAGOT RIVER (1/10)

Work items cod Embankment begot Left Embankment Back-water embankment (0.0 km to 25.0 km) a) Stripping b) Embankment c) Turfing d) Jute bag embankment e) Sand drain Total of item 1. Plesectioning/heightening of the existing embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of item 2. Stripping b) Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of item 3. Stripping b) Embankment c) Turfing Total of item 3.	M2 m3 m3 m2 m2 m3 m2 m2 m3 m2	Guantity 547,100 402,700 493,500 20,200 48,400 290,600 102,700 165,800	F/C (IK.) 11 99 0 61 90	6 L/C (TK.) 4 62 5 22 519	6,018,100 39,887,300 0 1,232,200 4,358,000 45,885,400 3,196,600 10,167,300 0 13,363,900	2,168,400 24,667,400 2,487,500 444,400 25,119,600 29,623,300 1,162,400 6,307,400 829,000 8,356,800	(TX) 8,208,500 64,834,700 2,487,500 1,678,600 75,508,700 4,359,000 16,534,700 21,722,700
pood Embankment Back-water embankment (0.0 km to 25.0 km) a) Stripping b) Embankment c) Turfing d) Jute bag embankment e) Sand drain Total of Item 1. Pessectioning/heightening of the existing embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of Item 2. 3 Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of Item 3.	m3 m2 m3 m3 m2 m2 m2	402,700 493,500 20,200 48,400 290,500 102,700 165,800	11 99 0 61 90	4 62 5 22 519	6,018,100 39,887,300 0 1,232,200 4,358,000 45,685,400 3,196,600 10,167,300 0	2,168,400 24,987,400 2,487,500 444,400 25,119,600 29,623,300 1,162,400 6,367,400 829,000	8,206,500 64,834,700 2,467,500 1,676,600 29,475,900 75,508,700 4,359,000 16,534,700 828,000
negot Left Embankment Back-water embankment (0.0 km to 25.0 km) a) Stripping b) Embankment c) Turling d) Jute bag embankment e) Sand drain Total of item 1. Resectioning/heightening of the existing embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turling Total of item 2. Statention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turling Total of item 3.	m3 m2 m3 m3 m2 m2 m2	402,700 493,500 20,200 48,400 290,500 102,700 165,800	99 0 61 90 11 99	62 5 22 519 4 62	39,887,300 0 1,232,200 4,358,000 45,885,400 3,196,600 10,167,300 0	24,997,400 2,487,500 444,400 25,119,600 29,623,300 1,162,400 6,367,400 829,000	64,634,700 2,487,500 1,676,600 29,475,600 75,508,700 4,359,00 16,534,70 829,00
Back-water embankment (0.0 km to 25.0 km) a) Stripping b) Embankment c) Turfing d) Jute bag embankment e) Sand drain Total of Item 1. Resectioning/heightening of the existing embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of Item 2. Stripping b) Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of Item 3.	m3 m2 m3 m3 m2 m2 m2	402,700 493,500 20,200 48,400 290,500 102,700 165,800	99 0 61 90 11 99	62 5 22 519 4 62	39,887,300 0 1,232,200 4,358,000 45,885,400 3,196,600 10,167,300 0	24,997,400 2,487,500 444,400 25,119,600 29,623,300 1,162,400 6,367,400 829,000	64,634,700 2,487,500 1,676,600 29,475,600 75,508,700 4,359,00 16,534,70 829,00
a) Stripping b) Embankment c) Turfing d) Jute bag embankment e) Sand drain Total of Item 1. Pessectioning/heightening of the existing embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of Item 2. Stripping b) Embankment c) Turfing Total of Item 3.	m3 m2 m3 m3 m2 m2 m2	402,700 493,500 20,200 48,400 290,500 102,700 165,800	99 0 61 90 11 99	62 5 22 519 4 62	39,887,300 0 1,232,200 4,358,000 45,885,400 3,196,600 10,167,300 0	24,997,400 2,487,500 444,400 25,119,600 29,623,300 1,162,400 6,367,400 829,000	64,834,700 2,467,500 1,676,600 29,475,600 75,508,700 4,359,00 16,534,70 829,00
th) Embankment c) Turfing d) Jute bag embankment e) Sand drain Total of Item 1. Resectioning/heightening of the existing embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of Item 2. Statention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of Item 3.	m3 m2 m3 m3 m2 m2 m2	402,700 493,500 20,200 48,400 290,500 102,700 165,800	99 0 61 90 11 99	62 5 22 519 4 62	39,887,300 0 1,232,200 4,358,000 45,885,400 3,196,600 10,167,300 0	2,487,500 444,400 25,119,600 29,623,300 1,162,400 6,367,400 829,000	2,487,500 1,676,600 29,475,600 75,509,700 4,359,00 16,534,70 829,00
c) Turfing d) Jute bag embankment e) Sand drain Total of item 1. Resectioning/heightening of the existing embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of item 2. Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of item 3.	m2 m3 m3 m2 m3 m2 m2	493,500 20,200 48,400 290,600 102,700 165,800	0 61 90 11 99	5 22 519 4 62	0 1,232,200 4,356,000 45,685,400 3,196,600 10,167,300 0	444,400 25,119,600 29,623,300 1,162,400 6,307,400 629,000	1,676,600 29,475,600 75,508,700 4,359,00 16,534,70 829,00
d) Jute bag embankment e) Sand drain Total of Item 1. Resectioning/heightening of the existing embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of Item 2. Stripping b) Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of Item 3.	m3 m3 m2 m3 m2 m2	20,200 48,400 290,600 102,700 165,800	61 90 11 99	22 519 4 62	4,356,000 45,685,400 3,196,600 10,167,300 0	25,119,600 29,623,300 1,162,400 6,367,400 829,000	29,475,600 75,508,700 4,359,00 16,534,70 829,00
e) Sand drain Total of item 1. Resectioning/heightening of the existing embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of item 2. Stripping b) Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of item 3.	m3 m3 m2 m2 m3	48,400 290,600 102,700 165,800	90 11 99	519 4 62	3,196,600 10,167,300 0	29,623,300 1,162,400 6,367,400 829,000	75,508,700 4,359,00 16,534,70 829,00
Total of Item 1. Persectioning/heightening of the existing embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of Item 2. Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of Item 3.	m2 m3 m2 m2 m3	290,600 102,700 165,800	11 99	4 62	3,196,600 10,167,300 0	1,162,400 6,367,400 829,000	4,359,00 18,534,70 829,00
Pessectioning/heightening of the existing embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of item 2. Statention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of item 3.	m3 m2 m2 m3	102,700 165,800	89	62	3,196,600 10,167,300 0	6,367,400 629,000	16,534,70 829,00
embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of item 2. 3 Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of item 3.	m3 m2 m2 m3	102,700 165,800	89	62	10,167,300	6,367,400 629,000	16,534,70 829,00
embankment (25.0 km to 43.0 km) a) Stripping b) Embankment c) Turfing Total of item 2. 3 Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of item 3.	m3 m2 m2 m3	102,700 165,800	89	62	10,167,300	6,367,400 629,000	16,534,70 829,00
a) Stripping b) Embankment c) Turfing Total of item 2. 3 Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of item 3.	m3 m2 m2 m3	102,700 165,800	89	62	10,167,300	6,367,400 629,000	16,534,70 829,00
b) Embankment c) Turfing Total of item 2. 3 Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of item 3.	m3 m2 m2 m3	102,700 165,800	89		0	829,000	829,00
c) Turfing Total of item 2. 3 Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of item 3.	m2 m2 m3	165,800 379,700	0	5			
Total of item 2. 3 Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of item 3.	m2 m3	379,700	:		13,363,900	8,358,800	21,722,70
3 Extention of the existing Left embankment (43.0 km to 75.9 km) a) Stripping b) Embankment c) Turfing Total of Item 3.	m3		:				
km to 75.9 km) a) Stripping b) Embankment c) Turling Total of Item 3.	m3						
km to 75.9 km) a) Stripping b) Embankment c) Turling Total of Item 3.	m3			1		•	100
a) Stripping b) Embankment c) Turfing Total of Item 3.	m3				in the second		5,695,50
b) Embankment c) Turfing Total of Item 3.	m3		11	4	4,178,700	1,518,800	29,080,50
c) Turling Total of Item 3.		100,000	99	82	17,869,500	11,191,000	1,532,00
Total of Item 3.		308,400	0	5	0	1,532,000	38,289,00
shacet Blobt Embankment				ļ	22,046,200	14,241,800	30,200,00
shagot Right Embankment Backwater embankment on the right bank (32.7 k				1			1.33
magor right emponement the character ambankment on the right bank (32.7 k)			1	Ì			
The property of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the second control of the se							8,840,00
	m2	456,000	11	4	5,016,000	1,824,000	138,782,00
a) Stripping	m3	862,000	99	62	85,338,000	53,444,000	2,956,5
b) Embanisment	m2	591,300	. 0	5	. : 0	2,956,500	
c) Turfing Total of item 1.		<u> </u>			90,354,000	58,224,500	148,578,50
Total or nem 1.		İ		1			000 007 0
Total of Item A		l		- 1	171,649,500	110,448,400	282,097,9
1020 0 1000 70		1		i			
			Ì	:. i			
	i		ļ	1		· · ·	47 505 0
	m3	225,200	38	40	8,557,600	9,006,000	17,565,8
a) Excavation)	.	l				
and the second	,	.1		. 1	1.00		5,694,0
	m3	73,000	38	40	2,774,000	2,920,000	5,594,0
FXC9A9DOU		†	1	1			23,259,6
Table Street O	}	Į.	1		11,331,600	11,828,000	23,238,0
Jorai or item 6.	1			1	•		
	l						
Heguiator	1	1	1	1		16.000	30,8
New regulation (2-19-1 December 1 1 1 1 1 1 1	m3	1	38				8.4
	m3	6					3.7
The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	m3	2					752.8
	m3	153					373,6
	ton						21.6
e) Reinforcing bar	m3	1 .		1,122			32,
f) Concrete tile (200 x 300 x 100)	m3	12		1,122			46,
The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	m3	45	154	873			
h) Brick chip	m	40	44	46	1,760		3, 25,
i) PVC drain pipe (050,400 in length)	, m	40		327	12,600		
) PVC water stop (200 in width)	ton	0.7	522,500	27,500			385, 118,
k) Steel slide gate (1.9m x 1.6m)	. m			128	105,163		
n Steel pipe hand rail	m			1,032	46,920		108,
m) RC-precast concrete pile (400 x 400)			1	235	3,708	7,990	11,
n) Pavement (brick)		1 .	1	- 1			
o) Dewatering works		l	1		1,032,666	890,469	1,923
Local of them 1-	1	1	1	11	1		
The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	1 :	1	1				
New regulator (G-14-2 basin: 11 vents)	rm3	1.98	4 38	40	75,392		154
a) Excavation for structure	1			1,194	10,450		70
b) Base gravel					12,478	19,108	31
ci Lean concrete	1				810,485	1,556,516	2,367
d) Structural concrete					635,440		1,300
a) Seinforting bar	1 .	,			11,123	7,854	18
A Concrete title (200 x 300 x 100)	1		- 11		179,587	126,786	300
g) Concrete block (300 x 300 x 300)					9,548	54,128	63
Li Didek ehin	3	1 1	- 1		2,948	3,082	
a DUC drain cipe (050,400 in length)					26,460	27,458	· 50
a pur water stop (200 in width)	1 .		: 3		4,023,250	211,750	4,23
M Steel slide gate (1.9m x 1.6m)	• 1				189,908		: 21
a count alos hand fall							65
m) RC-precast concrete pile (400 x 400)	1 .						. 2
ni Pavement (brick)		e Hale a '	~ ''		"""		
o) Dewatering works	LS.	-1	1 .		6,277,277	3,225,396	9,50
	Oncrete tile (200 x 300 x 100) Concrete block (300 x 300 x 300) Brick chip PVC drain pipe (D50,400 in length) PVC water stop (200 in width) Steel slide gate (1.9m x 1.6m) Steel pipe hand rail MC-precast concrete pile (400 x 400) Pavement (brick) Downtering works Total of item 1. New regulator (G-14-2 basin : 11 vents) Excavation for structure Base gravel Lean concrete Structural concrete Structural concrete Reinforcing bar Concrete tile (200 x 300 x 100) Concrete tile (200 x 300 x 300) Brick chip PVC drain pipe (D50,400 in length) PVC water stop (200 in width) Steel slide gate (1.9m x 1.8m) Steel pipe hand rail MC-precast concrete pile (400 x 400) Pavement (brick)	Outfall of Ghgaot (1.2 km) a) Excavation Gaibandha (0.5 km) a) Excavation Total of item B. Regulator New regulator (G-14-1 basin : 1 vent) a) Excavation b) Base gravel c) Lean concrete d) Structural concrete e) Reinforcing bar f) Concrete tile (200 x 300 x 300) h) Brick chip f) PVC drain pipe (050,400 in length) f) PVC water stop (200 in width) k) Steel side gate (1.9m x 1.6m) f) Steel pipe hand rail f) Concrete tile (200 x 300 x 300) m3 m3 m3 m3 m3 m3 m3 m3 m3 m3 m3 m3 m3	Outfall of Ghgaot (1.2 km) a) Excavation Gaibandha (0.5 km) b) Excavation Total of Item B. Regulator New regulator (3-14-1 basin : 1 vent) a) Excavation b) Base gravel c) Lean concrete d) Structural concrete e) Reinforcing bar f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip f) PVC drain pipe (050,400 in length) f) Steel side gate (1.9m x 1.6m) f) Pavement (brick) f) Downstering works Total of Item 1. New regulator (3-14-2 basin : 11 vents) a) Excavation for structure b) Base gravel c) Lean concrete d) Structural concrete e) Reinforcing bar f) Concrete tile (200 x 300 x 300) nn 3 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn 103 nn	Outfail of Ghgaot (1.2 km) a) Excavation Gaibandha (0.5 km) a) Excavation Total of Item B. Regulator New regulator (3-14-1 basin : 1 vent) a) Excavation Total of Item B. Regulator New regulator (3-14-1 basin : 1 vent) a) Excavation b) Base grave! c) Lean concrete d) Structural concrete e) Reinforcing bar f) Concrete bice (200 x 300 x 100) g) Concrete bice (200 x 300 x 300) g) Concrete bice (200 x 300 x 300) g) PVC drain pipe (050, 400 in length) g) PVC water stop (200 in width) g) PVC water stop (200 in width) g) PvC precast concrete pile (400 x 400) g) Pavement (tufck) g) PvC drain pipe (050, 400 in length) g) PvC water ing works Total of Item 1. New regulator (G-14-2 basin : 11 vents) a) Excavation for structure g) Base gravel g) Concrete bick (200 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (200 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) Concrete bick (300 x 300 x 300) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain pipe (050,400 in length) g) PvC drain p	Outfall of Ghgaot (1.2 km) a) Excavation Gaibandha (0.5 km) 2) Excavation Total of Item B. Regulator New regulator (3-14-1 basin : 1 vent) a) Excavation Total of Item B. Regulator New regulator (3-14-1 basin : 1 vent) a) Excavation b) Base gravel c) Eun concrete c) Reinforcing bar f) Concrete tibe (200 x 300 x 100) b) Brick chip b) PVC drain pipe (050,400 in length) b) PVC water stop (200 in width) c) Stoel pipe hand rail m) Revenent (trick) c) Dewatering works Total of Item 1. New regulator (3-14-2 basin : 11 vents) a) Excavation for structure b) Base gravel d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concrete m3 d) Structural concre	Outfall of Ghgaot (12 km) a) Excavation Gaibandha (0.5 km) b) Excavation New regulator (3-14-1 basin : 1 vent) a) Excavation New regulator (3-14-1 basin : 1 vent) b) Base gravel c) Earn concrete c) Hainforcing bar d) Concrete bick (300 x 300 x 100) b) Bick chip d) PVC drain pipe (050,400 in length) m) Pewement (0rick) c) Dewatering works c) Earn concrete c) Base gravel d) Concrete bick (300 x 300 x 400) m) Stoel pipe hand rail d) Residency d) Steel side gate (1-sm x 1.6m) m) Stoel pipe hand rail d) PVC drain pipe (050,400 in length) m) PVC drain pipe (050,400 in length) m) PVC drain pipe (050,000 in length) m) Pewement (0rick) d) Dewatering works d) Street lief (200 x 300 x 100) m3 1,021 128 m3 1,032 1,032 m3 1,035 3,036 m3 1,035 3,036 m3 1,036 3,036 m3 1,036 3,036 m3 1,036 3,036 m3 1,036 3,036 m3 1,036 3,036 m3 1,037 1,038 m3 1,038 3,038 m3 1,03	Outfall of Chigaet (1.2 km) a) Excavation Gaibancha (0.5 km) a) Excavation Total of Item 8. Regulator New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-1 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New regulator (G-14-2 basin : 1 vent) New

