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# RATIONLISATION OF FREIGHT STRUCTURE AND SCHEDULE OF RATES FOR PUBLIC SECTOR FOODRAIN MOVEMENT BY MARINE TRANSPORT

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Bangladesh Food Policy Project

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The authors accept full responsibility for the views expressed in this report. The contents do not necessarily reflect the official position of USAID or Government of Bangladesh.

May 17, 1994

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Sub : Draft Final Report on 'Rationalisation of Freight Structure and Schedule of Rates for Public Sector Foodgrain Movement by Marine Transports'.

Dear Sir,

We are pleased to submit the attached Draft Final Report on the above mentioned subject. We look forward to hearing your views and would like to share information that would be necessary to implement the recommendations of the report.

With best regards,

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## PREFACE AND ACKNOWLEDGEMENT

The present report on 'Rationalisation of Freight Structure and Schedule of Rates for Public Sector Foodgrain movement by Marine Transports' is the result of a study commissioned by the Directorate General of Food under the aegis of the Ministry of Food, acting on behalf of Government of Bangladesh and carried out under the USAID grants for Bangladesh Food Policy Project by the International Food Policy Research Institute, Washington, USA.

The consultants wish to extend their appreciation and gratitude to Secretary, Ministry of Food, Joint Secretary, (P & S) and Joint Secretary (Administration), Ministry of Food, Director General and Director (M.S.& S) and other officials of the Directorate General of Food for their guidance, support and assistance experienced both in Dhaka and in the field. The help of Dr. Steven Haggblade, Chief of Party and Mr. M.H. Chowdhury, Administrative Specialist of the International Food Policy Research Institute are very much appreciated.

Externally, consultants obtained substantial help from the Private Major Carriers Association, Coastal Owners Association, Cargo Launch Owners Associations, various departments of BIWTA, WDB, BIWTC etc. in the form of essential base data and exchange of views and ideas. Many other agencies and associations and departments dealing with distribution and transport of various commodities willingly provided the Consultants data and/or background information.

Consultants wish to thank all for their valuable contributions.

## LIST OF ABBREVIATIONS, SYMBOLS AND NOTATIONS

(Most symbols are defined explicitly in the text, usually when they first appear. The other symbols used in the present work are as follows :

| | |
|---|---|
| BIWTA | Bangladesh Inland Water Transport Authority |
| BIWTC | Bangladesh Inland Water Transport Corporation |
| BHP | Brake Horse Power |
| CSM | Controller, Storage and Movement |
| DOF | Directorate General of Food |
| DGF | Director General, DOF |
| DBCC | Divisional Boat Carrying Contractor |
| DCF | District Controler of Food |
| IWT | Inland Water Transport |
| IBCC | Internal Boat Carrying Contractor |
| MOF | Ministry of Food |
| PMC | Private Major Carriers |
| RCF | Regional Controller of Food |
| WDB | Water Development Board |

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## EXECUTIVE SUMMARY

(1) A Computer model has been developed on the basis of the existing operating scenerio of movement of public sector foodgrains and other foodstuff by inland water to estimate (a) the freight rate (Tk./Ton-km) for any length upto 700 km for carrying foodgrains in inland waters by any of the six selected vessel types viz. 1000 T Coaster, 800 T Coaster, 350 T Cargo Vessel, 250 T Cargo Vessel and Tug + 2-350 T Barge and 50 T mechanized Countryboat. The parameters which can be varied for analysing any operating scenerio are; Capacity of the vessel, Hull cost, Engine cost, Hull life, Engine life, BHP of the Engine, Design speed and Service speed in loaded and ballast condition, Insurance Cost, Crew wages, No.of crews, M & R cost, Annual fixed tolls, dues & fees, Overheads, Variable dues, Off hire days, Free time at loading and unloading ports, Working hours/day, Loading and Discharging rate at Port, Ballast distance percentage, Load factor, Miscellaneous delays, scrap values for various vessel types, Unit fuel costs and Required Rate of Returns. (b) the Required Freight Rate (Tk./Ton) for all Standard Routes which have been prepared on the basis of the Perennial and Monsoon route lengths and the maximum draft available during Monsoon for those routes and the average drafts of the various vessel types selected for those routes.

(2) The model produces as output (a) a table showing the basis freight rates (Tk./Ton-km) for all route lengths (1-700 km) for the six vessel types selected for analysis (The table comprises 6 x 700 i.e. 4200 freight rates), the sixth column of the table being the Proposed Freight Rates for Intradistrict Movement (IBCC). (b) a table showing the list of Standard Routes (Total No. 451) for interdistrict movements including movements from seaports, (PMC and DBCC) their 'All Season Route Lengths, 'Monsoon' Route Lengths and 'Proposed Freight Rates' (Tk./Ton)

and the 'Possible Savings' (Tk/Ton) if the 'Proposed Freight Rates' are implemented.

(3) The 'Proposed Freight Rates' should be included in the tender schedule as the estmated freight rates, to be prepared for employment of Contractors.

(4) Before the tenders are floated for appointment of Contractors, short study is to be made to frame the tender conditions so that they suit the flexibility of the transport requirement of the DOF in terms of quality and quantity of movement and the flexibility of the parameters defining the assumed operating scenario, viz. load factor, minimum length of travel, status of ownership of the vessel, despatch and demurrage, freetime at loading and unloading ports, Loading/Unloading Rate, Insurance condition, Guarantee etc., otherwise the 'Proposed Freight Rates' may lead to financial loss of DOF/Contractors.

(5) There are at present duplication of routes within the existing various DBCC Schedules and the freight rates are also inconsistent in the sense that differential rates are being paid to contractors for the same length of voyage or the same route as per category of contract, vessel type used and the place of movement. The existing PMC rates are in general lower than the existing DBCC rates.

(6) There exists various rate structures for IBCCs of various districts. The differences between the basis rates of two different districts are some times very high. As for example, the IBCC rate for Brahmanbaria district for 30 km route length is Tk. 3.68/T-km whereas the same for Khulna District is Tk. 6.47/T-km, which is 75% higher than the former.

(7) On Comparing the model outputs with the existing freight structures, it is found that there exists at present very high rates for PMCs and DBCCs for very short and very long routes. For IBCCs the high rates are prevailing for long routes. For Interdistrict route length of less than 100 km and of over 200 km there will be savings of Government resources if the 'Proposed Freight Rates' are implemented. The opposite is true for route lengths between 100 and 200 km. These have happened because the existing PMC rates are based on 'minimum chargeable distance of 160 km' for route lengths less than 160 km and a flat rate of Tk. 1.12/T-km for any length over 160 km, resulting in high rates for both short and long route lengths. The BIWTA's regulation in this regard had been misunderstood by DOF. It should be clearly understood that BIWTA had never fixed any unique rate. This refrain, repeatedly noted in various correspondences of the MOF, DOF and PMC associations is unfortunately, not true, instead BIWTA had always prescribed the 'maximum chargeable freight' and 'minimum chargeable distance'. At a time when 'maximum chargeable freight of Tk. 1.12/T-km, and 'minimum chargeable distance of 160 km were prescribed by BIWTA, DOF could avail the opportunity of fixing any freight rate lower than Tk. 1.12/T-km for distances less than and over 160 km. as they had to share the disadvantage of paying for minimum 160 km length for any length less than 160 km.

(8) The proposed freight rates for IBCCs when compared with the average existing freight rates show that for route lengths less than 20 km the proposed freight rates are higher than the existing rates. For 50 km route length which is the average route length for the IBCC routes the average existing rate is Tk. 4.105, while the proposed freight rate is Tk. 2.895 Tk./T-km which is 30% less.

(9) However, if the 'Proposed Freight Rates' are implemented in totality and if the movement pattern of food stuffs and

foodgrains are not much changed in coming years, DOF would be able to save a total amount of Tk. 20.0 million approximately every year.

(10) The 'Proposed freight rates' have been formulated on the basis of the existing operating scenario prevailing in the inland water transport sector and public sector foodgrain movement. In case the scenerios are changed for whatever reasons including increased supply/ demand of transports, resulting in higher/lower competition, the Proposed Freight Structures may need further rationalisation.

(11) The present study is based on the existing operating scenario prevailing in the movement of foodgrains in inland water. So there exists potential scope for further rationalisation of freight rates if study is made for all possible operating scenarios and all possible vessel types, sizes and speeds to achieve the minimum possible transport cost.

(12) Some simple training may be needed for the DOF officials for using the model if they would like to evaluate any other operating scenario and/or any other route. In this regard DOF may arrange necessary training programme for the sustainability of the model.

# 1. INTRODUCTION

## 1.1. PROJECT OBJECTIVE

The objective of the study is to assist the Government to rationalize the freight structure and schedule of rates for different types of IWT Contract Carriers for foodgrains and other food-stuffs needed for preserving a well designed network of food storage and distribution throughout the country for ensuring food security.

## 1.2 PROJECT BACKGROUND

Inland Water Transport (IWT) system traditionally serves Bangladesh from the time immemorial and still remains equally important for internal movements of cargo and passengers. Bangladesh has got over 5,200 km of perennial waterways which increases to 8,300 km during the monsoon, at which time almost whole floodplain of Bangladesh becomes navigable and movements become easier and cheaper. Although IWT share has been declining recently with the improvement of road network, it will likely to continue playing an important role in carrying bulk and long haul traffic cargo like raw jute, jute goods, cement and foodgrains from port to port destinations. Central and Southern regions of Bangladesh are particularly well connected by all weather navigable routes and IWT is the most suitable mode of transportation in the regions.

The Government of Bangladesh envisaged a well designed network of food storage and distribution throughout the country for ensuring food security. Hundreds of CSDs/LSDs/ Food Godowns are established to procure, store and distribute foodgrains in time of needs. Those storage are fed either by imported wheat or locally procured foodstuff from the surplus regions. Majority of the foodgrains are carried by IWT vessels through appointed

contractors. Three types of carrying contractors are appointed for IWT routes (i) PMC (ii) DBCC and (iii) IBCC. Terms of contracts are different for different groups and they are appointed on contract basis for a specific duration.

The freight rates paid to the contractors are sometimes non-uniform and determined by the bargaining strength of the parties involved and some times by value judgement. This leads to confusion and inconsistency and thus inconvenient for administration. The confusion arises because of differential rates paid to contractors for the same length of distance or for the same route as per category of contract and vessel type used.

The Government suspects that Directorate of Food is losing money in terms of paying higher rates to certain types of contractors in the absence of a uniform standard rate. Freight rationalization may help achieve least cost movement of food-stuff in the country. Therefore, the Government desires to develop a uniform standard freight rate for IWT carriers based on proper investigation of Vessel Operating Costs (VOCs) and standard pricing practices.

To carry out such an investigation and to determine the basis for standard freight for carrying foodgrains by IWT, the Government appointed one short term Transport Economist for a period of 2 (two) months within the budget provision of Bangladesh Food Policy Project of IFPRI.

## 1.3 SCOPE OF WORK :

The objective of the short term technical assistance is to assist the Government to prepare a uniform freight structure and schedule of rates for different types of IWT contract carriers. The study will be restricted to foodgrains and other foodstuffs only and cost analysis must include handling, loading, un-

loading, stevedoring, port pilotage, berthing and other charges, lighterage, transhipment and other costs wherever necessary.

## 1.4. TERMS OF REFERENCE :

The Transport Economist will work under the authority of the Director General of Food, Ministry of Food and perform the following tasks :

1.3.1 Review the existing literature regarding the freight determination of the IWT and collect freight rates routewise for different commodity categories in Bangladesh for the last 5 years.

1.3.2 Collect and review BIWTA route chart, mileage table, route maps and prepare standard route lists for PMC, DBCC and IBCC.

1.3.3. Develop and prepare questionnaire and formats and collect data and information on VOCs.

1.3.4 Visit selected types of vessels and selected regions engaged in carrying foodgrains under various contracting system and estimate VOCs for selected types of vessels.

1.3.5 On the basis of data gathered and information collected determine the basis for standard freight for different routes and prepare a freight rate table considering the minimum length of travel.

1.3.6 Assess possible savings and benefits of the Government because of standardised freight and streamlining existing differentials.

1.3.7 Any other task that would be envisaged during the tenure of the contract for attaining the objectives.

1.3.8 Prepare reports detailing the tasks performed and providing appropriate recommendations for implementation of findings.

## 2. REVIEW OF THE PRESENT STATUS OF MOVEMENT OF FOODGRAINS BY THE DOF

### 2.1 INTRODUCTION

The DOF handles a large quantity of foodgrains and other foodstuffs every year. (Total grains procured was 3.6 Mil. Tons (MMT) and the approximate quantity moved was 2.85 MMT in 1991-92). Imported foodgrains are mainly handled at Chittagong and Mongla Ports for storage at Chittagong Silo, Chittagong CSD, Khulna CSD and up country movements to other Silos, CSDs and LSDs. Transport of imported foodgrains begin soon after discharge of mother vessels to lighterage vessels which carry to Silos in case of bulk wheat or to port jetties for bagging and movement through various transport modes including IWT. Besides imports, the DOF also procures appreciable amount of paddy/rice and wheat annually from domestic sources. During the quiquennium to 1992-93 about 80 percent of the foodgrains procured by DOF per year require some movements into different destinations. Water averages a modal share of 20%. There are also some movements of other foodstuffs, on irregular basis.

Public movement and transportation of foodgrains are organized at three levels :

(a) Centrally controlled movement from one Division to another using various arrangements including PMC.

(b) Inter district movements within a division, using various arrangements including DBCC.

(c) Intra district or regional movements within a district using various arrangements including IBCC.

Movement as at (a) are planned by the DOF, Dhaka, while divisional and district level movements are planned by the Regional Controller of Food (RCF) and District Controller of Food (DCF) respectively.

The modal distribution of transport for central movement is a policy determined by the Ministry and the sectoral allocation, private or public (BIWTC for IWT mode) is often determined inter ministerially. For inter district and intra district movements cargo vessels/ boats are used, which are entirely operated by private contractors (DBCC and IBCC) tendered and selected by the RCFs and DCFs respectively.

There exists differential freight rates based on distance that are used or agreed by the DOF for different modes. While PMC rates (per ton km) are fixed by a central committee chaired by the DGF, destination wise metric ton rates are determined through rate commission chaired by the Commissioner and Deputy Commissioner of the respective places in case of DBCC and IBCCs respectively. There has been no tendering system for PMC but the rates determined for DBCC and IBCC are tendered out to bid within plus or minus 5% for employing contractors.

## 2.2 PRIVATE MAJOR CARRIERS (PMC)

At present there are 62 PMCs (20 at Chittagong and 42 at Mongla) engaged under the DOF, in addition to BIWTC, who generally carry wheat from Chittagong and Mongla inland. These PMCs are represented by PMCs' Associations. Some PMCs also carry rice and paddy from Serajganj, Baghabari and Nagarbari to other destinations. The freights of PMCs are presently per ton kilometer. There are some prequalification requirements for the eligibility for being PMCs including that they are to be the vessel owners. Prevailing PMC rates were fixed after some elaborate procedures, which deserve some detailed record, and this now follows.

In 1992, the Ministry of Shipping who used to regulate the freight rate of various cargoes including foodgrains and other food-stuffs had cancelled their previous notifications in this regard and had decided that they would no more be regulating the freight rates for private vessel operators.

The DOF recommended in January 1993 freight rates of Tk. 1.07 and 1.00 per T-km. for Chittagong and Mongla respectively in place of existing flat rate of Tk. 1.12 /T-km. This recommendation was made on the basis of the total annual cost including depreciation, interest, fuel cost, crews salaries, insurance, survey fee, M & R cost, handling costs etc. calculated by DOF for a 325 tonne cargo vessel plying between Mongla and Nagarbari (Route length - 439.50 km) and that calculated for a 800 tonne Coaster plying between Chittagong and Narayanganj (Route length-291 km). It was finally decided in a meeting chaired by the Joint Secretary (P & S), Ministry of Food that the following basic rate per ton-km would be followed :

(a) Basis freight rate would be Tk. 1.12 as was decided by BIWTA*

(b) Tk. 1.35 for distance upto 100 km.

(c) Tk. 1.12 for distance of 101-160 km but minimum chargeable distance is 160 km.

(d) Tender quoting the rate beyond the range of plus or minus 5% of the above mentioned rates would be cancelled.

In this context, the allegation raised by the PMC association that the Shipping Ordinance, 1976 had been violated when freight rates were recommended at a level less than the 'maximum chargeable freight rate' decided by BIWTA was not justified.

The PMC association also complained in 1992 that their assignments in the DOF were declining and so they suggested that the number of PMCs should not be increased any more. But the PMCs were informed by the DOF of their no objection in regards their transporting other cargoes when they are free. Still now the employment procedure of PMCs are in force.

As was decided in a meeting dated 31.10.1992 presided by the Hon'ble Minister of Food regarding the employment of PMCs through open tender, tender was floated on 7.7.1993 by the Director (Movement, Storage and Silo) with the same schedule as was decided by the Joint Secretary (P & S), Ministry of Food on 10.4.1993, which was finally modified by the notification of the Ministry of Food no. 301 dated 24.7.1993 as follows :

(a) Tk. 1.35/T-km. for route length of 0-100 km with minimum chargeable distance of 100 km.

---

*It should be clearly understood that BIWTA had never fixed any unique rate. This refrain, repeatedly noted in various correspondences of the MOF, DOF and the PMCs association, is unfortunately, not true, instead, BIWTA had always prescribed the maximum chargeable freight and minimum chargeable distance.

(b) Tk. 1.25/T-km. for 101-160 km but not less than total fee to be paid for (a).

(c) Tk. 1.12/T-km for any length above 160 km but not less than total fee to be paid for (b).

Finally, the tender was postponed and carrying through existing PMCs were renewed upto June 1994 with the previous terms and conditions and the Transport Economist was employed to rationalise the freight structure.

## 2.3. DIVISIONAL BOAT CARRYING CONTACTORS (DBCC)

There are at present three different DBCCs which are working under three Divisions, Dhaka, Khulna and Barisal. These carrying contractors are employed through tenders, who are to quote their prices within plus or minus 5% of the basic rates fixed by the rate committee chaired by the Commissioner of the respective Division. Unlike PMCs, routes are fixed for DBCCs, the number of which are 617, 795 and 606 for Dhaka, Khulna and Barisal respectively. The basis rates are fixed for the routes which have been made effective until June, 1994, which means that there are in total 2018 rates for 2018 different routes. There are duplication of routes within the schedules of DBCCs of different Divisions and the rates are also not consistent. As for example, the basic rate fixed for DBCC, Barisal for movement from Mongla port to Barisal CSD/LSD is Tk. 294.86/T whereas the same for DBCC, Khulna for a route from Mongla Port to Barisal CSD and Mongla port to Barisal LSD are Tk. 245.68/T and Tk. 263.25/T respectively. These had happened because of the lack of coordination between various Divisional rate committees and their freedom to decide the freight rates for their respective Divisions. For movements in those routes which are not mentioned in the schedules (Total 2018 routes mentioned) are

furnished in Table 1.

TABLE - 1 : BASIS FREIGHT RATES FOR VARIOUS DBCCs

| | | *Freight rates in Tk/T-km* | | | |
|---|---|---|---|---|---|
| *Distance in km.* | *Dhaka DBCC* | *Khulna DBCC* | | *Barisal DBCC* | |
| | | *Mechanised boat* | *Non-mechanised boat* | *Mechanised boat* | *Non-mechanised boat* |
| *0-8* | *9.67* | *2.91* | *2.91* | *3.22* | *3.22* |
| *8-16* | *7.28* | *2.91* | *2.91* | *3.22* | *3.22* |
| *16-30* | *3.46* | *2.91* | *2.91* | *3.22* | *3.22* |
| *30-32* | *3.46* | *2.39* | *2.24* | *2.64* | *2.47* |
| *32-80* | *2.22* | *2.39* | *2.24* | *2.64* | *2.47* |
| *80-above* | *0.50* | *1.06* | *0.93* | *1.17* | *1.02* |

It may be mentioned that in original scheduled routes of DBCC, there is no demarcation between rates for mechanised and non-mechanised boats whereas Khulna DBCC and Barisal DBCCs have differential rates for routes other than scheduled routes for mechanised and non mechanised boats. Again for Dhaka DBCCs there are no differences between rates for mechanised and non-mechanised boats for unscheduled routes.

Table 2, which had been prepared by DOF shows some more anomalies in the existing freight rates (Tk./T) for PMCS and DBCCs for various routes.

TABLE-2 : FREIGHT RATES (TK./TON FOR VARIOUS ROUTES IF PMCs AND DBCCs ARE USED

| | PMC | DBCC |
|---|---|---|
| Mongla-Barisal | 179.20 | 232.77 |
| Mongla-Kaukhali | 179.20 | 173.28 |
| Mongla-Jalakati | 179.20 | 160.35 |
| Mongla-Bhola | 209.44 | 162.24 |
| Mongla Patuakhali | 239.48 | 248.21 |
| Mongla-Charmuguria | 252.20 | 279.32 |
| Mongla-Madaripur | 248.64 | 271.32 |
| Mongla-Khulnaghat | 179.20 | 121.31 |
| Mongla-Mahessarpasa | 179.20 | 135.77 |
| Mongla-Chandpur | 265.44 | 219.48 |
| Khulnaghat-Chandpur | 319.20 | 352.21 |
| Khulnaghat-Barisal | 207.20 | 262.24 |
| Khulnaghat-Mirkadim | 372.96 | 313.36 |
| Khulnaghat-Patuakhali | 293.44 | 279.32 |
| Khulnaghat-Charmuguria | 306.88 | 333.93 |
| Khulnaghat-Madaripur | 302.20 | 338.29 |
| Mahessarpasa-Chandpur | 322.16 | 359.39 |
| Mahessarpasa-Barisal | 216.16 | 263.81 |
| Mahessarpasa-Mirkadim | 381.92 | 325.88 |
| Mahessarpasa-Patuakhali | 302.43 | 311.91 |
| Mahessarpasa-Charmuguria | 310.74 | 344.13 |
| Mahessarpasa-Madaripur | 312.48 | 342.95 |

## 2.4. INTERNAL BOAT CARRYING CONTRACTOR (IBCC)

The following is the list of districts that cover the Internal Boat carrying contract system (Total 29).

1. Kurigram
2. Serajganj
3. Narail
4. Khulna
5. Satkhira
6. Bagerhat
7. Barisal
8. Jalakati
9. Perojpur
10. Bhola
11. Patuakhali
12. Barguna
13. Netrokona
14. Keshoreganj
15. Madaripur
16. Gopalganj
17. Sariatpur
18. Narayanganj
19. Munshiganj
20. Manikganj
21. Sunamganj
22. Comilla
23. Brahmanbaria
24. Noakhali
25. Chittagong
26. Cox's Bazar
27. Rangamati
28. Dhaka.
29. Sylhet

Every district has got a schedule of list of Routes and rates for IBCCs which are fixed by the Rate Committee chaired by the respective Deputy Commissioner. Like DBCCs, the IBCC schedules also mention rates for T-km, for those routes which are not defined. Investigation shows that the rates of IBCCs of various districts are not uniform in the sense that for the same route length differential rates are paid to the IBCCs of different districts.

## 2.5. VARIATION OF ROUTE LENGTH AND PROCEDURE FOR PAYMENT OF THE BILL OF CONTRACTORS

It has already been mentioned that there are fixed rates for T-km. for PMCs whose fees are paid as per the length of the route

travelled by their Carriers. Also in case of DBCCs and IBCCs, although there are defined routes and rates, carrying of foodgrains and other food-stuffs are made in routes other than those defined in the schedule of the contractors for which fees are paid according to the T-km transported by the respective contractors. But as the route length and the draft of the concerned waterways are varying with time the DOF has to depend on BIWTA for supplying the route length and draft for all cases of PMCs and for those routes which are not defined in the schedules of DBCCs, on the basis of which the contractors are paid their fees.

However, for each such case for which the route length is to be known, the Regional Food office requests the Director (M,S & S) of the DOF, who transmits the request onward to BIWTA. BIWTA then passes the required information to Director (M,S & S), which is then transmitted back to the Regional office and then only the arrangements for paying the bills of the Contractors are made. There has been some occasions that the DOF instead of requesting BIWTA had asked the Water Development Board (WDB) for furnishing the required data. These are all cumbersome procedures and waste a lot of time and energy of the Government officials.

## 3. REVIEW OF THE PRESENT STATUS OF INLAND WATERWAYS OF BANGLADESH IN THE CONTEXT OF COMMODITY MOVEMENT.

### 3.1 INTRODUCTION

Any study on commodity movement through inland waterways is by definition a study of the country's rivers and waterways and the use made of them. Because rivers are a natural and not a man made asset it could be assumed that they are not subject to change, that rivers that have centuries been open for navigation will remain open in perpetuity. In the case of Bangladesh, such an assumption must be challenged. The evidence appears in-

controvertible that the river system and the country's net-work of inland waterways are undergoing considerable change. The speed of change appears, moreover to be increasing and its consequences are genuinely alarming.

Such deterioration of the Bangladesh waterways navigability over the past decades has taken place and will continue in the northwest division tributaries and connections or distributaries and in various Northeast Division rivers. The main causes of this deterioration is the increased abstraction of surface water and ground water in the low flow season, whereas the reduction of cross boundary flows from India is likely to be a second important reason.

## 3.2 ROUTE CLASSIFICATION AND RIVER TYPES

The responsibility for maintaining the network of navigable waterways is vested in BIWTA. It attempts to maintain 3200 miles (5,200 km) and has fitted 2,400 miles (3,900 km) with various navigational aids to help make right time navigation possible. For purposes of conservation and maintenance, the inland waterways are divided into 4 classes.

Class I comprising the (perennial) Routes configuring the propeller-shaped spine of the system that interconnects Chittagong-Dhaka/Narayanganj-Khulna/Mongla via Barisal (Ilsaghat/ Hizla) where the largest LAD (least Available depth) of 3.60-3.90 m (12-13 ft.) is to be maintained all year round, with a total length of 550 km.

Class II (Perennial) Routes linking the major ports for the North-western and Northeastern hinterlands, i.e. Baghabari (Nagarbari) and Ashuganj (Bhairab Bazar) to the Class I Routes where the next, highest LAD of 2.10 - 2.40 m (7-8 ft.) is to be maintained all year round, with a total length of 250 km.

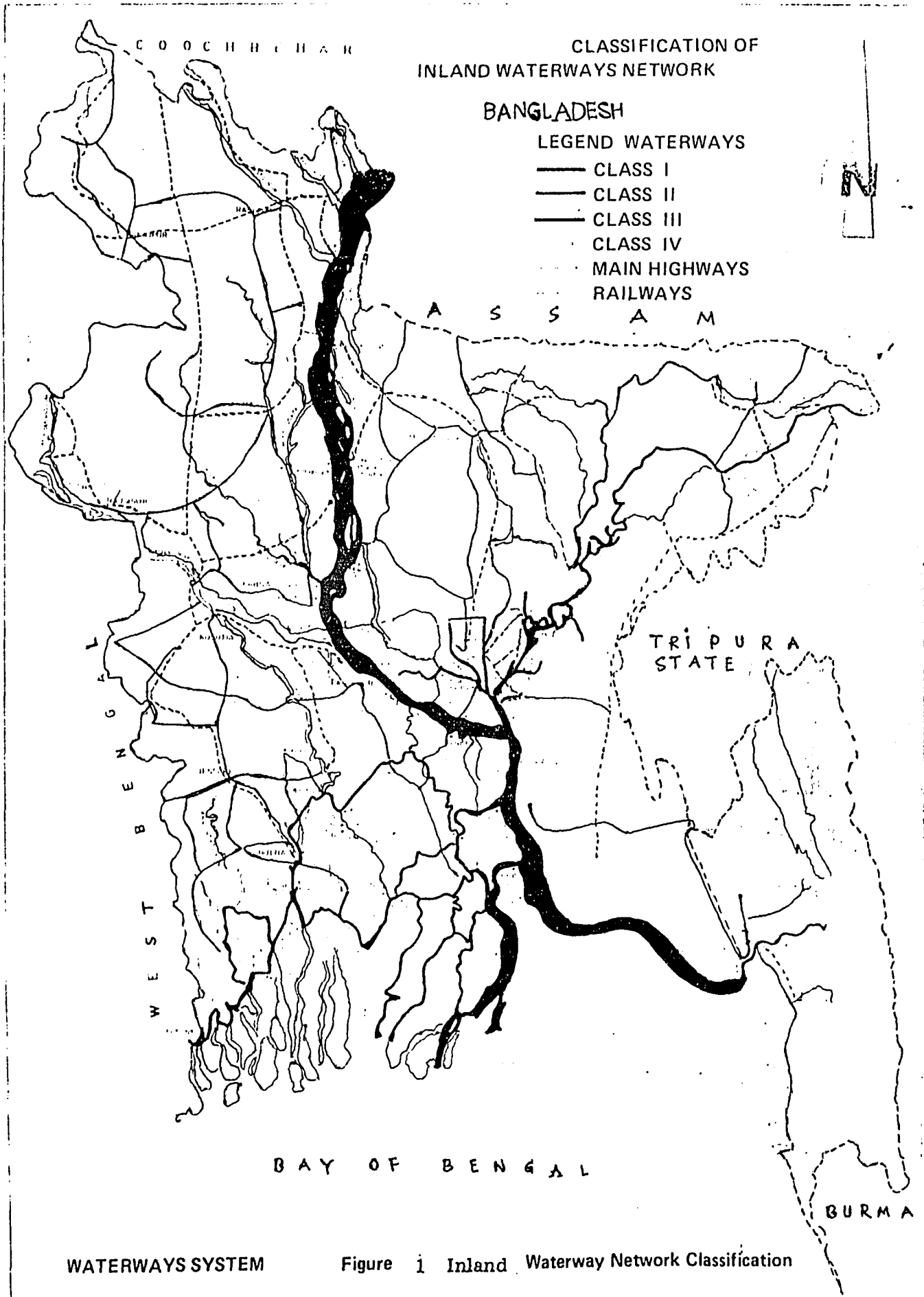
Whenever feasible, the routes extending further north, notably to Chilmari (Jamuna R) and Chhatak (Baulai/Surma R) respectively, with an (additional) length of 450 km, would be incorporated in this Class II (total then 700 km); otherwise, the latter routes must be accepted as Class III routes.

Class III Routes, where it is usually not feasible to maintain perennial routes with a LAD exceeding 1.50-1.80 m (5-6 ft), either "transit routes" such as : Daikhawa (Chilmari) - Nagarbari (Jamuna R.), possibly (partly) included in Class II, Zakiganj (Fenchuganj)-Ajmiriganj-Dilalpur(Kushyara-and Kalni R) and Chalna-Raimangal, with a total of length 490 km; or "feeder" routes connected with Class I or II routes (sections of Kangsa R. [35 km], Titas R. [21 km], Lakhya R. [13 km], 'Route around Dhaka' [133 km]; Karnafuli R [43 km]; and the 'tidal' rivers in the Southwest /central region [some 500 km], with a total length of about 750 km ('grand total' then 1240 km).

Class IV (feeder) Routes, basically seasonal routes, where it is not feasible to maintain a LAD of 1.50 m (5 ft.) in the dry season with a total length of roughly 2000 km. Fig1.shows the classification of inland waterway net work of Bangladesh.

The importance of (existing) inland waterways is determined primarily by the nature and volume of goods and/or the number of passengers handled at the terminal areas (ports), where the traffic generating socio-economic activities (traffic demand) take place, and where there is relatively easy access to the river system.

The mechanized (larger size) cargo vessels (to be) utilized for the "large volume" and long distance" transport flows are the determining factor in classifying waterways. This implies that the "loaded draught" characteristics of the (mechanised) vessels,




WATERWAYS SYSTEM Figure 1 Inland Waterway Network Classification

determining the Least Available Depth (LAD) requirement, should be the leading criterion in route classification.

Practically all waterways are natural rivers; therefore, their navigability is strongly affected by the river morphology and hydraulics.

The regimes of the rivers in Bangladesh (except for those close to the sea), show a high and a low water period; the high water period lasts from June to November with highest water levels recorded in August. During the low water period, shipping is hampered on many waterways, while some routes are closed.

## 3.3 MEASUREMENT OF DEPTHS OF WATERWAYS BY BIWTA

The pilots employed by BIWTA, stationed in groups at strategic locations along the waterways are responsible for a definite length of waterway called a 'beat'. Within these specified beats they regularly inspect the Channels in small boats, measure depths with poles and locate deep channels which they made with buoys and beacons. The observed depths are also transmitted to the Head office at Dhaka. On the basis of this information a monthly/fortnightly River notice is issued, specifying the depths along the waterways. The process of conservancy is supported by hydrographic surveys, especially when dredging is necessary in the waterway mainly carried out to maintain the depths of class I routes.

Standard Low Water (SLW) level is taken as the reference level to measure all waterway depths. SLW is defined as a level below which the water falls only on an average of 18 days per year (5%, of a year) SLW levels have been computed for a large number of stations in the country in 1967 and recomputation is urgently needed.

The data published in the River Notices, however are the maximum allowable draft of the vessel that can ply in the fairway. Depths of non-tidal rivers are recorded as measured, while depths of tidal rivers are recorded as depth below LW (which is the lowest level of ebb) in the cycle during measurements. Reportedly, a "safety" margin of published depth of 0.5 metre is normally applied, in other words, the actual observed depth was more than the published figure. Such practices lead to under utilization of the fairway. Particularly, since the controlling depth figure in a specific fairway often represents a single location(s), the bottleneck(s)-while the remaining fairway is deeper, there is little harm (risk) in publishing the real bottleneck in precise terms; when 'warned', vessels could easily slow down at such a location. Unfortunately, this is not done by BIWTA.

The bottleneck depth in a fairway is usually called the Least Available Depth (LAD) in contrast to the depth at a specific location. LAD therefore reflects a characteristic of a whole fairway (route or river section).