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Table 7.7 CONSTRUCTION COST OF GHAGOT RIVER (2/10)

Work items New regulator (G-15 basin : 2 vents) a) Excavation for structure b) Base gravel c) Lean concrete d) Structural concrete e) Reinforcing bar	Uni mã mã		Quantity	у	Unit Hat F/C	UC	F/C	Amount L/C (TK.)	Total
New regulator (G-15 basin : 2 vents) a) Excavation for structure b) Base gravel c) Lean concrets d) Structural concrete	m3 m3		Quantit	У					
Excavation for structure Base gravel Lean concrete Structural concrete	m3					mv i	(TK.)	[IN]	(IK)
Excavation for structure Base gravel Lean concrete Structural concrete	m3	. 1			<u>(IK)</u>	(ux)	11101		
b) Base gravel c) Lean concrets d) Structural concrete	m3			554	38	40	21,052	22,160	43,212
c) Lean concrete d) Structural concrete				10	209	1,194	2,090	11,940	14,030
d) Structural concrete				3	734	1,124	2,202	3,372	5,574
	l mi			140	1,685	3,238	235,900	453,040	688,940
e) Bainfording bar	m.				18,900	17,700	177,450	185,850	383,300
vy rightstatify and	to			10.5	. 3	1,122	12,712	8,978	21,688
f) Concrete tile (200 x 300 x 100)	m:	3		8	1,589		34,958	24,684	59,642
g) Concrete block (300 x 300 x 300)	m:	3		22	1,589	1,122	4,774	27,083	31,837
h) Brick chip	m	3		31	154	873	1,584	1,856	3,240
i) PVC drain pipe (D50,400 in length)	, m	3 1		36	44	46		12,099	23,754
	l n	n		37	315	327	11,655	38,500	770,000
	to	n l		1,4 5	22,500	27,500	731,500	12,672	113,751
	l n	a I		99	1,021	128	101,079		163,260
Steel pipe hand rail He (400 × 400)	n			90	782	1,032	70,380	92,880	11,008
m) RC-precast concrete pile (400 x 400)	m			32	109	235	3,488	7,520	11,000
n) Pavement (brick)	"					1			
o) Dewatering works) L	°		- 1		1	1,410,824	902,412	2,313,238
Total of item 3.	Į	- 1		- 1		1			
	1	- 1				. [
Additional regulator for South Gagos	ļ	1				i		i	
regulator (G-16-1 basin : 1 vents)	1	_		395	38	40	15,010	15,600	30,810
a) Excavation for structure	1	n3		8	209	1,194	1,254	7,164	8,418
b) Base gravel		n3				1,124	1,458	2,248	.3,710
c) Lean concrete		n3		2	734		269,600	517,760	787,380
d) Structural concrete	j n	n3		160	1,685	3,236	187,590	196,470	384,060
	b	on [11.1	16,900	17,700		8,976	21,68
	1	n3		8	1,589	1,122	12,712	13,484	32,53
		m3		12	1,589	1,122	19.068	35,793	42,10
		m3		41	154	873	6,314	-	4,14
h) Brick chip		m		46	44	46	2,024	2,116	26,32
i) PVC drain pipe (050,400 in length)		m l	:	41	315	327	12,915	13,407	
B PVC water stop (200 in width)		ton		0.7	522,500	27,500	365,750	19,250	385,00
k) Steel silde gate (1.9m x 1.6m)				104	1,021	128	106,184	13,312	119,49
n Steel pipe hand rail		m		60	782	1,032	48,920	61,920	.108,84
m) RC-precast concrete pile (400 x 400)		m		35	109	235	3,815	8,225	12,04
n) Pavement (brick)		m2		33	i va	-~-			
o) Dewatering works		LS.		1		- 1	1,050,624	915,905	1,986,52
Total of item 4.]	1		.]		}	1,000,024	****	**
		ı		ļ		. 1			• •
5 New regulator regulator (G-16-2	1	ļ		1				•	
basin : 1 vents)		1			20	40	15,010	15,800	30,81
a) Excavation for structure		m3		395	38	1,194	1,254	7,184	8,41
	- 1	m3		6	209		1,468	2,248	3,71
	ì	m3		2	734	1,124		310,658	472,41
c) Lean concrete		m3		96	1,685	3,236	181,760	129,210	252,58
d) Structural concrete	- 1	ton		7.3	18,900	17,700	123,370	7	18,9
e) Reinforcing ber	l	m3		7	1,589	1,122	11,123	7,854	32,5
n Concrete tile (200 x 300 x 100)	1	m3	1	12	1,569	1,122	19,068	13,464	24,6
g) Concrete block (300 x 300 x 300)	Į	m3		24	154	873	3,696	20,952	
h) Brick chip	1	m l	i	29	44	48	1,276	1,334	2.6
n PVC drain pipe (D50,400 in length)	J		1	28	315	327	9,820	9,156	17,9
n PVC water stop (200 in width)	Ì	m	ĺ	0.7	522,500	27,500	365,759	19,250	385,0
k) Steel slide gate (1.9m x 1.6m)	l	ton	1	88	1,021	128	87,806	11,008	98,8
n Steel nine hand fail	1	m			782	1,032	48,920	61,920	106,8
vila (400 x 400)		m	i	60		235	2,725	5,875	6,6
m) RC-precast concrete pilo (************************************	ł	m2		25	109	233	2,720		
n) Pavement (brick)	ļ	LS.	!		ł		950.040	815,891	1,465,9
Dewatering works Total of item 5.	1		1		1		850,048	4.0104.	•
tora or non-	[I		1				
8 Additional regulator for Eheramara	l		1		1				
8 Additional regulator for Exercision	ı		1				46.010	15,800	30,
regulator (G-17 basin : 1 vents)	- 1	m3 .	1	395			15,010	7,164	8,
a) Excavation for structure	- 1	m3	1	6	209		1,254		3,
b) Base gravel	- [m3	1	. 2	734		1,468	2,248	713,
c) Lean concrete	i	m3	I	145		3,236	244,325	469,220	
		ton		10.3	1		174,070	182,310	356,
q) Strictium couctage	1	m3	1	8			12,712	8,976	21,
a) Reinforcing bill	1		1	12			19,068	13,484	32,
e) Reinforcing bar A. Concrete tile (200 x 300 x 100)		m3	1				5,652	33,174	39,
e) Reinforcing bar f) Concrete tile (200 x 300 x 100)	1			38				1,932	3
e) Reinforcing bar f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300)		m3	1				1 1 1 1 1 1 1		
e) Reinforcing bar f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) b) Reck chio		m		42			1,848		25
e) Reinforcing bar f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip h PVC drain pipe (050,400 in length)				39	318	327	12,285	12,753	
e) Reinforcing bar f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip f) PVC drain pipe (050,400 in length) h PVC water stop (200 in width)		m		39 0.7	315 522,500	327 27,500	12,285 365,750	12,753. 19,250	385
e) Reinforcing bar f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip f) PVC drain pipe (050,400 in length) f) PVC water stop (200 in width) k) Steel slide gate (1.9m x 1.8m)		m m		39	315 522,500 1,02	327 27,500 1 128	12,285 365,750 102,100	12,753 19,250 12,800	385 114
e) Reinforcing bar f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip f) PVC drain pipe (050,400 in length) g) PVC water stop (200 in width) k) Stoel since gate (1.9m x 1.6m)		m ton		39 0.7	315 522,500 1,021	5 327 5 27,500 1 128 2 1,032	12,285 365,750 102,100 48,920	12,753 19,250 12,800 61,920	385 114 108
e) Reinforcing bar f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip f) PVC drain pipe (050,400 in length) g) PVC water stop (200 in width) k) Stoel since gate (1.9m x 1.6m)		m ton m m		39 0.7 100	315 522,500 1,02 783	5 327 5 27,500 1 128 2 1,032	12,285 365,750 102,100 48,920	12,753 19,250 12,800	25, 385, 114 108
e) Reinforcing bar f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip f) PVC drain pipe (050,400 in length) g) PVC water stop (200 in width) k) Steel slide gate (1.9m x 1.8m)		m ton m		39 0.7 100 60	315 522,500 1,02 783	5 327 5 27,500 1 128 2 1,032	12,285 365,750 102,100 48,920	12,753 19,250 12,800 61,920	385 114 108

Table 7.7 CONSTRUCTION COST OF GHAGOT RIVER (3/10)

					(mai	nual + mechanical)	-
	******		Unit Hate			Amount	Total
Work Items	Unit	Quantity		L/C	F/C (TK.)	UC (TK)	(TK.)
			(IX)	(IK)	7,01		
New regulator regulator (G-16/19					1.00	1	
basin : 3 vents)		5,600	38	40	212,800	224,000	436,800
Excavation for approach channel	m3	713	38	40	27,094	28,520	55,614
b) Excavation for structure	m3	4		1,194	2,926	18,718	19,642
c) Base gravel	m3	14		1,124	3,670	5,620	9,290
d) Lean concrete	m3	5	1,685	3 236	227,475	438,860	884,335
e) Structural concrete	m3	135		7,700	175,760	184,080	359,840
f) Reinfording bar	ton	10.4		1,122	9,534	6,732	16,266
g) Concrete tile (200 x 300 x 100)	m3	6	1,589		50,848	35,904	88,752
h) Concrete block (300 x 300 x 300)	тіЗ	32	1,589	1,122	3,850	21,825	25,675
n Brick chip	.m3	25	154	873	1,276	1,334	2,610
) PVC drain pipe (D50,400 in length)	m	1 29	44	46		11,118	21,828
k) PVC water stop (200 in width)	m	34	315	327	10,710	57,750	1,155,000
and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and the same and t	ton	2.1	522,500	27,500	1,097,250	12,872	113,751
	m	99	1,021	128	101,079		217,680
m) Steel pipe hand rall	m	120	782	1,032	93,840	123,840	11,008
n) RC-precast concrete pile (400 x 400)	m2	32	109	235	3,488	7,520	11.000
o) Pavement (brick)	LS.				1		
p) Dewatering works	LS	Į	1		2,021,600	1,174,491	3,196,091
Total of item 7.	1	İ	1	.			
	İ	1	ì			1	
New regulator regulator (G-21	1	1	Į			15 500	30,810
basin : 1 vents)	m3	395	38	40	15,010	15,800	8,418
a) Excavation for structure	m3	6		1,194	1,254	7,164	3,710
b) Base gravel	m3	1 2		1,124	1,468	2,249	
c) Lean concrete	m3	86		3,236	144,910	278,296	423,20
d) Structural concrete		6.7	1	17,700	113,230	118,590	231,62
e) Reinforcing bar	ton	1		1,122	9,534	6,732	18,28
f) Concrete tile (200 x 300 x 100)	m3	1	1	1,122	19,068	13,484	32,53
g) Concrete block (300 x 300 x 300)	m3			873	3,234	18,333	21,56
h) Brick chip	m3	2		46	1,144	1,196	2,34
i) PVC drain pipe (D50,400 in length)	m	20	1	327	8,190	8,502	16,69
	m	21	1		365,750	19,250	385,00
	ton	0.		27,500		10,624	95,36
(c) Steel slide gate (1.9m x 1.0m)	m	. [8:		128	84,743	61,920	109,84
f) Steel pipe hand rall	m) 6	782	1,032	46,920	5,405	7,91
m) RC-precast concrete pile (400 x 400)	m2	2	3 109	235	2,507	0,400	.,
n) Pavement (brick)	LS.	1					1 004 49
o) Dewatering works		· ['		ĺ	816,962	587,524	1,384,48
Total of item 8.	ı]		1		44	
and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t	1	1	:			· · · · · · · · · · · · · · · · · · ·	
9 Additional regulator for Kantanagar	1	•		1		*	55.2
regulator (G-22 basin : 1 vents)		39	5 38	40	15,010	15,800	30,81
a) Excavation for structure	m3	. ~	6 209	1,194	1,254	7,164	8,41
b) Base gravel	m3		- 1	1,124	1,468	2,248	3,7
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	m3	I	- 4	3,238	141,540	271,824	413,34
	m3		1,685		111,540	116,820	228,3
	ton	[6	8 16,900	17,700		4,488	10,8
e) Reinforcing bar	m3	1	4 1,589	1,122	6,356	13,464	32,5
f) Concrete tile (200 x 300 x 100)	m3		12 1,589	1,122	19,068	15,714	18,4
g) Concrete block (300 x 300 x 300)	m3		18 154	873	2,772		2,0
h) Brick chip	m m		23 44	48	1,012	1,058	16,6
n PVC drain pipe (D50,400 in length)	1		26 315	327	8,190	8,502	
n PVC water stop (200 in Width)	m		522,500	27,500	365,750	19,250	385,0
k) Steel slide gate (1.9m x 1.8m)	ton		82 1,021	128	83,722	10,496	94,2
n Steel nine hand fail	III)		60 782	1,032	46,920	61,920	108,8
m) RC-precast concrete pile (400 x 400)	m			235	2,507	5,405	7,8
n) Pavement (brick)	m2	1	23 109	200	. :		
o) Dewatering works	L.S.		i		807,109	554,153	1,361,3
Total of item 9.			1	1	001,100		
Tom of twin	1			Į	*		
A Land Free Disease MOV		i	} .	1	and the first		
10 Additional regulator for Bhangamor				: 1		22,160	43,
North regulator (G-23 basin : 2 vents)	m3	. 1	554 38	40	21,052		14,
a) Excavation for structure	m3		10 209	1,194	2,090	11,940	
b) Base gravel	mS		3 734	1,124	2,202	3,372	5,
c) Lean concrete		1	106 1,685	3,238	178,610	343,016	521,
d) Structural concrete	má tor	1	8.2 16,900	17,700	138,580	145,140	283
A Dainforcing bal	tor	· •	4 1,589		6,356	4,488	10
200 x 300 x 100	. m				34,958	24,684	59
- 1. Mark (2000 x 300) X 300)	l m		22 1,589		2,926	16,587	19
and the best of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract o	l m	3	19 154		1,056	1,104	2
h) Brick chip	m		24 44			9,810	19
n) PVC drain pipe (050,400 in length)	n l	1	30 315		9,450	38,500	770
n DUC water stop (200 in Width)	to		1.4 522,500		731,500	- 4 550	103
A Steel slide gate (1.9m x 1.6m)	"		90 1,021	128	91,890		
n. t in hand fall		5	90 782		70,380		163
n) RC-precast concrete pile (400 x 400)	. _		27 109		2,943		٤
	m	1 .	- .~~		1		
	i Li	S.	1		1,293,993	731,546	2,025
o) Dewatering works							

Table 7.7 CONSTRUCTION COST OF GHAGOT RIVER (4/10)

			Unit H	ale I	The second second second second	nual + mechanica Amount	
Work Items	Unit	Quantity	F/C	TI/C	F/C	LXC	Total
TOOK INSTITUTE	V		(IK.)	(ik)	(TK.)	. (TK.)	(nc)
New regulator regulator (Outlet of				Ì			
Barnondanga Beel ; 1 vent)	İ		38	40	12,084	12,720	24,804
a) Excavation for structure	m3	318 8	209	1,194	1,254	7,184	8,418
b) Base gravel	m3	2	734	1,124	1,468	2,248	3,716
c) Lean concrete	m3	68 68	1,685	3,236	144,910	276,296	423,200
d) Structural concrete	m3	6.6	18,900	17,700	111,540	118,820	228,360
e) Reinforcing ber	ton m3	3	1,589	1,122	4,767	3,366	8,133
f) Concrete title (200 x 300 x 100)	m3	12	1,589	1,122	19,068	13,464	32,532
g) Concrete block (300 x 300 x 300)	m3	18	154	873	2,772	15,714	18,486
h) Brick chip	i 1	23	44	48	1,012	1,058	2,070
i) PVC drain plpe (D50,400 in length)	m i	26	315	327	6,190	8,502	16,692
) PVC water stop (200 in width)	ton	0.7	522,500	27,500	365,750	19,250	385,000
k) Steel slide gate (1.9m x 1.8m) n Steel pipe hand rail	m	82	1,021	128	83,722	10,498	94,218
Steel pipe hand rail PC-precast concrete pile (400 x 400)	m	60	782	1,032	48,920	61,920	100,840
n) Pavement (brick)	m2	23	109	235	2,507	5,405	7,912
o) Dewatering works	LS.			ì		:	1,362,387
Total of Item 11.				ļ	805,964	556,423	1,362,307
12 New regulator regulator (G-28				1			1
basin : 2 vents)			200	40	22,344	23,520	45,864
a) Excavation for structure	m3	588	38	1,194	2,090	11,940	14,030
b) Base gravel	m3	10	734	1,124	2,202	3,372	5,574
c) Lean concrete	m3	3	1,685	3,238	178,810	343,016	521,626
d) Structural concrete	m3	106	16,900	17,700	140,270	148,910	287,180
e) Reinforcing bar	ton	6.3		1,122	6,358	4,488	10,844
f) Concrete tile (200 x 300 x 100)	m3	4	1,589	1,122	34,958	24,684	59,842
g) Concrete block (300 x 300 x 300)	m3	22	154	873	3,080	17,460	20,540
h) Brick chip	m3	24	44	48	1,056	1,104	2,160
i) PVC drain pipe (D50,400 in length)	m	· F	1	327	8,450	9,810	19,260
j) PVC water stop (200 in width)	m	30		27,500	731,500	38,500	770,000
k) Steel slide gate (1.9m x 1.6m)	ton	1,4		126	91,890	11,520	103,410
n Steel pipe hand rail	m	1 80		1,032	70,380	92,880	163,260
m) RC-precast concrete pile (400 x 400)	m	27		235	2,943	6,345	9,288
n) Pavement (brick)	m2	•	1		-,-		
Dewatering works Total of item 12.	LS.	'			1,297,129	735,549	2,032,678
	1	1					
13 New regulator on the Alai (1 vent)	1 .	395	38	40	15,010	15,800	30,810
a) Excavation for structure	m3	386		1 194	1,254	7,164	8,418
b) Base gravei	m3		1 .	1,124	1,488	2,248	3,718
c) Lean concrete	m3	23	_	3,236	395,975	780,460	1,156,435
d) Structural concrete	m3	15.		17,700	255,190	267,270	522,480
e) Reinforcing bar	ton			1,122	11,123	7,654	18,977
n Concrete ble (200 x 300 x 100)	m3	1			19,068	13,484	32,53
g) Concrete block (300 x 300 x 300)	m3				9,548	54,126	63,67
h) Brick chip	m3	6		1 1	2,904	3,036	5,94
i) PVC drain pipe (050,400 in length)	m m	5	-		18,380	17,004	33,38
) PVC water stop (200 in width)	ton	o.	_		365,750	19,250	385,00
k) Steel slide gate (1.9m x 1.6m)		12			122,520	15,360	137,88
Steel pipe hand rail	m	6			46,920	61,920	108,84
m) PC-precast concrete pile (400 x 400) n) Pavement (brick)	m2	4	· .		4,796	10,340	15,13
o) Dewatering works Total of Item 13.	L.S.			-	1,267,906	1,255,298	2,523,20
			ĺ		19,938,359	12,973,823	32,912,18
Total of Item C.				1			
D. Sluiceway including drain ditch and approach chann	iel	1		. :			
1. Ghagot Left Embankment	1	1		A 1			
1 0.0 km to 25.0 km : 2 nos.	m3	4,59			174,420	183,600	358,0
a) Excavation	m3		4 20		3,010	17,194	20,2
b) Base Grave!	m3	1	5 73-		3,984	6,070	10,0
c) Lean Concrete	m3	j (37 1,73		115,418	230,638	346,0
d) Structural Concrete	ton	6	3 16,900		106,470	111,510	217.9
e) Reinforcing Bar	m3	.	5 1,58		8,581	6,059	14.6
f) Concrete Tile (200 x 300 x 100)	m3	1	11 1,58		17,161	12,118	29,2
g) Concrete Block (300 x 300 x 300)	m3		4 15		554	3,143	3,6
h) Brick Chip	m		9 4		396	414	6
i) PVC Drain Pipe(D50,400 in length)	m		32 31	5 327	10,208	10,595	20,8
) PVC Water Stop (200 in width)	ton		0.6 522,50	0 27,500	313,500	16,500	330,0
k) Steel Flap Gate (1.2m x 1.2m)	L.S.		1				:
n Dawatering Works		1.	- 1		753,679	597,837	1,351,

Table 7.7 CONSTRUCTION COST OF GHAGOT RIVER (5/10)

200				Unit	alo		Amount	
	Work Items	Unit	Quantily	F/C	I/C	F/C (TK)	(rk.)	Total (TIC)
2 2	25.0 km to 43.0 km ; 3 nos.			(TK.)	(IK)	1107		
	a) Excevation	m3	5,100	38	40	193,800	204,000	397,8
	b) Base Gravel	m3	15	209	1,194	3,344	19,104	22,4
	c) Lean Concrete	m3	. 6	734	1,124	4,404	6.744	11,1
	d) Structural Concrete	m3	. 74	1,733	3,463	128,242	256,262	384,5
	e) Reinforcing Bar	ton	10.5	16,900	17,700	177,450	185,850	383,3
	f) Concrete Tile (200 x 300 x 100)	m3	. 8	1,589	1,122	9,534	6,732	16,2 32,5
	g) Concrete Block (300 x 300 x 300)	m3 ·	12	1,589	1,122	18,063	13,484 3,492	4,1
	h) Brick Chip	Em.	4	154	873	816 440	460	-
	i) PVC Drain Pipe (D50,400 in length)	w	10	44	46	11,340	11,772	23,1
) PVC Water Stop (200 in width)	m	38	315	327	470,250	24,750	495,0
	k) Steel Flap Gate (1.2m x 1.2m)	ton	0.9	522,500	27,500	410,230	2-,,,,,	1.1
	l) Dewatering Works Total of Item 2.	L.S.			İ	1,018,488	732,630	1,751,
					į		4.	
3	43.0 km to 75.9 km : 8 nos.		9,308	38	40	353,685	372,300	725,8
	a) Excavation	m3 ·	29	209	1,194	8,103	34,865	40,8
	b) Base Gravei	m3 .	11	734	1,124	8,037	12,308	20,
	c) Lean Concrete	m3 m3	135	1,733	3,463	234,042	487,678	701,
	d) Structural Concrete	ton	12.8	16,900	17,700	215,898	226,118	442,
	e) Reinforcing Bar f) Concrete Tite (200 x 300 x 100)	m3	11	1,589	1,122	17,400	12,286	29,
		m3	22	1,589	1 122	34,799	24,572	59,
•	g) Concrete Block (300 x 300 x 300) h) Brick Chip	m3	. 7	154	873	1,124	6,373	7,
	i) PVC Drain Pipe(D50,400 in length)	m	18	44	46	803	840	1,
) PVC Water Stop (200 in width)	m	66	315	327	20,698	21,484	42,
	k) Steel Flap Gate (1.2m x 1.2m)	ton	2.4	522,500	27,500	1,254,000	66,000	1,320,
	l) Dewatering Works	L.S.		l '				
	Total of Item 3.					2,148,588	1,244,622	3,391,
Back	k-water embankment on the right bank				4.74.			
	0.0 km to 32.7 km : 11 nos.				100			
	a) Excavation	m3	13,515	36	40	513,570	540,600	1,054,
	b) Base Gravel	m3	42	209	1,194	8,862	50,626	59,
	c) Lean Concrete	m3	18	734	1,124	11,671	17,872	29,
	d) Structural Concrete	m3	196	1,733	3,463	339,841	679,094	1,018,
	e) Reinforcing Bar	ton	18.6	16,900	17,700	313,495	328,335	641, 43,
	f) Concrete Tile (200 x 300 x 100)	m3 .	16	1,589	1,122	25,265	17,840 35,680	88,
	g) Concrete Block (300 x 300 x 300)	m3	32	1,589	1,122	50,530	9,254	10,
	h) Brick Chip	m3	11	154	973 48	1,632 1,166	1,219	2,
	i) PVC Drain Pipe(D50,400 in length)	m .	. 27	44 315	327	30,051	31,196	61,
	j) PVC Water Stop (200 in width)	m	95 3.0	522,500	27,500	1,587,500	82,500	1,650,
	k) Steel Flap Gate (1.2m x 1.2m)	ton	3.0	322,300	27,500	1,557,550	02,000	.,050,
	n Dewatering Works	LS.		1		2,863,583	1,794,215	4,657,
	Total of item 1.					6,000,000		
	Total of Item D.			1		6,782,336	4,389,504	11,151,
	d baldes at Calbandha		and the second					
	d bridge at Galbandha	m3	321	38	40	12,198	12,840	25,
	avation - Gravel	m3	27	209	1,194	5,643	32,238	37,
-	a Gravel n Concrete	m3	14	734	1,124	10,276	15,738	26,
	n Concrete	m3	. 560	1,568	2,674.	876,960	1,497,440	2,374
		ton	48	16,900	17,700	777,400	814,200	1,591
5 Hela 6 Con	nforcing Bar Increts Tile(200*300*100)	m3	60	1,589	1,122	95,340	67,320	182
7 Con	ncrate Block(300°300°300)		90	1,589	1,122	143,010	100,980	243
	k Chip	m3 .	30	154	873	4,620	26,190	30
	Orain Pipe(050,400 in length)	m	12	44	.48	528	552	1
O Turi	fing	m2	1,400		5	104.040	7,000	1,124
1 BC	Precast Concrete Pile (400*400)	m ·	620	782	1,032	484,840	639,840	5,953
	t Tention PC- Girder(23m span)	. eon	12	240,345	255,780	2,884,140	3,069,360 872,763	2,008
	hait Pavement	m2	1,853		471 999	1,135,889 35,526	185,814	221
	e coarse	m3	188		1,585	392,448	44,380	436
	ension Joint	m.	28	1	1,254	260,496	30,096	290
18 Rut	ber Bearing Shoe	nos.	24	1	1,048	2,596	2,096	4
17 Joir	nt Filler(Asphalt)	m3	222			48,720	110,432	15€
in Col	hale Stone for Footing Cover	m3	232	""	4/0	215,119	225,878	440
19 Mie	cellaneous (3 % of total of items (1) to (18))		1	1		2.15,110	220,010	
	exhoW gnhetaw	L.S.						
	Total of Item E.				400	7,385,749	7,755,155	15,140
		1	1					204 504
	al Construction Cost of Ghagot River (Items A to E)	1	1 11 1	.1	2.5	217,087,544	147,474,882	364,562