Actual available depths in the fairway would follow from the published LAD plus (or minus) the height of the water level above (or below) SLW. Water levels (usually) change more rapidly than river bed elevations and than LAD's and can be observed and recorded much easier.

# 4. REVIEW OF THE STATUS OF THE INLAND CARGO FLEET

## 4.1 INTRODUCTION

As has been mentioned earier the DOF employs PMCs who are the vessel owners and DBCCs and IBCCs who normally charter vessels for performing the transportation task assigned to them. These vessels which carry the public sector foodgrains and food-stuffs are very much similar to the typical vessels that ply in the inland waters of Bangladesh. At a time when there is no assignment give my DOF, these vessels are engaged in transporting other commodities.

## 4.2. MECHANISED FLEET STATISTICS

The mechanised fleet of larger size cargo vessels is operated by one public company (BIWTC) and many private companies (often individual entrepreneurs). The mechanised cargo vessels are registered with the Directorate of Shipping (Ministry of Shipping). Various trade associations (e.g. Coastal Vessel Owners, Cargo Vessel Owners ) represent the private operators in consultations (on regulations, administrative and financial procedures, etc.) with the Government.

The "baycrossing" fleet comprises at present of about 200 dry cargo coasters and dumb barges (with pusher/towing tugs) with a total load capacity of about 150,000 (metric) tonnes. The "inland" fleet numbers about 700 dumb barges and around 180 tugs for side-towing these barges-with a total load capacity in the order of 230,000 tonne - and close to 1000 self-propelled vessels with a load capacity of some 200,000 tons. Since 1978-79 baycrossing dry cargo capacity increased by 75%, inland (dry) cargo capacity by 76% (i.e. average annual growth rate about 5%).

## 4.3 VESSEL OPERATIONS

Although the fleet is "over-aged" by any normal standard, there is no shortage of cargo vessel load capacity, ensuring a competitive environment of average freight rates of 0.80 Tk./Ton km offering a fair deal to recover actual costs "plus".

With the growing evidence (i.e. the financial results) that BIWTC cannot operate adequately under prevailing regulations and procedures, there is a Project named IWT-3 which is being executed by IDA with an objective of rationalising BIWTC, by introducing specific service oriented centres for cargo, passenger, Coastal and Ferry sectors etc.

The private sector is characterized by many small-scale cargo vessel operators running their business as a "household affair" and a relatively small number of owner (group)s of - the larger capacity- vessels handling a majority of the cargo traffic.

There is at present little appreciation for tug-dumb barge operations among smaller scale operators, who are generally not in a position to acquire the substantial volume of (line-haul) transports needed to turn the owning and running of a tug into a profitable operation. Chartering (hiring) tugs from third parties were considered favourably among these (small) operators.

## 4.4 INLAND VESSEL CONSTRUCTION INDUSTRY

The lack of control on (existing) regulations is apparent in the inland vessel construction industry. There is a sufficient number of qualified naval architects in the country. BIWTA appraises and approves inland vessel design documents according to the rules, but at the smaller private shipbuilding yards, where the majority of the vessels are constructed, there is an extreme emphasis on saving costs (on steel hull motor vessels in particular) at the

cost of durability and safety. In the end, construction quality is as good as supervision and control both during construction and at completion. The agency issuing the license, which allows the vessel in the waters, is the Registration Section of the Department of Shipping (Ministry of Shipping), but construction control-on the private yards- and associated tasks of qualified ship surveyors is, so far, clearly outside the Registration Section's scope of work and present staffing. However the formation of ISSA (Inland Ship Safety Administration) under the Department of Shipping may improve the situation.

## 4.5 MAIN CHARACTERISTICS OF VESSELS

The present role of coasters with around 1,000 ton (+/-) load capacity is likely to remain the same; at 3.50-4.00 m loaded draught, they are confined to the Class I routes (Chittagong to Dhaka and Khulna areas), where in principle the Least Available Depths are not expected to change (deteriorate) in the foreseeable future.

Although inland navigation-anywhere in the world-has to cope with shorter or longer trenches of shallow water (minimum keel clearance), draught limitations are likely to become a major factor in future inland navigation in Bangladesh. Mainly due to increasing water extraction (during the 4-5 months of the dry winter season) water levels will be gradually reduced in an increasing number of rivers.

More than in the past, attention needs to be focussed on measures to reduce vessel's draught, with a view to what is physically possible and economically justified.

The length of the most common, existing vessel types is relatively small in relation to vessel width, and also in

relation to hull depth, as is illustrated by the statistics in Table 3.

The hull shapes of the larger size, self-propelled cargo vessels resemble "mini" oceangoing vessels (small scale coasters). Their elegantly shaped hulls have a low resistance, built for high speed. This is not the most appropriate design for restricted water depths and leads, moreover, to a substantial loss of (potential) payload capacity.

TABLE 3: L/B AND L/D RATIO AND OTHER CHARACTERISTICS OF INLAND VESSELS

| | | | | | | | Hull ratios | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Self-propld cargo vessel (T) | LOA(M) | LWL (M) | B (M) | D (M) | d (M) | Displ (cubm | Lwl/B /B | LWl /D | B/D | Free-board-d (m) |
| 50 | 21.35 | 18.20 | 6.17 | 2.00 | 1.70 | 125 | 2.9 | 9.1 | 3.1 | 0.30 |
| 150 | 27.00 | 25.50 | 6.70 | 2.25 | 1.75 | 200.0 | 3.8 | 11.33 | 2.9 | 0.50 |
| 250 | 35.00 | 32.00 | 7.20 | 2.30 | 1.8 | 281.0 | 4.4 | 13.9 | 3.1 | 0.50 |
| 350 | 39.00 | 37.50 | 7.39 | 2.50 | 2.0 | 400.0 | 5.1 | 15.0 | 3.0 | 0.50 |
| 450 | 42.00 | 41.50 | 8.90 | 3.00 | 2.5 | 627.0 | 4.7 | 13.8 | 3.0 | 0.50 |
| 550 | 45.00 | 43.00 | 9.10 | 3.35 | 2.80 | 735.0 | 4.7 | 12.8 | 2.7 | 0.55 |
| 650 | 46.80 | 43.90 | 9.15 | 3.20 | 2.90 | 816 | 4.8 | 13.7 | 2.9 | 0.30 |

Notes : L.o.a. = Length over all; Lwl = Length of waterline at licensed draught; B= Breadth (Beam); D=Depth of hull; d=licensed draught; D-d = Freeboard; Displ=displacement at licensed draught.

The specific installed power for the common types of vessels is as indicated in Table 4.

There are indications that the installed horsepower (if actually provided by the reconditioned engine) is not always efficiently absorbed by the propeller (i.e. transferred into thrust) due to the fact that the most appropriate propellers (diameter, blade area, pitch) are not always available or installed.

The maneuverability of the (mostly) single screw-equipped cargo vessels with their relative low specific horsepower depends on the type and shape of the main rudder. Practically all are the conventional semi-balanced rudder type, the area of which (in % of the lateral wet hull area) is so low that reasonable steering can be obtained at full speed only. Moreover, when sailing in confined waters with little underkeel clearance, the efficiency of steering with this type of rudder is relatively low. The same can be said about coasters when sailing inland.

Table 4 : MAIN PROPERTIES OF VESSELS AND PRINCIPAL RATIO'S

| | Main particulars | | | | | | Specific power | | Speed |
|---|---|---|---|---|---|---|---|---|---|
| S-p. cargo (T) | Lwl | B | d max | block coeff. | displ. (m3) | Power (HP) | HP/t | HP/m3 | V (km/hr) |
| 50 | 18.20 | 6.17 | 1.70 | 0.655 | 125.0 | 1 x 65 | 1.3 | 0.52 | 10-12 |
| 150 | 25.50 | 6.70 | 1.75 | 0.676 | 200.0 | 1 x 165 | 1.1 | 0.82 | 10-12 |
| 250 | 32.00 | 7.20 | 1.80 | 0.679 | 281.0 | 1 x 250 | 1.0 | 0.88 | 10-12 |
| 350 | 37.50 | 7.39 | 2.00 | 0.722 | 400.0 | 1 x 300 | 0.85 | 0.75 | 10-12 |
| 450 | 41.50 | 8.9 | 2.50 | 0.679 | 627.0 | 1 x 350 | 0.78 | 0.55 | 10-12 |
| 550 | 43.00 | 9.10 | 2.80 | 0.669 | 733.0 | 1 x 500 | 0.91 | 0.68 | 10-12 |

* sometimes equipped with lower HP

Notes : Speeds indicated are estimated speeds at waterdepth > 5 m. Although the term HP per ton of cargo is commonly used for "specific horsepower", HP per ton displacement (cargo + deadweight + fuel) is a more correct indication, used anyway for non-cargo carrying vessels.

## 4.6 MECHANISED COUNTRY BOATS

A rapid mechanization of country boats has taken place in the past few years (e.g. Jamuna, Buriganga and Lakhya rivers), closely linked to the "green revolution" which has brought tens of thousands of (shallow and deep) tube wells and low-lift pumps throughout the country; many of these pumps are used only for 3-4

months (for HYV cropping during the dry season), and landowners with (shallow) tube wells tend to put the engine (even in the dry season) in their boats-or rent them out to other boat owners on market days- after sufficient water has been pumped in their fields.

The newly mechanised cargo-carrying country boats vary in size from 5-75 tons (100-2500 maunds), and certain types are (much) more suitable to accommodate the engine than others.

A new category of boatmen has emerged-the engine operator- just for running and maintaining the engine. Their (technical ) skills are likely to contribute to enhance technological capabilities (and 'aspirations') in the rural areas in general.

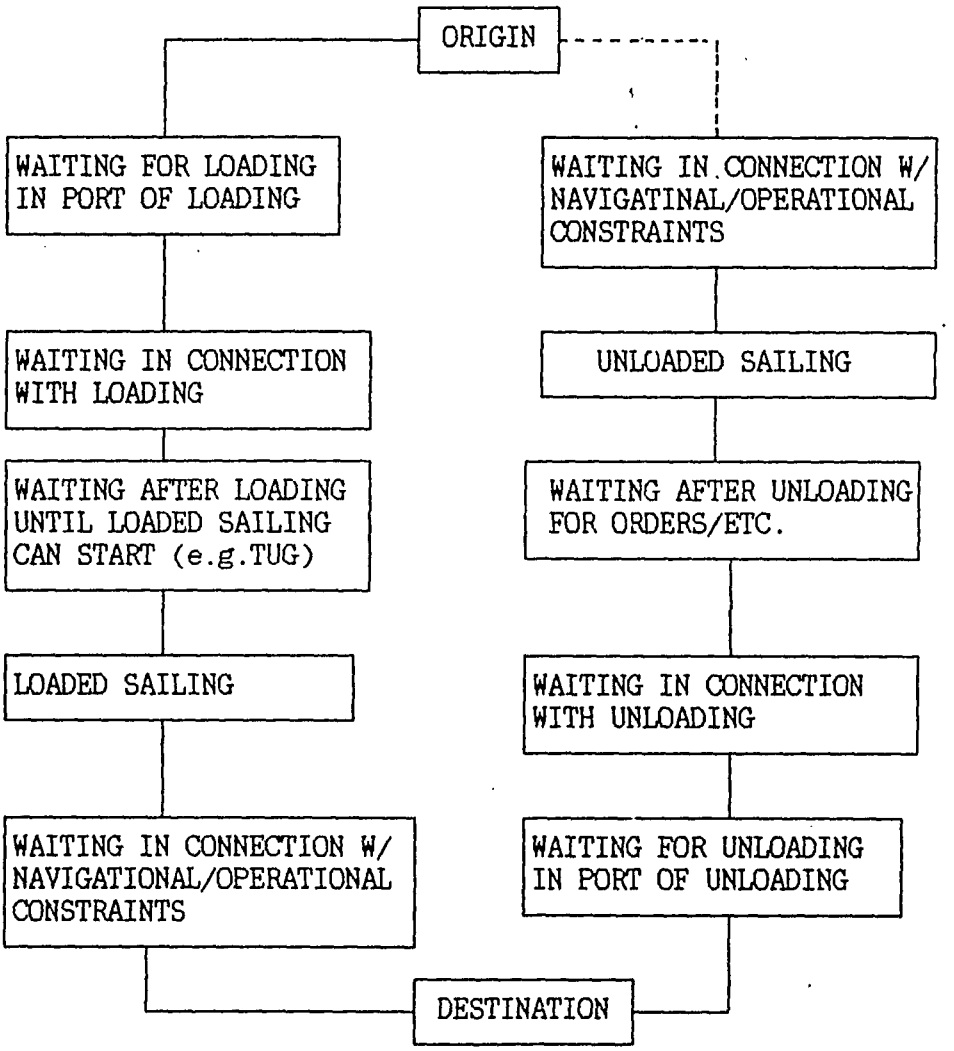
The subsidized-hence fairly inexpensive irrigation pump engines have triggered off the present 'revolution' in the country boat sector. The present, great demand for these engines is reflected in increased prices, where second-hand engines, obtained for say Tk. 20,000 two years ago, are sold now at 25-50% higher prices.

## 4.7 MECHANISED FLEET OPERATIONS

### 4.7.1 Cargo vessel performance in general

The "key events" during a cargo vessel's roundtrip in connection with transport of foodgrain are outlined in Figure 2.

FIG 2. : STAGES DURING A CARGO VESSEL'S ROUNDTRIP




Maximizing vessel utilization, notably the number of productive days per year, is the vessel operator's primary objective. This will increase his "benefits" over the "costs" concerned.

A vessel's annual number of productive days comprises of its "steaming" days (en-route) and its "port" days (working cargo). The balance consists of days lost due to :

(1) waiting for repairs,
(2) carrying out repairs (and preventive maintenance),
(3) waiting for cargo,
(4) waiting for orders,
(5) waiting for fuel, crew, stores(operational constraints),
(6) waiting for adverse draught, tide, or weather conditions, obstacles in fairways, etc.(navigational constraints).

The commercial vessel operator seeks to reduce any of these time losses, although many of the causes concerned are under present circumstances beyond his "span of control".

The commercial vessel operator also attempts to reduce the number of "port" days which at present often is relatively large due to "waiting for loading or unloading" (because of limited berthing space or (un)loading capacity, but more often due to bad organization of land transport and/or storage and /or "administrative" procedures), "waiting in connection with loading or unloading" (because of discontinuities in cargo handling) and "waiting after loading before sailing" (because of lack of-or delay of tugs).

None of these causes are-at present-fully under the operator's "span of influence" (let alone "control"). Most are a matter of appropriate organization and management (e.g. institutional development of inland port authorities and "enforcement of discipline" both among cosigners and port administrators) ensuring "thinking ahead" (and acting accordingly), early communication and exchange of information, reservation of operating funds to be readily available when needed.

The "vessel-performance block", an essential element in the vessel operating cost calculation - structure must show explicitly the mentioned delay factors in their relation with the key-indicators of performance or annual output, i.e. number

of (round) trips (given overall average transport distance) and (ton) kilometer production (which are also furthermore affected by the transport demand pattern).

The average number of productive vessel days in Bangladesh varies under normalized conditions with the average route length and not be less than 150 (40%) per year, allowing for .7% (30 days/year) time lost due to waiting for repairs and for the repairs, 25% (75 days/year) for time lost waiting for orders and/or for cargo (which is usually inter related), 20% (72 days) for time lost in connection with (waiting for) unloading, and 8% (35 days) for time lost due to navigational constraints and for miscellaneous time losses (incl. operational constraints). The "instruments" to achieve improvements in performance are primarily institutional development and improved management (coordination).

## 5. THE EVLUATION OF TRANSPORT COSTS

### 5.1 The Inlnd Water Transport costs

The term transport costs in in-land water transportation are used in two senses depending on which side it is seen from :

(a) Transport cost for the ship owners
(b) Transport cost for the ship users

The transport cost for the ship user is represented by the 'price' (or freight rate) charged by the ship owners. The freight rate normally consists of three elements :

(a) Sea Transport cost for the ship owner
(b) Profit to ship owner
(c) Commissions to agents and brokers (if any)

The cost element is the measurable result of shipping operations. In principle, this element is not negotiable provided that the shipping operations are rational and efficient - as a result of consultations between shippers and ship owners. The profit element covers return on capital employed in the shipping operation. This is the part of the freight rate which should form the basis for special negotiations between ship users and ship owners.

The sea transport cost for the ship owner consists of the following elements :

(a) operating costs;
(b) Depreciation;
(c) Loading and discharging costs;
(d) Trimming;
(e) Pre and onward carriage costs;
(f) Bunker costs;
(g) Port costs;
(h) Canal transit costs;
(i) Cargo claims;
(j) Despatch / Demurrage;
(k) General Administration cost.

However, in addition to the more direct cost related factors, numerous less tangible factors enter the picture; such as :

(a) Nature of cargo
(b) Value of cargo

(c) Cubic measurement in relation to weight;
(d) Overall volume of shipments
(e) Handling costs,
(f) Cargo flow;
(g) Advance booking notice and dependability
(h) Promotional aspects
(i) Competition from other sources of origin.
(j). Competition by other transporters
(k) Trade imbalance
(l) Special considerations.

In the following section, only those cost components which are relevant with the movement of public sector foodgrains through inland waters of Bangladesh will be discussed.

### 5.1.1 Operating Costs

The ship operating costs are those costs which are necessary in order to have the ship ready for sea. These costs apply regardless of whether the ship is at sea, in port or a transit. Operating costs consist of cost elements which may be grouped as follows :

(a) Crew cost
(b) Insurance costs
(c) Repair and Maintenance cost
(d) Stores and Miscellaneous cost
(e) Administration cost.

In principle, the operating costs could be calculated by compiling or calculating data for each of the individual cost elements above and then adding them up. However, calculation of the various cost components would have to be done by approaching ship owners (who may be reluctant to reveal data). A brief survey of these cost elements is given below :

(a) Crew Cost

Crew costs include :

(a) Wages including extra payments
(b) Provisions
(c) Social Security costs
(d) Other social costs (leave etc.)
(e) Crew travel costs

In order to calculate crew costs it is necessary not only to know wages but also the number of men. Although calculations for the above terms are possible to carry out in principle, the background data available are so incomplete in practice at least at the moment, it becomes a difficult task to calculate reliable cost figures.

(b) Insurance

The Insurance cost for a vessel will in principle depend on its value. It includes premiums for hull, liability, off hire, strike etc. Normally, the insurance policy is based on a system with franchise (self insurance upto a certain limit). The premiums may however, vary from shipping company to shipping company, depending on the insurer's experience with the individual company. Detail calculations of insurance premiums are therefore difficult. When this cost element is to be calculated, it is advisable to contact a local insurance broker and ask for assistance in calculation of 'average' premiums.

(c) Repair and Maintenance

This cost element covers ordinary maintenance and repair, including minor conversions and renewal. The repair costs will vary considerably from year to year and may specially be high in

years of periodical inspection which normally takes place in every fourth year. In shipping calculation it is normal to include repair costs as the average for a four year period.

(d) Stores and Miscellaneous costs

This element includes costs in connection with stores for deck machinery and catering. It is not possible to calculate this cost element by a detailed approach covering all individual cost items. It should, therefore be assessed based on past experience as to the relative magnitude of this cost element versus for instance, total operating costs.

(e) Administration

This cost element includes that part of the shipping company's general administration costs which would be allocated to the individual ship.

Administration costs are normally not readily available but can be estimated on the basis of collecting estimates and statement of accounts of individual shipping companies.

5.1.2 Depreciation

Depreciation is supposed to measure the 'Consumption of capital' which occurs in the process of producing the service. Such losses of asset value may be caused through wear and tear, or through obsolescence or simply through the aging of the ship's capital cost.

The three major problems in assessing depreciation are :

(a) determine the basis of the valuation i.e. to decide the total amount to be depreciated.

(b) the depreciation method

(c) the system or method to be used for allocating the total investment to the individual periods of use.

Normally these three problems can be considered separately. The concepts and guidelines applicable to assessing depreciation are discussed in detail below.

(a) Valuation

The amount to be depreciated can in principle be assessed in two different basis:

(a) based on the original cost of the vessel
(b) based on current replacement value.

For both alternatives, the value will have to be reduced by the scrap value in order to reach the amount to be depreciated. Historically, depreciation has been calculated on the basis of original costs. Following the rapid world wide inflation of recent years, however, much attention has been given to replacement costs. If the depreciation charge at any time is to represent the current new building costs it is logical and practical to adjust depreciations to current cost levels.

(b) Depreciation Period

In normal accounting practice the depreciation period should refer to the useful service life of the vessel. In practice, this service life refers to the ship's physical deterioration. In some cases, however the point of economic obsolescene may be reached before the vessel is physically worn out. Depreciation periods may thus differ for different type of ships, but usually range from 10-20 years.

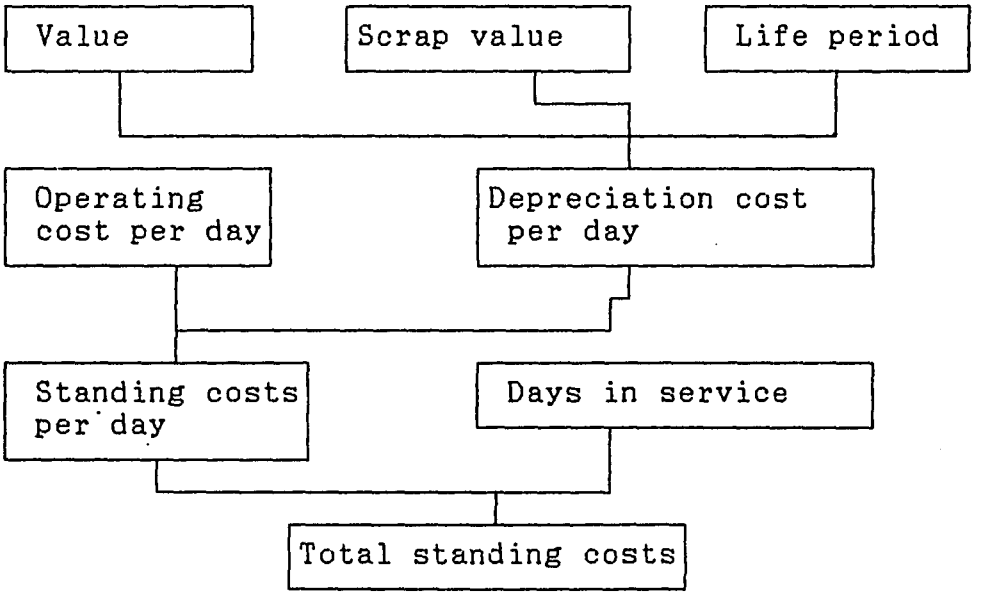
(c) Depreciation methods

In the shipping business straight line (or linear) depreciation over the life of the vessel is common practice.

Standing costs

Ship operating costs and depreciation are often grouped under the heading 'standing costs' : The calculation of standing costs are illustrated in Fig.3

Fig.3. : Calculation of standing costs



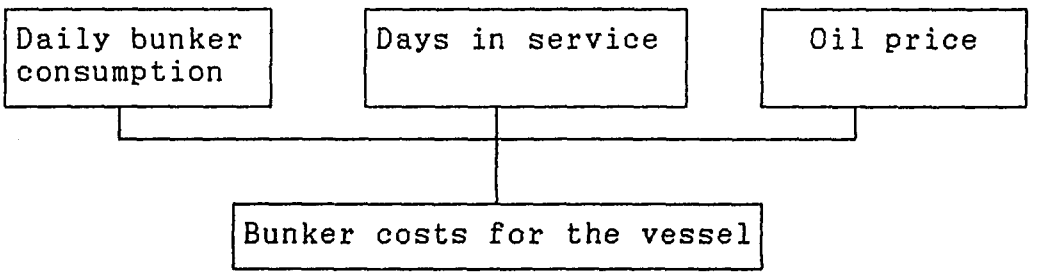

5.1.3 BUNKER COSTS

There are four elements which are relevant for calculation of bunker costs :

(a) Bunker consumption at sea
(b) Bunker consumption in port
(c) Bunker consumption in transits
(d) Bunker prices

The calculation of bunker costs is illustrated in Fig. 4..

Fig. 4. . CALCULATION OF BUNKER COSTS FOR ONE VESSEL




(a) Bunker Consumption at sea

The consumption of bunkers for low speed engines is slightly lower than for the others. For practical purposes, however, the consumption factor may be reckoned the same for all diesel engines. For low speed engines, the consumption may be taken as 0.2 litre/BHP hr. at full rating of the engine. Change in the service speed of the vessel will increase/decrease the time spent on the sea voyage while the bunker oil consumption will be reduced/increased accordingly.

However, there is strong relationship between the hourly fuel consumption and the vessels speed. Empirical data as well as theory indicates the following relationship :

$$F(S) = Fd\ (S/Sd)^{K}$$

where F(S) = Fuel oil consumption/hr at given speed

Fd = Fuel oil consumption/hr at design speed

S = Given speed

Sd = Design speed(speed mentioned in Registration)

The factor K may vary depending on vessel type, hull form etc. but for ordinary cargo vessels of Bangladesh it may be taken as 2.0.

(b) & (c) Bunker Consumption in ports and Transits

During transit at night when the vessels take shelter for security reasons and during cargo handling at ports, the fuel consumption may be taken as zero.

(d) Bunker Prices

Bunker prices can be obtained from the prevailing market statistics.

Port Costs

When a ship calls at a port, the following cost elements are relevant -

(a) Port Charges
(b) Standing Costs for time spent in Port
(c) Bunker cost

5.1.4 Port Charges

Port charges normally consist of dues calculated based on published tariffs, agency fees and other charges not directly specified. The port charges normally are built up as the sum of various tariffs which again are based on one of the ship's dimension (for instance tonnage, length etc.). In other cases

other basis for calculation may also be used (for instance cargo loaded or discharged).

Standing costs are incurred whether the ship is sailing or lying in Port. The length of the stay in port including free time for loading and unloading and miscellaneous delay is therefore important when calculating the actual costs of Port call. In many cases the cost of time in port may be much higher than the port charges.

### 5.1.5 Cargo Claims

Cargo sent by a shipper through shipments will be insured against damage or loss during transport between the shipper's places. The insurance is either arranged and paid for by the shipper or the ship owner depending on the terms of agreement. The cost to be borne by the ship owner will be in form of security deposit and the yearly premium for the insurance if any made in this regard.

### 5.1.6 Despatch / Demurrage

Normally, a voyage charter party gives details of time allowed for loading and discharging. If the shipper is able to load/discharge more quickly the ship owner pays a premium which is called despatch. If loading and discharging operations take more time than stipulated in the tender terms, the ship user will have to pay the ship owner a penalty. This is called 'demurrage'.

Rates for 'despatch' and 'demurrage' are normally stipulated in the tender conditions. The general rule seems to be that despatch is half demurrage.

### 5.1.7 General Administration and Overhead Cost

General Administration costs consist of the costs of general administration and non allocatable general costs. These costs may in many cases be difficult to assess, efforts should be made to establish a percentage factor for general administration costs based on facts and information gathered form multiple sources.

## 5.2 RETURN ON CAPITAL - PROFIT

This present section deals with the profit element in the freight rate. In the earlier section the freight rate was divided into three elements :

(a) Sea transport cost, including depreciation;
(b) Profit;
(c) Commissions.

The topic of depreciation was discussed in the earlier section. If one excludes depreciation form sea transport cost, one is left with a number of items (such as bunkers and crew wages) which may appear to be objectively given and necessary. This is of course, not completely true: the cost items which are computed under that head will not always refer to the most efficient way of rendering the service and, conversely, a particular owner may incur greater costs than might be estimated because he is not efficient enough. Profit, however, seems to be an indeterminate element in the freight rate. There is no doubt often so in practice but in theory one can set up certain objective standards for what the rate of profit should be. Even though there may be theoretical standards, they are of great practical importance in some of the circumstances in which ship users will wish to investigate profit rates.

To clarify the matter, the circumstances in which ship users cause to investigate the rate of profit can be thought of in sets: (a) Planning and (b) Negotiating.

In each case the question will be, what freight rate (inclusiv of profit) will secure the service? In the first case (planning, the user will normally be thinking about the rates necessary to obtain a competitive shipping services. If he were thinking about shipping by non-competitive services, he would be more interested in forecasting the freight rate rather than its components. In the second case (negotiating) there will be an absence of competition (since one does not negotiate with a competitive market). In negotiations, it is impossible to foretell exactly the rate that will result, but it is important to be clear about the limits within which the rate can be determined without either turning the cargo away or choking off the supply of service. The lower limit to the rate will again have to be determined by reference to something like a competitive situation. It is the freight rate (and thus also the rate of profit) which would be just sufficient to keep supply going at the desired volume.

An owner will not supply his service if he could make himself better off by not supplying it. In the short run, even though, revenue may fail to cover more than out of pocket expenses (the rate not covering depreciation charges) the service will not be iscontinued. The owner could not better himself by stopping to pply his service. In the longer run, however, the service will be maintained unless the owner expects to recover his outlay ıew investments (e.g., ships), and further expects that tal invested will earn the same rate of profit which it could somewhere else in the economy. Note that the decision r to maintain the service in the long run (by abstaining lling off assets or by acquiring new ones) depends on the ion of returns; but the expectation will usually be based

partly on experience which means, on past profitability of the same service.

The "lower limit rate" of profit at any one date is therefore that rate which, if maintained thereafter year after year, would just persuade the owner to continue supplying his services, on the present scale. This "lower limit rate" is the only objective standard that is available. Having considered the definition one can proceed to the problems of evaluating the rate. These are vexing problems, but at least what is being looked for is known: not a "reasonable rate of profit" but a "just sufficient rate of profit". For brevity, this is the rate which has been used in the model as the "required rate".

## 6. REVIEW OF THE VARIOUS LITERATURES CONCERNED WITH COMMODITY MOVEMENT THROUGH INLAND WATERS.

The various charges that are paid to BIWTA for all operators of inland and coastal vessels including PMCs, DBCCs and IBCCs which had been effective before and after 30-6-93 were collected. These fees include Conservancy fee, Pilotage fees, Canal tolls and charges, landing and shipping charges, berthing charges, storage charges, terminal charges, etc. which have been shown in Annexure A.

A questionnaire for estimating the Vessel Operating Costs (VOC) for various types of vessels was prepared, which was shown in the Interim Report.

Mileage tables for Bangladesh inland waterways which were prepared in January 1975 have been collected from the Department of Hydrography of BIWTA. Since then the tables have not been modified by BIWTA but there are raw data available, which was used for updating the mileage table.

Annual ports and Traffic Report of previous years and the draft restriction maps of 1993 and 1994 and the map showing Classification of Inland Waterways of Bangladesh as in 1994 have been collected from the Ports and Traffic Department and the Department of Hydrography of BIWTA. The Annual report (1992-93) of Ports and Traffic Department of BIWTA is yet to be published. Some more literatures, maps etc. have also been be collected from various organisatioins viz WDB, River Research Institute etc. The maximum chargeable freight rates for various commodities as was prescribed by BIWTA during previous years are furnished in Table 5.

TABLE 5 : MAXIMUM CHARGEABLE FREIGHT RATES OF VARIOUS COMMODITIES PRESCRIBED BY BIWTA SINCE 1985.

| Name of the commodity | Maximum chargeable rate (1985-90) | Maximum chargeable rate (1990-92) |
|---|---|---|
| Rice, Wheat, Salt, Sugar edible oil, cement and any other type of general cargo except fertilizer, jute, jute goods Petroleum products | Tk. 0.67/T-km with minimum chargeable distance of 160 km. | Tk. 1.12/T-km with minimum chargeable distance of 160 km. |
| Fertilizer | Tk. 0.70/T-km with minimum freight of Tk. 94.00 | Tk. 1.15/T-km with minimum freight of Tk. 130.00 |
| Petroleum Product | Tk.0.44/T-km with minimum freight of Tk. 71.00 | Tk. 0.53/T-km with minimum freight of Tk. 53.00 |
| Jute | Tk. 0.67/T-km | Tk. 0.93/T-km with minimum chargeable distance of 160 km. |
| Jute goods | Tk. 0.81/T-km. | Tk. 1.12/T-km with minimum chargeable distance of 160 km. |
| Carpet backing | Tk. Tk. 1.08/T-km. | Tk.1.49/T-km with minimum chargeable distance of 160 km. |

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## 7. STANDARD ROUTES FOR INTERDISTRICT MOVEMENT OF FOODGRAINS.

### 7.1 FIXATION OF STANDARD ROUTES

As has been described earlier Interdistrict movement and transportation of public sectors food grains are organized and planned by the Directorate General of Food and also by the Regional Controllers of Food.

Imported foodgrains are mainly handled at Chittagong and Mongla Ports for storage at Chittagong Silo, Chittagong CSD, Khulna CSD and up country movements to other Silos, CSDS and LSDs. Besides imports the DOF also procures appreciable amount of paddy/rice and wheat annually from domestic sources. There are also some movements of other foodstuffs on irregular basis.

The Central movement programme for wheats are prepared by DOF on monthly basis and for other foodstuffs on irregular intervals. The programmes are sent to concerned RCFs, DCFs and CSMs for necessary implementation. In addition to such movement programmes, the RCFs and CSMs also prepare programmes for Interdistrict movement of various foodgrains and food-stuffs based on the demand and availability at different districts. Although all such movements programmes were supposed to be sent to the DOF for their information, the consultants did not get the trace of those from the DOF.