Table 7.7 CONSTRUCTION COST OF GHAGOT RIVER (6/10)

							Amount	(manual)
			Unit	iata L/C		F/C	LC	Total
Work Items	Unit :	Quantity	F/C (IK)	(IK)		(K)	(uc)	(UK)
Flood Embankment			·					
Ghanot Left Embankment	ļ		İ					4,923,900
1 Back-water embankment (0.0 km to 25.0 km)	m2	547,100	0	8		0	4,923,900	27,768,300
a) Stripping	m3	402,700	Ö	69		0	27,788,300	2,487,500
b) Embankment	m2	483,500		5		0	2,487,500	1,876,600
c) Turling	m3	20,200	81	22		,232,200	444,400 25,119,600	29,475,600
d) Jute bag embankment	m3	48,400	80	519) 1	4,356,000		35,177,700
e) Sand drain	1163		i .		1	0	35,177,700	<u> </u>
Total of Item 1.	1		l		1			
			1		1			
2 Resectioning/heightening of the existing			1		1	•	2,615,400	2,615,400
embankment (25.0 km to 43.0 km)	m2	290,600				0	7,066,300	7,086,300
a) Stripping	m3	102,700		6		Ö	829,000	629,000
b) Embankment	m2	185,800	0		5	ő	10,530,700	10,530,700
c) Turfing Total of item 2.					j	•	·-•·	
				•	1			
3 Extention of the existing Left embankment (43.0	٠.				ļ		* *** 000	3,417,300
km to 75.9 km)	m2	379,700) 0		9	ō	3,417,300 12,454,500	12,454,500
a) Stripping	m2 m3	180,500		, 6	99	.0	1,532,000	1,532,000
b) Embankment	m3 m2	306,400)	5	0	17,403,800	17,403,800
c) Turing	, " <u>«</u>	1	1		- 1	0	11,400,000	
Total of Item 3.					1			
		11			١		7.	
Ghagot Right Embankment 1 Back-water embankment on the right bank (32.7 k	1		1		ا ا	. 0	4,104,000	4,104,000
	- m2	458,00	"		9	ŏ	59,478,000	59,478,000
a) Stripping	m3	862,00	~	-	69	ō	2,956,500	2,956,500
b) Embankment	m2	591,30	۱ (۱	0	5	. 0	68,538,500	86,538,500
c) Turfing Total of item 1.	1		ı		- 1			
1000		1	- 1			. 0	129,650,700	129,650,700
Total of Item A.		1 .						
	1		i .					
Piver channel excavation	1			_	48	0	10,359,200	10,359,200
Outfall of Ghgack (1.2 km)	m3	225,20	00	0	.90	•		
a) Excavation	1		1		1.		4.0	1.
vs	1			0	46	. 0	3,358,000	3,358,000
Galbandha (0.5 km)	m3	73,0	∞	U	**			
a) Excavation	1		1			0	13,717,200	13,717,200
Total of item 8.		. [- 1					
	1	- 1	- 1		- 1		-	
Regulator	1	1	- 1		- 1		18,170	18,171
1 New regulator (G-14-1 basin: 1 vent)	m3		395 [0 :	48	. 0	7,184	8,41
a) Excavation	m3	1 .	8 2		,194	1,254	2,248	3,71
b) Base gravel	m3	1	2 7		,124	1,468	495,108	752,91
c) Lean concrete	m3	· 1	153 1,0		,236	257,805	191,160	373,68
d) Structural concrete	ton	1			,700	182,520	8,976	21,88
a) Development hat	m3				,122	12,712	13,464	32,53
6 Canada Sia (200 x 300 x 100)	m3	1			1,122	19,068	39,285	46,21
d) Concrete block (300 x 300 x 300)	m3	1		154	973	6,930	1,840	
n n t-tbio	m	1	40	44	45	1,780	13,080	25.00
a CANC design Dice (LCC), CCC Hi margary	III.	- 1		315	327	12,600	40.050	
v Dritt mater aton (500 til month)	ton	1	0.7 522,		7,500	365,750	40.403	
A Steel silde gate (1.8m x 1.0m)	m	1		021	128	105,163	** **	
a su staton bend rad	m		60		1,032	46,920		
m) AC-precast concrete pile (acc) x 4007	m2	: 1	34	109	235	3,706	, ,,,,,,	
n) Pavement (brick)	LS		1	:	- 1	1,017,650	892,83	1,910,4
o) Dewatering works Total of Item 1.						1,017,000		
COZE OF ROM			1	٠.				
2 New regulator (G-14-2 basin : 11 vents)	4 .		ا مور	0	48	•	91,26	
	m ²		1,984	200	1,194	10,45	58,70	
a) Excavation for structure	ma		50 17	734	1,124	12,47	B 19,10	
b) Base gravel	m			1,685	3,236	810,48	გ 1,55 8 ,51	
c) Lean concrete d) Structural concrete	l ms				17,700	835,44	0 985,52	
nulusaming har	l to			1,569	1,122	11,12	3 7,85	
e) Reinforcing bar f) Concrete tile (200 x 300 x 100)	100			1,589	1,122	179,55	7 128,76	
	l m	. 1	62	154	873	9,54	8 64.1	
l /	m	1	67	44	48	2,94	is 3,0	
h) Brick chip p PVC drain pipe (060,400 in length)	1 1	1	84	315	327	26,4	27,4	
D bAC dual to bibs (months)				2,500	27,500	4,023,2	30 211,7	
PORT IN THE PROPERTY.	1 te	xn i			128	189,9	₀₆ 23,8	
n case water etho (200 in second		· •						
N Steel sikle gate (1.9m x 1.6m)	1 1	m	186	1,021		281,5	20 371,5	
N Steel sikle gate (1.9m x 1.6m)	ſ	m	360	782	1,032	281,5 6,7		
p PVC water stop (200 in word)	r r		. 1					03 27

Table 7.7 CONSTRUCTION COST OF GHAGOT RIVER (7/10)

							(manual)
			Unit H	110		Amount	Total
Work Kema	Unit	Quantity	F/C	L/C	FIC (TK)	(LK)	(TIC)
41.0			(IK)	<u>_(K)</u>	(1/2)		
New regulator (G-15 beain : 2 vents)		***	. 0	48	0	25,484	25,484
a) Excavation for structure	m3	554	209	1,194	2,090	11,940	14,030
b) Base gravel	m3	10		1,124	2,202	3,372	5,574
c) Lean concrete	m3	3	734	3,236	235,900	453,040	688,840
d) Structural concrete	m3	140	1,685		177,450	185,850	383,300
e) Flainforcing bar	ton	10.5	16,900	17,700	12,712	8,976	21,689
	m3	8	1,589	1,122		24,684	59,642
	m3	22	1,589	1,122	34,958	27,083	31,837
	m3	31	154	873	4,774	1,658	3,240
h) Brick chip	m	38	44	. 48	1,584	12,069	23,754
f) PVC drain pipe (D50,400 in length)	m	37	315	327	11,655		770,000
D PVC water stop (200 in width)	ton	1.4	522,500	27,500	731,500	38,500	113,751
k) Steel silde gate (1.9m x 1.6m)	1	99	1,021	128	101,079	12,672	163,260
Steel pipe hand rall	m .	90	782	1,032	70,380	92,880	
m) RC-precast concrete pile (400 x 400)	m n	33	109	235	3,488	7,520	11,000
n) Pavement (oriclo	m2	35	"		1.0		
o) Devratering works	j LS.	1	1	i	1,369,772	905,736	2,295,508
Total of item 3.	1	1	ļ	1	110401		
	Į.	ļ		. 1			
Additional regulator for South Gagos	1	1		1			
regulator (G-16-1 basin : 1 vents)	1		_ ا	48	0	18,170	18,170
a) Excavation for structure	m3	395			1,254	7,164	8,418
	m3	•		1,194	1,468	2,248	3,718
	m3		L	1,124	289,800	517,760	787,360
c) Lean concrete	m3	160		3,236		196,470	384,060
d) Structural concrete	ton	11.	16,900	17,700	187,590		21,685
e) Reinforcing bar	m3	1 4	1,569	1,122	12,712	8,976	32,532
f) Concrete tile (200 x 300 x 100)	m3	1:	2 1,589	1,122	19,088	13,484	42,107
g) Concrete block (300 x 300 x 300)		4		873	8,314	35,793	
h) Brick chip	m3	1 4		46	2,024	2,116	4,140
i) PVC drain pipe (050,400 in length)	[m	1	- 1	327	12,915	13,407	26,322
p PVC water stop (200 in width)	m	1			365,750	19,250	385,000
	ton	0.		*	106,184	13,312	119,490
	m	. 10	1		48,920	61,920	109,844
Steel pipe hand rail PC-precast concrete pile (400 x 400)	m	<u> </u>	ł.			8,225	12,04
	. l m2] 3	5 109	235	3,815		
n) Pavement (brick)	LS.	1	ļ			918,275	1,953,68
o) Devratering works			1		1,035,614	\$10,213	.,
Total of item 4.	1	1	,			•	
	1	i .			}		
5 New regulator regulator (G-16-2	1	1	1		1		18,17
basin : 1 vents)		1 ~	e5 (48	0	18,170	
a) Excavation for structure	m3		8 200		1,254	7,184	8,41
b) Base gravel	m3	1	2 73			2,248	3,71
	m3			_'		310,656	472,41
the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	m3					129,210	252,58
	ton	4	.3 18,90		1	7,854	15,97
e) Reinforcing Day	m3		7 1,58			13,464	32,53
f) Concrete tile (200 x 300 x 100)	m3		12 1,58		1	20,952	24,64
g) Concrete block (300 x 300 x 300)	m3		24 15			1,334	2,6
h) Brick chip	m	· 1	29 4			9,158	17,9
n PVC drain pipe (050,400 in length)	m	*	28 31		1		385,0
n PVC water stop (200 in width)	ton		0.7 522,50	0 27,500		19,250	98,8
k) Steel slide gate (1.9m x 1.6m)			88 1,02			11,008	
n Steel rine hand fall	m	_ [·	60 76		46,920	61,920	108,8
	m	1	25 10			5,875	8,6
	m2	ł	" ا"				
n) Pavament (brick) o) Dewatering works	LS.	1			835,036	618,261	1,453,2
Total of Sen 5.	1	1			1		
1200	l	ļ	1				
a a minute of an entire for Characters	1	1 .			. [
6 Additional regulator for Bheramara	ł	1		o · •	а о	18,170	18,
regulator (G-17 basin : 1 vents)	m3	1	- 1		~.1	7,164	8,
a) Excavation for structure	m3	1	- 1	09 1,19			3,
b) Base gravel	m3		2 7	34 1,12			713
c) Lean concrete	m3	1	145 1,6				356
d) Structural concrete	ton		10.3 18,8	00 17,70			21,
at Deinforming bef			B 1,5		22 12,712		
A Concrete tile (200 x 300 x 100)	m3	1		89 1,12			32,
	m3	t			73 5,852		. 39,
g) Concrete Diack (and known and known	m3	1	[48 1,848		3,
h) Brick chip	ែក		42				25
h) PVC drain pipe (D60,400 in length)	l m	1	1		,		385
V DAG major 8500 (500 jt Milder)	tor	l l	0.7 522,				114
in Steel slide gate (1.9m x 1.5m)		1			28 102,100		108
ry	j m			782 1,0			11
						7,755	11
	: m			109 2	35 3,59	, ,,,,,,	
Steel pipe hand rail BC-precast concrete pile (400 x 400) Pavement (orlci4)	m ma LS	2		109 2	35 3,59	9 851,136	

Table 7.7 CONSTRUCTION COST OF GHAGOT RIVER (8/10)

				-	Dnit 19	Gla T		Amount	aunam)
Work Items		Unit	Quant	ity	F/C	L/C	F/C	L/C	Total
New recolutes and the 10 agree			·		(TK)	(TK.)	(TK.)	<u>(IK.)</u>	(TK.)
New regulator regulator (G-18/19 basin ; 3 yents)	1					1.			
a) Excavation for approach channel	ĺ	m3		5,600	0	48	0	257,600	257,60
b) Excavation for structure		m3	1.	713	e O	46	, · · · · · ·	32,799	32,79
c) Base gravel	i	Em.		14	209	1,194	2,926	16,716	19,84
d) Lean concrete		m3		5	734	1,124	3,670	5,620	9,29
e) Structural concrete	1	m3		135	1,685	3,236	227,475	438,860	684,33
f) Reinforcing bar		ton	1	10.4	16,900	17,700	175,760	184,080	359,84
g) Concrete tile (200 x 300 x 100)		m3	•	- 6	1,569	1,122	9,534	8,732	16,26
h) Concrete block (300 x 300 x 300)		m3	1	32	1,589	1,122	50,848	35,904	60,75 25,67
i) Brick chip	- 1	m3		25	154	873	3,850	21,825	2,61
j) PVC drain pipe (D50,400 in length)	1	m :		29	44	48	1,278	1,334	21,82
k) PVC water stop (200 in width)		m		34	315	327	10,710	11,118 57,750	1,155,00
l) Steel stide gate (1.9m x 1.6m)		ton -	i .	2.1	522,500	27,500	1,097,250	12,672	113.75
m) Steel pipe hand rail		w.		99	1,021	128	101,079	123,840	217,68
n) RC-precast concrete pile (400 x 400)	- 1	m		120	782	1,032	3,488	7,520	11,00
o) Pavement (brick)		m2		32	109	233	3,400	1,000	
p) Dewatering works	1	L.S.	1	1		į	1,781,706	1,212,369	2,994,07
Total of Item 7.						- !	1,101,100	1/2 12,000	2,00 .,0
Name and the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control				1	1.	8		11	
New regulator regulator (G-21					6 - C			1.	
basin : 1 vents)		***		395	0	48	0	18,170	18,1
a) Excavation for structure	- 1	m3	1	393	209	1,194	1,254	7,164	8,4
b) Base gravel	1	m3	1	2	734	1,124	1,468	2,248	3,7
c) Lean concrete		m3		86	1,685	3,236	144,910	278,296	423,2
d) Structural concrete		m3		6.7	18,900	17,700	113,230	118,590	231,8
e) Reinforcing bar		ton		. 6	1,589	1,122	9,534	6.732	16,2
f) Concrete tile (200 x 300 x 100)		m3 3	İ	12	1,589	1,122	19,068	13 484	32,5
g) Concrete block (300 x 300 x 300)	- 1	m3	1	21	154	873	3,234	18,333	21,5
h) Brick chip		m3 m		28	44	48	1,144	1,196	2,3
i) PVC drain pipe (050,400 in length)		m		26	315	327	8,190	8,502	16,6
j) PVC water stop (200 in width)				0.7	522,500	27,500	365,750	19,250	385,0
k) Steel slide gate (1.9m x 1.6m)		ton	İ	83	1,021	128	84,743	10,624	95,3
f) Steel pipe hand rail		m m	ĺ	60	782	1,032	46,920	61,920	108,8
m) RC-precast concrete pile (400 x 400)		m.		23	109	235	2,507	5,405	7,9
n) Pavement (brick)		m2 LS.		23	100	200	2,00.	٥,٠٠٠	•
 o) Dewatering works Total of Item 8. 		LJ.	İ				801,952	569,894	1,371,8
			ŀ						
Additional regulator for Kantanagar									
regulator (G-22 basin : 1 vents)		_					0	18,170	18,1
Excavation for structure	1	m3	1	395	0	46		7,184	8,4
b) Basa gravel		m3		6	209	1,194	1,254	2,248	3,7
c) Lean concrete		m3		2	734	1,124	1,468	271,824	413,3
d) Structural concrete		m3	1	84	1,685	3,236	141,540	116,820	228,3
e) Reinforcing bar		ton	ł	6.6	16,900	17,700	111,540	4,488	10,8
f) Concrete tile (200 x 300 x 100)	i	m3		4.	1,589	1,122	6,358	13,464	32,5
g) Concrete block (300 x 300 x 300)		m3	1	12	1,589	1,122	19,068	15,714	18,4
h) Brick chip		m3	1	18	154	873	2,772		2,0
i) PVC drain pipe (D50,400 in length)		m	Ī	23	44	46	1,012	1,058 8,502	16,6
j) PVC water stop (200 in width)		m	1	26	315	327	8,190	19,250	385,0
k) Steel slide gate (1.9m x 1.6m)		ton .	1	0.7	522,500	27,500	365,750	10,496	94,2
i) Steel pipe hand teil		m	1	82	1,021	128	83,722 46,920	61,920	108,8
m) PC-precast concrete pile (400 x 400)		m _.		60	782	• •	i '	- 5,405	7,9
n) Pavement (brick)		m2		23	109	235	2,507	5,405	1,9
o) Dewatering works		L.S.			1		792,099	556,523	1,348,6
Total of Item 9.		I	1		ĺ		125,023	3,00,323	.,
A statistical consideration Changemen			1						:
Additional regulator for Bhangamor		1 2 2 2	1		1				
North regulator (G-23 basin : 2 vents)		m3	1	554	. 0	46	0	25,484	25.4
a) Excavation for structure		m3	1	10	209	1,194	2,090	11,940	14,0
b) Base gravel		т3		3	734	1 124	2,202	3,372	5,5
c) Lean concrete		m3		106	1,685	3,236	178,610	343,016	521,0
d) Structural concrete e) Reinforcing bar		ton		8.2	16,900	17,700	138,580	145,140	283,
		m3	1	4	1,589	1,122	6,356	4,488	10,8
		m3		22	1,589	1,122	34,958	24,684	59,6
f) Concrete tile (200 x 300 x 100)		m3		19	154	873	2,926	18,587	19,
f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300)		1		24	44	46	1,056	1,104	2,
f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip		_			315	327	9,450	9,810	19,
f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip i) PVC drain pipe (050,400 in length)		n n		30					
Concrete tile (200 x 300 x 100) Concrete block (300 x 300 x 300) Brick chip PVC drain pipe (050,400 in length) PVC water stop (200 in width)		m		30 1 4	1		* * * * * * * * * * * * * * * * * * * *		770.
f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip f) PVC drain pipe (050,400 in length) f) PVC water stop (200 in width) k) Steel slide gate (1.9m x 1.6m)		m ton		1.4	522,500	27,500	731,500	38,500	
f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip j) PVC drain pipe (050,400 in length) j) PVC water stop (200 in width) k) Steel slide gate (1.9m x 1.6m) l) Steel pipe hand rail		m ton m		1.4 90	522,500 1,021	27,500 128	731,500 91,890	38,500 11,520	770,0 103,- 163.:
f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip j) PVC drain pipe (050,400 in length) j) PVC water stop (200 in width) k) Steel slide gate (1.9m x 1.6m) j) Steel pipe hand rail m) RC-precast concrete pile (400 x 400)		m ton m m		1.4 90 90	522,500 1,021 782	27,500 128 1,032	731,500 91,890 70,380	38,500 11,520 92,880	103, 163,
f) Concrete tile (200 x 300 x 100) g) Concrete block (300 x 300 x 300) h) Brick chip j) PVC drain pipe (050,400 in length) j) PVC water stop (200 in width) k) Steel slide gate (1.9m x 1.6m) l) Steel pipe hand rail		m ton m		1.4 90	522,500 1,021	27,500 128	731,500 91,890	38,500 11,520	103,

Table 7.7 CONSTRUCTION COST OF GHAGOT RIVER (9/10)

			Unit	GIA T		Amount	STATE OF TAXABLE
Work Items	Unit	Quantity	F/C	1/0	F/C	L/C	Total
TTOIX ILENIA	Unit	Guaridity	(IK)	(TK.)	(TIC)	(TK.)	(TK.)
11 New regulator regulator (Outlet of							
Bamondanga Beél : 1 vent)		11.0				14	4 4 000
a) Excavation for structure	m3	318	0	48	0	14,628	14,628
b) Base gravel	cm	. 6	209	1,194	1,254	7,164	8,416
c) Lean concrete	Em.	. 2	734	1,124	1,468	2,248	3,716
d) Structural concrete	· m3	86	1,685	3,238	144,910	278,298	423,206
e) Reinforcing bar	ton	8.6	18,900	17,700	111,540	116,820	228,360 8,130
f) Concrete tile (200 x 300 x 100)	m3	3	1,589	1,122	4,767	3,388	
g) Concrete block (300 x 300 x 300)	Em	12	1,589	1,122	19,068	13,484	32,533 18,486
h) Brick chip	m3	18	154	873	2,772	15,714	2,079
i) PVC drain pipe (050,400 In length)	m .	23	44	46	1,012	1,058	16,69
j) PVC water stop (200 in width)	m l	. 26	315	327	8,190	8,502	385.00
k) Steel slide gate (1.9m x 1.6m)	ton	0.7	522,500	27,500	365,750	19,250	94,21
i) Steel pipe hand rail	m	62	1,021	128	83,722	10,496 61,920	108,84
m) RC-precast concrete pile (400 x 400)	m	60	782	1,032	46,920	5,405	7,91
n) Pavement (brick)	m2	23	109	235	2,507	5,405	1,91
o) Dewatering works	LS.			j	700 000	550 331	1,352,21
Total of Item 11.					793,880	558,331	1,002,21
			4.	1			
12 New regulator regulator (G-26			1		-		
basin : 2 vents)						01.040	27,04
a) Excavation for structure	m3	588	0	46	0	27,048 11,940	14,03
b) Base gravel	m3	10	209	1,194	2,090	3,372	5,57
c) Lean concrete	m3	3	734	1,124	2,202		521,62
d) Structural concrete	- m3	106	1,685	3,236	178,610	343,016	287,18
e) Reinforcing bar	ton	8.3	16,900	17,700	140,270	148,910	
f) Concrete tile (200 x 300 x 100)	m3	4	1,589	1,122	6,356	4,488	10,84
g) Concrete block (300 x 300 x 300)	m3	. 22	1,589	1,122	34,958	24,684	59,64
h) Brick chip	m3	20	154	873	3,080	17,460	20,54
i) PVC drain pipe (D50,400 in length)	m	24	44	46	1,056	1,104	2,16
j) PVC water stop (200 in width)	m ·	30	315	327	9,450	9,810	19,26
k) Steel stide gate (1.9m x 1.8m)	ton	1.4	522,500	27,500	731,500	38,500	770,00
Steel pipe hand rail	m	. 80	1,021	128	91,890	11,520	103,41
m) RC-precast concrete pile (400 x 400)	, m	90	782	1,032	70,380	92,880	163,26
n) Pavement (brick)	m2	27	109	235	2,943	6,345	9,20
o) Dewatering works	LS.						
Total of item 12.			1		1,274,785	739,077	2,013,86
the Marketine Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee of the Committee		l					
13 New regulator on the Alai (1 vent)		1	1".			4-4-20	•••
a) Excavation for structure	m3	395	0	48	Q	18,170	18,1
b) Base gravel	m3	6	209	1,194	1,254	7,184	8,4
c) Lean concrete	m3	2	734	1,124	1,468	2,248	3,7
d) Structural concrete	m3	235	1,685	3,236	395,975	760,460	1,156.4
s) Reinforcing bar	ton	15.1	16,900	17,700	255,190	267,270	522.4
f) Concrete tile (200 x 300 x 100)	m3	. 7	1,589	1,122	11,123	7,854	18,9
	m3	12	1,589	1,122	19,068	13,464	32.5
	m3	62	154	873	9,548	54,126	63,6
h) Brick chip i) PVC drain pipe (050,400 in length)	m	- 56	44	46	2,904	3,036	5,9
	m	52		327	16,380	17,004	33.3
j) PVC water stop (200 in width)	ton	0.7		27,500	365,750	19,250	385,0
k) Steel slide gate (1.9m x 1.6m)	, m	120		128	122,520	15,360	137,8
l) Steel pipe hand rail	m	60	1	1,032	46,920	61,920	108,8
m) RC-precast concrete pile (400 x 400)	m2	44		235	4,796	10,340	15,1
n) Pavement (brick)	L.S.	1					
o) Dewatering works	1				1,252,896	1,257,666	2,510,5
Total of Item 13.	l	1				:	
Total of item C.		1	1		19,441,471	13,052,279	32,493,7
Total of item C.			1				
Sluiceway including drain ditch and approach channel	1			٠.			
Silliceway including drain dilett and approach strains	· ·	1	1				
I. Ghagot Left Embankment	1 1	1	1				
1 0.0 km to 25.0 km : 2 nos.	m3	4,590) 0	46	0	211,140	211,
a) Excavation	m3	1			3,010	17,194	20,
b) Base Gravel	m3		734			6,070	10,
c) Lean Concrete	m3	6			The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	230 636	346
d) Structural Concrete	1	6.	1			111,510	217,
e) Reinforcing Bar	ton	F	1 589		1:	6,059	14,
f) Concrete Tile (200 x 300 x 100)	m3	1				12,118	29,
g) Concrete Block (300 x 300 x 300)	m3	1				3,143	3,
h) Brick Chip	m3		154			414	3,
n PVC Drain Pipe(050,400 in length)	m		9 44		3		20.
j) PVC Water Stop (200 in width)	: ISI	3			1	10,595	
k) Steel Flap Gate (1.2m x 1.2m)	ton	0.	B 522,500	27,500	313,500	16,500	330
a Hraba	LS	1	1			625,377	1,204
Dewatering works					579,259		