At present there are 62 PMCs (20 at Chittagong and 42 at Mongla) engaged under the DOF, in addition to BIWTC, who generally carry wheat from Chittagong and Mongla inland. The routes for the PMCS are not defined and PMCS are paid their bills on the basis of the per ton km. rate and the actual distance they cover between the loading and unloading ports. Unlike PMCs, routes are fixed for DBCCs, the number of which are 617,795 and 606 for Dhaka, Khulna and Barisal Divisions, totalling 2018 different routes. For

preparation of standard routes for interdistrict movement of foodstuffs and food grains, it was decided in a meeting held on 25 March, 1994 under the Chairmanship of the Secretary, Ministry of Food, that only those routes which were frequently used in last 3 years would have to be considered. It was also decided that the number of those routes would not be more tan 10% of the total scheduled routes of DBCCs i.e. about 200. The monthwise movement programme of wheat in various routes in last 3 years are shown in Annexure B.

In addition to the central movement programme, there were movements of wheats, rice, paddy and vegetable oil, which were organized by the RCFs and CSMs.

On the basis of the central and regional movement programme in last 3 years a standard route list (Total-451) for interdistrict movement and movements from sea port of foodgrains and other food stuffs has been prepared, which are shown in Table 8.

## 7.2 THE DEPTH OF WATERWAYS AND THE EFFECTIVE DISTANCE FOR THE STANDARD ROUTES

In general, there are alternative routes for linking two ports or stations, of which some are for all seasons and the others are the seasonal routes. The length of the seasonal route between two ports/stations is in general less than that of 'all season' route. But the seasonal routes which remain effective only for few months of the Monsoon season have the least available draft (LAD) not sufficient enough to be economically used always by the vessels normally used for interdistrict movement of food grains. On the basis of data collected from BIWTA it is found that more than 50% of the standard routes selected for interdistrict movement of foodgrains show a difference of not more than 10% between the route lengths of the 'All season route' and the 'seasonal route'.

Although the seasonal routes may not have the minimum required draft throughout the whole monsoon season there could be some time during the 'Monsoon' when the depth of the waterways would remain sufficient to be used by the vessels selected for Interdistrict movement.

So for calculating the effective route length between two ports, the following formulae have been used.
Taking in consideration that the duration of the Monsoon is 6 months in a year and the lowest draft during monsoon on average is 1.0 m.

$$RD = \frac{\left(\frac{(DMS-1.0)-(ADR-1.0)}{DMS} \times 6\right) \times SRL + \left(12-\left(\frac{(DMS-1.0)-(ADR-1.0)}{DMS} \times 6\right)\right) \times ASRL}{12}$$

(when DMS > DR and non bay crossing routes)
Where,

DMS = Maximum allowable draft achieved by the seasonal route in metre
ADR = Average draft required by the vessels in m.
ASRL = Length of the 'all season Route' in km.
SRL = Length of the 'seasonal route' in km.
RD = Effective route distance in km

$$\text{i.e. } RD = ASRL + \left(\frac{DMS-ADR}{2(DMS-1.0)}\right)(SRL-ASRL)$$

(when DMS > DR and non baycrossing routes and
RD = ASRL (when DMS < ADR and all other cases except country boat).
The required data were collected from BIWTA for all the standard routes and using the average required draft of the vessels, the effective route distance was found.

Table 8 shows the list of all the names of the standard routes, their 'all season' and 'seasonal route lengths' 'seasonal maximum draft' etc.

## 8. COMPUTER MODEL DESIGN AND DEVELOPMENT

After several meetings between the Consultants and DOF and MOF it was concluded that the development and manipulation of a computerized model for simulating the movement of public sector foodgains and other food-stuffs in inland waters would aid the Formulation and Rationalisation of freight Structure. Specifically, three objectives were identified.

1. To calculate the effective Route lengths for the standard routes.

2. To calculate the basis freight rates (Tk/Ton-km) for various route lengths upto 700 km through alternative vessel types, including the rate for intradistrict movement through mechanised country boat.

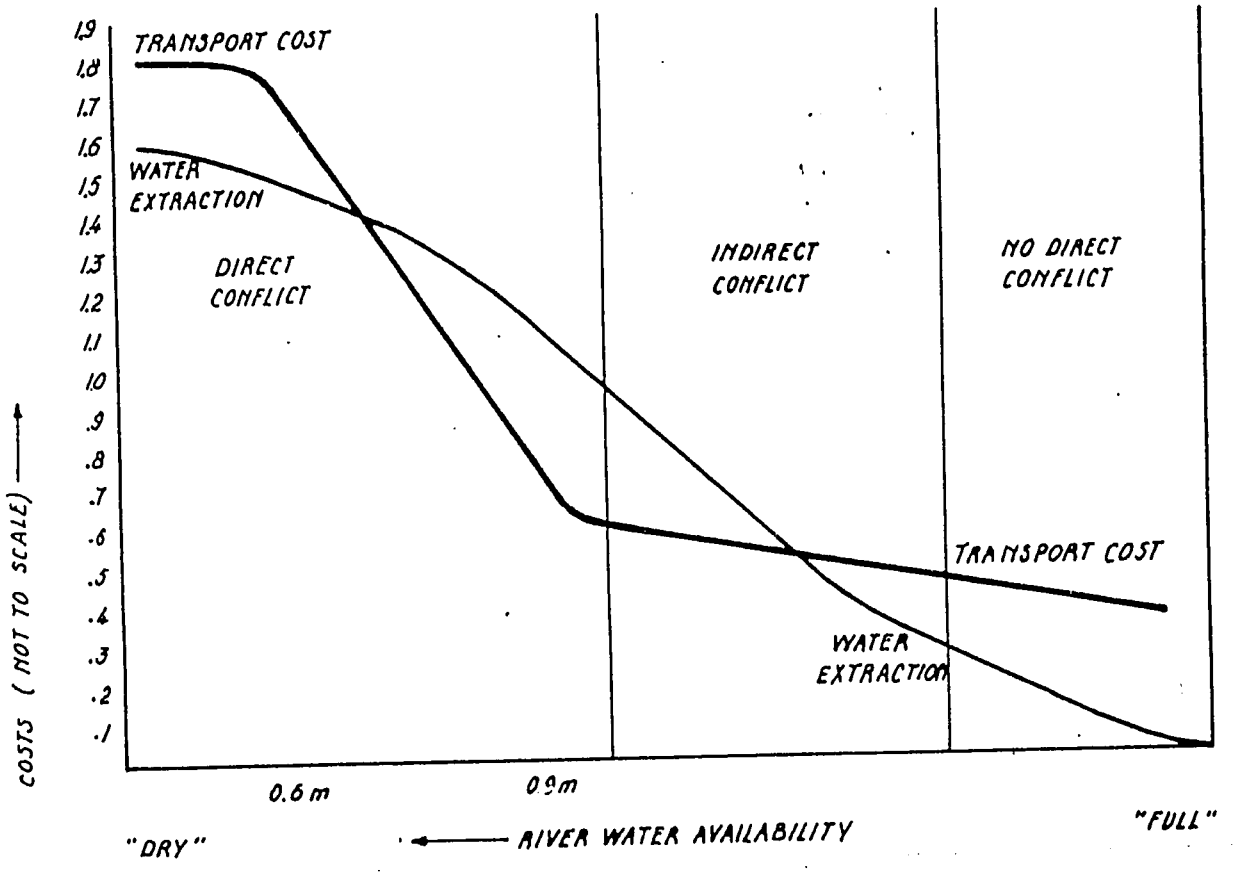
3. To calculate the proposed freight rates for all the standard routes under the existing operating scenario.

To ensure that the model could achieve these objectives it had to have incorporated within it some of the decision rules used by DOF in the operation of the system. It must also incorporate actual data wherever possible. The advantage of such a model is that it can be used for differing variability characteristics.

## 8.1. FIXATION OF SAMPLE VESSELS FOR COMPUTER MODEL

The vessels used for the public sector foodgrain movement and other commodities in the public and private sectors of Bangladesh are of various types and sizes. Among the types those which are commonly used are Coasters, Self Propelled Cargo Vessels, Tug-Barge Combinations for interdistrict movements and movements from ports and mechanized countryboats for intradistrict movements. Fixation of the sizes of the vessels was an important task for modelling purpose because the size of the vessels affect the economics of transport. At the same time the commonly used size and the concept of economics of scale were the two initial determining factors. With these were associated the restrictions of vessels draft due to continuous deterioration of the waterways as mentioned earlier. There remains the trade off between the advantage of better utilization of the low draft vessels in restricted water and the disadvantage of having higher transport costs incurred for the construction and operation of shallower draft vessels. The situation can be better understood from the Fig5. A decline in LAD from, say 3 M to 2 m will not have a significant impact on the transport sector (where class II to Class III routes are concerned) but a decline, from say 2 m to 1 m would be significant. A further, decline to less than 1 m LAD would be critical and can be expected to cause river traffic to divert to other modes and thereby altering transport cost relationships. Considering all these factors viz. Route characteristics of the standard routes, availability of vessel sizes, concept of scale effect on economics and the conflict between the river water availability and transport costs the following vessel sizes were sampled for modelling purpose.

FIG.5 ILLUSTRATION OF WATER ABSTRACTION AND RIVER TRANSPORT COST CONFLICT POINTS.




For Bay crossing routes : 800 T and 1000 T Coaster.

For non bay crossing routes and interdistrict movements including the movements from ports : 350 T SP vessel, 250 T SP vessel and Tug + 2-350 T barge.

For interdistrict movement - 50 T mechanized Countryboat

The General Arrangement Plan of the sample vessels used for the analysis are shown in Fig. 6-10.

## 8.2 OPERATING ECONOMICS

There are several charter party forms under which a vessel may be obtained on a short term or long term basis. Each alternative involves freight rate system where the split between which cost the ship user pays the owner and which he pays directly differ. Fig.11 shows how the various cost items are split by the shipper and ship owner under the various types of freight rate arrangements.

## 8.3. METHODOLOGY

(Variables are defined in section 8.4)

Specific Fuel Consumption

For all vessels other than Countryboat

Fuel consumption per hour in loaded conditon

$FCPH1 = 0.2 \times BHP \times (V1/V2)^k$

Fuel consmption per hour in ballast

$FCPH2 = 0.15 \times BHP \times (V3/V2)^k$

Fuel consumption per hour in Port or transit

$FCPH3 = 0.0$

For Country boats

$FCPH1 = 0.3 \times BHP \times (V1/V2)^k$

$FCPH2 = 0.2 \times BHP \times (V3/V2)^k$

$FCPH3 = 0.0$

where, $K = 2$

Effective number of days

$PDY = 365 - OHD$

Port time per voyage

$HPPV = (DLN + UDN) \times 24 + (FTLP + FTUP) \times 24 + (DMLP + DMLP) \times 24$

where $DLN = (DWT \times DLF)/(TLD \times 100.0)$ and $UDN = (DWT \times DLF)/(UTD \times 100)$

Sea time per voyage

Sea time per voyage has three components viz. (a) days in Loaded condition, (b) days in ballast condition and (c) transit time.

Hours in loaded condition

$HLCPV = RD/V1$

$BD = RD \times PBR/100$

Hours in ballast condition

HBCPV = RD x PBR/100xV3

Transit Hours

HTPV = HTPV1 + HTPV2

where HTPV1 = Integer (HLCPV/WHPD) x (24-WHPD)

and HTPV2 = Integer (HBCPV/WHPD) x (24-WHPD)

Total days per voyage

TDV = (HLCPV + HBCPV + HPPV + HTPV)/24.0

Calculation of Required Freight Rate

Capital Recovery Factor for the Hull of the vessel

$CRFI1 = (DI/100)/(1.0-(1 + DI/100)^{-NY}$

Present Worth Factor for the hull of the vessel

$PWF1= (1 +DI/100)^{NY}$

Capital Recovery Factor for the engine of the vessel

$CRFI2 = (DI/100)/(1-(1+DI/100)^{-NYS}$

Present Worth Factor for the engine of the vessel

$PWF2 = (1 + DI/100)^{NYS}$

Replacement cost of the vessel

FCOST = HULLC + ENGC

Annual Capital Charges

CAPC = (HULLC-PWF1 X DISPP X HULLC/100) X CRFI + (ENCC-PWF2XDISPP X ENGC/100) X CRFI2

Annual Insurance Cost

CINSU = FCOST x PIN/100

Annual Crew Cost

CCR EW = WAGE X MANN X 14.0

Annual Fixed M & R cost

CREPA = 0.5 X [(RP1 X HULLC/100) + (RP2 X ENGC /100)]

Annual Fixed tolls, dues and fees

AFF = FFT x DWT

Annual overhead & Misc Fees

AOF = (OP/100) x (CINSU + CCREW + CREPA + AFF)

Total annual fixed cost

FIXCO = CAPC + CINSU + CCREW + CREPA + AFF + AOF

Annual Part Variable M & R Cost

AVMRC = CREPA

Fuel Cost

Cost of fuel per hour in loaded condition

CFPH1 = (FCPH1 X DOCPL ) X 1.1

Cost of fuel per hour in ballast condition

CFPH2 = (FCPH2 X DOCPL ) X 1.1

Cost of fuel per hour in port or transit

CFPH3 = (FCPH3 X DOCPL ) X 1.1

Miscellaneous dues per voyage

MISD = VARFT X DWT X (RD + BD)

Fixed cost/day

FPV = FIXCO/PDY

Part variable M&R cost/day

VPD = AVMRC / PDY

Fixed Cost per Voyage

FCPV = FPV X TDV

Part Variable cost per voyage

PVCPV = VPD X TDV

Fuel Cost per voyage

TFCV=(CFPH1 X HLCPV) + (CFPH2 X HBCPV) + (CFPH3 X (HPPV + HTPV))

Total cost per voyage

TCPV = FCPV + PVCPV + MISD + TFCV

Required freight rate/ton

RFRT = ((TCPV)/(DWT X DLF)/100))

Required freight rate/ton

RFRTK = RFRT/RD

## 8.4 INPUT AND OUTPUT PARAMETERS OF THE COMPUTER MODEL

The model can be used to estimate two types of outputs.

(1) General Freight rate (in Tk./Ton-Km) Table for all six types of selected vessels for route lengths upto 700 km.

(2) Freight rate (in Tk./ton) Table for various routes on the basis of effective route length calculated as per

methodology explained in section 7.2 and average of the freight rates (in Tk. /ton-km) of the selected vessels estimated from (1) above. It may be mentioned that for routes originating from Chittagong average of the freight rates (Tk/ton-km) of 800 ton Coaster and 1000 ton Coaster has been used and for all other routes of Inter district movements including those from Mongla, average of the freight rates (Tk/ton-km) of 350 ton sp vessel, 250 T sp vessel and 2 x 350 T Tug-barge system has been used. For IBCCs i.e. for intra district movements a separate column of freight rate(Tk./ton km) can be obtained on the basis of the performance of the sample 50T-mechanized Country boatsused for the analysis.

The following are the in-put parameters, the changes of which can be estimated by the model.

I : Type of the vessels Viz Coaster, Tug barge, countryboat etc.

DWT : Carrying capacity in tonnes

HULLC : Replacement cost of Hull of the vessel (Tk.)

ENGC : Replacement cost of Engine of the vessel (Tk.)

NY : Life of Hull (Yrs.)

NYS : Life of Engine (Yrs.)

BHP : Brake Horse Power of the Engine (HP)

VI : Design speed of the Vessel (km/h)

V2 : Operating speed of the vessel at loaded condition (km/h)

V3 : Operating speed of the vessel in empty condition (km/hr)

PIN : Insurance cost as a percentage of total replacement cost of the vessel

WAGE : Average Monthly wage of the crews (Tk.)

MANN : Total No.of crews of the vessel

RP1 : M & R costs of hull as a percentage of the Hull Cost of the vessel.

RP2 : M & R cost of Engine as a percentage of the engine cost

FFT : Annual Fixed tolls, dues and fees per ton (Tk.)

OP : Annual overheads and Misc. fees as the percentage of the annual fixed costs excluding capital charges.

VARFT : Variable dues, fees per T-km(Tk.)

OHD : Off hire days per annum

FTLP : Miscellaneous delays at loading port (Days)

FTUP : Miscellaneous delays at unloading port (Days)

WHPD : Working hours/day at sea

TLD : Cargo loading rate (Tonnes/day)

UTD : Cargo discharging rate (Tonnes/day)

PBR : Ballast distance as a percentage of the effective Route length (Port to Port Distance)

DLF : Load factor (in percentage) for the loaded voyage.

DMLP : Misc delay at each loading port (days)

DMUP : Misc. delay at each unloading port (days)

DRLD : Average draft of the vessel (in metre)

DI : Required Rate of Return (in percentage)

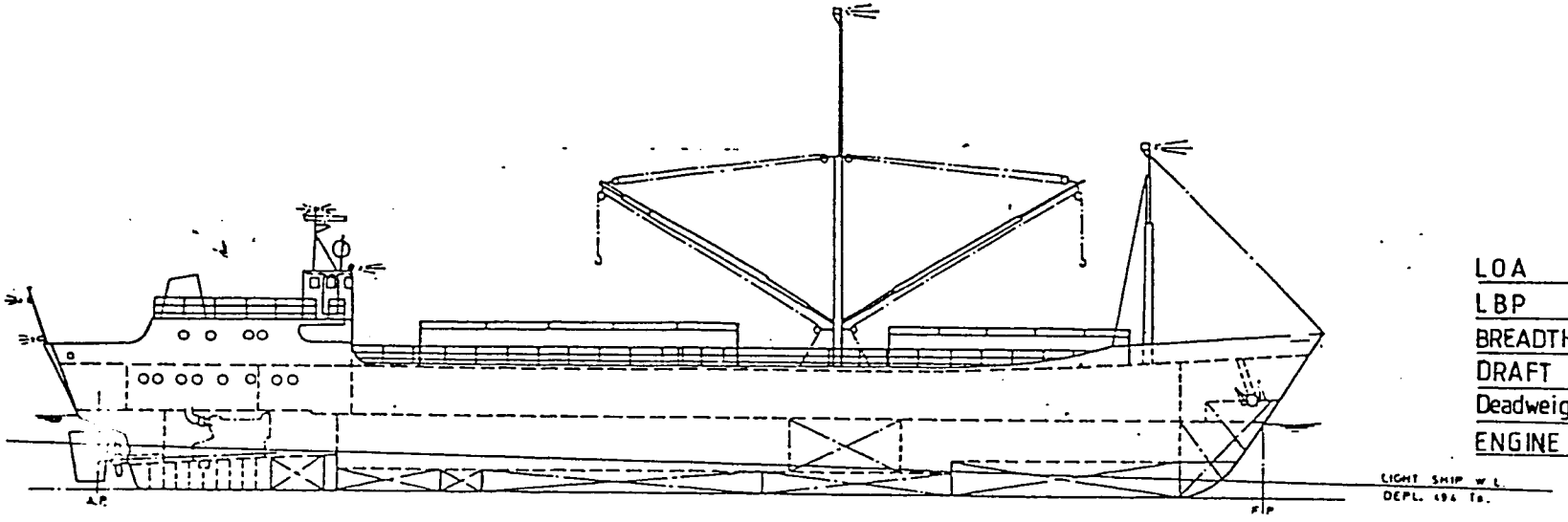
DISPP : Scrap value as percentage to the replacement cost

DOCPL : Diesel oil price per litre (Tk.)

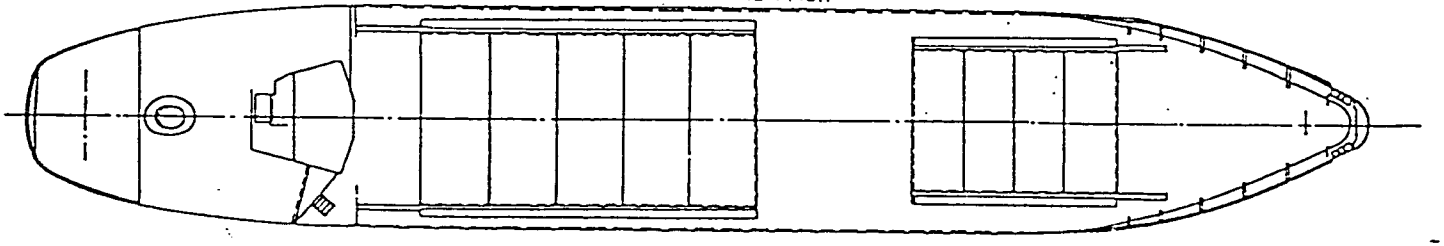
RD : Port to Port Distance.(km)

For obtaining the second type of outputs i.e. effective route lengths, freight rates (Tk./Tonne) etc. for the standard routes, some more input data as per following format are necessary.

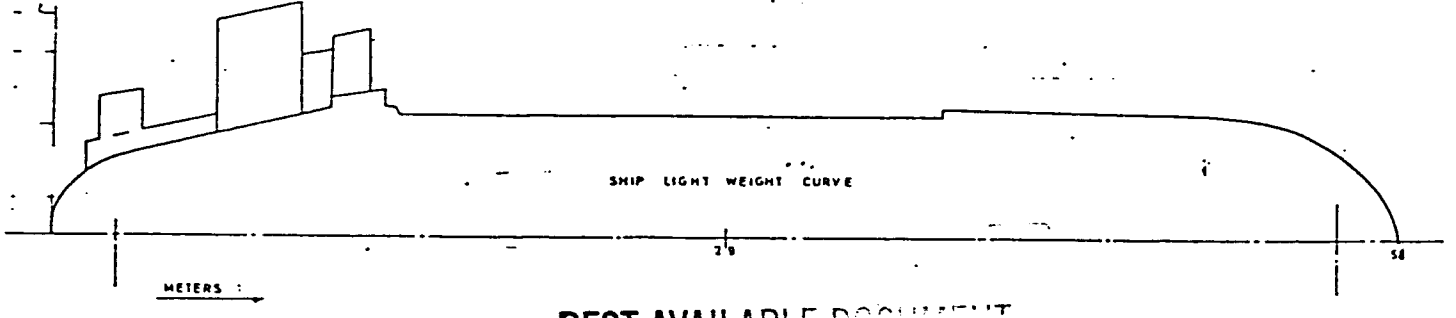
| Route No. | From | To | All season Route Length(km) | Seasonal Route Length (km) | Maximum draft of seasonal Route(m) |
|---|---|---|---|---|---|
| | | | | | |




Elevation



Plan




| | |
|---|---|
| LOA | 58.35 M |
| LBP | 53.00 M |
| BREADTH MLD | 10.00 M |
| DRAFT | 3.20 M |
| Deadweigt capacity | 800 TON. |
| ENGINE | 650 BHP |

FIG 6. GENERAL ARRANGEMENT PLAN OF A SAMPLE COASTAL VESSEL

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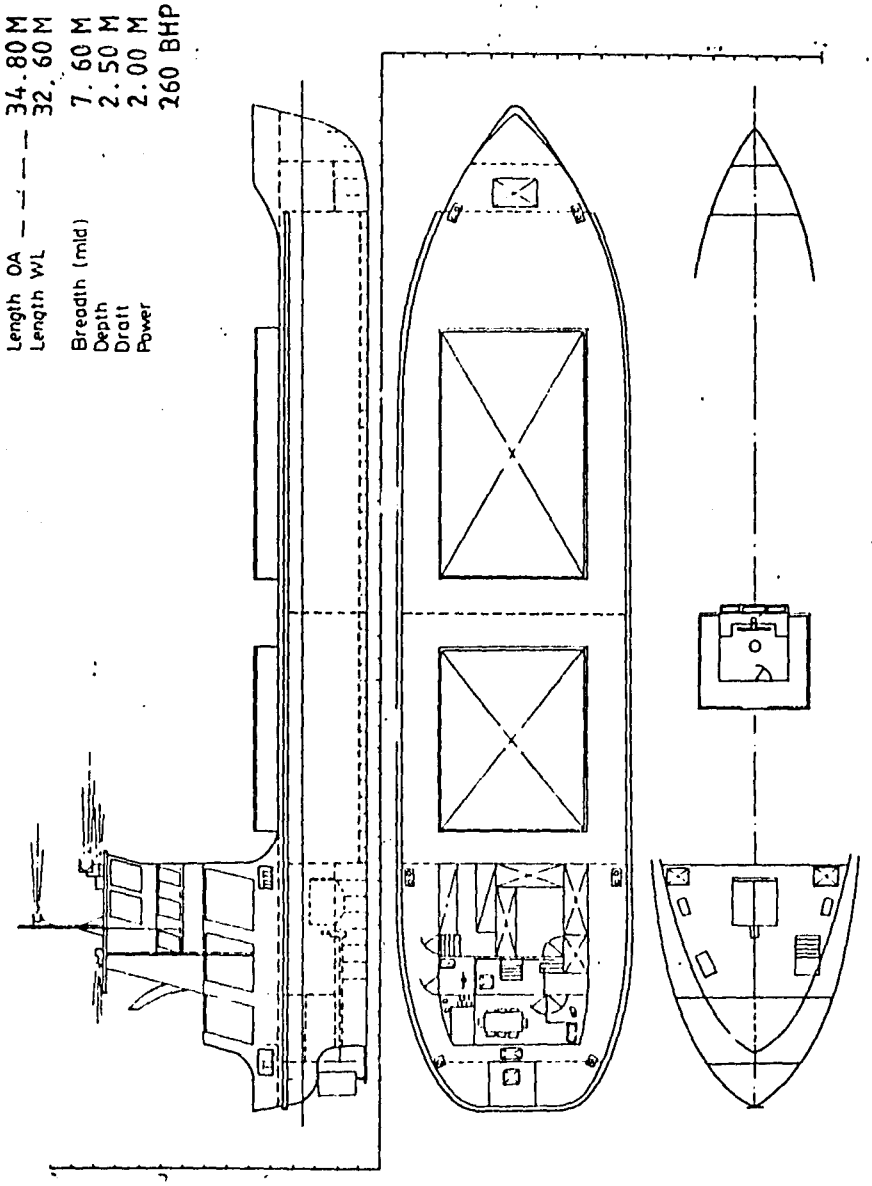


*Figure 7. General arrangement of a 350 tons self-propelled cargo carrier.*

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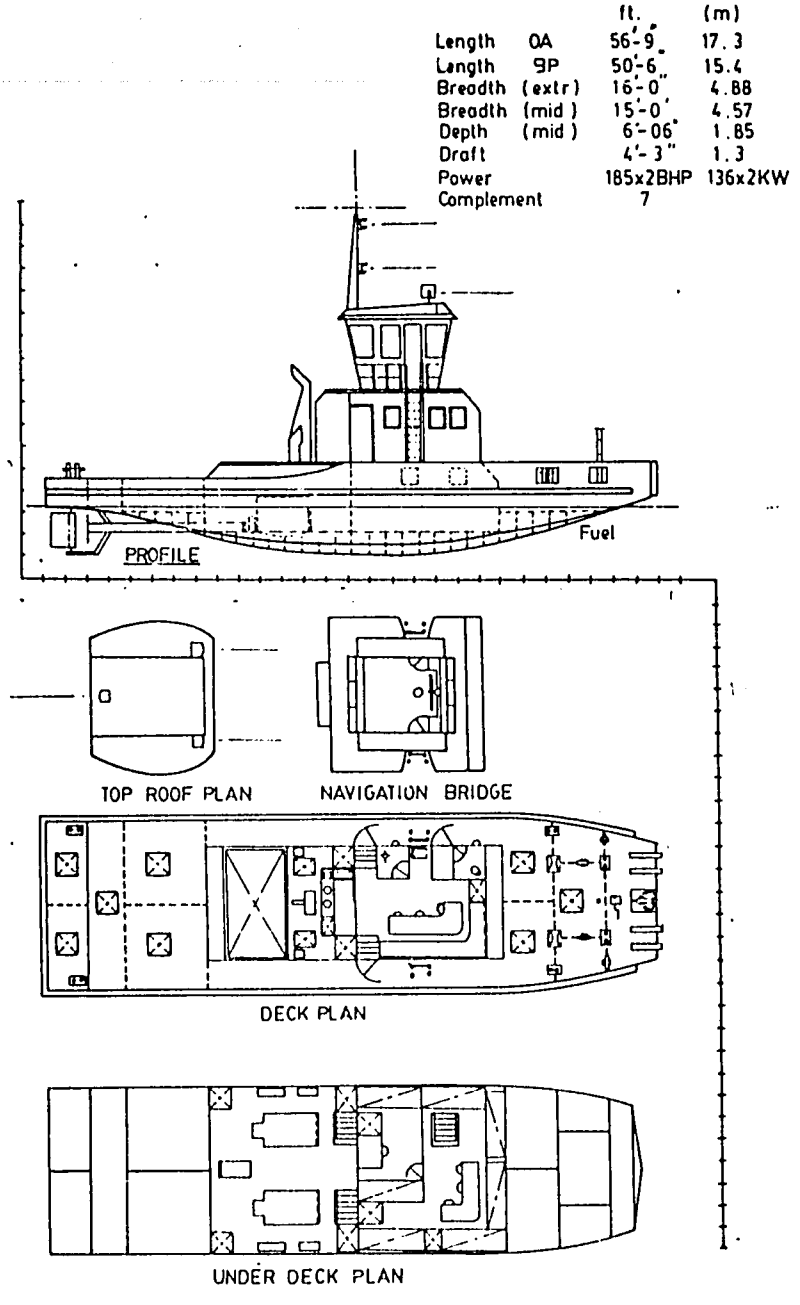


*Figure 8. General arrangement of a 15 metre pusher (2 flotilla of 350 tons barges)*



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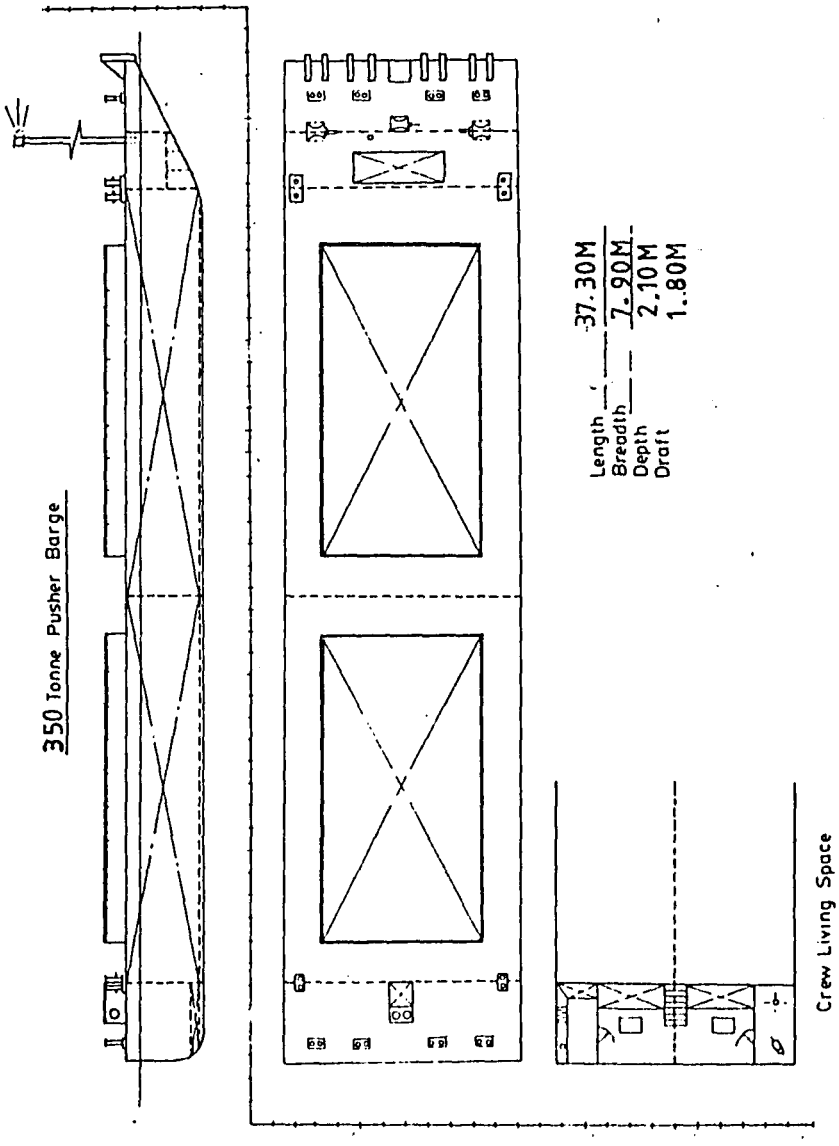


*Figure 9 . General arrangement of a 350 tons pusher barge.*



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PRINCIPAL PARTICULARS

| | | |
|---|---|---|
| Length | O.A. | 12.90 M. |
| Length | LWL. | 12.20 M. |
| Breadth | MLD. | 7.60 M. |
| Depth | MLD. | 1.50 M. |
| Draft | Loaded | 1.20 M. |

Capacity : 50 TON
Engine : 20 BHP.