Table 7.7 CONSTRUCTION COST OF GHAGOT RIVER (10/10)

							Amount	(เกลกบลเ)
				Una Fe	L/C	F/O	L/C	Total
	Work Items	Unit	Quantity	F/C (TK.)	(ik)	(UK)	(IK)	(IK)
A 44 6 le	- to 12.0 less - 2							
	m to 43.0 km : 3 nes. Excevation	m3	5,100	0	48	. 0	234,600	234,600
		m3	. 18	: 200	1,194	3,344	19,104	22,448
	Base Gravel		6	734	1,124	4,404	6,744	11,148
c)	Lean Concrete	m3	74	1,733	3,483	128,242	268,262	384,504
ර)	Structural Concrete	m3			17,700	177,450	185,850	363,300
8)	Reinforcing Bar	ton	10.5	16,900		9,534	8,732	16,266
n	Concrets Tile (200 x 300 x 100)	m3	6	1,589	1,122		13,484	32,532
9)	Concrete Block (300 x 300 x 300)	m3	12	1,589	1,122	19,068	3,492	4,108
- h)	Brick Chip	m3	4	154	873	616		900
•	PVC Orain Pipe (050,400 in length)	m	10	44	46	440	480	
Ŋ		m	36	315	327	11,340	11,772	23,112
D	PVC Water Stop (200 in width)	1	0.9	522,500	27,500	470,250	24,750	495,000
k)	Steel Flap Gate (1.2m x 1.2m)	ton	. 0.0	LILLIAN I	,	•		100
Ŋ	Dewatering Works	L.S.			ļ.	824,688	763,230	1,587,918
	Total of item 2.	1				06-1000		
			•					
3 43.0 k	on to 75.9 km : 8 nos.	1		1	48	0	428,145	428,14
a)	Excavation	m3	9,308	0			34,965	40,988
b)	Base Gravel	m3	29	209	1,184	6,103		20,34
c)	Lean Concrete	m3	11	. 734	1,124	8,037	12,308	701,720
•		m3	135	1,733	3,483	234,042	467,678	
d)	Structural Concrete	ton	12.8	18,900	17,700	215,898	226,118	442,010
9)	Reinforcing Bar	m3	11	1,589	1,122	17,400	12,288	29,86
. 1)	Concrete Tile (200 x 300 x 100)		22	1.589	1,122	34,799	24,572	59,37
6)	Concrete Block (300 x 300 x 300)	m3			873	1,124	6,373	7,49
h)	Brick Chip	m3	7	154		803	840	1,84
Ŋ	PVC Drain Pipe (050,400 in length)	m	18	44	48		21,484	42 17
	PVC Water Stop (200 in width)	m	86	315	327	20,696		1,320,00
D		ton	2.4	522,500	27,500	1,254,000	66,000	1,020,00
k).	Steel Flap Gate (1.2m x 1.2m)	L.S.	1	1				1 2222
ŋ	Dewatering Works	L.S.	1 .	1		1,792,901	1,300,667	3,093,56
•	Total of Item 3.	1	1					**
		1		1				
	er embankment on the right bank	ļ	1		21	* +		1.
1 0.0 k	m to 32.7 km : 11 nos.	1		1	48	0	621,690	621,69
a)	Excavation	. m3	13,515			8,862	50,628	59,48
b)	Base Gravel	m3	42	2	1,194	Contract the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the c	•	29,54
•	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	m3	16	734	1,124	11,871	17,872	
c)	Lean Concrete	m3	195	1,733	3,483	339,841	679,094	1,018,83
ď)	Structural Concrete	1 .	18.6		17,700	313,495	328,335	841,83
e)	Reinforcing Bar	ton	16	1 -	1,122	25,265	17,840	43,10
ń	Concrete Tile (200 x 300 x 100)	m3	1		1,122	50,530	35,680	86,21
g)	Concrete Block (300 x 300 x 300)] m3	32			1,832	9.254	10,88
	Brick Chip	m3	11		873	•	1,219	2,38
. h)	PVC Drain Pipe (050, 400 in length)	m	27	44	48	1,168		61,24
Ď.	PAC DISTURBE COOL OF A HEIRY	m	1 90	315	327	30,051	31,198	
D	PVC Water Stop (200 in width)	ton	3.0	522,500	27,500	1,587,500	82,500	1,650,00
· kj	Steel Flap Gate (1.2m x 1.2m)							
Ð	Dewatering Works	LS.	· ·	1		2,350,013	1,875,305	4,225,31
	Total of item 1.	1	i	1			200	
		1	ł	1		5,548,851	4,584,578	10,111,4
	Total of Item D.	. i	1	1		0,010,051	• •-	4. 1
		1 .		1			2.7	1 1
Board hri	dge at Gaibandha						14,766	14,7
		m3	32				32,238	37,8
1 Excavall		m3	2	7 209		5,643		26,0
2 Base Gr		Em	1	4 734	1,124	10,276	15,738	
3 Lean Co		m3	56	0 1,566	2,874	876,960	1,497,440	2,374,4
4 Structure	el Concrete	i i	1 7			777,400	814,200	1,591,6
5 Reinford		ton				95,340	67,320	182,6
A C	a Tile(200*300*100)	Em :		0 1,589			100,960	243,8
6 Concret	a indepo www.iook	m3		0 1,589				30,6
	e Block(300*300*300)	m3	, 3	0 154	87 3		26,190	
8 Brick Ch	nip	m	1 1	2 44	48	528	552	1,0
9 PVC Da	ain Pipe(050,400 in length)	m2	1,40	-		. 0	7,000	7,0
on Turfing	and the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second o		8			1	639,840	1,124,6
11 PC PIN	cast Concrete Pile(400*400)	m	4	· ·			3,069,360	5,953
40 D	ntion PC-Girder(23m span)	nos.		2 240,34			872,763	2,008,
	Manual Co. Canada Prom F 1	m2	1,8				185,814	221,
	Pavement	m3	1 10	36 19		1		436,
14 Base 00	perse	m	1 :	28 14,01			44,380	
15 Expens	ion Joint	nos.		24 10,85		260,498	30,098	290,
16 Rubber	Bearing Shoe			2 1,29			2,096	4,
47 Inded Fil	(dadosálvali	m3	1 ^	32 21	-		110,432	159
	Ohama for English COME	m3	1 2	~ "	- 41	214,753	225,936	440
18 Cobble	aneous (3 % of total of items (1) to (18))	1		1		21-,700		
19 Miscell	FUEOra (3 28 or sover or source (4) 1.5%	LS.	I	1		1.		**:
20 Dewate	ring Works		k				1.2	
		1		1 .		7,373,185	7,757,139	15,130
:	Total of liem E.	1.	· 1					
							188,741,697	201,103

Table 7.8 CONSTRUCTION COST OF COMPARTMENTALISATION (1/2)

		e and a second	the state of the		and the second	AND SHAPE OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE P	anual + machanic Amount	
	Mitado Banas	Unit	Quantity	F/C	L/C	F/O	L/C	Total
	Work Items	VIIX	Guariary	(IK)	(TK)	(TK.)	(IK)	(TK.)
	**************************************					The second second second		
N×	w road embankment for compartmentalisation (8.3 km)			· .		4.00	77.7	
	1 Stripping	m3	53,000	: 11	- ব	583,000	212,000	795,000
	2 Excavation	m3	71,800	38	40	2,728,400	2,872,000	5,600,400
		m3	71,800	81	22	4,379,800	1,579,600	5,950,400
	3 Compaction and shaping		49,000	0	5	0	245,000	245,00
	4 Tuiling	m2		109	235	1,382,500	2,937,500	4,300,00
	5 Pavement(Brick)	m2	12,500	108	*35	9,053,700	7,846,100	18,899,80
	Total of Item A.				-	0,000,100	1,2 11,1	
Ck	osure of existing openings				ı			
- 1	i. By earth filling (7 places)					38,300	13,200	49,50
	1 Stripping	m3	3,300	11	. 4	243,200	256,000	499,20
	2 Excavation	m3	6,400	38	40		140,800	531,20
	3 Compaction and shaping	m3	8,400	81	22	390,400	15,000	15,00
	4 Turling	m3	3,000	0	5	0		1,094,90
	Total of item i.				1	669,900	425,000	1,004,00
	·				- 1	*		
1.1	ii. By provision of stuiceway with gates (5 places)				1		510,000	994,50
	1 Excavation	m3	12,750	. 38	40	484,500		50,12
	2 Base gravel	m3	40	209	1,194	8,360	47,760	
	3 Lean concrete	m3	15	734	1,124	11,010	16,860	27,87
	4 Structural concrete	m3	185	1,733	3,463	320,605	840,655	981,2
		ton	17.5	16,900	17,700	295,750	309,750	605,50
		m3	15	2,072	2,779	31,060	41,685	72,70
	8 Concrete tile (200 x 300 x 100)	m3	30	2,072	2,779	62,160	83,370	145,5
	7 Concrete block (300 x 300 x 300)		10	154	873	1,540	8,730	10,2
	8 Brick chip	m3		44	46	1,100	1,150	2,2
	8 PVC drain pipe (D50,400 in length)	m	25		327	28,350	28,430	57,78
	10 PVC water stop (200 in width)	m	90	315		1,587,500	82,500	1,650,00
	11 Steel flap gate (1.2m x 1.2m)	ton	3.0	522,500	27,500	1,067,000	02,000	.,,,,,
	12 Dewatering works	LS.		1	1		4 774 000	4,583,8
	Total of Rem II.	1	1		. 1	2,811,955	1,771,890	4,000,0
		i		1		5 404 6TF	2,198,890	5,678,7
	Total of Item B.			1		3,481,855	2, 180,080	0,0,0,
		i	1	ļ		4.5		4
P	rovision of Drain Pipe (450 places)	1	1	1	[407 500	450,000	877,5
	1 Excavation	m3	11,250	38	40	427,500		1,370,2
	2 Base sand	m3	2,250	60	519	202,500	1,187,750	362,2
	3 Backfill	m3	10,350		29	62,100	300,150	
	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	m3	900	694	1,508	624,600	1,355,400	1,960,0
		m	3,825	2,121	2,828	8,112,825	10,817,100	18,929,9
		m2	9,000	0	5	. 0	45,000	45,0
	8 Turfing	L.S.	1	1	1			
	7 Dewatering works	1		· ·	ì			
	w	1		1		9,429,525	14 135 400	23,584,9
	Total of item C.	1	1	1				
	and the second second	1	1	ł			N	
N	lew regulator (G-11 basin : 4 vents)		51,000	38	40	1,938,000	2,040,000	3,978,0
	a) Excavation for approach channel	m3	877		40	33,138	34,880	68,0
	b) Excavation for structure	m3		1	1,194	3,971	22,688	26,6
	c) Base gravel	m3	15			4,404	6,744	11,1
	d) Lean concrete	m3	1 .5		1,124	414,510	796,056	1,210,
	e) Structural concrete	m3	240		3,238		322,140	629,7
	f) Reinforcing ber	ton	16		17,700	307,580		21,6
		m3	1 1		1,122	12,712	8,976	
	g) Concrete the Court Story 100/	m3	44	1,589	1,122	66,738	47,124	113,1
	h) Concrete block (300 x 300 x 300)	Em	44	154	873	7,084	40,158	47,
	i) Brick chip	m	. 5	1 44	48	2,244	2,346	4.
	B PVC drain pipe (D50,400 in length)	m	5		327	17,010	17,658	34,
	k) PVC water stop (200 in width)		2.1	1		1,463,000	77,000	1,540,
	i) Steel sikle gate (1.9m x 1.6m)	. ton	12		128	130,688	16,364	147,
	m) Sheel nine hand rail	m				11,730	15,480	27,
	n) PiC-Precast concrete pile (400 x 400)	m	1			1	11,280	18,
		m2	4	8 109	235	5,232	11,200	
		LS.	1				A 470 040	7 070
	p) Dewatering works Total of item D.	i	i	1		4,418,039	3,458,912	7,878,
	Total or non ex	1	1	1				54,020,
						26,383,119	27,637,302	

Table 7.8 CONSTRUCTION COST OF COMPARTMENTALISATION (2/2)

	erinary was to the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the co		Unit H			Amount	(leunam)
	1 1	į.		L/C	F/C	UC	Total
Work Itema	Unit	Quantity	F/C (TK.)	(IK)	(UK)	(TIC)	(TK.)
			(11/2)	-1-2			
New road embankment for compartmentalisation (8.3 km)		ا در		1	100		
1 Stripping	m3	53,000	0	9	0	477,000	477,000
	m3	71,800	0	48	0	3,302,800	3,302,800
2 Excavation		71,800	. 0	23	. 0	1,651,400	1,051,400
3 Compaction and shaping	m3		. 0	5	Ö	245,000	245,000
4 Turling	_ m2	49,000			1,382,500	2,937,500	4,300,00
5 Pavement(Brick)	m2	12,500	109	235		8,613,700	9,978,20
Total of item A.					1,362,500	0,010,700	0,0,0,0
Closure of existing openings	1			l l			
I. By earth filling (7 places)	1 .	0000	0	9	. 0	29,700	29,70
1 Stripping	m3	3,300		48	Ö	284,400	294,40
2 Excavation	. m3	6,400	0		Ö	147,200	147,20
 Compaction and shaping 	m3	8,400	0	23	0 -	15,000	15,00
4 Turfing	m3	3,000	0	5		488,300	486,3
Total of Item i.					. 0	400,000	400,0
	Ì	i					
 By provision of sluiceway with gates (5 places) 				امد	C	586,500	586,56
1 Excavation	m3	12,750	0	46		47.760	58,1
2 Base gravel	m3	40	209	1,194	8,360	16,860	27,8
3 Lean concrete	m3	15	734	1,124	11,010		961,2
4 Structural concrete	m3	185	1,733	3,483	320,605	840,855	
5 Reinforcing ber	ton	17.5	16,900	17,700	295,750	309,750	605,5
the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract o	m3	15	2,072	2,779	31,080	41,665	72,7
B Concrete tile (200 x 300 x 100)	m3	30	2,072	2,779	62,160	83,370	145,5
 Concrete block (300 x 300 x 300) 		10	154	873	1,540	8,730	10,2
8 Brick chip	m3 .			48	1,100	1,150	2,2
9 PVC drain pipe (050,400 in length)	6 1	25	44		28,350	29,430	57,7
 PVC water stop (200 in width) 	· m	90	315	327		82,500	1,650,0
11 Steel flap gate (1.2m x 1.2m)	ton	3.0	522,500	27,500	1,587,500	82,000	1,000,0
12 Dowstering works	LS		<u> </u>	. 1		4 4 4 4 4 4 4 4	4,175,8
Total of Item II.			1		2,327,455	1,848,390	4,173,0
Total of item B.					2,327,455	2,334,690	4,682,1
		1 .					
Provision of Drain Pipe (450 places)		11,250	0	48	0	517,500	517,
i Excavation	m3		90	519	202,500	1,167,750	1,370,2
2 Bese sand	m3	2,250		29	62,100	300,150	362.
3 Backfill	Em.	10,350	6		524,800	1,355,400	1,980,0
4 Brick (200 x 100 x 50)	-m3	900		1,506			18,829,
5 RC-Precast pipe (D700) with collar	ÚJ.	3,825		2,828	8,112,825	10.817,100	
8 Turfing	m2	9,000	0	5	. 0	45,000	45,
7 Dewatering works	LS.	1	1			14.	A
/ Determing noise							
Total of Item C.		1	1		9,002,025	14,202,900	23,204,
			1.		1		100
New regulator (G-11 basin : 4 vents)		1			1	0.010.000	A 242
	m3	51,000		48	0	2,346,000	2,348,
	m3	872	0	48)	40,112	40,
b) Excavation for structure	m3	19	209	1,194	3,971	22,666	28,
c) Base gravel	m3			1,124	4,404	6,744	11,
d) Lean concrete	m3	246		3,238	414,510	798,058	1,210,
e) Structural concreta		18		17,700	307,580	322,140	629
f) Reinforcing bar	ton	ı	1 -	1,122	12,712	8,976	21
g) Concrete tile (200 x 300 x 100)	m3				66,738	47,124	113
h) Concrete block (300 x 300 x 300)	m3	4		1,122			47
i) Brick chip	m3	44		873		40,156	
	m	5		46		2,348	4
bAC digit bibs (non-ene in sendin)	m	5-	4 315	327		17,658	34
k) PVC water stop (200 in width)	ton	2.0	1	27,500	1,463,000	77,000	1,540
n) Steel sikle gate (1.9m x 1.6m)	m	12		128		16,384	147
m) Steel pipe hand rail		1			1	15,480	27
n) RC-Precast concrete pile (400 x 400)	l m		-	-		11,280	18
o) Pavement (brick)	m2	4	8 109	630	J, 506	. ,,200	
	L.S.	1	ļ ·		0.4000	0.770.444	2017
p) Dewatering works Total of item D.	i	1	1	1	2,446,903	3,770,144	6,217
	- 1	1				00 004 454	44 000
Total Construction Cost of Compartmentalisation (Items A to	-m. I	1	- F		15,138,883	28,921,434	44,060

Table 7.9 SUMMARY OF CONSTRUCTION COST (1/3)

(Phase-1 work)						(Unit: Tk)
I, FCD Works along TRE		Manual Machanical			Manual	
Work thems	2/2	0/	Total	F/C	207	Total
G 49 G *********************************	28,480,219	26,085,586	54,565,805	14,714,929	27,594,856	42,309,785
A. Preparatory Works (10 % of items of 0.7) B. Flood Embankment	133,222,100	84,979,700	218,201,800	o	99,372,800	99,372,800
				20.400	37 671 DAO	73.772.480
C. Havetment by Concrete process. 1) Horiour (3,200 m)	38,047,040	37,363,840	5,410,880	2,907,810	3,169,860	6,077,670
2) Sundargani (300 m)	7,024,290	7,042,840	14,067,130	6,784,890	7,080,640	13,865,530
Total of from C.	48,070,340	47,302,140	20,00			
D. Groyne	W 605	OC 834 OCO	66.433.700	29,264,400	36,887,700	66,152,100
1) Belka (5 noc.,1050 m)	19,908,200	27,592,100	47,500,300	19,615,600	27,638,300	47,253,900
2) Sundargani (8 nos., 100 m) 3) Painaighat (13 nos., 1320 m)	40,383,460	55,970,800	96,354,260 210,288,260	38,788,300 88,669,900	120,590,520	209,260,420
Total of them D.						
E. Regulator	1,435,425	923,679	2,359,104	1,414,373	800,758	2,341,376
1) Additional 2 vents)	4	900 900 6	977 778	1.821.758	1,013,204	2,834,962
2) New regulator (G-7 basin : 3 vents)	1,848,852	1,000,929	2.788.394	1,793,533	972,045	2,765,578
3) New regulator (G-6 basin: 3 vents)	1,00,020,1	303 101	1.050,888	657,767	383,121	1,050,388
4) Rehabilitation of Kasiaban regulator	707,707	84 027	511,080	427,053	84,027	511,080
5) Rehabilitation of Narayanpur regulator	3 487 962	1,719,442	5,207,404	3,229,942	1,760,182	4,990,124
6) New regulator (G-2 basin : 6 vents)	586,670	309,080	895,750	586,670	309,080	20/03
7) Rehabilitation of Bhairhat regulator	436.339	111,230	547,569	436,339	11.23	900' Jen
8) Rehabilitation of Rajib regulator	618 673	355,313	973,986	618,673	355,313	0000
9) Rehabilitation of Kalirhat regulator	11,319,368	5,872,585	17,191,953	10,986,108	5,925,205) (n' [] n'o]
	2.299.923	2,043,633	4,343,556	1,699,143	2,138,493	3,837,536
F. Sluiceway (5 nos.) including ditch and approach chairen		000 041 444	600 003 854	161,864,220	303,543,414	465,407,634
Total of Nem i.	313,282,410	705 041 444	600,223,854	161,864,220	303,543,414	465,407,634
Total of construction cost (Phase-1)	313,282,410	111111111111111111111111111111111111111				

Table 7.9 SUMMARY OF CONSTRUCTION COST (2/3)

Work flems A. Preparatory Works (10 % of items B to F)							
			Manual/Mechanical	leto]	F/C	251	Total
١.		F/C	11 975 164	29.324,285	2,480,827	13,558,481	16,039,308
		- 21 into 1				-	
The mysecker and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se						.,,	
		AE 095 400	29 623 300	75,508,700	0	35,177,700	35,177,700
(0.0 km to 25.0 km)	<u></u>	90,354,000	58,224,500	148,578,500	0	66,538,500	OC,584,500
2) Back-Water Levee on the Hight Dank			:			101 716 200	101.716.200
(0.0 km to 32.7 km)		136,239,400	87,847,800	224,087,200	>		
		٠.	:				
Diver channel excevation			000 000 0	17 565 600	0	10,359,200	10,359,200
		8,557,000	000,000,0	5,694,000	0	3,358,000	3,358,000
2) Gaibandha (0.5 km)		11,331,600	11,928,000	23,259,600	0	13,717,200	13,717,830
Total of flem C.							
			000	1 923 135	1.017.656	892,839	1,910,495
_		1,032,666	505,400	9.502.675	6.201,885	3,237,302	9,439,187
2) New requisitor (G-14-2 basin : 11 vents)		6,277,277	902,412	2,313,236	1,389,772	905,736	2,295,508
3 New regulator (G-15 basin : 2 vents)		1,410,024	915,905	1,966,529	1,035,614	918,275	1,953,889
4) Additional regulator for South Gagoa regulator		tanian'i			. :		459 207
(G-16-1 basin: 1 vents)		850.046	615,891	1,465,937	835,036	518,291	1,525,524, t
5) New regulator regulator (G-16-2 basin : 1 veru)		1,006,259	848,766	1,855,025	991,249	8	A
6) Additional regulator for Eneramara regulator					002	1 240 260	2 994 075
(G-17 basin : 1 vents)		2,021,600	1,174,491	3,196,091	1,(81,/06	257 666	2,510,562
7) New regulator regulator (C-19/19 Jamil)		1,267,906	1,255,296	2,523,202	1,450E 814	9 893 584	24,399,398
8) New regulator on the Ara (1 vol.1). Total of them D.		14,917,202	9,828,628	24,745,630	10000		
							
E. Sluiceway including drain diton and approach of a risk			.	1	670 250	625.377	1,204,636
1) Ghagot Left Embankment		753,679	597,837	916,166,1	2 350 013	1,875,305	4,225,318
(U.U.K. 10 20.0 Kill ; 2 100.)		2,863,583	1,794,215	25''			
(32.7 km : 12 nos.)		2 617 262	2 392 052	6,009,314	2,929,272	2,500,682	5,429,954
Total of Item E.		100	i			-	15 120 22
	ţ.	7,385,749	7,755,155	15,140,904	7,373,185	7,757,138	43c,0c; ;c;
F. Road bridge at Gaibandha			! !	000	27 280 008	149 143 286	176,432,384
		190,840,334	131,726,799	322,307,135	800 080 70	149 143 286	176,432,384
Total of Item I.		190,840,334	131,726,799	322,567,133	060'602'12	Somiat light	

Table 7.9 SUMMARY OF CONSTRUCTION COST (3/3)