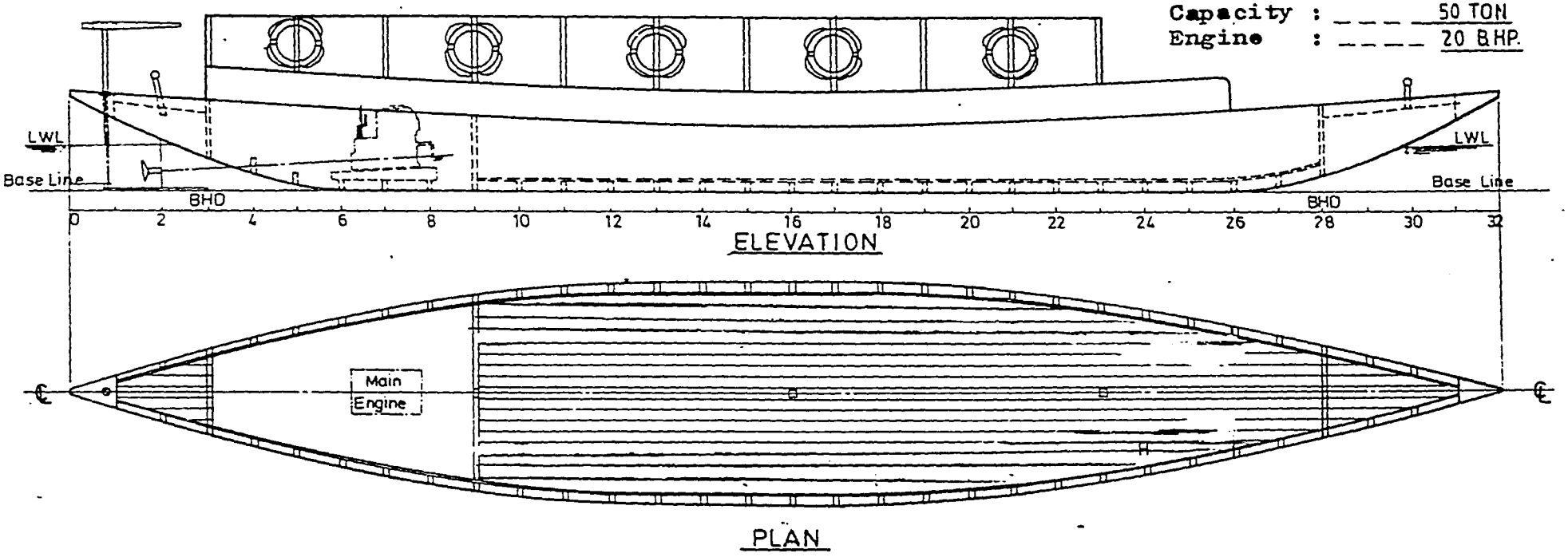


FIG. 10. GENERAL ARRANGEMENT PLAN OF STANDARD MECHANISED BOAT.



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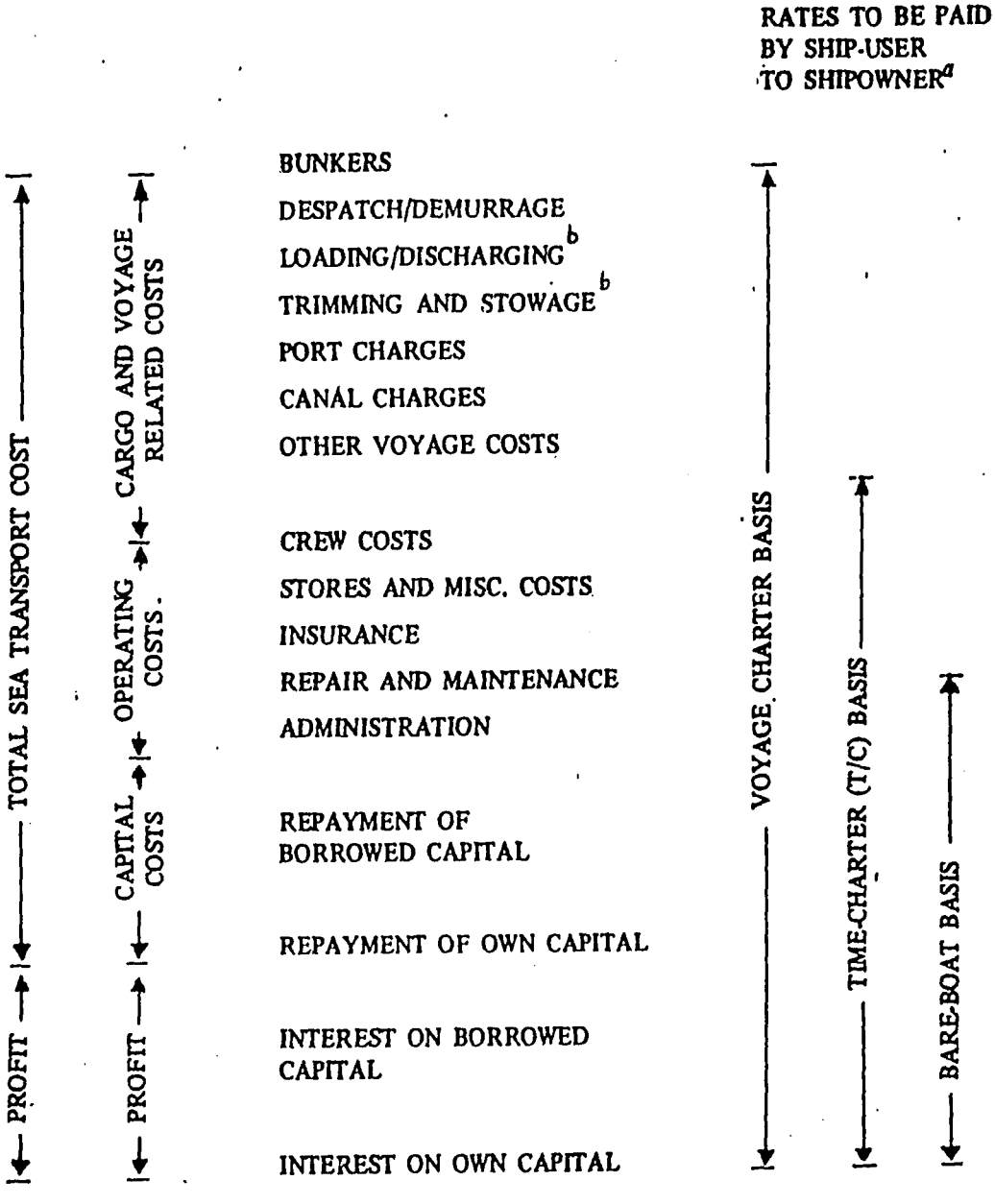
FIG.11 : DIVISION OF FINANCIAL RESPONSIBILITY FOR VARIOUS CHARTERING SYSTEM.




*a* Remaining cost items to be paid directly by ship-user.
b. Sometimes directly paid by ship users.

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## 9. RESULTS

Table 6 shows the basic data for the variables used as the input to the Computer model, which were decided on the basis of the analysis of the data collected in this regard, discussion with the operators, field survey and visits, meetings with DOF officials and the various category of contractors working under DOF.

In addition to the input data shown in Table 6 other data collected from BIWTA and the field, defining the Route characteristic were also fed to the model in the format shown in Section 8.4.

Table 7 & Table 8 show the output of the computer model. Table 7 is the Freight Rate table, which shows the Required Freight Rate in Tk/T-km for all route lengths upto 700 km for each of the six types of the sample vessels used for the analysis. It was found that RFR/T-km are decreasing with the increase of route length, which is obvious. While RFR/T-km for 1 km route length is Tk.130.032, Tk. 143.566, Tk. 128.745, Tk. 119.750, Tk. 146.639 and Tk. 106.510 respectively for 800 T Coaster, 1000 T Coaster, 350 T SP Vessel, 250 T SP Vessel, Tug + 2-350 T Barge and 50T Mechanized boat, the rates are as low as Tk. 0.664, Tk. 0.667, Tk. 0.679, Tk. 0.699, Tk. 0.807, and Tk. 1.036 respectively for route length of 700 km. The reason for such drastic reduction is due to that the vessels have fixed costs irrespective of route lengths and some of the other operating parameters viz. free time at ports, Miscellaneous delays at ports etc. are not changing with the change in the size of route lengths. Although finding the minimum cost of transport among the sample vessels was out of the scope of such study, it was found that the 250 T SP vessel is the cheapest for short route lengths and the 800 T Coaster for long route lengths. The sixth Column of table 7 i.e. RFRs for 50 T mechanized Country boats are the Proposed Freight Rates for

Intra District movements (IBCC). It should be kept in mind that the country boats for longer route lengths would not be technically feasible because the propulsion and fuel arrangements of such boats would not be sufficient to meet the requirements of longer route lengths. The RFRs table for such boats for upto a length of 700 km was prepared out of academic interest but should not be considered for practical purposes beyond the route lengths of 200 km, which is hopefully the maximum range of intra district foodgrain movement. Table 9 shows the comparison of existing IBCC rates with proposed IBCC rates.

Table 8 shows the Route No., list of standard routes (451 in Total), their all season route lengths in km., Monsoon route length in km, effective route length in km, average freight rate in Tk./T-km, Proposed freight rate in Tk./T, Rate as per existing PMC Rate in Tk./T and the saving in Tk./T if the proposed freight rates are implemented. So, there are in total 9 columns in this table. It is found that for most of the routes the proposed freight rates are less than the existing PMC rates, indicating a saving of Government resources if the proposed rates are implemented. The saving is reasonably high for very short and long route lengths. This has happened due to misundertanding by DOF of the terms of 'minimum chargeable distance' of 160 km and maximum chargeable freight of Tk. 1.12 /Ton-km prescribed by BIWTA.

The fifth column of Table 8 the effective route length which is a function of 'All season route length', 'seasonal route length', 'the drafts' of the waterways connecting the routes and the average drafts of the vessels selected for that route. It can be seen that the effective route lengths are the same as 'All season route length' when the latter is equal to 'Monsoon route lengths' for that route. For other routes the effective route lengths are lower than the all season route lengths.

TABLE 6 : BASIC DATA USED AS THE INPUT TO THE COMPUTER MODEL

| Name of the var-iables | 800 T Coaster | 1000 T Coaster | 350 T Self Prop. Vessel | 250 T Self Prop. Vessels | tug + 2 350 T Barge | 50 T Mech. Country boat. |
|---|---|---|---|---|---|---|
| DWT | 800.0 | 1000.0 | 350.0 | 250.0 | 700.0 | 50.0 |
| HULLC | 4000000. | 5000000. | 2500000.0 | 1500000 | 5000000 | 175000 |
| ENGC | 2000000 | 2500000 | 1000000 | 800000 | 1500000 | 40000 |
| NY | 10 | 10 | 10 | 10 | 10 | 10 |
| NYS | 10 | 10 | 10 | 10 | 10 | 5 |
| SHP | 650 | 750 | 300 | 250 | 370 | 25 |
| V1 | 12 | 12 | 10.5 | 10.5 | 6.0 | 5.25 |
| V2 | 14 | 15 | 14 | 14 | 8.0 | 7 |
| V3 | 12.0 | 12.0 | 10.5 | 10.5 | 6.0 | 5.25 |
| FIN | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 0.0 |
| WAGE | 2000.0 | 2000.0 | 1500.0 | 1500.0 | 1500.0 | 1500.0 |
| MANN | 12 | 14 | 10 | 10 | 10 | 4 |
| RP1 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 7.0 |
| RP2 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 10.0 |
| FFT | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 10.0 |
| OP | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 2.0 |
| VARFT | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| OHP | 30.0 | 30.0 | 30.0 | 30.0 | 45.0 | 90.0 |
| FRP | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| FTUP | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| WHPD | 18.0 | 18.0 | 10.0 | 10.0 | 10.0 | 8.0 |
| TLD | 225.0 | 225.0 | 225.0 | 225.0 | 225.0 | 125.0 |
| UTD | 225.0 | 225.0 | 225.0 | 225.0 | 225.0 | 125.0 |
| FSS | 100.0 | 100.0 | 50.0 | [illegible] | 50.0 | 50.0 |
| DLF | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| GMLP | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| DMUF | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| DRLD | 3.2 | 3.5 | 2.0 | 1.8 | 1.8 | 1.2 |

DI = 25.0, DISPP = 10.0, DOCPL = 13.70

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FREIGHT RATE TABLE IN TAKA PER T-KM

| ROUTE LENGTH IN KM | 300 TON COASTER | 1000 TON COASTER | 350 TON S-P VESSEL | 250 TON S-P VESSEL | TUG+2 350T BARGE | 50T MECHA BOAT (PROPO IBCC RATE) |
|---|---|---|---|---|---|---|
| 1 | 130.032 | 143.566 | 128.745 | 119.750 | 146.369 | 105.510 |
| 2 | 65.246 | 72.005 | 64.578 | 60.097 | 73.415 | 53.568 |
| 3 | 43.651 | 48.151 | 43.188 | 40.211 | 49.098 | 35.914 |
| 4 | 32.853 | 36.225 | 32.493 | 30.269 | 36.939 | 27.092 |
| 5 | 26.375 | 29.069 | 26.076 | 24.303 | 29.643 | 21.795 |
| 6 | 22.056 | 24.298 | 21.799 | 20.327 | 24.730 | 18.267 |
| 7 | 18.971 | 20.890 | 18.743 | 17.486 | 21.306 | 15.744 |
| 8 | 16.657 | 18.334 | 16.451 | 15.355 | 18.701 | 13.854 |
| 9 | 14.857 | 16.347 | 14.669 | 13.698 | 16.674 | 12.382 |
| 10 | 13.418 | 14.756 | 13.243 | 12.373 | 15.053 | 11.207 |
| 11 | 12.240 | 13.455 | 12.076 | 11.288 | 13.726 | 10.243 |
| 12 | 11.258 | 12.371 | 11.104 | 10.384 | 12.621 | 9.442 |
| 13 | 10.427 | 11.454 | 10.281 | 9.619 | 11.686 | 8.762 |
| 14 | 9.716 | 10.667 | 9.576 | 8.964 | 10.884 | 8.131 |
| 15 | 9.099 | 9.986 | 8.965 | 8.395 | 10.189 | 7.676 |
| 16 | 8.559 | 9.389 | 8.430 | 7.898 | 9.581 | 7.235 |
| 17 | 8.082 | 8.863 | 7.958 | 7.460 | 9.045 | 6.845 |
| 18 | 7.659 | 8.395 | 7.539 | 7.070 | 8.568 | 6.500 |
| 19 | 7.280 | 7.977 | 7.164 | 6.721 | 8.142 | 6.190 |
| 20 | 6.939 | 7.600 | 6.826 | 6.407 | 7.758 | 5.911 |
| 21 | 6.631 | 7.260 | 6.520 | 6.123 | 7.410 | 5.659 |
| 22 | 6.350 | 6.950 | 6.243 | 5.865 | 7.094 | 5.430 |
| 23 | 6.094 | 6.667 | 5.989 | 5.629 | 6.806 | 5.220 |
| 24 | 5.859 | 6.408 | 5.756 | 5.413 | 6.542 | 5.029 |

TABLE 7: FREIGHT RATE (TAKA/T-KM) TABLE FOR VARIOUS SELECTED VESSEL TYPES AS THE OUTPUT OF THE COMPUTER MODEL (THE 7TH COLUMN SHOWS THE PROPOSED IBCC RATE IN TAKA/T- KM)

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| | | | | | | |
|---|---|---|---|---|---|---|
| 25 | 5.643 | 5.169 | 5.542 | 5.214 | 5.298 | 4.952 |
| 26 | 5.444 | 5.949 | 5.345 | 5.030 | 5.074 | 4.689 |
| 27 | 5.259 | 5.745 | 5.162 | 4.860 | 5.866 | 4.533 |
| 28 | 5.038 | 5.556 | 4.993 | 4.703 | 5.673 | 4.393 |
| 29 | 4.928 | 5.380 | 4.834 | 4.556 | 5.493 | 4.268 |
| 30 | 4.779 | 5.215 | 4.687 | 4.418 | 5.326 | 4.146 |
| 31 | 4.640 | 5.061 | 4.549 | 4.290 | 5.169 | 4.032 |
| 32 | 4.510 | 4.917 | 4.420 | 4.170 | 5.022 | 3.926 |
| 33 | 4.337 | 4.781 | 4.298 | 4.057 | 4.884 | 3.825 |
| 34 | 4.271 | 4.654 | 4.184 | 3.951 | 4.754 | 3.731 |
| 35 | 4.162 | 4.533 | 4.076 | 3.850 | 4.631 | 3.642 |
| 36 | 4.060 | 4.420 | 3.974 | 3.756 | 4.515 | 3.558 |
| 37 | 3.962 | 4.312 | 3.878 | 3.656 | 4.406 | 3.478 |
| 38 | 3.870 | 4.211 | 3.786 | 3.531 | 4.302 | 3.403 |
| 39 | 3.733 | 4.114 | 3.700 | 3.501 | 4.203 | 3.331 |
| 40 | 3.700 | 4.022 | 3.617 | 3.424 | 4.110 | 3.264 |
| 41 | 3.621 | 3.935 | 3.539 | 3.351 | 4.021 | 3.199 |
| 42 | 3.545 | 3.852 | 3.465 | 3.232 | 3.936 | 3.138 |
| 43 | 3.474 | 3.773 | 3.394 | 3.216 | 3.855 | 3.138 |
| 44 | 3.405 | 3.697 | 3.326 | 3.153 | 3.778 | 3.138 |
| 45 | 3.340 | 3.625 | 3.261 | 3.093 | 3.705 | 3.138 |
| 46 | 3.277 | 3.556 | 3.199 | 3.035 | 3.634 | 3.093 |
| 47 | 3.217 | 3.489 | 3.140 | 2.930 | 3.567 | 3.040 |
| 48 | 3.160 | 3.426 | 3.083 | 2.927 | 3.502 | 2.990 |
| 49 | 3.105 | 3.365 | 3.028 | 2.876 | 3.440 | 2.941 |
| 50 | 3.052 | 3.307 | 2.976 | 2.828 | 3.380 | 2.895 |
| 51 | 3.001 | 3.251 | 2.925 | 2.781 | 3.323 | 2.850 |
| 52 | 2.952 | 3.197 | 2.877 | 2.736 | 3.268 | 2.807 |

TABLE 7 CONTD.

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| | | | | | | |
|---|---|---|---|---|---|---|
| 53 | 2.905 | 3.145 | 2.830 | 2.693 | 3.215 | 2.766 |
| 54 | 2.860 | 3.095 | 2.786 | 2.651 | 3.164 | 2.726 |
| 55 | 2.816 | 3.046 | 2.742 | 2.611 | 3.115 | 2.687 |
| 56 | 2.774 | 3.000 | 2.701 | 2.572 | 3.068 | 2.651 |
| 57 | 2.734 | 2.955 | 2.661 | 2.535 | 3.022 | 2.615 |
| 58 | 2.694 | 2.912 | 2.622 | 2.499 | 2.978 | 2.580 |
| 59 | 2.657 | 2.870 | 2.584 | 2.464 | 2.935 | 2.547 |
| 60 | 2.620 | 2.830 | 2.548 | 2.430 | 2.894 | 2.515 |
| 61 | 2.585 | 2.791 | 2.513 | 2.397 | 2.894 | 2.484 |
| 62 | 2.550 | 2.753 | 2.479 | 2.366 | 2.894 | 2.454 |
| 63 | 2.517 | 2.716 | 2.446 | 2.335 | 2.873 | 2.424 |
| 64 | 2.485 | 2.681 | 2.414 | 2.306 | 2.836 | 2.396 |
| 65 | 2.454 | 2.646 | 2.383 | 2.277 | 2.799 | 2.369 |
| 66 | 2.424 | 2.613 | 2.354 | 2.249 | 2.764 | 2.342 |
| 67 | 2.394 | 2.580 | 2.325 | 2.222 | 2.729 | 2.316 |
| 68 | 2.366 | 2.549 | 2.296 | 2.196 | 2.696 | 2.292 |
| 69 | 2.338 | 2.519 | 2.269 | 2.171 | 2.664 | 2.267 |
| 70 | 2.311 | 2.489 | 2.242 | 2.146 | 2.632 | 2.244 |
| 71 | 2.285 | 2.460 | 2.217 | 2.122 | 2.602 | 2.221 |
| 72 | 2.260 | 2.432 | 2.192 | 2.099 | 2.572 | 2.199 |
| 73 | 2.235 | 2.405 | 2.167 | 2.076 | 2.543 | 2.177 |
| 74 | 2.211 | 2.378 | 2.143 | 2.054 | 2.515 | 2.156 |
| 75 | 2.188 | 2.353 | 2.120 | 2.032 | 2.487 | 2.135 |
| 76 | 2.165 | 2.327 | 2.098 | 2.011 | 2.461 | 2.115 |
| 77 | 2.143 | 2.303 | 2.076 | 1.991 | 2.435 | 2.096 |
| 78 | 2.122 | 2.279 | 2.054 | 1.971 | 2.410 | 2.077 |
| 79 | 2.101 | 2.256 | 2.034 | 1.952 | 2.385 | 2.058 |

TABLE 7 CONTD.

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| | | | | | | |
|---|---|---|---|---|---|---|
| 80 | 2.080 | 2.233 | 2.013 | 1.933 | 2.361 | 2.040 |
| 81 | 2.060 | 2.211 | 1.993 | 1.914 | 2.337 | 2.023 |
| 82 | 2.041 | 2.190 | 1.974 | 1.896 | 2.315 | 2.006 |
| 83 | 2.022 | 2.169 | 1.955 | 1.879 | 2.292 | 1.989 |
| 84 | 2.003 | 2.148 | 1.937 | 1.862 | 2.270 | 1.972 |
| 85 | 1.985 | 2.128 | 1.919 | 1.845 | 2.249 | 1.972 |
| 86 | 1.967 | 2.108 | 1.901 | 1.829 | 2.228 | 1.972 |
| 87 | 1.950 | 2.089 | 1.884 | 1.813 | 2.208 | 1.972 |
| 88 | 1.933 | 2.071 | 1.867 | 1.797 | 2.188 | 1.972 |
| 89 | 1.916 | 2.052 | 1.851 | 1.782 | 2.169 | 1.972 |
| 90 | 1.900 | 2.035 | 1.835 | 1.767 | 2.150 | 1.972 |
| 91 | 1.884 | 2.017 | 1.819 | 1.753 | 2.131 | 1.972 |
| 92 | 1.869 | 2.000 | 1.804 | 1.738 | 2.113 | 1.972 |
| 93 | 1.854 | 1.983 | 1.789 | 1.724 | 2.095 | 1.972 |
| 94 | 1.839 | 1.967 | 1.774 | 1.711 | 2.078 | 1.972 |
| 95 | 1.824 | 1.951 | 1.760 | 1.697 | 2.061 | 1.972 |
| 96 | 1.810 | 1.935 | 1.746 | 1.684 | 2.044 | 1.970 |
| 97 | 1.796 | 1.920 | 1.732 | 1.671 | 2.028 | 1.956 |
| 98 | 1.783 | 1.905 | 1.719 | 1.659 | 2.012 | 1.942 |
| 99 | 1.769 | 1.890 | 1.705 | 1.647 | 1.996 | 1.929 |
| 100 | 1.756 | 1.875 | 1.692 | 1.635 | 1.981 | 1.916 |
| 101 | 1.743 | 1.861 | 1.680 | 1.623 | 1.966 | 1.903 |
| 102 | 1.731 | 1.847 | 1.667 | 1.611 | 1.951 | 1.890 |
| 103 | 1.718 | 1.834 | 1.655 | 1.600 | 1.937 | 1.878 |
| 104 | 1.706 | 1.820 | 1.643 | 1.589 | 1.923 | 1.866 |
| 105 | 1.694 | 1.807 | 1.631 | 1.578 | 1.909 | 1.854 |
| 106 | 1.683 | 1.794 | 1.631 | 1.578 | 1.895 | 1.842 |
| 107 | 1.671 | 1.782 | 1.631 | 1.578 | 1.882 | 1.831 |

TABLE 7 CONTD.

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| | | | | | | |
|---|---|---|---|---|---|---|
| 108 | 1.660 | 1.769 | 1.631 | 1.578 | 1.869 | 1.820 |
| 109 | 1.649 | 1.757 | 1.631 | 1.578 | 1.856 | 1.809 |
| 110 | 1.638 | 1.745 | 1.631 | 1.578 | 1.843 | 1.798 |
| 111 | 1.628 | 1.734 | 1.626 | 1.578 | 1.831 | 1.787 |
| 112 | 1.617 | 1.722 | 1.615 | 1.568 | 1.818 | 1.777 |
| 113 | 1.607 | 1.711 | 1.604 | 1.558 | 1.806 | 1.766 |
| 114 | 1.597 | 1.700 | 1.594 | 1.548 | 1.795 | 1.756 |
| 115 | 1.587 | 1.689 | 1.584 | 1.538 | 1.733 | 1.746 |
| 116 | 1.577 | 1.678 | 1.573 | 1.529 | 1.772 | 1.737 |
| 117 | 1.568 | 1.668 | 1.564 | 1.519 | 1.760 | 1.727 |
| 118 | 1.558 | 1.657 | 1.554 | 1.510 | 1.749 | 1.718 |
| 119 | 1.549 | 1.647 | 1.544 | 1.501 | 1.739 | 1.708 |
| 120 | 1.540 | 1.637 | 1.535 | 1.492 | 1.728 | 1.699 |
| 121 | 1.531 | 1.627 | 1.525 | 1.484 | 1.728 | 1.690 |
| 122 | 1.522 | 1.617 | 1.516 | 1.475 | 1.728 | 1.682 |
| 123 | 1.514 | 1.608 | 1.507 | 1.467 | 1.728 | 1.673 |
| 124 | 1.505 | 1.598 | 1.498 | 1.459 | 1.728 | 1.664 |
| 125 | 1.497 | 1.589 | 1.490 | 1.450 | 1.728 | 1.656 |
| 126 | 1.489 | 1.580 | 1.481 | 1.442 | 1.728 | 1.648 |
| 127 | 1.481 | 1.571 | 1.473 | 1.435 | 1.728 | 1.648 |
| 128 | 1.473 | 1.562 | 1.464 | 1.427 | 1.728 | 1.648 |
| 129 | 1.465 | 1.554 | 1.456 | 1.419 | 1.728 | 1.648 |
| 130 | 1.457 | 1.545 | 1.448 | 1.412 | 1.723 | 1.648 |
| 131 | 1.450 | 1.537 | 1.440 | 1.404 | 1.713 | 1.648 |
| 132 | 1.442 | 1.529 | 1.432 | 1.397 | 1.704 | 1.648 |
| 133 | 1.435 | 1.520 | 1.425 | 1.390 | 1.694 | 1.648 |
| 134 | 1.427 | 1.512 | 1.417 | 1.383 | 1.685 | 1.646 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 135 | 1.420 | 1.504 | 1.410 | 1.376 | 1.676 | 1.638 |
| 136 | 1.413 | 1.497 | 1.402 | 1.369 | 1.667 | 1.631 |
| 137 | 1.406 | 1.489 | 1.395 | 1.362 | 1.658 | 1.623 |
| 138 | 1.399 | 1.481 | 1.388 | 1.355 | 1.650 | 1.616 |
| 139 | 1.393 | 1.474 | 1.381 | 1.349 | 1.641 | 1.609 |
| 140 | 1.386 | 1.467 | 1.374 | 1.342 | 1.633 | 1.602 |
| 141 | 1.379 | 1.459 | 1.367 | 1.336 | 1.624 | 1.595 |
| 142 | 1.373 | 1.452 | 1.360 | 1.330 | 1.616 | 1.588 |
| 143 | 1.367 | 1.445 | 1.354 | 1.323 | 1.608 | 1.581 |
| 144 | 1.360 | 1.438 | 1.347 | 1.317 | 1.600 | 1.575 |
| 145 | 1.354 | 1.431 | 1.341 | 1.311 | 1.592 | 1.568 |
| 146 | 1.348 | 1.425 | 1.334 | 1.305 | 1.585 | 1.561 |
| 147 | 1.342 | 1.418 | 1.328 | 1.299 | 1.577 | 1.555 |
| 148 | 1.336 | 1.411 | 1.322 | 1.294 | 1.569 | 1.549 |
| 149 | 1.330 | 1.405 | 1.316 | 1.288 | 1.562 | 1.542 |
| 150 | 1.324 | 1.398 | 1.310 | 1.282 | 1.555 | 1.536 |
| 151 | 1.319 | 1.392 | 1.304 | 1.277 | 1.547 | 1.530 |
| 152 | 1.313 | 1.386 | 1.298 | 1.271 | 1.540 | 1.524 |
| 153 | 1.307 | 1.380 | 1.292 | 1.266 | 1.533 | 1.518 |
| 154 | 1.302 | 1.374 | 1.286 | 1.260 | 1.526 | 1.512 |
| 155 | 1.296 | 1.368 | 1.280 | 1.255 | 1.519 | 1.506 |
| 156 | 1.291 | 1.362 | 1.275 | 1.250 | 1.513 | 1.501 |
| 157 | 1.286 | 1.356 | 1.269 | 1.245 | 1.506 | 1.495 |
| 158 | 1.281 | 1.350 | 1.264 | 1.240 | 1.499 | 1.490 |
| 159 | 1.275 | 1.344 | 1.259 | 1.235 | 1.493 | 1.484 |
| 160 | 1.270 | 1.339 | 1.253 | 1.230 | 1.486 | 1.479 |
| 161 | 1.265 | 1.333 | 1.248 | 1.225 | 1.480 | 1.473 |
| 162 | 1.260 | 1.328 | 1.243 | 1.220 | 1.474 | 1.468 |

TABLE 7 CONTD.

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| | | | | | | |
|---|---|---|---|---|---|---|
| 163 | 1.255 | 1.322 | 1.238 | 1.215 | 1.468 | 1.463 |
| 164 | 1.251 | 1.317 | 1.233 | 1.211 | 1.461 | 1.458 |
| 165 | 1.246 | 1.312 | 1.228 | 1.206 | 1.455 | 1.452 |
| 166 | 1.241 | 1.306 | 1.223 | 1.201 | 1.449 | 1.448 |
| 167 | 1.236 | 1.301 | 1.218 | 1.197 | 1.443 | 1.442 |
| 168 | 1.232 | 1.296 | 1.213 | 1.192 | 1.438 | 1.438 |
| 169 | 1.227 | 1.291 | 1.208 | 1.188 | 1.432 | 1.438 |
| 170 | 1.223 | 1.286 | 1.204 | 1.183 | 1.426 | 1.438 |
| 171 | 1.218 | 1.281 | 1.199 | 1.179 | 1.420 | 1.438 |
| 172 | 1.214 | 1.276 | 1.194 | 1.175 | 1.415 | 1.438 |
| 173 | 1.209 | 1.272 | 1.190 | 1.170 | 1.409 | 1.438 |
| 174 | 1.205 | 1.267 | 1.185 | 1.166 | 1.404 | 1.438 |
| 175 | 1.201 | 1.262 | 1.181 | 1.162 | 1.399 | 1.438 |
| 176 | 1.197 | 1.257 | 1.177 | 1.158 | 1.393 | 1.438 |
| 177 | 1.192 | 1.253 | 1.172 | 1.154 | 1.388 | 1.438 |
| 178 | 1.188 | 1.248 | 1.168 | 1.150 | 1.383 | 1.438 |
| 179 | 1.184 | 1.244 | 1.164 | 1.146 | 1.378 | 1.438 |
| 180 | 1.180 | 1.239 | 1.159 | 1.142 | 1.373 | 1.438 |
| 181 | 1.176 | 1.235 | 1.155 | 1.138 | 1.373 | 1.438 |
| 182 | 1.172 | 1.231 | 1.151 | 1.134 | 1.373 | 1.438 |
| 183 | 1.168 | 1.226 | 1.147 | 1.131 | 1.373 | 1.438 |
| 184 | 1.165 | 1.222 | 1.143 | 1.127 | 1.373 | 1.438 |
| 185 | 1.161 | 1.218 | 1.139 | 1.123 | 1.373 | 1.438 |
| 186 | 1.157 | 1.214 | 1.135 | 1.120 | 1.373 | 1.438 |
| 187 | 1.153 | 1.210 | 1.131 | 1.116 | 1.370 | 1.438 |
| 188 | 1.150 | 1.206 | 1.128 | 1.112 | 1.366 | 1.436 |
| 189 | 1.146 | 1.202 | 1.124 | 1.109 | 1.361 | 1.431 |

TABLE 7. CONTD

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| | | | | | | |
|---|---|---|---|---|---|---|
| 190 | 1.142 | 1.198 | 1.120 | 1.105 | 1.356 | 1.427 |
| 191 | 1.139 | 1.194 | 1.116 | 1.102 | 1.351 | 1.423 |
| 192 | 1.135 | 1.190 | 1.113 | 1.098 | 1.347 | 1.419 |
| 193 | 1.132 | 1.186 | 1.109 | 1.095 | 1.342 | 1.414 |
| 194 | 1.128 | 1.182 | 1.105 | 1.092 | 1.338 | 1.410 |
| 195 | 1.125 | 1.178 | 1.102 | 1.088 | 1.333 | 1.406 |
| 196 | 1.122 | 1.174 | 1.098 | 1.085 | 1.329 | 1.402 |
| 197 | 1.118 | 1.171 | 1.095 | 1.082 | 1.324 | 1.398 |
| 198 | 1.115 | 1.167 | 1.091 | 1.078 | 1.320 | 1.394 |
| 199 | 1.112 | 1.163 | 1.088 | 1.075 | 1.316 | 1.390 |
| 200 | 1.108 | 1.160 | 1.084 | 1.072 | 1.311 | 1.386 |
| 201 | 1.105 | 1.156 | 1.081 | 1.069 | 1.307 | 1.383 |
| 202 | 1.102 | 1.153 | 1.078 | 1.066 | 1.303 | 1.379 |
| 203 | 1.099 | 1.149 | 1.074 | 1.063 | 1.299 | 1.375 |
| 204 | 1.096 | 1.146 | 1.071 | 1.060 | 1.295 | 1.371 |
| 205 | 1.092 | 1.142 | 1.068 | 1.057 | 1.291 | 1.368 |
| 206 | 1.089 | 1.139 | 1.065 | 1.054 | 1.287 | 1.364 |
| 207 | 1.086 | 1.136 | 1.062 | 1.051 | 1.283 | 1.360 |
| 208 | 1.083 | 1.132 | 1.058 | 1.048 | 1.279 | 1.357 |
| 209 | 1.080 | 1.129 | 1.055 | 1.045 | 1.275 | 1.353 |
| 210 | 1.077 | 1.126 | 1.052 | 1.042 | 1.271 | 1.350 |
| 211 | 1.075 | 1.123 | 1.052 | 1.042 | 1.267 | 1.350 |
| 212 | 1.072 | 1.119 | 1.052 | 1.042 | 1.263 | 1.350 |
| 213 | 1.069 | 1.116 | 1.052 | 1.042 | 1.260 | 1.350 |
| 214 | 1.066 | 1.113 | 1.052 | 1.042 | 1.256 | 1.350 |
| 215 | 1.063 | 1.110 | 1.052 | 1.042 | 1.252 | 1.350 |
| 216 | 1.060 | 1.107 | 1.052 | 1.042 | 1.249 | 1.350 |
| 217 | 1.060 | 1.107 | 1.052 | 1.042 | 1.245 | 1.350 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 218 | 1.060 | 1.107 | 1.052 | 1.042 | 1.241 | 1.350 |
| 219 | 1.060 | 1.107 | 1.052 | 1.042 | 1.238 | 1.350 |
| 220 | 1.060 | 1.107 | 1.052 | 1.042 | 1.234 | 1.350 |
| 221 | 1.060 | 1.107 | 1.052 | 1.042 | 1.231 | 1.349 |
| 222 | 1.060 | 1.107 | 1.052 | 1.042 | 1.227 | 1.346 |
| 223 | 1.060 | 1.105 | 1.052 | 1.042 | 1.224 | 1.343 |
| 224 | 1.058 | 1.102 | 1.052 | 1.042 | 1.220 | 1.340 |
| 225 | 1.055 | 1.099 | 1.052 | 1.042 | 1.217 | 1.336 |
| 226 | 1.053 | 1.096 | 1.052 | 1.042 | 1.214 | 1.333 |
| 227 | 1.050 | 1.093 | 1.052 | 1.042 | 1.210 | 1.330 |
| 228 | 1.048 | 1.091 | 1.052 | 1.042 | 1.207 | 1.327 |
| 229 | 1.045 | 1.088 | 1.052 | 1.042 | 1.204 | 1.324 |
| 230 | 1.042 | 1.085 | 1.052 | 1.042 | 1.201 | 1.321 |
| 231 | 1.040 | 1.082 | 1.052 | 1.042 | 1.197 | 1.318 |
| 232 | 1.037 | 1.079 | 1.049 | 1.042 | 1.194 | 1.315 |
| 233 | 1.035 | 1.077 | 1.047 | 1.041 | 1.191 | 1.312 |
| 234 | 1.032 | 1.074 | 1.044 | 1.039 | 1.188 | 1.309 |
| 235 | 1.030 | 1.071 | 1.041 | 1.036 | 1.185 | 1.306 |
| 236 | 1.028 | 1.069 | 1.038 | 1.034 | 1.182 | 1.303 |
| 237 | 1.025 | 1.066 | 1.036 | 1.031 | 1.179 | 1.300 |
| 238 | 1.023 | 1.063 | 1.033 | 1.029 | 1.176 | 1.297 |
| 239 | 1.021 | 1.061 | 1.031 | 1.026 | 1.173 | 1.294 |
| 240 | 1.018 | 1.058 | 1.028 | 1.024 | 1.170 | 1.291 |
| 241 | 1.016 | 1.056 | 1.025 | 1.021 | 1.170 | 1.289 |
| 242 | 1.014 | 1.053 | 1.023 | 1.019 | 1.170 | 1.286 |
| 243 | 1.011 | 1.051 | 1.020 | 1.017 | 1.170 | 1.283 |
| 244 | 1.009 | 1.048 | 1.018 | 1.014 | 1.170 | 1.280 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 245 | 1.007 | 1.046 | 1.015 | 1.012 | 1.170 | 1.278 |
| 246 | 1.005 | 1.043 | 1.013 | 1.010 | 1.170 | 1.275 |
| 247 | 1.002 | 1.041 | 1.010 | 1.007 | 1.170 | 1.272 |
| 248 | 1.000 | 1.038 | 1.008 | 1.005 | 1.170 | 1.270 |
| 249 | 0.998 | 1.036 | 1.006 | 1.003 | 1.170 | 1.267 |
| 250 | 0.996 | 1.034 | 1.003 | 1.000 | 1.170 | 1.264 |
| 251 | 0.994 | 1.031 | 1.001 | 0.998 | 1.170 | 1.262 |
| 252 | 0.992 | 1.029 | 0.999 | 0.996 | 1.170 | 1.259 |
| 253 | 0.990 | 1.027 | 0.996 | 0.994 | 1.170 | 1.259 |
| 254 | 0.987 | 1.024 | 0.994 | 0.992 | 1.170 | 1.259 |
| 255 | 0.985 | 1.022 | 0.992 | 0.989 | 1.170 | 1.259 |
| 256 | 0.983 | 1.020 | 0.989 | 0.987 | 1.170 | 1.259 |
| 257 | 0.981 | 1.018 | 0.987 | 0.985 | 1.170 | 1.259 |
| 258 | 0.979 | 1.015 | 0.985 | 0.983 | 1.167 | 1.259 |
| 259 | 0.977 | 1.013 | 0.983 | 0.981 | 1.164 | 1.259 |
| 260 | 0.975 | 1.011 | 0.980 | 0.979 | 1.162 | 1.259 |
| 261 | 0.973 | 1.009 | 0.978 | 0.977 | 1.159 | 1.259 |
| 262 | 0.971 | 1.007 | 0.976 | 0.975 | 1.156 | 1.259 |
| 263 | 0.969 | 1.005 | 0.974 | 0.973 | 1.154 | 1.259 |
| 264 | 0.967 | 1.002 | 0.972 | 0.971 | 1.151 | 1.259 |
| 265 | 0.966 | 1.000 | 0.970 | 0.969 | 1.148 | 1.259 |
| 266 | 0.964 | 0.998 | 0.968 | 0.967 | 1.146 | 1.259 |
| 267 | 0.962 | 0.996 | 0.965 | 0.965 | 1.143 | 1.259 |
| 268 | 0.960 | 0.994 | 0.963 | 0.963 | 1.141 | 1.259 |
| 269 | 0.958 | 0.992 | 0.961 | 0.961 | 1.138 | 1.259 |
| 270 | 0.956 | 0.990 | 0.959 | 0.959 | 1.136 | 1.259 |
| 271 | 0.954 | 0.989 | 0.957 | 0.957 | 1.133 | 1.259 |
| 272 | 0.953 | 0.986 | 0.955 | 0.955 | 1.131 | 1.259 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 273 | 0.951 | 0.984 | 0.953 | 0.953 | 1.128 | 1.259 |
| 274 | 0.949 | 0.982 | 0.951 | 0.951 | 1.126 | 1.259 |
| 275 | 0.947 | 0.980 | 0.949 | 0.950 | 1.123 | 1.259 |
| 276 | 0.945 | 0.978 | 0.947 | 0.948 | 1.121 | 1.259 |
| 277 | 0.944 | 0.976 | 0.945 | 0.946 | 1.119 | 1.259 |
| 278 | 0.942 | 0.974 | 0.943 | 0.944 | 1.116 | 1.257 |
| 279 | 0.940 | 0.972 | 0.941 | 0.942 | 1.114 | 1.255 |
| 280 | 0.938 | 0.971 | 0.940 | 0.941 | 1.112 | 1.252 |
| 281 | 0.937 | 0.969 | 0.938 | 0.939 | 1.109 | 1.250 |
| 282 | 0.935 | 0.967 | 0.936 | 0.937 | 1.107 | 1.248 |
| 283 | 0.933 | 0.965 | 0.934 | 0.935 | 1.105 | 1.246 |
| 284 | 0.932 | 0.963 | 0.932 | 0.934 | 1.102 | 1.243 |
| 285 | 0.930 | 0.961 | 0.930 | 0.932 | 1.100 | 1.241 |
| 286 | 0.928 | 0.960 | 0.928 | 0.930 | 1.098 | 1.239 |
| 287 | 0.927 | 0.958 | 0.927 | 0.928 | 1.096 | 1.237 |
| 288 | 0.925 | 0.956 | 0.925 | 0.927 | 1.094 | 1.235 |
| 289 | 0.924 | 0.954 | 0.923 | 0.925 | 1.091 | 1.232 |
| 290 | 0.922 | 0.952 | 0.921 | 0.923 | 1.089 | 1.230 |
| 291 | 0.920 | 0.951 | 0.920 | 0.922 | 1.087 | 1.228 |
| 292 | 0.919 | 0.949 | 0.918 | 0.920 | 1.085 | 1.226 |
| 293 | 0.917 | 0.947 | 0.916 | 0.918 | 1.083 | 1.224 |
| 294 | 0.916 | 0.946 | 0.914 | 0.917 | 1.081 | 1.222 |
| 295 | 0.914 | 0.944 | 0.913 | 0.915 | 1.079 | 1.222 |
| 296 | 0.913 | 0.942 | 0.911 | 0.914 | 1.076 | 1.222 |
| 297 | 0.911 | 0.940 | 0.909 | 0.912 | 1.074 | 1.222 |
| 298 | 0.910 | 0.939 | 0.908 | 0.910 | 1.072 | 1.222 |
| 299 | 0.908 | 0.937 | 0.906 | 0.909 | 1.070 | 1.222 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 300 | 0.937 | 0.935 | 0.904 | 0.937 | 1.068 | 1.222 |
| 301 | 0.935 | 0.934 | 0.903 | 0.906 | 1.068 | 1.222 |
| 302 | 0.934 | 0.932 | 0.901 | 0.904 | 1.068 | 1.222 |
| 303 | 0.932 | 0.931 | 0.899 | 0.903 | 1.068 | 1.222 |
| 304 | 0.931 | 0.929 | 0.898 | 0.901 | 1.068 | 1.222 |
| 305 | 0.899 | 0.927 | 0.896 | 0.900 | 1.068 | 1.222 |
| 306 | 0.898 | 0.926 | 0.895 | 0.898 | 1.068 | 1.222 |
| 307 | 0.896 | 0.924 | 0.893 | 0.897 | 1.068 | 1.222 |
| 308 | 0.895 | 0.923 | 0.891 | 0.895 | 1.068 | 1.221 |
| 309 | 0.894 | 0.921 | 0.890 | 0.894 | 1.068 | 1.219 |
| 310 | 0.892 | 0.920 | 0.888 | 0.892 | 1.068 | 1.217 |
| 311 | 0.891 | 0.918 | 0.887 | 0.891 | 1.066 | 1.215 |
| 312 | 0.889 | 0.917 | 0.885 | 0.889 | 1.064 | 1.213 |
| 313 | 0.888 | 0.915 | 0.884 | 0.888 | 1.062 | 1.211 |
| 314 | 0.887 | 0.914 | 0.882 | 0.887 | 1.060 | 1.209 |
| 315 | 0.885 | 0.912 | 0.881 | 0.885 | 1.058 | 1.207 |
| 316 | 0.884 | 0.911 | 0.881 | 0.885 | 1.057 | 1.205 |
| 317 | 0.883 | 0.909 | 0.881 | 0.885 | 1.055 | 1.203 |
| 318 | 0.881 | 0.908 | 0.881 | 0.885 | 1.053 | 1.202 |
| 319 | 0.880 | 0.906 | 0.881 | 0.885 | 1.051 | 1.200 |
| 320 | 0.879 | 0.905 | 0.881 | 0.885 | 1.049 | 1.198 |
| 321 | 0.877 | 0.903 | 0.881 | 0.885 | 1.047 | 1.196 |
| 322 | 0.876 | 0.902 | 0.881 | 0.885 | 1.045 | 1.194 |
| 323 | 0.875 | 0.900 | 0.881 | 0.885 | 1.044 | 1.192 |
| 324 | 0.874 | 0.899 | 0.881 | 0.885 | 1.042 | 1.191 |
| 325 | 0.872 | 0.898 | 0.881 | 0.885 | 1.040 | 1.189 |
| 326 | 0.871 | 0.896 | 0.881 | 0.885 | 1.038 | 1.187 |
| 327 | 0.870 | 0.895 | 0.881 | 0.885 | 1.037 | 1.185 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 328 | 0.859 | 0.894 | 0.881 | 0.885 | 1.035 | 1.184 |
| 329 | 0.857 | 0.892 | 0.881 | 0.885 | 1.033 | 1.182 |
| 330 | 0.856 | 0.891 | 0.880 | 0.885 | 1.031 | 1.180 |
| 331 | 0.855 | 0.889 | 0.878 | 0.884 | 1.030 | 1.179 |
| 332 | 0.854 | 0.888 | 0.877 | 0.883 | 1.028 | 1.177 |
| 333 | 0.852 | 0.887 | 0.875 | 0.882 | 1.026 | 1.175 |
| 334 | 0.851 | 0.885 | 0.874 | 0.880 | 1.024 | 1.173 |
| 335 | 0.850 | 0.884 | 0.873 | 0.879 | 1.023 | 1.172 |
| 336 | 0.859 | 0.883 | 0.871 | 0.878 | 1.021 | 1.170 |
| 337 | 0.858 | 0.882 | 0.870 | 0.876 | 1.019 | 1.170 |
| 338 | 0.856 | 0.880 | 0.868 | 0.875 | 1.018 | 1.170 |
| 339 | 0.855 | 0.879 | 0.867 | 0.874 | 1.016 | 1.170 |
| 340 | 0.854 | 0.878 | 0.866 | 0.872 | 1.015 | 1.170 |
| 341 | 0.853 | 0.876 | 0.864 | 0.871 | 1.013 | 1.170 |
| 342 | 0.852 | 0.875 | 0.863 | 0.870 | 1.011 | 1.170 |
| 343 | 0.851 | 0.874 | 0.862 | 0.869 | 1.010 | 1.170 |
| 344 | 0.850 | 0.873 | 0.860 | 0.867 | 1.008 | 1.170 |
| 345 | 0.848 | 0.871 | 0.859 | 0.866 | 1.007 | 1.170 |
| 346 | 0.847 | 0.870 | 0.858 | 0.865 | 1.005 | 1.170 |
| 347 | 0.846 | 0.869 | 0.857 | 0.864 | 1.003 | 1.170 |
| 348 | 0.845 | 0.868 | 0.855 | 0.863 | 1.002 | 1.170 |
| 349 | 0.844 | 0.867 | 0.854 | 0.861 | 1.000 | 1.170 |
| 350 | 0.843 | 0.865 | 0.853 | 0.860 | 0.999 | 1.170 |
| 351 | 0.842 | 0.864 | 0.851 | 0.859 | 0.997 | 1.170 |
| 352 | 0.841 | 0.863 | 0.850 | 0.858 | 0.996 | 1.170 |
| 353 | 0.840 | 0.862 | 0.849 | 0.857 | 0.994 | 1.170 |
| 354 | 0.839 | 0.861 | 0.848 | 0.855 | 0.993 | 1.170 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 355 | 0.837 | 0.859 | 0.846 | 0.854 | 0.991 | 1.170 |
| 356 | 0.836 | 0.858 | 0.845 | 0.853 | 0.990 | 1.170 |
| 357 | 0.835 | 0.857 | 0.844 | 0.852 | 0.988 | 1.170 |
| 358 | 0.834 | 0.856 | 0.843 | 0.851 | 0.987 | 1.170 |
| 359 | 0.833 | 0.855 | 0.842 | 0.850 | 0.985 | 1.170 |
| 360 | 0.832 | 0.854 | 0.840 | 0.849 | 0.984 | 1.170 |
| 361 | 0.831 | 0.852 | 0.839 | 0.847 | 0.984 | 1.170 |
| 362 | 0.830 | 0.851 | 0.838 | 0.846 | 0.984 | 1.170 |
| 363 | 0.829 | 0.850 | 0.837 | 0.845 | 0.984 | 1.170 |
| 364 | 0.828 | 0.849 | 0.836 | 0.844 | 0.984 | 1.170 |
| 365 | 0.827 | 0.848 | 0.834 | 0.843 | 0.984 | 1.170 |
| 366 | 0.826 | 0.847 | 0.833 | 0.842 | 0.984 | 1.169 |
| 367 | 0.825 | 0.846 | 0.832 | 0.841 | 0.984 | 1.167 |
| 368 | 0.824 | 0.845 | 0.831 | 0.840 | 0.984 | 1.166 |
| 369 | 0.823 | 0.844 | 0.830 | 0.839 | 0.984 | 1.164 |
| 370 | 0.822 | 0.843 | 0.829 | 0.838 | 0.984 | 1.163 |
| 371 | 0.821 | 0.841 | 0.828 | 0.836 | 0.984 | 1.161 |
| 372 | 0.820 | 0.840 | 0.826 | 0.835 | 0.984 | 1.160 |
| 373 | 0.819 | 0.839 | 0.825 | 0.834 | 0.984 | 1.158 |
| 374 | 0.818 | 0.838 | 0.824 | 0.833 | 0.984 | 1.157 |
| 375 | 0.817 | 0.837 | 0.823 | 0.832 | 0.984 | 1.155 |
| 376 | 0.816 | 0.836 | 0.822 | 0.831 | 0.984 | 1.154 |
| 377 | 0.815 | 0.835 | 0.821 | 0.830 | 0.984 | 1.152 |
| 378 | 0.815 | 0.834 | 0.820 | 0.829 | 0.984 | 1.151 |
| 379 | 0.814 | 0.833 | 0.819 | 0.828 | 0.984 | 1.151 |
| 380 | 0.813 | 0.832 | 0.818 | 0.827 | 0.984 | 1.151 |
| 381 | 0.812 | 0.831 | 0.817 | 0.826 | 0.984 | 1.151 |
| 382 | 0.811 | 0.830 | 0.816 | 0.825 | 0.984 | 1.151 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 383 | 0.810 | 0.829 | 0.814 | 0.824 | 0.984 | 1.151 |
| 384 | 0.809 | 0.828 | 0.813 | 0.823 | 0.982 | 1.151 |
| 385 | 0.808 | 0.827 | 0.812 | 0.822 | 0.981 | 1.151 |
| 386 | 0.807 | 0.826 | 0.811 | 0.821 | 0.980 | 1.151 |
| 387 | 0.806 | 0.825 | 0.810 | 0.820 | 0.978 | 1.151 |
| 388 | 0.805 | 0.824 | 0.809 | 0.819 | 0.977 | 1.151 |
| 389 | 0.805 | 0.823 | 0.808 | 0.818 | 0.976 | 1.151 |
| 390 | 0.804 | 0.822 | 0.807 | 0.817 | 0.974 | 1.151 |
| 391 | 0.803 | 0.821 | 0.806 | 0.816 | 0.973 | 1.151 |
| 392 | 0.802 | 0.820 | 0.805 | 0.815 | 0.972 | 1.151 |
| 393 | 0.801 | 0.819 | 0.804 | 0.814 | 0.971 | 1.151 |
| 394 | 0.800 | 0.818 | 0.803 | 0.813 | 0.969 | 1.150 |
| 395 | 0.799 | 0.817 | 0.802 | 0.812 | 0.968 | 1.149 |
| 396 | 0.798 | 0.816 | 0.801 | 0.812 | 0.967 | 1.147 |
| 397 | 0.798 | 0.815 | 0.800 | 0.811 | 0.965 | 1.146 |
| 398 | 0.797 | 0.815 | 0.799 | 0.810 | 0.964 | 1.144 |
| 399 | 0.796 | 0.814 | 0.798 | 0.809 | 0.963 | 1.143 |
| 400 | 0.795 | 0.813 | 0.797 | 0.808 | 0.962 | 1.142 |
| 401 | 0.794 | 0.812 | 0.796 | 0.807 | 0.960 | 1.140 |
| 402 | 0.793 | 0.811 | 0.795 | 0.806 | 0.959 | 1.139 |
| 403 | 0.793 | 0.810 | 0.794 | 0.805 | 0.958 | 1.138 |
| 404 | 0.792 | 0.809 | 0.793 | 0.804 | 0.957 | 1.137 |
| 405 | 0.791 | 0.808 | 0.792 | 0.803 | 0.955 | 1.135 |
| 406 | 0.790 | 0.807 | 0.792 | 0.802 | 0.954 | 1.134 |
| 407 | 0.789 | 0.806 | 0.791 | 0.802 | 0.953 | 1.133 |
| 408 | 0.789 | 0.805 | 0.790 | 0.801 | 0.952 | 1.131 |
| 409 | 0.788 | 0.805 | 0.789 | 0.800 | 0.951 | 1.130 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 410 | 0.787 | 0.804 | 0.788 | 0.799 | 0.949 | 1.129 |
| 411 | 0.786 | 0.803 | 0.787 | 0.798 | 0.948 | 1.128 |
| 412 | 0.785 | 0.802 | 0.786 | 0.797 | 0.947 | 1.126 |
| 413 | 0.785 | 0.801 | 0.785 | 0.796 | 0.946 | 1.125 |
| 414 | 0.784 | 0.800 | 0.784 | 0.795 | 0.945 | 1.124 |
| 415 | 0.783 | 0.799 | 0.783 | 0.795 | 0.944 | 1.123 |
| 416 | 0.782 | 0.799 | 0.782 | 0.794 | 0.942 | 1.121 |
| 417 | 0.781 | 0.798 | 0.781 | 0.793 | 0.941 | 1.120 |
| 418 | 0.781 | 0.797 | 0.781 | 0.792 | 0.940 | 1.119 |
| 419 | 0.780 | 0.796 | 0.780 | 0.791 | 0.939 | 1.118 |
| 420 | 0.779 | 0.795 | 0.779 | 0.790 | 0.938 | 1.117 |
| 421 | 0.778 | 0.794 | 0.779 | 0.790 | 0.938 | 1.117 |
| 422 | 0.778 | 0.793 | 0.779 | 0.790 | 0.938 | 1.117 |
| 423 | 0.777 | 0.793 | 0.779 | 0.790 | 0.938 | 1.117 |
| 424 | 0.776 | 0.792 | 0.779 | 0.790 | 0.938 | 1.117 |
| 425 | 0.775 | 0.791 | 0.779 | 0.790 | 0.938 | 1.117 |
| 426 | 0.775 | 0.790 | 0.779 | 0.790 | 0.938 | 1.117 |
| 427 | 0.774 | 0.789 | 0.779 | 0.790 | 0.938 | 1.117 |
| 428 | 0.773 | 0.789 | 0.779 | 0.790 | 0.938 | 1.117 |
| 429 | 0.772 | 0.788 | 0.779 | 0.790 | 0.938 | 1.117 |
| 430 | 0.772 | 0.787 | 0.779 | 0.790 | 0.938 | 1.117 |
| 431 | 0.771 | 0.786 | 0.779 | 0.790 | 0.938 | 1.117 |
| 432 | 0.770 | 0.785 | 0.779 | 0.790 | 0.938 | 1.117 |
| 433 | 0.770 | 0.785 | 0.779 | 0.790 | 0.937 | 1.117 |
| 434 | 0.770 | 0.785 | 0.779 | 0.790 | 0.936 | 1.117 |
| 435 | 0.770 | 0.785 | 0.779 | 0.790 | 0.935 | 1.117 |
| 436 | 0.770 | 0.785 | 0.779 | 0.790 | 0.934 | 1.117 |
| 437 | 0.770 | 0.785 | 0.779 | 0.790 | 0.933 | 1.117 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 438 | 0.770 | 0.785 | 0.779 | 0.790 | 0.932 | 1.117 |
| 439 | 0.770 | 0.785 | 0.779 | 0.790 | 0.931 | 1.117 |
| 440 | 0.770 | 0.785 | 0.779 | 0.790 | 0.930 | 1.117 |
| 441 | 0.770 | 0.785 | 0.779 | 0.790 | 0.929 | 1.117 |
| 442 | 0.770 | 0.785 | 0.779 | 0.790 | 0.928 | 1.117 |
| 443 | 0.770 | 0.785 | 0.779 | 0.790 | 0.927 | 1.117 |
| 444 | 0.770 | 0.785 | 0.779 | 0.790 | 0.926 | 1.117 |
| 445 | 0.770 | 0.785 | 0.779 | 0.790 | 0.925 | 1.117 |
| 446 | 0.770 | 0.784 | 0.779 | 0.790 | 0.924 | 1.117 |
| 447 | 0.769 | 0.783 | 0.779 | 0.790 | 0.923 | 1.117 |
| 448 | 0.769 | 0.783 | 0.779 | 0.790 | 0.921 | 1.117 |
| 449 | 0.768 | 0.782 | 0.779 | 0.790 | 0.920 | 1.117 |
| 450 | 0.767 | 0.781 | 0.779 | 0.790 | 0.919 | 1.117 |
| 451 | 0.767 | 0.780 | 0.779 | 0.790 | 0.918 | 1.117 |
| 452 | 0.766 | 0.780 | 0.779 | 0.790 | 0.917 | 1.117 |
| 453 | 0.765 | 0.779 | 0.779 | 0.790 | 0.916 | 1.116 |
| 454 | 0.765 | 0.778 | 0.779 | 0.790 | 0.915 | 1.115 |
| 455 | 0.764 | 0.777 | 0.779 | 0.790 | 0.914 | 1.113 |
| 456 | 0.763 | 0.777 | 0.779 | 0.790 | 0.913 | 1.112 |
| 457 | 0.763 | 0.776 | 0.778 | 0.790 | 0.912 | 1.111 |
| 458 | 0.762 | 0.775 | 0.778 | 0.790 | 0.911 | 1.110 |
| 459 | 0.761 | 0.775 | 0.777 | 0.790 | 0.910 | 1.109 |
| 460 | 0.761 | 0.774 | 0.776 | 0.790 | 0.910 | 1.108 |
| 461 | 0.760 | 0.773 | 0.775 | 0.789 | 0.909 | 1.107 |
| 462 | 0.759 | 0.772 | 0.774 | 0.788 | 0.908 | 1.106 |
| 463 | 0.759 | 0.772 | 0.774 | 0.787 | 0.907 | 1.106 |
| 464 | 0.758 | 0.771 | 0.773 | 0.787 | 0.906 | 1.106 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 465 | 0.758 | 0.770 | 0.772 | 0.786 | 0.905 | 1.106 |
| 466 | 0.757 | 0.770 | 0.771 | 0.785 | 0.904 | 1.106 |
| 467 | 0.756 | 0.769 | 0.770 | 0.784 | 0.903 | 1.106 |
| 468 | 0.756 | 0.768 | 0.770 | 0.784 | 0.902 | 1.106 |
| 469 | 0.755 | 0.768 | 0.769 | 0.783 | 0.901 | 1.106 |
| 470 | 0.754 | 0.767 | 0.768 | 0.782 | 0.900 | 1.106 |
| 471 | 0.754 | 0.766 | 0.767 | 0.782 | 0.899 | 1.106 |
| 472 | 0.753 | 0.765 | 0.767 | 0.781 | 0.898 | 1.106 |
| 473 | 0.752 | 0.765 | 0.766 | 0.780 | 0.897 | 1.106 |
| 474 | 0.752 | 0.764 | 0.765 | 0.779 | 0.896 | 1.106 |
| 475 | 0.751 | 0.763 | 0.764 | 0.779 | 0.895 | 1.106 |
| 476 | 0.751 | 0.763 | 0.764 | 0.778 | 0.894 | 1.106 |
| 477 | 0.750 | 0.762 | 0.763 | 0.777 | 0.894 | 1.105 |
| 478 | 0.749 | 0.761 | 0.762 | 0.777 | 0.893 | 1.106 |
| 479 | 0.749 | 0.761 | 0.761 | 0.776 | 0.892 | 1.105 |
| 480 | 0.748 | 0.760 | 0.761 | 0.775 | 0.891 | 1.104 |
| 481 | 0.748 | 0.759 | 0.760 | 0.774 | 0.891 | 1.103 |
| 482 | 0.747 | 0.759 | 0.759 | 0.774 | 0.891 | 1.102 |
| 483 | 0.746 | 0.758 | 0.758 | 0.773 | 0.891 | 1.101 |
| 484 | 0.746 | 0.757 | 0.758 | 0.772 | 0.891 | 1.100 |
| 485 | 0.745 | 0.757 | 0.757 | 0.772 | 0.891 | 1.099 |
| 486 | 0.745 | 0.756 | 0.756 | 0.771 | 0.891 | 1.098 |
| 487 | 0.744 | 0.756 | 0.756 | 0.770 | 0.891 | 1.097 |
| 488 | 0.744 | 0.755 | 0.755 | 0.770 | 0.891 | 1.096 |
| 489 | 0.743 | 0.754 | 0.754 | 0.769 | 0.891 | 1.095 |
| 490 | 0.742 | 0.754 | 0.753 | 0.768 | 0.891 | 1.094 |
| 491 | 0.742 | 0.753 | 0.753 | 0.768 | 0.891 | 1.093 |
| 492 | 0.741 | 0.752 | 0.752 | 0.767 | 0.891 | 1.092 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 493 | 0.741 | 0.752 | 0.751 | 0.756 | 0.891 | 1.091 |
| 494 | 0.740 | 0.751 | 0.751 | 0.756 | 0.891 | 1.090 |
| 495 | 0.740 | 0.751 | 0.750 | 0.755 | 0.891 | 1.089 |
| 496 | 0.739 | 0.750 | 0.749 | 0.754 | 0.891 | 1.089 |
| 497 | 0.738 | 0.749 | 0.749 | 0.754 | 0.891 | 1.088 |
| 498 | 0.738 | 0.749 | 0.748 | 0.753 | 0.891 | 1.087 |
| 499 | 0.737 | 0.748 | 0.747 | 0.752 | 0.891 | 1.086 |
| 500 | 0.737 | 0.747 | 0.747 | 0.752 | 0.891 | 1.085 |
| 501 | 0.736 | 0.747 | 0.746 | 0.751 | 0.891 | 1.084 |
| 502 | 0.736 | 0.746 | 0.745 | 0.751 | 0.891 | 1.083 |
| 503 | 0.735 | 0.746 | 0.745 | 0.750 | 0.891 | 1.082 |
| 504 | 0.735 | 0.745 | 0.744 | 0.759 | 0.891 | 1.081 |
| 505 | 0.734 | 0.744 | 0.743 | 0.759 | 0.891 | 1.081 |
| 506 | 0.733 | 0.744 | 0.743 | 0.758 | 0.891 | 1.081 |
| 507 | 0.733 | 0.743 | 0.742 | 0.757 | 0.891 | 1.081 |
| 508 | 0.732 | 0.743 | 0.741 | 0.757 | 0.891 | 1.081 |
| 509 | 0.732 | 0.742 | 0.741 | 0.756 | 0.890 | 1.081 |
| 510 | 0.731 | 0.742 | 0.740 | 0.756 | 0.889 | 1.081 |
| 511 | 0.731 | 0.741 | 0.739 | 0.755 | 0.888 | 1.081 |
| 512 | 0.730 | 0.740 | 0.739 | 0.754 | 0.887 | 1.081 |
| 513 | 0.730 | 0.740 | 0.738 | 0.754 | 0.887 | 1.081 |
| 514 | 0.729 | 0.739 | 0.737 | 0.753 | 0.886 | 1.081 |
| 515 | 0.729 | 0.739 | 0.737 | 0.752 | 0.885 | 1.081 |
| 516 | 0.728 | 0.738 | 0.736 | 0.752 | 0.884 | 1.081 |
| 517 | 0.7[illegible]3 | 0.738 | 0.735 | 0.751 | 0.883 | 1.081 |
| 518 | 0.727 | 0.737 | 0.735 | 0.751 | 0.883 | 1.081 |
| 519 | 0.7[illegible]7 | 0.736 | 0.734 | 0.750 | 0.882 | 1.081 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 520 | 0.726 | 0.736 | 0.734 | 0.749 | 0.881 | 1.081 |
| 521 | 0.726 | 0.735 | 0.733 | 0.749 | 0.880 | 1.081 |
| 522 | 0.725 | 0.735 | 0.732 | 0.748 | 0.879 | 1.081 |
| 523 | 0.725 | 0.734 | 0.732 | 0.748 | 0.879 | 1.081 |
| 524 | 0.724 | 0.734 | 0.731 | 0.747 | 0.878 | 1.081 |
| 525 | 0.724 | 0.733 | 0.731 | 0.747 | 0.877 | 1.081 |
| 526 | 0.723 | 0.732 | 0.731 | 0.747 | 0.876 | 1.081 |
| 527 | 0.723 | 0.732 | 0.731 | 0.747 | 0.875 | 1.081 |
| 528 | 0.722 | 0.731 | 0.731 | 0.747 | 0.875 | 1.081 |
| 529 | 0.722 | 0.731 | 0.731 | 0.747 | 0.874 | 1.081 |
| 530 | 0.721 | 0.730 | 0.731 | 0.747 | 0.873 | 1.081 |
| 531 | 0.721 | 0.730 | 0.731 | 0.747 | 0.872 | 1.081 |
| 532 | 0.720 | 0.729 | 0.731 | 0.747 | 0.871 | 1.081 |
| 533 | 0.720 | 0.729 | 0.731 | 0.747 | 0.871 | 1.081 |
| 534 | 0.719 | 0.728 | 0.731 | 0.747 | 0.870 | 1.081 |
| 535 | 0.719 | 0.728 | 0.731 | 0.747 | 0.869 | 1.081 |
| 536 | 0.718 | 0.727 | 0.731 | 0.747 | 0.868 | 1.081 |
| 537 | 0.718 | 0.727 | 0.731 | 0.747 | 0.868 | 1.081 |
| 538 | 0.717 | 0.726 | 0.731 | 0.747 | 0.867 | 1.081 |
| 539 | 0.717 | 0.726 | 0.731 | 0.747 | 0.866 | 1.081 |
| 540 | 0.716 | 0.725 | 0.731 | 0.747 | 0.865 | 1.080 |
| 541 | 0.716 | 0.724 | 0.731 | 0.747 | 0.865 | 1.079 |
| 542 | 0.715 | 0.724 | 0.731 | 0.747 | 0.865 | 1.078 |
| 543 | 0.715 | 0.723 | 0.731 | 0.747 | 0.865 | 1.077 |
| 544 | 0.714 | 0.723 | 0.731 | 0.747 | 0.865 | 1.076 |
| 545 | 0.714 | 0.722 | 0.731 | 0.747 | 0.865 | 1.075 |
| 546 | 0.713 | 0.722 | 0.730 | 0.747 | 0.865 | 1.075 |
| 547 | 0.713 | 0.721 | 0.730 | 0.747 | 0.865 | 1.075 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 548 | 0.713 | 0.721 | 0.729 | 0.746 | 0.865 | 1.075 |
| 549 | 0.712 | 0.720 | 0.729 | 0.746 | 0.865 | 1.075 |
| 550 | 0.712 | 0.720 | 0.728 | 0.745 | 0.865 | 1.075 |
| 551 | 0.711 | 0.719 | 0.728 | 0.745 | 0.865 | 1.075 |
| 552 | 0.711 | 0.719 | 0.727 | 0.744 | 0.865 | 1.075 |
| 553 | 0.710 | 0.718 | 0.726 | 0.743 | 0.865 | 1.075 |
| 554 | 0.710 | 0.718 | 0.726 | 0.743 | 0.865 | 1.075 |
| 555 | 0.709 | 0.717 | 0.725 | 0.742 | 0.865 | 1.075 |
| 556 | 0.709 | 0.717 | 0.725 | 0.742 | 0.865 | 1.075 |
| 557 | 0.708 | 0.716 | 0.724 | 0.741 | 0.864 | 1.075 |
| 558 | 0.708 | 0.716 | 0.724 | 0.741 | 0.863 | 1.075 |
| 559 | 0.708 | 0.715 | 0.723 | 0.740 | 0.862 | 1.075 |
| 560 | 0.707 | 0.715 | 0.722 | 0.740 | 0.862 | 1.075 |
| 561 | 0.707 | 0.715 | 0.722 | 0.739 | 0.861 | 1.075 |
| 562 | 0.706 | 0.714 | 0.721 | 0.739 | 0.860 | 1.075 |
| 563 | 0.706 | 0.714 | 0.721 | 0.738 | 0.860 | 1.075 |
| 564 | 0.705 | 0.713 | 0.720 | 0.738 | 0.859 | 1.074 |
| 565 | 0.705 | 0.713 | 0.720 | 0.737 | 0.858 | 1.073 |
| 566 | 0.705 | 0.712 | 0.719 | 0.736 | 0.857 | 1.073 |
| 567 | 0.704 | 0.712 | 0.719 | 0.736 | 0.857 | 1.072 |
| 568 | 0.704 | 0.711 | 0.718 | 0.735 | 0.856 | 1.071 |
| 569 | 0.703 | 0.711 | 0.717 | 0.735 | 0.855 | 1.070 |
| 570 | 0.703 | 0.710 | 0.717 | 0.734 | 0.855 | 1.069 |
| 571 | 0.702 | 0.710 | 0.716 | 0.734 | 0.854 | 1.069 |
| 572 | 0.702 | 0.709 | 0.716 | 0.733 | 0.853 | 1.068 |
| 573 | 0.702 | 0.709 | 0.715 | 0.733 | 0.853 | 1.067 |
| 574 | 0.701 | 0.708 | 0.715 | 0.732 | 0.852 | 1.066 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 575 | 0.701 | 0.708 | 0.714 | 0.732 | 0.851 | 1.065 |
| 576 | 0.700 | 0.707 | 0.714 | 0.731 | 0.851 | 1.065 |
| 577 | 0.700 | 0.707 | 0.713 | 0.731 | 0.850 | 1.064 |
| 578 | 0.699 | 0.707 | 0.713 | 0.730 | 0.849 | 1.063 |
| 579 | 0.699 | 0.706 | 0.712 | 0.730 | 0.849 | 1.062 |
| 580 | 0.699 | 0.706 | 0.712 | 0.729 | 0.848 | 1.062 |
| 581 | 0.698 | 0.705 | 0.711 | 0.729 | 0.847 | 1.061 |
| 582 | 0.698 | 0.705 | 0.711 | 0.728 | 0.847 | 1.060 |
| 583 | 0.697 | 0.704 | 0.710 | 0.728 | 0.846 | 1.059 |
| 584 | 0.697 | 0.704 | 0.710 | 0.727 | 0.845 | 1.059 |
| 585 | 0.697 | 0.703 | 0.709 | 0.727 | 0.845 | 1.058 |
| 586 | 0.696 | 0.703 | 0.709 | 0.726 | 0.844 | 1.057 |
| 587 | 0.696 | 0.703 | 0.708 | 0.726 | 0.843 | 1.056 |
| 588 | 0.695 | 0.702 | 0.708 | 0.725 | 0.843 | 1.056 |
| 589 | 0.695 | 0.702 | 0.707 | 0.725 | 0.842 | 1.056 |
| 590 | 0.695 | 0.701 | 0.707 | 0.724 | 0.841 | 1.056 |
| 591 | 0.694 | 0.701 | 0.706 | 0.724 | 0.841 | 1.056 |
| 592 | 0.694 | 0.700 | 0.706 | 0.724 | 0.840 | 1.056 |
| 593 | 0.693 | 0.700 | 0.705 | 0.723 | 0.839 | 1.056 |
| 594 | 0.693 | 0.699 | 0.705 | 0.723 | 0.839 | 1.056 |
| 595 | 0.693 | 0.699 | 0.704 | 0.722 | 0.838 | 1.056 |
| 596 | 0.692 | 0.699 | 0.704 | 0.722 | 0.838 | 1.056 |
| 597 | 0.692 | 0.698 | 0.703 | 0.721 | 0.837 | 1.056 |
| 598 | 0.691 | 0.698 | 0.703 | 0.721 | 0.836 | 1.055 |
| 599 | 0.691 | 0.697 | 0.702 | 0.720 | 0.836 | 1.056 |
| 600 | 0.691 | 0.697 | 0.702 | 0.720 | 0.835 | 1.056 |
| 601 | 0.690 | 0.697 | 0.701 | 0.719 | 0.835 | 1.055 |
| 602 | 0.690 | 0.696 | 0.701 | 0.719 | 0.835 | 1.056 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 603 | 0.690 | 0.696 | 0.700 | 0.718 | 0.835 | 1.056 |
| 604 | 0.689 | 0.695 | 0.700 | 0.718 | 0.835 | 1.056 |
| 605 | 0.689 | 0.695 | 0.699 | 0.717 | 0.835 | 1.056 |
| 606 | 0.688 | 0.694 | 0.699 | 0.717 | 0.835 | 1.056 |
| 607 | 0.688 | 0.694 | 0.698 | 0.717 | 0.835 | 1.056 |
| 608 | 0.688 | 0.694 | 0.698 | 0.716 | 0.835 | 1.056 |
| 609 | 0.687 | 0.693 | 0.697 | 0.716 | 0.835 | 1.056 |
| 610 | 0.687 | 0.693 | 0.697 | 0.715 | 0.835 | 1.056 |
| 611 | 0.687 | 0.692 | 0.696 | 0.715 | 0.835 | 1.056 |
| 612 | 0.686 | 0.692 | 0.696 | 0.714 | 0.835 | 1.056 |
| 613 | 0.686 | 0.692 | 0.695 | 0.714 | 0.835 | 1.056 |
| 614 | 0.685 | 0.691 | 0.695 | 0.713 | 0.835 | 1.056 |
| 615 | 0.685 | 0.691 | 0.694 | 0.713 | 0.835 | 1.056 |
| 616 | 0.685 | 0.690 | 0.694 | 0.713 | 0.835 | 1.056 |
| 617 | 0.684 | 0.690 | 0.693 | 0.712 | 0.835 | 1.056 |
| 618 | 0.684 | 0.690 | 0.693 | 0.712 | 0.835 | 1.056 |
| 619 | 0.684 | 0.689 | 0.693 | 0.711 | 0.835 | 1.056 |
| 620 | 0.683 | 0.689 | 0.692 | 0.711 | 0.835 | 1.056 |
| 621 | 0.683 | 0.688 | 0.692 | 0.710 | 0.835 | 1.056 |
| 622 | 0.683 | 0.688 | 0.691 | 0.710 | 0.835 | 1.056 |
| 623 | 0.682 | 0.688 | 0.691 | 0.709 | 0.835 | 1.056 |
| 624 | 0.682 | 0.687 | 0.690 | 0.709 | 0.835 | 1.056 |
| 625 | 0.681 | 0.687 | 0.690 | 0.709 | 0.835 | 1.055 |
| 626 | 0.681 | 0.686 | 0.689 | 0.708 | 0.835 | 1.055 |
| 627 | 0.681 | 0.686 | 0.689 | 0.708 | 0.835 | 1.054 |
| 628 | 0.680 | 0.686 | 0.689 | 0.707 | 0.835 | 1.053 |
| 629 | 0.680 | 0.685 | 0.688 | 0.707 | 0.835 | 1.052 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 630 | 0.630 | 0.685 | 0.688 | 0.707 | 0.835 | 1.052 |
| 631 | 0.679 | 0.685 | 0.688 | 0.707 | 0.835 | 1.052 |
| 632 | 0.679 | 0.684 | 0.688 | 0.707 | 0.835 | 1.052 |
| 633 | 0.679 | 0.684 | 0.688 | 0.707 | 0.835 | 1.052 |
| 634 | 0.678 | 0.683 | 0.688 | 0.707 | 0.834 | 1.052 |
| 635 | 0.678 | 0.683 | 0.688 | 0.707 | 0.833 | 1.052 |
| 636 | 0.678 | 0.683 | 0.688 | 0.707 | 0.833 | 1.052 |
| 637 | 0.677 | 0.682 | 0.688 | 0.707 | 0.832 | 1.052 |
| 638 | 0.677 | 0.682 | 0.688 | 0.707 | 0.832 | 1.052 |
| 639 | 0.677 | 0.682 | 0.688 | 0.707 | 0.831 | 1.052 |
| 640 | 0.676 | 0.681 | 0.688 | 0.707 | 0.830 | 1.052 |
| 641 | 0.676 | 0.681 | 0.688 | 0.707 | 0.830 | 1.052 |
| 642 | 0.676 | 0.680 | 0.688 | 0.707 | 0.829 | 1.052 |
| 643 | 0.675 | 0.680 | 0.688 | 0.707 | 0.829 | 1.052 |
| 644 | 0.675 | 0.680 | 0.688 | 0.707 | 0.828 | 1.052 |
| 645 | 0.675 | 0.679 | 0.688 | 0.707 | 0.828 | 1.052 |
| 646 | 0.674 | 0.679 | 0.688 | 0.707 | 0.827 | 1.052 |
| 647 | 0.674 | 0.679 | 0.688 | 0.707 | 0.826 | 1.052 |
| 648 | 0.674 | 0.678 | 0.688 | 0.707 | 0.826 | 1.052 |
| 649 | 0.674 | 0.678 | 0.688 | 0.707 | 0.825 | 1.051 |
| 650 | 0.674 | 0.678 | 0.688 | 0.707 | 0.825 | 1.051 |
| 651 | 0.674 | 0.678 | 0.688 | 0.707 | 0.824 | 1.050 |
| 652 | 0.674 | 0.678 | 0.688 | 0.707 | 0.824 | 1.049 |
| 653 | 0.674 | 0.678 | 0.688 | 0.707 | 0.823 | 1.049 |
| 654 | 0.674 | 0.678 | 0.688 | 0.707 | 0.823 | 1.048 |
| 655 | 0.674 | 0.678 | 0.688 | 0.707 | 0.822 | 1.047 |
| 656 | 0.674 | 0.678 | 0.688 | 0.707 | 0.821 | 1.047 |
| 657 | 0.674 | 0.678 | 0.688 | 0.707 | 0.821 | 1.046 |