Work Items F/C of items B to D) 4,356,633 of items B to D) 4,356,633 of items B to D) 4,356,633 or (G-21 basin: 1 vent) 13,363,900 r Kantanagar regulator (G-22 basin: 2 vents) 1,297,109 r Bhangamor North regulator (G-22 basin: 2 vents) 1,293,993 or (G-26 basin: 2 vents) 1,297,129 n ditch and approach channel 1,018,488 3 nos. 2,146,586 8 nos. 3,165,074 47,955,964 47,955,964 son. 2,638,312 6 of total of items B to E) 2,638,312 6 of total of items B to E) 2,638,312 6 of total of items B to E) 3,083,700 wesh 2,811,955 wesh 2,811,955 wings 6,659,900 xesh 3,429,525 44,18,035 sin: 4 vents) 76,977,395 xerror 76,977,395	(Phase-3 work) I, FCD Works along the Ghagot		Mochanical Mochanical			Manual	(Unit: Tk)
Froge Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored Embandment Colored E				Total	F/C	2/1	Total
Propagationy Works 10 % of home B to D 4,339,833 2,172,270 10,530,770 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171 11,171,171		ב		1 124 060	755 325	3.315.709	4.071,034
Flood Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embankment of the Embank		4,359,633	2,172,363	36,151,7			
10 Septiment 10 Septiment 13,255,500 13,255,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500 10,500							
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Pregulator regulator (G-21 bealn: 1 verith and included of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month of the month	b) 43.0 km to 75.9 km Total of them B.	35,410,100	22,600,600	58,010,700		27,934,500	27,934,500
Pregulator regulator (G-21 basin: 1 verity)	1.1			: -			0
New regulator regulator (G-2c beain: 1 vent)	_	816,962	567,524	1,384,486	801,952	569,894	1,371,040
1,295,962 71,346 7,045,087 71,346 7,045,087 71,346 7,045,087 71,346 7,045,087 71,346 7,045,087 71,346 7,045,087 71,346 7,045,087 71,346 7,045,087 71,346 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,087 7,045,0		801,109	554,153	1,361,262	192,039	734 870	2,007,811
New regulator (Outlet of Bamondanga Beel: 1 vent) 1,297,156 30,456 30,505 4,505,657 3,156,595 735,777 755,546 735,745 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,545 735,735 735,545 735,545 735,545 735,545 735,545 735,547 735,116 824,686 775,230 735,007 735,007 735,007 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107 735,107	2) Additional regulator for Bhangamor North regulator (G-23 basin: 2 vents)	1,293,993	731,546	2,020,008	793.880	558,331	1,352,211
sj. New regulator (G-26 basin: 2 vents) 5,021,157 3,145,195 8,166,352 4,935,657 3,156,595 Total of fram C. Sulceway Including drain ditch and exproach channel 1,018,488 7722,630 1,731,118 824,689 753,230 a) Chapter Left Embankment 2,146,586 1,244,625 3,331,408 1,732,901 1,300,667 a) Chapter Left Embankment 2,146,586 1,244,622 3,145,742 5,142,569 2,005,387 b) 43,0 km to 73 km; 8 nos. 1,004,300 47,595,904 1,771,402 1,771,501 824,689 7,722,201 Total of than L. Total of than L. 1,004,300 7,845,102 1,782,501 4,782,501 4,785,504 A. Total of than L. Total of than L. 1,004,300 1,782,702 1,782,501 1,782,501 1,782,501 A. Total of than L. Work litems E. F/C L/C 1,773,408 1,782,501 1,782,501 A. Properatory Works (10 % of total of flame B to E) 2,683,702 2,784,109 1,683,900 1,643,900 1,643,900 B. By provalsion of blean C.	4) New regulator regulator (Outlet of Bamondanga Beel: 1 vent)	805,964	735 549	2.032.678	1,274,785	739,077	2,013,862
Suicewey including drain ditch and approach channel 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,48 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1, 016,488 1,	5) New regulator regulator (G-26 basin: 2 vents)	5,021,157	3,145,195	8,166,352	4,935,657	3,158,695	8,094,352
Suiceway including drain ditch and approach channel 1,018,488 7732,630 1,722,901 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,637 1,300,630,630,630,630,630,630,630,630,630							
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b) 43.0 km to 75.9 km : 8 mos. 1, 1977, 452 5, 142, 526 8, 120, 538 7, 1 Total of them D. Compartmentalisation Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Preparatory Works (10 % of total of items B to E) Prepar	a) 25.0 km to 43.0 km : 3 nos.	2.146.586	1,244,822	3,391,408	1,792,901	1,300,667	5,035,000 5,035,000
Total of Item D. Total of Item D. Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total Total	b) 43.0 km to 75.9 km : 8 nos.	3 165 074	1,977,452	5,142,526	2,617,589	2,063,897	000,100,4
Compartmentalisation Work Items	Total of Item D.	47 955 964	30,495,572	78,451,536	8,308,571	36,472,801	44,781,372
Compartmentalisation Works Work Items F/C L/C Total F/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C	Total of flem I.						(Cnit: Tx)
F/C L/C Total F/C L/C L/C Total F/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C L/C		CONTRACTOR OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF	Manual/Mechanica			Manual	
Preparatory Works (10 % of total of items B to E) New road embankment for compartments (6.3 km) Closure of existing openings Closure of existing openings 1, 9653,700 1, 946,100 1, 946,100 1, 946,300 1, 946,300 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1, 945,000 1,		0,0	Ç/		F/C	သူ	Total
Preparationy Works (10 to 1) the first of them C. New road embanisment for compartments (6.3 km) New road embanisment for compartments (6.3 km) New road embanisment for compartments (6.3 km) New road embanisment for compartments (6.3 km) New road embanisment for compartments (6.3 km) New road embanisment for compartments (6.3 km) Section 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 300 1, 364, 3	٠ [2,638,312	2,763,730	5,402,042	1,513,888	2,892,143	4,406,032
New road embankment for compartments (6.3 km) Closure of existing openings Closure of existing openings 1) By earth filling (7 places) 2,811,955 1,771,890 1,094,900 2,811,955 2,196,890 2,811,955 1,771,890 3,461,855 2,196,890 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459 2,327,459			-			8 613 700	9.976.200
Closure of existing openings 1) By earth filling (7 places) 2,811,955 2,196,890 4,583,845 2,327,455 2,327,455 1,848,390 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,630 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,459 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,459 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,459 2,327,455 2,327,455 2,327,455 2,327,455 2,327,455 2,327,45,300 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,327,451 2,3		9,053,700	7,846,100	16,899,800	1,362,500	3,500	
1) By earth filling (7 places) 2,811,955 1,771,890 4,583,845 2,327,455 1,848,390 2) By provision of sluiceway with gates (5 places) 2,811,955 2,196,890 5,678,745 2,327,455 2,334,690 Total of flem C. 2,811,955 14,135,400 23,564,925 9,002,025 14,202,900 Provision of Drain Pipe (450 places) 4,418,039 3,458,912 7,876,951 2,446,903 3,710,144 New regulator (G-11 basin : 4 vents) 29,021,431 30,401,032 59,422,463 16,652,771 31,813,577 Total of flem II. 4,000,032 50,896,604 137,813,999 24,961,342 68,286,379		000	000 367	1 094 900	0	486,300	486,300
2) By provision of sluiceway with gates (5 places) 2,131,533 2,196,890 5,678,745 2,327,455 2,334,690 Total of frem C. Total of frem C. 9,429,525 14,135,400 23,564,925 9,002,025 14,202,900 Provision of Drain Pipe (450 places) 4,418,039 3,458,912 7,876,951 2,446,903 3,770,144 New regulator (G-11 basin : 4 vents) 29,021,431 30,401,032 59,422,463 16,652,771 31,813,577 Total of frem II. 76,377,395 60,896,604 137,873,999 24,961,342 68,286,379		008,900	177.1890	4.583.845	2,327,455	1,848,390	4,175,845
Provision of Drain Pipe (450 places) Provision of Drain Pipe (450 places) Provision of Drain Pipe (450 places) New regulator (G-11 basin : 4 vents) Total of term II. Total of term II. Provision of Drain Pipe (450 places) 4,418,039 2,446,903 3,770,144 4,418,039 2,446,903 3,770,144 76,377,395 60,896,604 137,873,999 24,961,342 68,296,379	2) By provision of stuiceway with gates (5 places)	3,481,855	2,196,890	5,678,745	2,327,455	2,334,690	4,662,145
Provision of Drain Pipe (450 places) 4,418,039 3,458,912 7,876,951 2,446,903 3,770,144 New regulator (G-11 basin : 4 vents) 29,021,431 30,401,032 59,422,463 16,652,771 31,813,577 Total of item II. 76,977,395 60,896,604 137,873,999 24,961,342 68,286,379	O 110011 O 12001	9,429,525	14,135,400	23,564,925	9,002,025	14,202,900	23,204,925
New regulator (G-11 basin : 4 vents) 4,418,039 3,458,912 7,670,991 2,477,1395 31,813,577 31,813,577 31,813,577 Total of Item II. 4,718,039 24,961,342 68,286,379 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579 68,286,579				0000	2 446 003	3 770 144	6,217,047
Total of term II. 17,872,999 24,961,342 68,286,379 76,977,395 60,886,604 137,873,999 24,961,342 68,286,379		4,418,039	3,458,912	100,010,1	16.652.771	31.813.577	48,466,349
76,977,395 60,896,604 137,673,989 24,201,272	- 1	29,021,431	30,401,032	39,422,400	076 130 10	68 286 379	93,247,721
	1008 O 361111.	76,977,395	60,896,604	13/3/3/33	310'105'17		

Table 7.10 SUMMARY OF LAND ACQUISITION COST

			(Unit: Tk)
11/2/1	F/C	- I-C	Total
STIDII YIOAA			
(Phase-1)		000 404 000	20 464 000
	0	30,404,000	00,101,00
Total of land acquisition cost (Phase-1)	0	30,464,000	30,464,000
וסומן סן ומנות מכלתומיות כסיר (ייישקט /	,		****
(Phase-2)			
A. Ghagot	·		
1) Ghagot Left Embankment	(000	40 604 000
(0.0 km to 25.0 km)	5	12,504,000	000,000
Someont Bight Embankment	0	21,828,000	71,020,000
Total of land accumination cost (Phase-2)	0	34,432,000	34,432,000
(Phase-3)			
A. Ghagot			
1) Ghagot left embankment		000	e 168 000
C) 25 0 km to 43 0 km	5	000,001,0	
	0	12,570,000	12,570,000
b) 43.0 Km to 75.9 Km	C	1 398.000	1,398,000
2) Compartmentalisation		20 136 000	20,136,000
Total of land acquisition cost (Phase-3)		20,00,00	000,000,00
Title 1 1000 post lighted coat (Phase-123)	- -	85,032,000	85,052,000
סומוסו מכל השנים בכל היינים ו			

Table 7.11 DISBURSEMENT OF PROJECT COST (1/2)

			3	4	9	9	/	8	6	10		l Ottal COST
- 1												
Phase 1				3.5	000	900						600,224
Construction cost			8 8 8 8	210,078	240,030	20,022					+	100 at
Administration cost	188	1.801	3,601	3,601	3,601	3,601						2000
TO THE PROPERTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF			22 500	2050	22.509	22,509	-					\$3,58
Physical conungency			2001	200	2003	800						920,656
Engineering cost	20,708	80/.08	2000	208.0	365	33.5						30.464
Land acquisition		6,093	9,139	9,139	6,093							207 755
Sub-total	22,509	28,601	132,185	252,230	279,195	93,035						2011
Phase.2												723 000
Constant state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of					48,385	112,898	129,027	32,257				35,55
COURT COST			838	896	1,935	1,935	1,935	1,935				7/9/6
Administration cost			3		12 096	12.096	12,096	12,096				48,385
Physical contingency				11.100	2710	3 710	3.710	3,710				37,095
Engineering cost			11,123	671,11	2		300					34 432
l and acquisition			:	6,886	10,330	30,00	0000					ARD 4 E.B.
5.15 40.40			12,096	18,983	76,456	140,969	153,654	49,898				32
Succession												
							-					
Phase-3									41.362	68,937	27,575	137,874
Construction cost							vea	S	1 034	1 034	827	4,136
Administration cost							770		7 238	7 238	6204	20,681
Physical contingency							7 550	5 550	1 586	1 586	1,586	15,856
Engineering cost							33.5	1000	2007	7 048	2014	20,136
Land acquisition							02.9	40404	28 268	85.843	38 206	198,683
Sub-total							0	10,101	23	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
							300	30.00	90 09	EV 0 150	900 80	1 258 594
Total (Dhase 103)	22 509	28,601	144,282	271,213	355,651	234,004	159,854	CS1,00	007.00	20,00		

			Table 7.11		DISBURSEMENT OF PROJECT COST (2/2)	MENT OF	PROJEC	T COST	(2/2)			
						٠				-		
(manual construction)				· .							3	(Unit: 1000 Tk)
Year		2	9	4	5	9	1	8	6	e e		Total cost
Phese-1												465 400
Construction cost			69,811	162,893	186,163	46,541						45,450
Administration cost	1.396	1,396	2,792	2,792	2,792	2,792						13,302
Physical contingency			17,453	17,453	17,453	17,453					1	1 20,50
Engineering cost	16,057	16,057	5,352	5,352	5,352	5,352					+	22,00
l ond soci isition		6.093	9.139	9,139	6,093							30,40
Sub-total	17.453	23,546	104,548	197,629	217,853	72,138						503,757
Drespo									-			
Construction cost					26,465	61,751	70,573	17,643				176,432
Administration cost			529	523	1,059	1,059	1,059	1,059				5,233
Acting seasons were					6,616	6,616	6,616	6,616				3
Frysica columnative			6.087	6,087	2,029	2,029	2,029	2,029				20,230
Citigat Bolling Cont				6,886	10,330	10,330	988'9		:			34,4%
Sit-total			6,616	13,503	46,498	81,785	87,163	27,347				202,912
Phase-3									27 974	46.624	18,650	93,248
Construction cost							420	420	202	700	288	2,798
Administration cost									4.895	4,895	4,196	13,987
Physical contingency							3.753	3.753	1.072	1,072	1,072	10,724
Engineering cost								4.027	7.048	7,048	2,014	20,136
Land acquisition							4 173	8 200	41,689	60,339	26,491	140,893
Sub-total												
			10, 11,	244 400	254 352	153 923	91.336	35.547	41,689	60,339	26,491	1,036,972
Total (Phase-1,2,3)	17,453	23,546	111,104	701117	201.00			Andrews - Commenter of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the least of the leas				

Figure 7.1 TIME SCHEDULE OF CONSTRUCTION

Work Item		- Marie Laberto	- Marian I. Marian I. Marian I. Marian I. Marian I. Marian I. Marian I. Marian I. Marian I. Marian I. Marian I	agail a shekilar da		Year		:	:		
	1	2	3	4	5	6	7	8	9	10	11
Phase-1			1								
(Detailed design)		I									
Preparatory work							:				
Flood embankments											
Rèvetments	.]										
Groynes						8					
Regulators					1						
Sliuiceways			:-	1							
								1.			
Phase-2											
(Observation of erosion at the	111111								<u></u>		
Manas Regulator)	ļ						ļ				
(Detailed design)				l						*	
Preparatory work	<u> </u>	.	ļ				ļ. 		ļ		
Flood embankments						ļ					
Channel excavation			ļ			ļ					ļ
Regulators	ļ	ļ .	<u> </u>	<u> </u>							
Sluiceways	<u> </u>			ļ							
Road bridge	<u> </u>						 				
						<u> </u>					
Phase-3											
(Hydrological observation)											
(Detailed design)		<u> </u>									
Preparatory work		ļ <u>.</u>	<u> </u>		<u> </u>						
Flood embankments	ļ	<u> </u>		<u> </u>	ļ	<u> </u>					
Regulators	<u> </u>		<u> </u>						1		
Sluiceways		ļ	<u>.</u>			<u> </u>					
Embankments for compartments		1.					ļ	<u> </u>			
Closure of existing openings				-		<u> </u>	:.				
Drain pipes	<u> </u>					<u></u>					