TABLE 7 CONTD.

T AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 658 | 0.674 | 0.678 | 0.688 | 0.707 | 0.820 | 1.045 |
| 659 | 0.674 | 0.678 | 0.688 | 0.707 | 0.820 | 1.045 |
| 660 | 0.674 | 0.678 | 0.688 | 0.707 | 0.819 | 1.044 |
| 661 | 0.674 | 0.678 | 0.688 | 0.707 | 0.819 | 1.043 |
| 662 | 0.674 | 0.678 | 0.688 | 0.707 | 0.819 | 1.043 |
| 663 | 0.674 | 0.678 | 0.688 | 0.707 | 0.819 | 1.042 |
| 664 | 0.674 | 0.678 | 0.688 | 0.707 | 0.819 | 1.042 |
| 665 | 0.674 | 0.678 | 0.688 | 0.707 | 0.819 | 1.041 |
| 666 | 0.674 | 0.678 | 0.688 | 0.707 | 0.819 | 1.040 |
| 667 | 0.674 | 0.678 | 0.688 | 0.707 | 0.819 | 1.040 |
| 668 | 0.674 | 0.678 | 0.688 | 0.707 | 0.819 | 1.039 |
| 669 | 0.673 | 0.677 | 0.688 | 0.707 | 0.819 | 1.038 |
| 670 | 0.673 | 0.677 | 0.688 | 0.707 | 0.819 | 1.038 |
| 671 | 0.673 | 0.677 | 0.688 | 0.707 | 0.819 | 1.037 |
| 672 | 0.672 | 0.676 | 0.688 | 0.707 | 0.819 | 1.036 |
| 673 | 0.672 | 0.676 | 0.688 | 0.707 | 0.819 | 1.036 |
| 674 | 0.672 | 0.675 | 0.688 | 0.707 | 0.819 | 1.036 |
| 675 | 0.671 | 0.675 | 0.688 | 0.707 | 0.819 | 1.036 |
| 676 | 0.671 | 0.675 | 0.688 | 0.707 | 0.819 | 1.036 |
| 677 | 0.671 | 0.674 | 0.688 | 0.707 | 0.819 | 1.036 |
| 678 | 0.671 | 0.674 | 0.688 | 0.707 | 0.819 | 1.036 |
| 679 | 0.670 | 0.674 | 0.687 | 0.707 | 0.818 | 1.036 |
| 680 | 0.670 | 0.673 | 0.687 | 0.707 | 0.818 | 1.036 |
| 681 | 0.670 | 0.673 | 0.687 | 0.707 | 0.817 | 1.036 |
| 682 | 0.669 | 0.673 | 0.686 | 0.706 | 0.817 | 1.036 |
| 683 | 0.669 | 0.672 | 0.686 | 0.706 | 0.816 | 1.036 |
| 684 | 0.669 | 0.672 | 0.685 | 0.706 | 0.816 | 1.036 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

| | | | | | | |
|---|---|---|---|---|---|---|
| 685 | 0.668 | 0.672 | 0.685 | 0.705 | 0.815 | 1.036 |
| 686 | 0.668 | 0.671 | 0.685 | 0.705 | 0.814 | 1.036 |
| 687 | 0.668 | 0.671 | 0.684 | 0.704 | 0.814 | 1.036 |
| 688 | 0.667 | 0.671 | 0.684 | 0.704 | 0.813 | 1.036 |
| 689 | 0.667 | 0.670 | 0.683 | 0.704 | 0.813 | 1.036 |
| 690 | 0.667 | 0.670 | 0.683 | 0.703 | 0.812 | 1.036 |
| 691 | 0.667 | 0.670 | 0.683 | 0.703 | 0.812 | 1.036 |
| 692 | 0.666 | 0.669 | 0.682 | 0.702 | 0.811 | 1.036 |
| 693 | 0.666 | 0.669 | 0.682 | 0.702 | 0.811 | 1.036 |
| 694 | 0.666 | 0.669 | 0.681 | 0.702 | 0.810 | 1.036 |
| 695 | 0.665 | 0.669 | 0.681 | 0.701 | 0.810 | 1.036 |
| 696 | 0.665 | 0.668 | 0.681 | 0.701 | 0.809 | 1.036 |
| 697 | 0.665 | 0.668 | 0.680 | 0.701 | 0.809 | 1.036 |
| 698 | 0.664 | 0.668 | 0.680 | 0.700 | 0.808 | 1.036 |
| 699 | 0.664 | 0.667 | 0.679 | 0.700 | 0.808 | 1.036 |
| 700 | 0.664 | 0.667 | 0.679 | 0.699 | 0.807 | 1.036 |

TABLE 7 CONTD.

BEST AVAILABLE DOCUMENT

TABLE 8 : TABLE OF ROUTE LENGTHS, PROPOSED FREIGHT RATES ETC. FOR THE STANDARD ROUTES FOR INTERDISTRICT MOVEMENTS INCLUDING MOVEMENTS FROM SEAPORTS.

| ROUTE NO. | ROUTE FROM | NAME TO | ALL SEASON ROUTE LENGTH IN KM | MONSOON ROUTE LENGTH IN KM | EFFECTIVE ROUTE LENGTH IN KM | FREIGHT RATE IN TK/T-KM | PROPOSED FREIGHT RATE IN TK/TON | EXISTING PMCC RATE IN TK/TON | SAVING TK/TON |
|---|---|---|---|---|---|---|---|---|---|
| 1 | CHITTAGONG | DHAKA | 305.000 | 305.000 | 305.000 | 0.913 | 278.58 | 341.60 | 63.02 |
| 2 | CHITTAGONG | NGANGJ | 288.000 | 288.000 | 288.000 | 0.941 | 270.89 | 322.56 | 51.67 |
| 3 | CHITTAGONG | MIRKADIM | 289.000 | 289.000 | 289.000 | 0.939 | 271.34 | 323.68 | 52.34 |
| 4 | CHITTAGONG | RASULPUR | 270.000 | 270.000 | 270.000 | 0.973 | 262.74 | 302.40 | 39.66 |
| 5 | CHITTAGONG | CHANDPUR | 237.000 | 237.000 | 237.000 | 1.046 | 247.82 | 265.44 | 17.62 |
| 6 | CHITTAGONG | COXSBAZAR | 117.500 | 117.500 | 117.000 | 1.618 | 189.27 | 179.20 | -10.07 |
| 7 | CHITTAGONG | SANDWIP | 77.000 | 77.000 | 77.000 | 2.223 | 171.18 | 179.20 | 8.02 |
| 8 | CHITTAGONG | BARAGOP | 65.500 | 65.500 | 65.000 | 2.550 | 165.75 | 179.20 | 13.45 |
| 9 | CHITTAGONG | RAOZAN | 43.000 | 43.000 | 43.000 | 3.623 | 155.80 | 179.20 | 23.40 |



BEST AVAILABLE DOCUMENT

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10 | CHITTAGONG-NSANJSILO | 297.000 | 297.000 | 297.000 | 0.926 | 274.96 | 332.64 | 57.68 |
| 11 | MONGLA-NAGARBARI | 373.500 | 268.000 | 371.000 | 0.883 | 327.47 | 423.92 | 96.45 |
| 12 | MONGLA-SIRAJGANJ | 448.000 | 337.500 | 440.000 | 0.833 | 366.52 | 501.76 | 135.24 |
| 13 | MONGLA-BAGHABARI | 403.500 | 293.000 | 395.000 | 0.860 | 340.48 | 451.92 | 111.44 |
| 14 | MONGLA-BHANGA | 216.500 | 175.500 | 213.000 | 1.118 | 238.13 | 242.48 | 4.35 |
| 15 | MONGLA-SADARPUR | 220.500 | 220.500 | 220.000 | 1.110 | 244.09 | 246.96 | 2.87 |
| 16 | MONGLA-NAGARKANDA | 223.500 | 157.500 | 225.000 | 1.104 | 248.36 | 255.92 | 7.56 |
| 17 | MONGLA-KHULNA | 47.500 | 47.500 | 47.000 | 3.229 | 151.75 | 179.20 | 27.45 |
| 18 | MONGLA-MOHESWARPASA | 58.000 | 58.000 | 58.000 | 2.699 | 156.56 | 179.20 | 22.64 |
| 19 | MONGLA-KHULNA CSD | 58.000 | 58.000 | 58.000 | 2.699 | 156.56 | 179.20 | 22.64 |
| 20 | MONGLA-PHULTALA | 58.500 | 58.500 | 58.000 | 2.396 | 162.94 | 179.20 | 16.26 |
| 21 | MONGLA-CHALNA | 18.000 | 18.000 | 18.000 | 7.726 | 139.06 | 179.20 | 40.14 |
| 22 | MONGLA-BHOLA TOWN | 137.000 | 178.000 | 185.000 | 1.212 | 224.15 | 209.44 | -14.71 |
| 23 | MONGLA-LALMOHAN | 218.000 | 209.000 | 215.000 | 1.114 | 240.69 | 244.16 | 3.47 |
| 24 | MONGLA-BURHAN UDDIN | 204.000 | 195.000 | 203.000 | 1.145 | 232.51 | 228.48 | -4.03 |
| 25 | MONGLA-DAULATKHAN | 211.000 | 202.000 | 207.000 | 1.132 | 234.26 | 236.32 | 2.06 |
| 26 | MONGLA-NAZIRPUR | 213.500 | 201.500 | 209.000 | 1.125 | 235.13 | 235.76 | 0.63 |
| 27 | MONGLA-SHOSHERHAT | 230.500 | 221.500 | 229.000 | 1.099 | 251.76 | 258.16 | 6.40 |
| 28 | MONGLA-CHAR FASHAN | 275.500 | 266.500 | 274.000 | 1.009 | 276.60 | 308.56 | 31.96 |
| 29 | MONGLA-HAZIRHAT | 247.500 | 238.500 | 246.000 | 1.064 | 261.77 | 277.20 | 15.43 |
| 30 | MONGLA-CHARGASIBHUSA | 250.000 | 241.000 | 249.000 | 1.059 | 263.79 | 280.00 | 16.21 |
| 31 | MONGLA-JHALAKATHI | 113.500 | 110.500 | 110.000 | 1.684 | 185.24 | 179.20 | -6.04 |
| 32 | MONGLA-RAJAPUR | 149.000 | 122.500 | 147.000 | 1.401 | 206.01 | 179.20 | -26.81 |
| 33 | MONGLA-NALCHITI | 118.500 | 113.500 | 118.000 | 1.604 | 189.33 | 179.20 | -10.13 |
| 34 | MONGLA-AMJA | 152.500 | 152.500 | 152.000 | 1.370 | 208.20 | 179.20 | -29.00 |
| 35 | MONGLA-BARISAL | 136.000 | 136.000 | 136.000 | 1.479 | 201.20 | 179.20 | -22.00 |
| 36 | MONGLA-BABUGANJ | 152.500 | 152.500 | 152.000 | 1.370 | 208.20 | 179.20 | -29.00 |
| 37 | MONGLA-AGAILJHARA | 139.500 | 139.500 | 139.000 | 1.198 | 226.38 | 212.24 | -14.14 |

BEST AVAILABLE DOCUMENT

TABLE 8 CONTD.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 38 | MONGLA-MULADI | 173.000 | 173.000 | 173.000 | 1.257 | 217.39 | 193.76 | -23.63 |
| 39 | MONGLA-SAJRNADI | 177.500 | 177.500 | 177.000 | 1.238 | 219.14 | 198.80 | -20.34 |
| 40 | MONGLA-KALASKATHI | 164.000 | 164.000 | 164.000 | 1.302 | 213.45 | 183.68 | -29.77 |
| 41 | MONGLA-MEHENDIGONJ | 171.000 | 162.000 | 169.000 | 1.276 | 215.64 | 191.52 | -24.12 |
| 42 | MONGLA-SIKARPUR | 135.000 | 135.000 | 135.000 | 1.487 | 200.76 | 179.20 | -21.56 |
| 43 | MONGLA-PIROJPUR | 92.000 | 92.000 | 92.000 | 1.885 | 173.44 | 179.20 | 5.76 |
| 44 | MONGLA-BHANDARIA | 82.500 | 82.500 | 82.000 | 2.062 | 169.06 | 179.20 | 10.14 |
| 45 | MONGLA-SHRIRAMKATHI | 97.500 | 97.500 | 97.000 | 1.811 | 175.62 | 179.20 | 3.58 |
| 46 | MONGLA-INDERHAT | 107.000 | 107.000 | 107.000 | 1.697 | 181.57 | 179.20 | -2.37 |
| 47 | MONGLA-MATHBARIA | 59.500 | 59.500 | 59.000 | 2.661 | 157.00 | 179.20 | 22.20 |
| 48 | MONGLA-NARAIL | 98.000 | 98.000 | 98.000 | 1.797 | 176.06 | 179.20 | 3.14 |
| 49 | MONGLA-LOHAGARA | 125.000 | 125.000 | 125.000 | 1.556 | 194.50 | 179.20 | -15.30 |
| 50 | MONGLA-KALIA | 79.500 | 79.500 | 79.000 | 2.123 | 167.75 | 179.20 | 11.45 |
| 51 | MONGLA-NALDI | 109.500 | 109.500 | 107.000 | 1.688 | 184.02 | 179.20 | -4.82 |
| 52 | MONGLA-BARDIA | 93.000 | 93.000 | 93.000 | 1.870 | 173.87 | 179.20 | 5.33 |
| 53 | MONGLA-BAGERHAT | 47.000 | 47.000 | 47.000 | 3.229 | 151.75 | 179.20 | 27.45 |
| 54 | MONGLA-RAMPAL | 13.000 | 13.000 | 13.000 | 10.529 | 136.87 | 179.20 | 42.33 |
| 55 | MONGLA-RAYENDA | 64.000 | 64.000 | 64.000 | 2.519 | 161.19 | 179.20 | 18.01 |
| 56 | MONGLA-MORELGONJ | 45.500 | 45.500 | 45.000 | 3.353 | 150.87 | 179.20 | 28.33 |
| 57 | MONGLA-KACHUA | 107.500 | 107.500 | 107.000 | 1.697 | 181.57 | 179.20 | -2.37 |
| 58 | MONGLA-GAURAMSHA | 28.000 | 28.000 | 28.000 | 5.123 | 143.44 | 179.20 | 35.76 |
| 59 | MONGLA-FAKIRHAT | 71.000 | 71.000 | 71.000 | 2.313 | 164.25 | 179.20 | 14.95 |
| 60 | MONGLA-SATHKHIRA | 97.000 | 97.000 | 97.000 | 1.811 | 175.62 | 179.20 | 3.58 |
| 61 | MONGLA-KALARDA | 108.500 | 108.500 | 108.000 | 1.693 | 182.80 | 179.20 | -3.60 |
| 62 | MONGLA-PAROLIA | 97.000 | 97.000 | 97.000 | 1.811 | 175.62 | 179.20 | 3.58 |
| 63 | MONGLA-BARADAL | 63.500 | 63.500 | 63.000 | 2.552 | 160.75 | 179.20 | 18.45 |
| 64 | MONGLA-NAGIPUR | 135.000 | 148.500 | 182.000 | 1.219 | 221.93 | 207.20 | -14.73 |

TABLE 8 CONTD.



BEST AVAILABLE DOCUMENT

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 65 | MONGLA-BASANTAPUR | 204.000 | 132.000 | 199.000 | 1.160 | 230.76 | 228.48 | -2.28 |
| 66 | MONGLA-ASASUNI | 70.000 | 70.000 | 70.000 | 2.340 | 163.81 | 179.20 | 15.39 |
| 67 | MONGLA-PATKELGHATA | 107.500 | 107.500 | 107.000 | 1.697 | 181.57 | 179.20 | -2.37 |
| 68 | MONGLA-BARGUNA | 186.000 | 136.000 | 185.000 | 1.209 | 224.90 | 208.32 | -16.58 |
| 69 | MONGLA-BETAGI | 141.500 | 141.500 | 141.000 | 1.442 | 203.38 | 179.20 | -24.18 |
| 70 | MONGLA-TALTALI | 215.000 | 215.000 | 215.000 | 1.116 | 239.83 | 240.80 | 0.97 |
| 71 | MONGLA-PATHARGHATA | 199.000 | 199.000 | 199.000 | 1.160 | 230.76 | 222.88 | -7.88 |
| 72 | MONGLA-BAMNA | 155.000 | 155.000 | 155.000 | 1.352 | 209.51 | 179.20 | -30.31 |
| 73 | MONGLA-MADARIPUR | 207.000 | 190.000 | 205.000 | 1.139 | 233.38 | 231.84 | -1.54 |
| 74 | MONGLA-CHAR MUGURIA | 210.500 | 194.000 | 209.000 | 1.125 | 235.13 | 235.76 | 0.63 |
| 75 | MONGLA-TEKERHAT | 192.500 | 151.000 | 189.000 | 1.198 | 226.38 | 215.60 | -10.78 |
| 76 | MONGLA-KALKINI | 200.500 | 200.500 | 200.000 | 1.156 | 231.20 | 224.56 | -6.64 |
| 77 | MONGLA-SIBCHAR | 226.000 | 134.500 | 223.000 | 1.106 | 246.65 | 253.12 | 6.47 |
| 78 | MONGLA-SHAGERHAT | 130.500 | 130.500 | 130.000 | 1.225 | 220.45 | 202.16 | -18.29 |
| 79 | MONGLA-GOPALGANJ | 159.000 | 123.000 | 159.000 | 1.329 | 211.26 | 179.20 | -32.06 |
| 80 | MONGLA-SINDHIA GHAT | 192.000 | 150.500 | 186.000 | 1.209 | 224.90 | 215.04 | -9.86 |
| 81 | MONGLA-KOTALIPARA | 149.000 | 149.000 | 149.000 | 1.388 | 206.88 | 179.20 | -27.68 |
| 82 | MONGLA-TUNGIPARA | 134.500 | 134.500 | 134.000 | 1.495 | 200.32 | 179.20 | -21.12 |
| 83 | MONGLA-ANGARIA | 209.000 | 205.000 | 208.000 | 1.128 | 234.70 | 234.08 | -0.62 |
| 84 | MONGLA-DAMUDDA | 198.500 | 193.500 | 198.000 | 1.163 | 230.32 | 222.32 | -8.00 |
| 85 | MONGLA-GOSAIRHAT | 190.500 | 190.500 | 190.000 | 1.194 | 226.82 | 213.36 | -13.46 |
| 86 | MONGLA-MARIA | 236.500 | 232.500 | 236.000 | 1.085 | 255.98 | 264.88 | 8.90 |
| 87 | MONGLA-MEDARGUNJ | 210.000 | 210.000 | 210.000 | 1.122 | 235.57 | 235.20 | -0.37 |
| 88 | MONGLA-JAJIRA | 248.500 | 217.500 | 246.000 | 1.064 | 261.77 | 278.32 | 16.55 |
| 89 | MONGLA-PATJASHALI | 200.000 | 194.500 | 199.000 | 1.160 | 230.76 | 224.00 | -6.76 |
| 90 | MONGLA-BADURABUNIA | 220.000 | 171.000 | 218.000 | 1.112 | 242.39 | 246.40 | 4.01 |
| 91 | MONGLA-KHEPUPARA | 272.500 | 269.000 | 272.000 | 1.014 | 275.72 | 305.20 | 29.48 |
| 92 | MONGLA-SUBIDKHALI | 195.000 | 196.500 | 192.000 | 1.186 | 227.70 | 218.40 | -9.30 |

NOT AVAILABLE DOCUMENT

TABLE 8 CONTD.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 93 | MONGLA-BOSA | 183.000 | 183.000 | 183.000 | 1.217 | 222.67 | 204.96 | -17.71 |
| 94 | MONGLA-GALACHIPA | 233.500 | 230.000 | 232.000 | 1.095 | 254.10 | 261.52 | 7.42 |
| 95 | MONGLA-KALISURI | 187.000 | 178.000 | 185.000 | 1.212 | 224.15 | 209.44 | -14.71 |
| 96 | MONGLA-DASMINA | 215.500 | 206.500 | 214.000 | 1.117 | 238.98 | 241.36 | 2.38 |
| 97 | MONGLA-TEGASIA | 282.000 | 223.500 | 278.000 | 1.001 | 278.35 | 315.84 | 37.49 |
| 98 | MONGLA-RANAGOPALDI | 268.500 | 212.500 | 264.000 | 1.031 | 272.22 | 300.72 | 28.50 |
| 99 | MONGLA-MAHIPUR | 301.500 | 243.500 | 297.000 | 0.965 | 286.66 | 337.68 | 51.02 |
| 100 | MONGLA-CHILMARI | 593.500 | 483.000 | 586.000 | 0.760 | 445.15 | 664.72 | 219.57 |
| 101 | MONGLA-DAJOKANDI | 277.500 | 242.000 | 275.000 | 1.007 | 277.04 | 310.80 | 33.76 |
| 102 | KHULNA-BHANGA | 264.000 | 128.000 | 254.000 | 1.052 | 267.16 | 295.68 | 28.52 |
| 103 | KHULNA-SADARPUR | 173.000 | 173.000 | 173.000 | 1.257 | 217.39 | 193.76 | -23.63 |
| 104 | KHULNA-NAGARKANDA | 276.000 | 140.000 | 255.000 | 1.027 | 273.10 | 309.12 | 36.02 |
| 105 | KHULNA-MAHESWARPASA | 10.500 | 10.500 | 10.000 | 13.556 | 135.56 | 179.20 | 43.64 |
| 106 | KHULNA-KHULNA CSD | 10.500 | 10.500 | 10.000 | 13.556 | 135.56 | 179.20 | 43.64 |
| 107 | KHULNA-PHULTALA | 21.000 | 21.000 | 21.000 | 6.684 | 140.37 | 179.20 | 38.83 |
| 108 | KHULNA-CHALNA | 30.000 | 30.000 | 30.000 | 4.810 | 144.31 | 179.20 | 34.89 |
| 109 | KHULNA-BHOLA TOWN | 234.500 | 225.500 | 233.000 | 1.093 | 254.67 | 262.64 | 7.97 |
| 110 | KHULNA-LALMOHAN | 265.500 | 256.500 | 264.000 | 1.031 | 272.22 | 297.36 | 25.14 |
| 111 | KHULNA-BURHANUDDIN | 251.500 | 242.500 | 250.000 | 1.058 | 264.47 | 281.68 | 17.21 |
| 112 | KHULNA-DAULATKHAN | 258.500 | 249.500 | 255.000 | 1.050 | 267.53 | 289.52 | 21.69 |
| 113 | KHULNA-NAZIRPUR | 258.000 | 249.000 | 256.000 | 1.049 | 268.51 | 289.96 | 20.45 |
| 114 | KHULNA-SHOSERHAT | 278.000 | 269.000 | 275.000 | 1.005 | 277.47 | 311.36 | 33.89 |
| 115 | KHULNA-CHAR FASHAN | 323.000 | 314.000 | 322.000 | 0.937 | 301.73 | 361.76 | 60.03 |
| 116 | KHULNA-HAZIRHAT | 295.000 | 286.000 | 294.000 | 0.971 | 285.35 | 330.40 | 45.05 |
| 117 | KHULNA-CHARSASIDHUSA | 297.500 | 288.500 | 295.000 | 0.967 | 286.23 | 333.20 | 46.97 |
| 118 | KHULNA-JHALAKATHI | 158.000 | 158.000 | 158.000 | 1.334 | 210.82 | 179.20 | -31.62 |
| 119 | KHULNA-RAJAPUR | 196.500 | 170.000 | 194.000 | 1.178 | 228.57 | 220.08 | -8.49 |

TABLE 8 CONTD. 96

DOCUMENT

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 120 | KHULNA-NALCHITI | 166.000 | 166.000 | 166.000 | 1.291 | 214.32 | 185.92 | -28.40 |
| 121 | KHULNA-AMJA | 200.000 | 200.000 | 200.000 | 1.156 | 231.20 | 224.00 | -7.20 |
| 122 | KHULNA-BARISAL | 183.500 | 183.500 | 183.000 | 1.217 | 222.67 | 205.52 | -17.15 |
| 123 | KHULNA-BABUGONJ | 200.000 | 200.000 | 200.000 | 1.156 | 231.20 | 224.00 | -7.20 |
| 124 | KHULNA-AGAILJHARA | 237.000 | 237.000 | 237.000 | 1.082 | 256.42 | 265.44 | 9.02 |
| 125 | KHULNA-MULADI | 220.500 | 220.500 | 220.000 | 1.110 | 244.09 | 246.96 | 2.87 |
| 126 | KHULNA-GAJRNADI | 225.000 | 225.000 | 225.000 | 1.104 | 248.36 | 252.00 | 3.64 |
| 127 | KHULNA-KALASKATHI | 211.500 | 211.500 | 211.000 | 1.120 | 236.42 | 236.88 | 0.46 |
| 128 | KHULNA-MEHEDIGONJ | 218.500 | 209.500 | 217.000 | 1.113 | 241.54 | 244.72 | 3.18 |
| 129 | KHULNA-SIKARPUR | 182.500 | 182.500 | 182.000 | 1.219 | 221.93 | 204.40 | -17.53 |
| 130 | KHULNA-PIROJPUR | 139.500 | 139.500 | 139.000 | 1.457 | 202.51 | 179.20 | -23.31 |
| 131 | KHULNA-BHANDARIA | 130.000 | 130.000 | 130.000 | 1.527 | 198.57 | 179.20 | -19.37 |
| 132 | KHULNA-SRIRAMKATHI | 145.000 | 123.500 | 143.000 | 1.428 | 204.26 | 179.20 | -25.06 |
| 133 | KHULNA-INDERHAT | 154.500 | 154.500 | 154.000 | 1.358 | 209.07 | 179.20 | -29.87 |
| 134 | KHULNA-MATHBARIA | 115.000 | 115.000 | 115.000 | 1.635 | 188.02 | 179.20 | -8.82 |
| 135 | KHULNA-NARAIL | 50.500 | 50.500 | 50.000 | 3.061 | 153.06 | 179.20 | 26.14 |
| 136 | KHULNA-LOHAGARA | 77.500 | 77.500 | 77.000 | 2.167 | 166.87 | 179.20 | 12.33 |
| 137 | KHULNA-KALIA | 32.000 | 32.000 | 32.000 | 4.537 | 145.19 | 179.20 | 34.01 |
| 138 | KHULNA-NALDI | 62.000 | 62.000 | 62.000 | 2.580 | 159.94 | 179.20 | 19.26 |
| 139 | KHULNA-BARADIA | 45.500 | 45.500 | 45.000 | 3.353 | 150.87 | 179.20 | 28.33 |
| 140 | KHULNA-BAGERHAT | 94.500 | 94.500 | 94.000 | 1.854 | 174.31 | 179.20 | 4.89 |
| 141 | KHULNA-RAMPAL | 60.500 | 60.500 | 60.000 | 2.624 | 157.44 | 179.20 | 21.76 |
| 142 | KHULNA-RAYENDA | 111.500 | 111.500 | 111.000 | 1.678 | 186.27 | 179.20 | -7.07 |
| 143 | KHULNA-MORELGONJ | 93.000 | 93.000 | 93.000 | 1.870 | 173.87 | 179.20 | 5.33 |
| 144 | KHULNA-KACHUA | 154.500 | 154.500 | 154.000 | 1.358 | 209.07 | 179.20 | -29.87 |
| 145 | KHULNA-GAJRAMBHA | 29.500 | 29.500 | 29.000 | 4.961 | 143.87 | 179.20 | 35.33 |
| 146 | KHULNA-FAKIRHAT | 23.500 | 23.500 | 23.000 | 6.141 | 141.25 | 179.20 | 37.95 |
| 147 | KHULNA-SATKHIRA | 116.500 | 104.500 | 115.000 | 1.635 | 188.02 | 179.20 | -8.82 |

TABLE 8 CONTD. 97

BEST AVAILABLE DOCUMENT

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 148 | KHULNA-KALARDA | 128.500 | 116.000 | 127.000 | 1.545 | 196.22 | 179.20 | -17.02 |
| 149 | KHULNA-PARULIA | 116.500 | 104.500 | 115.000 | 1.635 | 188.02 | 179.20 | -8.82 |
| 150 | KHULNA-BARADAL | 83.500 | 71.000 | 81.000 | 2.082 | 168.62 | 179.20 | 10.58 |
| 151 | KHULNA-NAQIPUR | 197.000 | 156.000 | 194.000 | 1.178 | 228.57 | 220.64 | -7.93 |
| 152 | KHULNA-BASANTAPUR | 216.000 | 139.500 | 210.000 | 1.122 | 235.57 | 241.92 | 6.35 |
| 153 | KHULNA-ASASUNI | 89.500 | 77.500 | 88.000 | 1.951 | 171.69 | 179.20 | 7.51 |
| 154 | KHULNA-PATKELGHATA | 127.000 | 115.000 | 126.000 | 1.550 | 195.36 | 179.20 | -16.16 |
| 155 | KHULNA-BARGUNA | 233.500 | 233.500 | 233.000 | 1.093 | 254.67 | 261.52 | 6.85 |
| 156 | KHULNA-BETAGI | 189.000 | 139.000 | 189.000 | 1.198 | 226.38 | 211.68 | -14.70 |
| 157 | KHULNA-TALTALI | 262.500 | 252.500 | 262.000 | 1.036 | 271.35 | 294.00 | 22.65 |
| 158 | KHULNA-PATHARGHATA | 246.500 | 246.500 | 245.000 | 1.064 | 261.77 | 276.08 | 14.31 |
| 159 | KHULNA-BAMNA | 202.500 | 202.500 | 202.000 | 1.149 | 232.07 | 226.80 | -5.27 |
| 160 | KHULNA-MADARIPUR | 254.500 | 142.500 | 247.000 | 1.063 | 262.44 | 285.04 | 22.60 |
| 161 | KHULNA-CHAR MUGURIA | 258.000 | 146.500 | 250.000 | 1.058 | 264.47 | 288.96 | 24.49 |
| 162 | KHULNA-TEKERHAT | 240.000 | 103.500 | 230.000 | 1.098 | 252.62 | 268.80 | 16.18 |
| 163 | KHULNA-KALKINI | 248.000 | 161.000 | 242.000 | 1.071 | 259.08 | 277.76 | 18.68 |
| 164 | KHULNA-SIBCHAR | 273.500 | 137.000 | 264.000 | 1.031 | 272.22 | 306.32 | 34.10 |
| 165 | KHULNA-GHASERHAT | 228.000 | 228.000 | 223.000 | 1.100 | 250.91 | 255.36 | 4.45 |
| 166 | KHULNA-GOPALGONJ | 206.500 | 75.500 | 206.000 | 1.135 | 233.82 | 231.28 | -2.54 |
| 167 | KHULNA-SINDHIA GHAT | 239.500 | 103.000 | 220.000 | 1.110 | 244.09 | 268.24 | 24.15 |
| 168 | KHULNA-KOTALIPARA | 196.500 | 117.000 | 183.000 | 1.217 | 222.67 | 220.08 | -2.59 |
| 169 | KHULNA-TONGIPARA | 182.000 | 102.000 | 168.000 | 1.281 | 215.20 | 203.84 | -11.36 |
| 170 | KHULNA-ANGARIA | 236.500 | 157.500 | 249.000 | 1.059 | 263.79 | 287.28 | 23.49 |
| 171 | KHULNA-DAMUDDA | 246.000 | 246.000 | 246.000 | 1.064 | 261.77 | 275.52 | 13.75 |
| 172 | KHULNA-GHOSERHAT | 238.000 | 238.000 | 238.000 | 1.079 | 256.86 | 266.56 | 9.70 |
| 173 | KHULNA-NARIA | 234.000 | 135.000 | 277.000 | 1.003 | 277.91 | 318.08 | 40.17 |
| 174 | KHULNA-BHEDARGONJ | 257.500 | 257.500 | 257.000 | 1.047 | 269.16 | 288.40 | 19.24 |

BEST AVAILABLE DOCUMENT

TABLE 8 CONTD.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 175 | KHULNA-JAJIRA | 296.000 | 170.000 | 287.000 | 0.984 | 282.29 | 331.52 | 49.23 |
| 176 | KHULNA-PATJAKHALI | 247.500 | 244.000 | 247.000 | 1.063 | 262.44 | 277.20 | 14.76 |
| 177 | KHULNA-BADURAAULIAPU | 267.500 | 238.500 | 265.000 | 1.029 | 272.66 | 299.60 | 26.94 |
| 178 | KHULNA-KHEPUPARA | 320.000 | 316.500 | 319.000 | 0.939 | 299.50 | 358.40 | 58.90 |
| 179 | KHULNA-SUBIDKHALI | 242.500 | 204.000 | 239.000 | 1.077 | 257.29 | 271.60 | 14.31 |
| 180 | KHULNA-BOGA | 230.500 | 230.500 | 230.000 | 1.098 | 252.62 | 258.16 | 5.54 |
| 181 | KHULNA-GALACHIPA | 281.000 | 277.500 | 280.000 | 0.997 | 279.22 | 314.72 | 35.50 |
| 182 | KHULNA-KALISURI | 234.500 | 225.500 | 233.000 | 1.093 | 254.67 | 262.64 | 7.97 |
| 183 | KHULNA-DASMINA | 263.000 | 254.000 | 261.000 | 1.038 | 270.91 | 294.56 | 23.65 |
| 184 | KHULNA-TEGASIA | 329.500 | 271.000 | 325.000 | 0.935 | 303.96 | 369.04 | 65.08 |
| 185 | KHULNA-RANAGOPALDI | 315.000 | 260.000 | 312.000 | 0.946 | 295.22 | 353.92 | 58.70 |
| 186 | KHULNA-MAHIPUR | 349.000 | 291.000 | 339.000 | 0.919 | 311.55 | 390.88 | 79.33 |
| 187 | KHULNA-CHILMARI | 641.000 | 435.500 | 627.000 | 0.744 | 466.45 | 717.92 | 251.47 |
| 188 | KHULNA-DAJOKANDI | 325.000 | 242.000 | 319.000 | 0.939 | 299.50 | 364.00 | 64.50 |
| 189 | NARAYANGONJ-NAGARBAR | 159.500 | 138.000 | 153.000 | 1.364 | 208.63 | 179.20 | -29.43 |
| 190 | NARAYANGONJ-SIRAJGONI | 229.000 | 207.500 | 223.000 | 1.106 | 246.65 | 256.48 | 9.83 |
| 191 | NARAYANGONJ-KALAKOPA | 67.500 | 67.500 | 67.000 | 2.425 | 162.50 | 179.20 | 16.70 |
| 192 | NARAYANGONJ-NARISA | 82.500 | 65.000 | 78.000 | 2.145 | 167.31 | 179.20 | 11.89 |
| 193 | NARAYANGONJ-GHORASAL | 49.500 | 49.500 | 49.000 | 3.115 | 152.63 | 179.20 | 26.57 |
| 194 | NARAYANGONJ-MURAPARA | 21.500 | 21.500 | 21.000 | 6.684 | 140.37 | 179.20 | 38.83 |
| 195 | NARAYANGONJ-GOPALDI | 46.000 | 46.000 | 46.000 | 3.289 | 151.31 | 179.20 | 27.89 |
| 196 | NARAYANGONJ-MIRKADIM | 15.000 | 15.000 | 15.000 | 9.183 | 137.75 | 179.20 | 41.45 |
| 197 | NARAYANGONJ-KATAKHAL | 44.000 | 44.000 | 44.000 | 3.419 | 150.44 | 179.20 | 28.76 |
| 198 | NARAYANGONJ-RASULPUR | 18.000 | 18.000 | 18.000 | 7.726 | 139.06 | 179.20 | 40.14 |
| 199 | NARAYANGONJ-LOHAGONJ | 60.000 | 43.000 | 56.000 | 2.780 | 155.69 | 179.20 | 23.51 |
| 200 | NARAYANGONJ-SAYEDPUR | 36.000 | 36.000 | 35.000 | 4.082 | 146.94 | 179.20 | 32.26 |
| 201 | NARAYANGONJ-ABDULLAP | 17.500 | 17.500 | 17.000 | 8.154 | 138.52 | 179.20 | 40.58 |
| 202 | NARAYANGONJ-SRINAGAR | 54.000 | 54.000 | 54.000 | 2.867 | 154.81 | 179.20 | 24.39 |

TABLE 8 CONTD. 99

BEST AVAILABLE DOCUMENT

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 203 | NARAYANGONJ-KALIGONJ | 43.000 | 43.000 | 43.000 | 3.488 | 150.00 | 179.20 | 29.20 |
| 204 | NARAYANGONJ-KAPASIA | 78.000 | 78.000 | 78.000 | 2.145 | 167.31 | 179.20 | 11.89 |
| 205 | NARAYANGONJ-SINGAIR | 78.500 | 76.500 | 78.000 | 2.145 | 167.31 | 179.20 | 11.89 |
| 206 | NARAYANGONJ-ZHITKA | 114.000 | 114.000 | 114.000 | 1.645 | 187.58 | 179.20 | -8.38 |
| 207 | NARAYANGONJ-DAULATPU | 115.000 | 115.000 | 115.000 | 1.635 | 188.02 | 179.20 | -8.82 |
| 208 | NARAYANGONJ-BALIRTEK | 79.500 | 79.500 | 79.000 | 2.123 | 167.75 | 179.20 | 11.45 |
| 209 | ASHUGONJ-MALLIKPUR | 179.000 | 179.000 | 179.000 | 1.229 | 220.01 | 200.48 | -19.53 |
| 210 | ASHUGONJ-DOARABAZAR | 207.000 | 207.000 | 207.000 | 1.132 | 234.26 | 231.84 | -2.42 |
| 211 | ASHUGONJ-RANIGONJ | 162.500 | 152.500 | 162.000 | 1.312 | 212.57 | 182.00 | -30.57 |
| 212 | ASHUGONJ-SACHNA | 157.000 | 157.000 | 157.000 | 1.340 | 210.38 | 179.20 | -31.18 |
| 213 | ASHUGONJ-RAIPURA | 17.000 | 17.000 | 17.000 | 8.154 | 138.62 | 179.20 | 40.58 |
| 214 | ASHUGONJ-HOMNA | 74.500 | 74.500 | 74.000 | 2.237 | 165.56 | 179.20 | 13.64 |
| 215 | ASHUGONJ-BHAIRAB | 1.500 | 1.500 | 1.000 | 131.621 | 131.62 | 179.20 | 47.58 |
| 216 | ASHUGONJ-NABINAGAR | 22.500 | 22.500 | 22.000 | 6.401 | 140.81 | 179.20 | 38.39 |
| 217 | ASHUGONJ-UJANCHAR | 67.000 | 67.000 | 67.000 | 2.425 | 162.50 | 179.20 | 16.70 |
| 218 | ASHUGONJ-NASIRNAGAR | 57.500 | 57.500 | 57.000 | 2.739 | 156.13 | 179.20 | 23.07 |
| 219 | ASHUGONJ-AJMIRIGONJ | 108.500 | 108.500 | 108.000 | 1.693 | 182.80 | 179.20 | -3.60 |
| 220 | ASHUGONJ-LAKHAI | 49.500 | 49.500 | 49.000 | 3.115 | 152.63 | 179.20 | 26.57 |
| 221 | ASHUGONJ-ITNA | 85.000 | 85.000 | 85.000 | 2.004 | 170.37 | 179.20 | 8.83 |
| 222 | ASHUGONJ-MITHAMOIN | 60.500 | 60.500 | 60.000 | 2.624 | 157.44 | 179.20 | 21.76 |
| 223 | ASHUGONJ-KALIAJURY | 107.000 | 107.000 | 107.000 | 1.697 | 181.57 | 179.20 | -2.37 |
| 224 | ASHUGONJ-KALMAKANDA | 211.000 | 211.000 | 211.000 | 1.120 | 236.42 | 236.32 | -0.10 |
| 225 | ASHUGONJ-MADAN | 126.500 | 126.500 | 126.000 | 1.550 | 195.36 | 179.20 | -16.16 |
| 226 | ASHUGONJ-ATPARA | 148.000 | 148.000 | 148.000 | 1.395 | 206.45 | 179.20 | -27.25 |
| 227 | ASHUGONJ-LIPUTA | 131.000 | 131.000 | 131.000 | 1.519 | 199.01 | 179.20 | -19.81 |
| 228 | ASHUGONJ-DERAI | 161.000 | 161.000 | 161.000 | 1.318 | 212.13 | 180.32 | -31.81 |
| 229 | MAHESWARPASA-BARISAL | 194.500 | 178.500 | 188.000 | 1.202 | 225.95 | 217.84 | -8.11 |

TABLE 8 CONTD. 100

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 230 | MAHESWARPASA-BHATIAP | 63.000 | 53.000 | 63.000 | 2.552 | 160.75 | 179.20 | 18.45 |
| 231 | MAHESWARPASA-BHOLA | 245.000 | 220.000 | 240.000 | 1.074 | 257.73 | 274.40 | 16.67 |
| 232 | MAHESWARPASA-PATUAKH | 247.500 | 244.000 | 246.000 | 1.064 | 261.77 | 277.20 | 15.43 |
| 233 | NAGARBARI-BARISAL | 242.200 | 225.700 | 241.000 | 1.072 | 258.40 | 271.26 | 12.86 |
| 234 | NAGARBARI-KALASKATHI | 284.500 | 267.500 | 283.000 | 0.991 | 280.54 | 318.64 | 38.10 |
| 235 | NAGARBARI-HALTAHAT | 263.000 | 246.500 | 261.000 | 1.038 | 270.91 | 294.56 | 23.65 |
| 236 | NAGARBARI-BAGUGONJ | 245.600 | 196.700 | 242.000 | 1.071 | 259.08 | 275.07 | 15.99 |
| 237 | NAGARBARI-SIKARPUR | 261.100 | 212.400 | 257.000 | 1.047 | 269.16 | 292.43 | 23.27 |
| 238 | NAGARBARI-GOURNADI | 240.000 | 175.000 | 235.000 | 1.087 | 255.54 | 268.80 | 13.26 |
| 239 | NAGARBARI-AGAILJHARA | 252.600 | 137.000 | 248.000 | 1.061 | 263.12 | 282.91 | 19.79 |
| 240 | NAGARBARI-MULADI | 221.400 | 175.400 | 218.000 | 1.112 | 242.39 | 247.97 | 5.58 |
| 241 | NAGARBARI-MEHEDIGONJ | 233.800 | 196.500 | 231.000 | 1.097 | 253.46 | 261.86 | 8.40 |
| 242 | NAGARBARI-JHALAKATHI | 267.800 | 251.300 | 265.000 | 1.027 | 273.10 | 299.94 | 26.84 |
| 243 | NAGARBARI-NALCHITI | 259.700 | 243.200 | 258.000 | 1.045 | 269.60 | 290.86 | 21.27 |
| 244 | NAGARBARI-AMJA | 310.100 | 293.400 | 308.000 | 0.952 | 293.09 | 347.31 | 54.22 |
| 245 | NAGARBARI-PIROJPUR | 323.500 | 307.000 | 322.000 | 0.937 | 301.73 | 362.32 | 60.59 |
| 246 | NAGAREARI-KAJKHALI | 286.300 | 269.800 | 285.000 | 0.987 | 281.41 | 320.66 | 39.24 |
| 247 | NAGARBARI-BHANDARIA | 306.000 | 289.300 | 304.000 | 0.956 | 290.53 | 342.72 | 52.19 |
| 248 | NAGARBARI-MATHBARIA | 338.700 | 322.200 | 337.000 | 0.922 | 310.68 | 379.34 | 68.67 |
| 249 | NAGARBARI-TUSHKHALI | 322.700 | 306.200 | 321.000 | 0.938 | 300.99 | 361.42 | 60.43 |
| 250 | NAGARBARI-INDERHAT | 289.600 | 204.800 | 283.000 | 0.991 | 280.54 | 324.35 | 43.82 |
| 251 | NAGARBARI-SRIRAMKATH | 302.400 | 272.500 | 300.000 | 0.960 | 287.98 | 338.69 | 50.71 |
| 252 | NAGARBARI-BHULATOWN | 251.300 | 250.900 | 251.000 | 1.056 | 265.14 | 281.46 | 16.32 |
| 253 | NAGARBARI-BAGERHAT | 349.700 | 333.200 | 348.000 | 0.907 | 315.49 | 391.66 | 76.17 |
| 254 | NAGARBARI-DAULATKHAN | 239.100 | 237.100 | 239.000 | 1.077 | 257.29 | 267.79 | 10.50 |
| 255 | NAGARBARI-GORHATODDI | 279.000 | 267.900 | 278.000 | 1.001 | 278.35 | 312.48 | 34.13 |
| 256 | NAGARBARI-GHOSHERHAT | 310.000 | 294.500 | 308.000 | 0.952 | 293.09 | 347.20 | 54.11 |
| 257 | NAGARBARI-LALMOHAN | 291.800 | 281.500 | 291.000 | 0.976 | 284.04 | 326.82 | 42.78 |

TABLE 8 CONTD. 101

BEST AVAILABLE DOCUMENT

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 258 | NAGARBARI-PATUAKHALI | 298.500 | 231.800 | 297.000 | 0.965 | 286.66 | 334.32 | 47.66 |
| 259 | NAGARBARI-BOGA | 281.500 | 264.800 | 280.000 | 0.997 | 279.22 | 315.28 | 36.06 |
| 260 | NAGARBARI-KALAIYA | 283.000 | 256.500 | 281.000 | 0.995 | 279.66 | 316.96 | 37.30 |
| 261 | NAGARBARI-CHAR KAZAL | 324.000 | 307.400 | 322.000 | 0.937 | 301.73 | 362.88 | 61.15 |
| 262 | NAGARBARI-MAHIPUR | 400.000 | 383.500 | 398.000 | 0.858 | 341.36 | 448.00 | 106.64 |
| 263 | NAGARBARI-TEGASIA | 380.500 | 354.000 | 379.000 | 0.877 | 332.36 | 426.16 | 93.80 |
| 264 | NAGARBARI-BARGUNA | 343.300 | 326.800 | 342.000 | 0.915 | 312.86 | 384.50 | 71.63 |
| 265 | NAGARBARI-PHULJHURI | 325.500 | 309.000 | 324.000 | 0.936 | 303.22 | 364.56 | 61.34 |
| 266 | NAGARBARI-AMTOLI | 339.700 | 323.200 | 338.000 | 0.920 | 311.11 | 380.46 | 69.35 |
| 267 | NAGARBARI-KAKCHIRA | 332.600 | 316.100 | 331.000 | 0.931 | 308.05 | 372.51 | 64.46 |
| 268 | NAGARBARI-NARAIL | 476.600 | 219.000 | 459.000 | 0.826 | 379.07 | 533.79 | 154.72 |
| 269 | NAGARBARI-LOHAGORA | 468.200 | 191.800 | 468.000 | 0.818 | 383.02 | 546.78 | 163.77 |
| 270 | NAGARBARI-KALIA | 458.000 | 188.500 | 440.000 | 0.833 | 366.52 | 512.96 | 146.44 |
| 271 | NAGARBARI-BARADIA | 471.500 | 175.100 | 451.000 | 0.829 | 373.97 | 528.08 | 154.11 |
| 272 | NAGARBARI-NALDI | 488.600 | 207.200 | 469.000 | 0.818 | 383.45 | 547.23 | 163.78 |
| 273 | NAGARBARI-KHULNA | 426.100 | 220.400 | 412.000 | 0.843 | 347.49 | 477.23 | 129.75 |
| 274 | NAGARBARI-MOHESWARPA | 434.900 | 214.900 | 420.000 | 0.836 | 350.99 | 487.09 | 136.10 |
| 275 | NAGARBARI-DAUDKANDI | 158.100 | 157.500 | 157.000 | 1.340 | 210.38 | 179.20 | -31.18 |
| 276 | NAGARBARI-ASUGONJ | 236.600 | 215.000 | 231.000 | 1.097 | 253.46 | 264.99 | 11.53 |
| 277 | NAGARBARI-AJMIRIGONJ | 345.900 | 324.800 | 341.000 | 0.916 | 312.43 | 387.41 | 74.98 |
| 278 | NAGARBARI-LAKHAI | 286.600 | 265.500 | 281.000 | 0.995 | 279.66 | 320.99 | 41.33 |
| 279 | NAGARBARI-MALLIKPUR | 462.100 | 441.000 | 457.000 | 0.827 | 377.97 | 517.55 | 139.59 |
| 280 | NAGARBARI-SACHNA | 392.500 | 371.400 | 386.000 | 0.871 | 336.11 | 439.60 | 103.49 |
| 281 | NAGARBARI-DIRAI | 398.200 | 377.200 | 394.000 | 0.862 | 339.61 | 445.98 | 106.37 |
| 282 | NAGARBARI-TAHERPUR | 426.800 | 405.700 | 421.000 | 0.836 | 351.82 | 478.02 | 126.19 |
| 283 | NAGARBARI-MIRKADIM | 157.000 | 122.600 | 149.000 | 1.388 | 206.88 | 179.20 | -27.68 |
| 284 | NAGARBARI-KATAKHALI | 134.000 | 129.500 | 132.000 | 1.511 | 199.45 | 179.20 | -20.25 |

TABLE 8 CONTD.



BEST AVAILABLE DOCUMENT

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 285 | NAGARBARI-RASULPUR | 146.800 | 138.200 | 144.000 | 1.422 | 204.70 | 179.20 | -25.50 |
| 286 | NAGARBARI-RAIPURA | 218.500 | 197.300 | 213.000 | 1.118 | 238.13 | 244.72 | 6.59 |
| 287 | NAGARBARI-KALIGONJ | 202.300 | 181.100 | 197.000 | 1.167 | 229.88 | 226.58 | -3.31 |
| 288 | NAGARBARI-BHANGA | 419.300 | 142.000 | 400.000 | 0.856 | 342.23 | 469.62 | 127.38 |
| 289 | NAGARBARI-NAGARKANDA | 431.200 | 153.900 | 412.000 | 0.843 | 347.49 | 482.94 | 135.46 |
| 290 | NAGARBARI-GOPALGONJ | 361.900 | 152.400 | 347.000 | 0.908 | 315.05 | 405.33 | 90.28 |
| 291 | NAGARBARI-KOTALIPARA | 352.000 | 202.500 | 342.000 | 0.915 | 312.86 | 394.24 | 81.38 |
| 292 | NAGARBARI-TUNGIPARA | 337.700 | 187.700 | 327.000 | 0.934 | 305.45 | 378.22 | 72.78 |
| 293 | NAGARBARI-RAMDIA | 378.200 | 157.400 | 363.000 | 0.889 | 322.57 | 423.58 | 101.01 |
| 294 | NAGARBARI-SINDIAGHAT | 394.500 | 117.200 | 376.000 | 0.879 | 330.53 | 441.84 | 111.31 |
| 295 | NAGARBARI-MADARIPUR | 255.800 | 122.800 | 247.000 | 1.063 | 262.44 | 287.62 | 25.17 |
| 296 | NAGARBARI-TEKERHAT | 394.700 | 117.000 | 376.000 | 0.879 | 330.53 | 442.06 | 111.54 |
| 297 | NAGARBARI-KALKINI | 249.900 | 141.500 | 242.000 | 1.071 | 259.08 | 279.89 | 20.81 |
| 298 | NAGARBARI-KHASERHAT | 223.000 | 147.600 | 217.000 | 1.113 | 241.54 | 249.76 | 8.22 |
| 299 | NAGARBARI-ANGARIA | 259.200 | 139.000 | 251.000 | 1.056 | 265.14 | 290.30 | 25.17 |
| 300 | NAGARBARI-DAMUDDA | 195.000 | 136.000 | 193.000 | 1.182 | 228.13 | 221.76 | -6.37 |
| 301 | NAGARBARI-GOSAIRHAT | 190.100 | 144.000 | 187.000 | 1.206 | 225.51 | 212.91 | -12.60 |
| 302 | NAGARBARI-NARIA | 120.500 | 120.500 | 120.000 | 1.585 | 190.21 | 179.20 | -11.01 |
| 303 | NAGARBARI-BHEDARGONJ | 207.000 | 127.100 | 201.000 | 1.152 | 231.63 | 231.84 | 0.21 |
| 304 | NAGARBARI-JAJIRA | 103.900 | 103.900 | 103.000 | 1.731 | 178.25 | 179.20 | 0.95 |
| 305 | NAGARBARI-BHAIRAB | 235.300 | 214.200 | 230.000 | 1.098 | 252.62 | 263.54 | 10.92 |
| 306 | BAGHABARI-BARISAL | 267.200 | 250.700 | 265.000 | 1.027 | 273.10 | 299.26 | 26.17 |
| 307 | BAGHABARI-KALASKATHI | 309.000 | 292.500 | 307.000 | 0.953 | 292.45 | 346.08 | 53.63 |
| 308 | BAGHABARI-HALTAHAT | 288.000 | 271.500 | 286.000 | 0.985 | 281.85 | 322.56 | 40.71 |
| 309 | BAGHABARI-BASUGONJ | 270.600 | 221.700 | 267.000 | 1.024 | 273.53 | 303.07 | 29.54 |
| 310 | BAGHABARI-SIKARPUR | 286.100 | 237.400 | 282.000 | 0.993 | 280.10 | 320.43 | 40.33 |
| 311 | BAGHABARI-GAJRNADI | 265.600 | 200.000 | 261.000 | 1.038 | 270.91 | 297.47 | 26.56 |
| 312 | BAGHABARI-AGAILJHARA | 277.600 | 212.000 | 273.000 | 1.012 | 276.16 | 310.91 | 34.75 |

TABLE 8 CONTD.



BEST AVAILABLE DOCUMENT

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 313 | BAGHABARI-MULADI | 246.400 | 200.400 | 243.000 | 1.069 | 259.75 | 275.97 | 16.22 |
| 314 | BAGHABARI-MEHEDIGANJ | 258.800 | 221.600 | 256.000 | 1.049 | 268.51 | 289.86 | 21.35 |
| 315 | BAGHABARI-JHALAKATHI | 292.800 | 276.300 | 291.000 | 0.976 | 284.04 | 327.94 | 43.90 |
| 316 | BAGHABARI-NALCITI | 284.700 | 268.200 | 283.000 | 0.991 | 280.54 | 318.86 | 38.33 |
| 317 | BAGHABARI-AMJA | 335.100 | 318.400 | 333.000 | 0.928 | 308.93 | 375.31 | 66.39 |
| 318 | BAGHABARI-PIROJPUR | 348.500 | 332.000 | 347.000 | 0.908 | 315.05 | 390.32 | 75.27 |
| 319 | BAGHABARI-KAJKHALI | 311.300 | 294.800 | 310.000 | 0.950 | 294.35 | 348.66 | 54.31 |
| 320 | BAGHABARI-DHANDARIA | 331.000 | 314.300 | 329.000 | 0.933 | 306.93 | 370.72 | 63.79 |
| 321 | BAGHABARI-MATBARIA | 363.700 | 347.200 | 362.000 | 0.889 | 321.96 | 407.34 | 85.38 |
| 322 | BAGHABARI-TUSHKHALI | 344.700 | 331.200 | 343.000 | 0.913 | 313.30 | 386.06 | 72.76 |
| 323 | BAGHABARI-INDERHAT | 314.600 | 265.800 | 311.000 | 0.948 | 294.78 | 352.35 | 57.57 |
| 324 | BAGHABARI-SRIRAMKATI | 327.400 | 297.500 | 325.000 | 0.935 | 303.96 | 366.69 | 62.73 |
| 325 | BAGHABARI-BHOLATJHN | 276.300 | 275.900 | 276.000 | 1.005 | 277.47 | 309.46 | 31.98 |
| 326 | BAGHABARI-DAULATKHAN | 264.100 | 264.100 | 264.000 | 1.031 | 272.22 | 295.79 | 23.57 |
| 327 | BAGHABARI-BORHANUDDI | 304.000 | 292.900 | 303.000 | 0.957 | 289.89 | 340.48 | 50.59 |
| 328 | BAGHABARI-GHOSERHAT | 335.000 | 319.500 | 333.000 | 0.928 | 308.93 | 375.20 | 66.27 |
| 329 | BAGHABARI-LALMOHAN | 316.800 | 306.500 | 316.000 | 0.941 | 297.28 | 354.82 | 57.54 |
| 330 | BAGHABARI-PATUAKHALI | 323.500 | 306.800 | 322.000 | 0.937 | 301.73 | 362.32 | 60.59 |
| 331 | BAGHABARI-BOSA | 306.500 | 289.800 | 305.000 | 0.955 | 291.17 | 343.28 | 52.11 |
| 332 | BAGHABARI-KALAIYA | 308.000 | 291.500 | 306.000 | 0.954 | 291.81 | 344.96 | 53.15 |
| 333 | BAGHABARI-CHAR KAZAL | 349.000 | 332.400 | 347.000 | 0.908 | 315.05 | 390.88 | 75.83 |
| 334 | BAGHABARI-MAHIPUR | 425.000 | 408.500 | 423.000 | 0.836 | 353.49 | 476.00 | 122.51 |
| 335 | BAGHABARI-TEGASIA | 405.500 | 389.000 | 404.000 | 0.851 | 343.99 | 454.16 | 110.17 |
| 336 | BAGHABARI-BARGUNA | 368.300 | 351.800 | 367.000 | 0.886 | 325.02 | 412.50 | 87.48 |
| 337 | BAGHABARI-PHULJHURI | 350.500 | 334.000 | 349.000 | 0.905 | 315.93 | 392.56 | 76.63 |
| 338 | BAGHABARI-AMTOLI | 364.700 | 348.200 | 363.000 | 0.889 | 322.57 | 408.46 | 85.89 |
| 339 | BAGHABARI-KAKCHIRA | 357.600 | 341.100 | 356.000 | 0.896 | 318.99 | 400.51 | 81.52 |

TABLE 8 CONTD.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 340 | BAGHABARI-BAGERHAT | 374.700 | 358.200 | 373.000 | 0.881 | 328.69 | 419.66 | 90.97 |
| 341 | BAGHABARI-NARAIL | 501.600 | 244.000 | 484.000 | 0.807 | 390.59 | 561.79 | 171.20 |
| 342 | BAGHABARI-LOHAGORA | 513.200 | 216.800 | 493.000 | 0.803 | 395.81 | 574.78 | 178.97 |
| 343 | BAGHABARI-KALIA | 483.000 | 213.600 | 465.000 | 0.821 | 381.70 | 540.96 | 159.26 |
| 344 | BAGHABARI-BARADIA | 496.500 | 200.100 | 476.000 | 0.812 | 386.52 | 556.08 | 169.56 |
| 345 | BAGHABARI-NALDI | 513.600 | 232.200 | 494.000 | 0.802 | 396.39 | 575.23 | 178.84 |
| 346 | BAGHABARI-KHULNA | 451.100 | 245.400 | 437.000 | 0.834 | 364.49 | 505.23 | 140.74 |
| 347 | BAGHABARI-MOHESWARPA | 459.900 | 239.900 | 445.000 | 0.831 | 369.91 | 515.09 | 145.18 |
| 348 | BAGHABARI-DAUDKANDI | 183.100 | 182.500 | 182.000 | 1.219 | 221.93 | 205.07 | -16.86 |
| 349 | BAGHABARI-ASUGANJ | 261.600 | 240.200 | 256.000 | 1.049 | 268.51 | 292.99 | 24.49 |
| 350 | BAGHABARI-AJMIRIGANJ | 370.900 | 349.300 | 356.000 | 0.886 | 324.41 | 415.41 | 91.00 |
| 351 | BAGHABARI-LAKHAI | 311.600 | 290.500 | 305.000 | 0.954 | 291.81 | 348.99 | 57.18 |
| 352 | BAGHABARI-MALLIKPUR | 487.100 | 466.000 | 482.000 | 0.808 | 389.43 | 545.55 | 156.12 |
| 353 | BAGHABARI-SAGHNA | 417.500 | 396.400 | 412.000 | 0.843 | 347.49 | 467.60 | 120.11 |
| 354 | BAGHABARI-DIRAI | 423.200 | 402.100 | 418.000 | 0.838 | 350.11 | 473.98 | 123.87 |
| 355 | BAGHABARI-TAHERPUR | 451.800 | 430.700 | 450.000 | 0.830 | 373.30 | 506.02 | 132.72 |
| 356 | BAGHABARI-MIRKADIM | 182.000 | 147.500 | 174.000 | 1.252 | 217.82 | 203.84 | -13.98 |
| 357 | BAGHABARI-KATAKHALI | 159.000 | 154.600 | 158.000 | 1.334 | 210.82 | 179.20 | -31.62 |
| 358 | BAGHABARI-RASULPUR | 171.800 | 163.200 | 169.000 | 1.276 | 215.64 | 192.42 | -23.22 |
| 359 | BAGHABARI-RAIPURA | 243.500 | 222.300 | 238.000 | 1.079 | 256.86 | 272.72 | 15.86 |
| 360 | BAGHABARI-KALIGONJ | 227.300 | 206.100 | 222.000 | 1.107 | 245.80 | 254.58 | 8.78 |
| 361 | BAGHABARI-JHANGA | 442.700 | 165.400 | 424.000 | 0.836 | 354.33 | 495.82 | 141.49 |
| 362 | BAGHABARI-NAGARKANDA | 454.600 | 177.300 | 436.000 | 0.834 | 363.82 | 509.15 | 145.34 |
| 363 | BAGHABARI-GOPALGONJ | 386.700 | 177.400 | 372.000 | 0.882 | 328.08 | 433.10 | 105.02 |
| 364 | BAGHABARI-KOTALIPARA | 376.600 | 227.300 | 366.000 | 0.886 | 324.41 | 421.79 | 97.38 |
| 365 | BAGHABARI-TUNGIPARA | 361.800 | 212.900 | 351.000 | 0.903 | 316.80 | 405.22 | 88.41 |
| 366 | BAGHABARI-RAMDIA | 403.200 | 182.400 | 388.000 | 0.869 | 336.98 | 451.58 | 114.60 |
| 367 | BAGHABARI-SINDIAGHAT | 419.500 | 142.200 | 401.000 | 0.855 | 342.67 | 469.84 | 127.17 |

TABLE 8 CONTD.



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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 368 | BAGHABARI-MADARIPUR | 281.800 | 147.400 | 272.000 | 1.014 | 275.72 | 315.62 | 39.89 |
| 369 | BAGHABARI-TEKERHAT | 419.700 | 142.000 | 401.000 | 0.855 | 342.67 | 470.06 | 127.39 |
| 370 | BAGHABARI-KALKINI | 274.900 | 166.600 | 267.000 | 1.024 | 273.53 | 307.89 | 34.35 |
| 371 | BAGHABARI-KHASERHAT | 248.000 | 172.500 | 242.000 | 1.071 | 259.08 | 277.76 | 18.68 |
| 372 | BAGHABARI-ANGARIA | 284.200 | 164.000 | 276.000 | 1.005 | 277.47 | 318.30 | 40.83 |
| 373 | BAGHABARI-DAMUDDA | 223.000 | 161.100 | 218.000 | 1.112 | 242.39 | 249.76 | 7.37 |
| 374 | BAGHABARI-GOSAIRHAT | 215.100 | 169.000 | 212.000 | 1.119 | 237.28 | 240.91 | 3.63 |
| 375 | BAGHABARI-NARIA | 145.500 | 145.500 | 145.000 | 1.415 | 205.13 | 179.20 | -25.93 |
| 376 | BAGHABARI-SHEDARGANJ | 232.000 | 152.100 | 213.000 | 1.118 | 238.13 | 259.84 | 21.71 |
| 377 | BAGHABARI-JAJIRA | 128.900 | 128.900 | 128.000 | 1.540 | 197.08 | 179.20 | -17.88 |
| 378 | BAGHABARI-BHAIRAB | 260.300 | 239.200 | 255.000 | 1.050 | 267.83 | 291.54 | 23.70 |
| 379 | SIRAJGONJ-BARISAL | 311.700 | 295.200 | 310.000 | 0.950 | 294.35 | 349.10 | 54.76 |
| 380 | SIRAJGONJ-KALASKATHI | 353.500 | 307.000 | 350.000 | 0.904 | 316.37 | 395.92 | 79.55 |
| 381 | SIRAJGONJ-HALTAHAT | 332.500 | 316.000 | 331.000 | 0.931 | 308.05 | 372.40 | 64.35 |
| 382 | SIRAJGONJ-BABUGONJ | 315.100 | 266.200 | 311.000 | 0.948 | 294.78 | 352.91 | 58.13 |
| 383 | SIRAJGONJ-SIKARPUR | 330.600 | 281.900 | 327.000 | 0.934 | 305.45 | 370.27 | 64.83 |
| 384 | SIRAJGONJ-GAURNADI | 310.100 | 245.000 | 305.000 | 0.955 | 291.17 | 347.31 | 56.14 |
| 385 | SIRAJGONJ-AGAILJHARA | 322.100 | 257.000 | 317.000 | 0.940 | 298.02 | 360.75 | 62.73 |
| 386 | SIRAJGONJ-MULADI | 290.900 | 244.900 | 287.000 | 0.984 | 282.29 | 325.81 | 43.52 |
| 387 | SIRAJGONJ-MEHEDIGONJ | 303.300 | 266.100 | 300.000 | 0.960 | 287.98 | 339.70 | 51.72 |
| 388 | SIRAJGONJ-JHALAKATHI | 337.300 | 320.800 | 336.000 | 0.923 | 310.24 | 377.78 | 67.54 |
| 389 | SIRAJGONJ-NALCITI | 329.200 | 312.700 | 328.000 | 0.933 | 306.19 | 368.70 | 62.52 |
| 390 | SIRAJGONJ-AMJA | 379.600 | 362.900 | 378.000 | 0.878 | 331.75 | 425.15 | 93.40 |
| 391 | SIRAJGONJ-PIROJPUR | 393.000 | 376.500 | 391.000 | 0.865 | 338.30 | 440.16 | 101.86 |
| 392 | SIRAJGONJ-KAJKHALI | 355.800 | 339.300 | 354.000 | 0.899 | 318.12 | 398.50 | 80.38 |
| 393 | SIRAJGONJ-BHANDARIA | 375.500 | 358.800 | 374.000 | 0.880 | 329.30 | 420.56 | 91.26 |
| 394 | SIRAJGONJ-MATHBARIA | 408.200 | 391.700 | 407.000 | 0.848 | 345.30 | 457.18 | 111.89 |

TABLE 8 CONTD.

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|---|---|---|---|---|---|---|---|---|
| 395 | SIRAJGONJ-TUSHKHALI | 392.200 | 375.700 | 391.000 | 0.865 | 338.30 | 439.26 | 100.97 |
| 396 | SIRAJGONJ-INDERHAT | 359.100 | 310.300 | 355.000 | 0.897 | 318.55 | 402.19 | 83.64 |
| 397 | SIRAJGONJ-SRIRAMKATH | 371.900 | 342.000 | 369.000 | 0.884 | 326.24 | 416.53 | 90.28 |
| 398 | SIRAJGONJ-BHOLATOWN | 320.800 | 320.400 | 320.000 | 0.938 | 300.25 | 359.30 | 59.05 |
| 399 | SIRAJGONJ-DAULATKHAN | 308.500 | 308.600 | 308.000 | 0.952 | 293.09 | 345.63 | 52.54 |
| 400 | SIRAJGONJ-BORHANUDDI | 348.500 | 337.400 | 347.000 | 0.908 | 315.05 | 390.32 | 75.27 |
| 401 | SIRAJGONJ-GHOSERHAT | 379.500 | 354.000 | 378.000 | 0.878 | 331.75 | 425.04 | 93.29 |
| 402 | SIRAJGONJ-LALMOHAN | 361.300 | 351.100 | 360.000 | 0.891 | 320.74 | 404.66 | 83.91 |
| 403 | SIRAJGONJ-PATUAKHALI | 368.000 | 351.200 | 366.000 | 0.886 | 324.41 | 412.16 | 87.75 |
| 404 | SIRAJGONJ-BOGA | 351.000 | 334.000 | 349.000 | 0.905 | 315.93 | 393.12 | 77.19 |
| 405 | SIRAJGONJ-KALAIYA | 352.500 | 336.000 | 351.000 | 0.903 | 316.80 | 394.80 | 78.00 |
| 406 | SIRAJGONJ-CHARKAZAL | 393.500 | 376.900 | 392.000 | 0.864 | 338.73 | 440.72 | 101.99 |
| 407 | SIRAJGONJ-MAHIPUR | 469.500 | 453.000 | 468.000 | 0.818 | 383.02 | 525.84 | 142.82 |
| 408 | SIRAJGONJ-TEGASIA | 450.000 | 433.500 | 448.000 | 0.830 | 371.94 | 504.00 | 132.06 |
| 409 | SIRAJGONJ-BARGUNA | 412.800 | 396.300 | 411.000 | 0.844 | 347.05 | 462.34 | 115.29 |
| 410 | SIRAJGONJ-PHULJHURI | 395.000 | 378.500 | 393.000 | 0.863 | 339.17 | 442.40 | 103.23 |
| 411 | SIRAJGONJ-AMTOLI | 409.200 | 392.700 | 408.000 | 0.847 | 345.74 | 458.30 | 112.57 |
| 412 | SIRAJGONJ-KAKCHIRA | 402.100 | 385.600 | 401.000 | 0.855 | 342.67 | 450.35 | 107.68 |
| 413 | SIRAJGONJ-BAGERHAT | 419.200 | 402.700 | 418.000 | 0.838 | 350.11 | 469.50 | 119.39 |
| 414 | SIRAJGONJ-NARAIL | 546.100 | 288.500 | 528.000 | 0.784 | 413.89 | 611.63 | 197.75 |
| 415 | SIRAJGONJ-LOHAGORA | 557.700 | 261.300 | 537.000 | 0.782 | 419.70 | 624.62 | 204.92 |
| 416 | SIRAJGONJ-KALIA | 527.500 | 258.100 | 509.000 | 0.796 | 404.95 | 590.80 | 185.85 |
| 417 | SIRAJGONJ-BARDIA | 541.000 | 244.600 | 521.000 | 0.787 | 410.20 | 605.92 | 195.72 |
| 418 | SIRAJGONJ-MALDI | 557.800 | 276.700 | 537.000 | 0.781 | 421.00 | 624.74 | 203.74 |
| 419 | SIRAJGONJ-KHULNA | 475.600 | 239.900 | 431.000 | 0.809 | 388.85 | 555.07 | 166.23 |
| 420 | SIRAJGONJ-MOHESWARPA | 504.400 | 284.400 | 439.000 | 0.805 | 393.49 | 564.93 | 171.44 |
| 421 | SIRAJGONJ-DAUDKANDI | 227.000 | 227.000 | 227.000 | 1.102 | 250.06 | 254.24 | 4.18 |
| 422 | SIRAJGONJ-ASUGONJ | 305.800 | 284.700 | 300.000 | 0.960 | 287.98 | 342.50 | 54.52 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 423 | SIRAJGONJ-AJMIRIGONJ | 415.400 | 394.300 | 410.000 | 0.845 | 346.61 | 465.25 | 118.64 |
| 424 | SIRAJGONJ-LAKHAI | 356.100 | 335.000 | 351.000 | 0.903 | 316.80 | 398.83 | 82.03 |
| 425 | SIRAJGONJ-MALLIKPUR | 531.600 | 510.500 | 526.000 | 0.784 | 412.59 | 595.39 | 182.80 |
| 426 | SIRAJGONJ-SACHNA | 462.000 | 440.900 | 457.000 | 0.827 | 377.97 | 517.44 | 139.47 |
| 427 | SIRAJGONJ-DIRAI | 467.700 | 446.600 | 462.000 | 0.823 | 380.39 | 523.82 | 143.43 |
| 428 | SIRAJGONJ-TAHERPUR | 496.300 | 475.200 | 491.000 | 0.804 | 394.65 | 555.86 | 161.20 |
| 429 | SIRAJGONJ-MIRKADIM | 226.500 | 192.100 | 218.000 | 1.112 | 242.39 | 253.68 | 11.29 |
| 430 | SIRAJGONJ-KATAKHALI | 203.500 | 199.100 | 202.000 | 1.149 | 232.07 | 227.92 | -4.15 |
| 431 | SIRAJGONJ-RASULPUR | 215.300 | 207.700 | 214.000 | 1.117 | 238.98 | 242.26 | 3.27 |
| 432 | SIRAJGONJ-RAIPURA | 283.000 | 256.800 | 283.000 | 0.991 | 280.54 | 322.56 | 42.02 |
| 433 | SIRAJGONJ-KALIGONJ | 271.800 | 250.600 | 265.000 | 1.027 | 273.10 | 304.42 | 31.32 |
| 434 | SIRAJGONJ-BHANGA | 488.800 | 211.500 | 470.000 | 0.817 | 383.89 | 547.46 | 163.56 |
| 435 | SIRAJGONJ-NAGARKANDA | 500.700 | 223.400 | 482.000 | 0.808 | 389.43 | 560.78 | 171.36 |
| 436 | SIRAJGONJ-GOPALGONJ | 430.600 | 221.100 | 415.000 | 0.840 | 349.24 | 482.27 | 133.04 |
| 437 | SIRAJGONJ-KOTALIPARA | 421.500 | 272.100 | 411.000 | 0.844 | 347.05 | 472.08 | 125.03 |
| 438 | SIRAJGONJ-TUNGIPARA | 407.200 | 257.400 | 397.000 | 0.859 | 340.92 | 456.06 | 115.14 |
| 439 | SIRAJGONJ-RAMDIA | 447.700 | 226.900 | 432.000 | 0.836 | 361.01 | 501.42 | 140.41 |
| 440 | SIRAJGONJ-SINDIAGHAT | 464.000 | 186.700 | 445.000 | 0.831 | 369.91 | 519.68 | 149.77 |
| 441 | SIRAJGONJ-MADARIPUR | 326.300 | 192.300 | 317.000 | 0.940 | 298.02 | 365.46 | 67.44 |
| 442 | SIRAJGONJ-TEKERHAT | 464.200 | 186.500 | 445.000 | 0.831 | 369.91 | 519.90 | 149.99 |
| 443 | SIRAJGONJ-KALKINI | 319.400 | 211.100 | 312.000 | 0.946 | 295.22 | 357.73 | 62.51 |
| 444 | SIRAJGONJ-KHASERHAT | 292.500 | 217.100 | 287.000 | 0.984 | 282.29 | 327.60 | 45.31 |
| 445 | SIRAJGONJ-ANGARIA | 328.700 | 208.500 | 320.000 | 0.935 | 300.25 | 368.14 | 67.90 |
| 446 | SIRAJGONJ-DAMUDDA | 205.600 | 205.600 | 205.000 | 1.139 | 233.38 | 230.27 | -3.11 |
| 447 | SIRAJGONJ-GOLAIRHAT | 213.500 | 213.500 | 213.000 | 1.118 | 238.13 | 239.12 | 0.99 |
| 448 | SIRAJGONJ-NARIA | 190.000 | 190.000 | 190.000 | 1.194 | 226.82 | 212.80 | -14.02 |
| 449 | SIRAJGONJ-BHEDARGONJ | 196.500 | 196.500 | 195.000 | 1.171 | 229.45 | 220.19 | -9.25 |

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TABLE 9. COMPARISON OF EXISTING IBCC RATES WITH PROPOSED IBCC RATES
( All figures in Taka)

| Route Length | Rate/T-km. (Netrokona) | Rate/T-km (B.Baria) | Rate/T-km (Khulna) | Rate/T-km (Bhola) | Proposed Rate/T-km |
|---|---|---|---|---|---|
| 1. | 6.20 | 3.68 | 6.47 | 4.41 | 106.51 |
| 2. | 6.20 | 3.68 | 6.47 | 4.41 | 53.58 |
| 3. | 6.20 | 3.68 | 6.47 | 4.41 | 35.92 |
| 4. | 6.20 | 3.68 | 6.47 | 4.41 | 27.09 |
| 5. | 6.20 | 3.68 | 6.47 | 4.41 | 21.80 |
| 6. | 6.20 | 3.68 | 6.47 | 4.41 | 18.27 |
| 7. | 6.20 | 3.68 | 6.47 | 4.41 | 15.70 |
| 8. | 6.20 | 3.68 | 6.47 | 4.41 | 13.80 |
| 9. | 6.20 | 3.68 | 6.47 | 4.41 | 12.38 |
| 10 | 6.20 | 3.68 | 6.47 | 4.41 | 11.21 |
| 11 | 6.20 | 3.68 | 6.47 | 4.41 | 10.25 |
| 12 | 6.20 | 3.68 | 6.47 | 4.41 | 9.44 |
| 13 | 6.20. | 3.68 | 6.47 | 4.41 | 8.76 |
| 14 | 6.20 | 3.68 | 6.47 | 4.41 | 8.18 |
| 15 | 6.20 | 3.68 | 6.47 | 4.41 | 7.68 |
| 16 | 6.20 | 3.68 | 6.47 | 4.41 | 7.23 |
| 17 | 6.20 | 3.68 | 6.47 | 4.41 | 6.84 |
| 18 | 6.20 | 3.68 | 6.47 | 4.41 | 6.50 |
| 19 | 6.20 | 3.68 | 6.47 | 4.41 | 6.19 |
| 20 | 6.20 | 3.68 | 6.47 | 4.41 | 5.91 |
| 21 | 6.20 | 3.68 | 6.47 | 4.41 | 5.66 |
| 22 | 6.20 | 3.68 | 6.47 | 4.41 | 5.43 |
| 23 | 6.20 | 3.68 | 6.47 | 4.41 | 5.22 |
| 24 | 6.20 | 3.68 | 6.47 | 4.41 | 5.03 |

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BEST AVAILABLE DOCUMENT

| Route Length | Rate/T-km. (Netrokona) | Rate/T-km (B.Baria) | Rate/T-km (Khulna) | Rate/T-km (Bhola) | Proposed Rate/T-km |
|---|---|---|---|---|---|
| 25 | 6.20 | 3.68 | 6.47 | 4.41 | 4.85 |
| 26 | 6.20 | 3.68 | 6.47 | 4.41 | 4.69 |
| 27 | 6.20 | 3.68 | 6.47 | 4.41 | 4.54 |
| 28 | 6.20 | 3.68 | 6.47 | 4.41 | 4.40 |
| 29 | 6.20 | 3.68 | 6.47 | 4.41 | 4.27 |
| 30 | 6.20 | 3.68 | 6.47 | 4.41 | 4.15 |
| 31 | 6.20 | 3.68 | 6.33 | 4.34 | 4.03 |
| 32 | 6.20 | 3.68 | 6.21 | 4.27 | 3.93 |
| 33 | 6.10 | 3.62 | 6.09 | 4.21 | 3.83 |
| 34 | 6.02 | 3.57 | 5.98 | 4.14 | 3.73 |
| 35 | 5.93 | 3.53 | 5.87 | 4.09 | 3.64 |
| 36 | 5.86 | 3.48 | 5.77 | 4.04 | 3.56 |
| 37 | 5.78 | 3.44 | 5.68 | 4.04 | 3.48 |
| 38 | 5.71 | 3.40 | 5.59 | 3.94 | 3.40 |
| 39 | 5.64 | 3.36 | 5.50 | 3.89 | 3.33 |
| 40 | 5.58 | 3.33 | 5.42 | 3.85 | 3.26 |
| 41 | 5.52 | 3.29 | 5.34 | 3.81 | 3.20 |
| 42 | 5.46 | 3.26 | 5.27 | 3.77 | 3.14 |
| 43 | 5.40 | 3.23 | 5.20 | 3.73 | 3.14 |
| 44 | 5.35 | 3.20 | 5.14 | 3.70 | 3.14 |
| 45 | 5.30 | 3.17 | 5.07 | 3.66 | 3.14 |
| 46 | 5.26 | 3.14 | 5.01 | 3.63 | 3.09 |
| 47 | 5.21 | 3.12 | 4.95 | 3.57 | 3.04 |
| 48 | 5.17 | 3.10 | 4.90 | 3.57 | 2.99 |
| 49 | 5.12 | 3.07 | 4.84 | 3.54 | 2.94 |

Contd....

| Route Length | Rate/T-km. (Netrokona) | Rate/T-km (B.Baria) | Rate/T-km (Khulna) | Rate/T-km (Bhola) | Proposed Rate/T-km |
|---|---|---|---|---|---|
| 50 | 5.07 | 3.05 | 4.79 | 3.51 | 2.90 |
| 51 | 5.02 | 3.03 | 4.74 | 3.49 | 2.85 |
| 52 | 4.97 | 3.01 | 4.69 | 3.47 | 2.81 |
| 53 | 4.93 | 2.99 | 4.65 | 3.44 | 2.77 |
| 54 | 4.88 | 2.97 | 4.61 | 3.42 | 2.73 |
| 55 | 4.84 | 2.95 | 4.57 | 3.40 | 2.69 |
| 56 | 4.80 | 2.93 | 4.52 | 3.38 | 2.65 |
| 57 | 4.76 | 2.91 | 4.48 | 3.36 | 2.62 |
| 58 | 4.72 | 2.89 | 4.45 | 3.34 | 2.58 |
| 59 | 4.68 | 2.87 | 4.41 | 3.31 | 2.55 |
| 60 | 4.64 | 2.86 | 4.37 | 3.29 | 2.52 |
| 61 | 4.61 | 2.85 | 4.33 | 3.27 | 2.48 |
| 62 | 4.57 | 2.84 | 4.30 | 3.25 | 2.45 |
| 63 | 4.54 | 2.83 | 4.27 | 3.23 | 2.42 |
| 64 | 4.51 | 2.81 | 4.24 | 3.22 | 2.40 |
| 65 | 4.48 | 2.79 | 4.21 | 3.21 | 2.37 |
| 66 | 4.45 | 2.78 | 4.17 | 3.19 | 2.34 |
| 67 | 4.42 | 2.77 | 4.15 | 3.18 | 2.32 |
| 68 | 4.39 | 2.76 | 4.13 | 3.17 | 2.29 |
| 69 | 4.36 | 2.75 | 4.10 | 3.15 | 2.27 |
| 70 | 4.33 | 2.74 | 4.07 | 3.13 | 2.24 |
| 71 | 4.31 | 2.72 | 4.05 | 3.12 | 2.22 |
| 72 | 4.29 | 2.71 | 4.02 | 3.11 | 2.20 |
| 73 | 4.25 | 2.70 | 4.00 | 3.10 | 2.18 |
| 74 | 4.23 | 2.69 | 3.98 | 3.09 | 2.16 |

Contd...

| Route Length | Rate/T-km. (Netrokona) | Rate/T-km (B.Baria) | Rate/T-km (Khulna) | Rate/T-km (Bhola) | Proposed Rate/T-km |
|---|---|---|---|---|---|
| 75 | 4.21 | 2.68 | 3.96 | 3.08 | 2.10 |
| 76 | 4.19 | 2.67 | 3.94 | 3.07 | 2.08 |
| 77 | 4.17 | 2.66 | 3.91 | 3.06 | 2.06 |
| 78 | 4.15 | 2.65 | 3.89 | 3.04 | 2.04 |
| 79 | 4.13 | 2.64 | 3.87 | 3.02 | 2.02 |
| 80 | 4.11 | 2.63 | 3.85 | 3.01 | 2.01 |
| 81 | 4.09 | 2.61 | 3.81 | 2.98 | 2.00 |
| 82 | 4.07 | 2.59 | 3.77 | 2.95 | 1.97 |
| 83 | 4.05 | 2.58 | 3.73 | 2.92 | 1.97 |
| 84 | 4.03 | 2.56 | 3.70 | 2.88 | 1.97 |
| 85 | 4.01 | 2.54 | 3.66 | 2.85 | 1.97 |
| 86 | 3.99 | 2.53 | 3.63 | 2.82 | 1.97 |
| 87 | 3.97 | 2.51 | 3.59 | 2.79 | 1.97 |
| 88 | 3.95 | 2.49 | 3.56 | 2.76 | 1.97 |
| 89 | 3.94 | 2.47 | 3.52 | 2.74 | 1.97 |
| 90 | 3.93 | 2.45 | 3.49 | 2.71 | 1.97 |
| 91 | 3.91 | 2.44 | 3.46 | 2.68 | 1.97 |
| 92 | 3.90 | 2.43 | 3.43 | 2.65 | 1.97 |
| 93 | 3.88 | 2.42 | 3.40 | 2.63 | 1.97 |
| 94 | 3.87 | 2.41 | 3.37 | 2.61 | 1.97 |
| 95 | 3.85 | 2.39 | 3.34 | 2.58 | 1.97 |
| 96 | 3.84 | 2.38 | 3.32 | 2.56 | 1.97 |
| 97 | 3.83 | 2.37 | 3.29 | 2.53 | 1.96 |
| 98 | 3.81 | 2.36 | 3.26 | 2.51 | 1.94 |
| 99 | 3.80 | 2.34 | 3.23 | 2.49 | 1.93 |
| 100 | 3.79 | 2.33 | 3.21 | 2.47 | 1.92 |

PROPOSED RATES FOR IBCC FOR ROUTE LENGTHS OVER 100 KM ARE MENTIONED IN 7 TH COLUMN OF TABLE 7.

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## 10. VALIDATION OF THE MODEL

One of the major problems in using such a simulation model is the verification or validation of the model as an adequate representation of the real world. The model, to be useful, must exhibit a behavior analogous to the system under study in the area of interest. This is important as the model may deliberately omit certain system features not of interest otherwise it may be logged with inessential complexities. Confidence in the model and confirmation of its realism can only result from the comparison of its predictions with historical data..

In this study the model used for simulating the movement of public sector foodgrains and other foodstuffs through various types of Inland vessels is adequate for the purpose of estimating the required freight rate for any route characteristics for any required rate of return. The main problem of verification in this case is to ensure that the model performs the way it is intended to. To verify the structure of the model, several hand calculations were made for various operating scenarios and it showed that the computer program gives identical values.

The next step was to compare the real life data with model results. The following data on freight rates were collected from the existing market for various commodities.

For mechanised Vessels

Syleht-Dhaka Tk. 132/T (394 km)
Mongla-Dhaka Tk. 170/T (304 km)
Chittagong-Pagla Tk. 180/T (295 km)
Ctg. Narayanganj Tk. 180/T (288 km)
Ctg. - Khulna Tk. 210/T (397 km)
Mongla-N.gonj Tk. 180/T (278.5 km)
Khulna-N. gonj Tk. 200/T (426 km)
Ctg. N.gonj Tk. 235/T (288 km)

On comparison of the collected data, on freight rates of various commodities with the `proposed freight rates' of Interdistrict movement it was revealed that the `Proposed Rates' are at least 50% higher, which indicates that there are more supply of water transport than the demands in the market and the ship operators are satisfied with a lower rate of return because of competition. Fortunately, a recent data on similar freight rate was collected from the bid documents for a recent tender floated by the Major and Compact Flower Mills Association for carrying imported wheat from Chittagong Port to Narayanganj in inland waters. The bid offer of Tk. 235/Ton was accepted by the users for the route having the route length of 288 km. The `Proposed Rate' for the same route is Tk. 270/T. For public sector movement, such higher rates can only be expected.

Freight rate data were also collected for country boat movement. These are as follows.

Dhaka-N. Gonj Tk. 108/T (24.2 km)
Dhaka-Mirkadim Tk. 100/T (12.6 km)
Dhaka-Savar Tk. 135/T (18.9 km)

On comparing the above data with proposed IBCC rates of table 7, it was found that the model gave consistent results also for Intradistrict movement.

It is a well known fact that the freight rate per ton of a particular commodity tapers off quite markedly as the transport distance increases i.e. the freight rate grows but far less in proportion to the distance. The characteristic shape of the freight curve and the cost line are portrayed in the freight curves of Figure 12. The model results conform to the characteristic shapes of the freight curve.

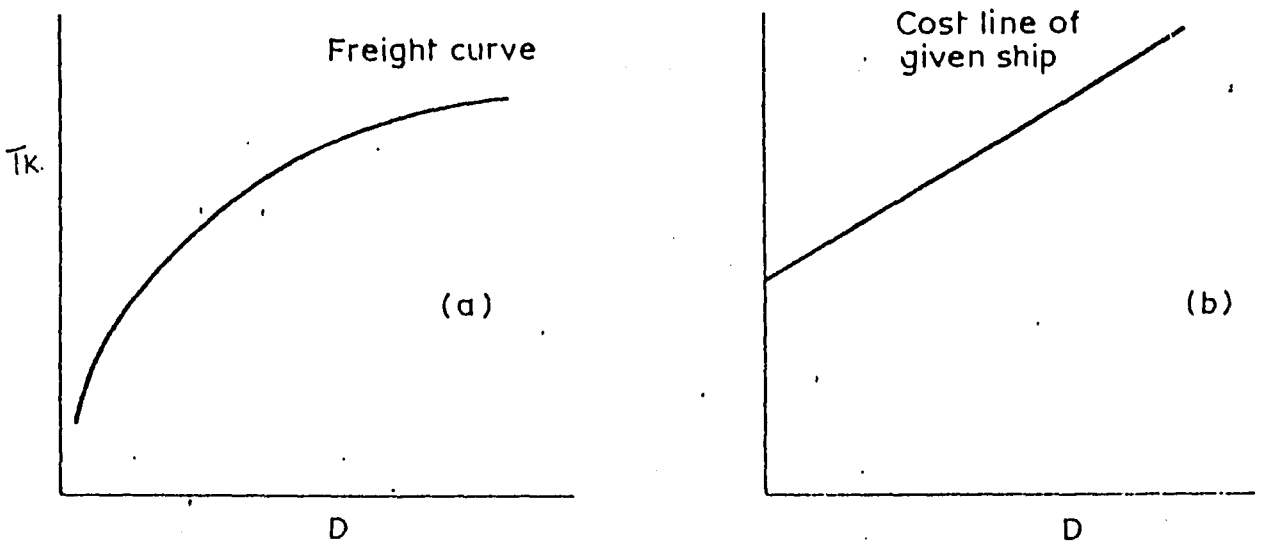


**Figure** 12. (a) Typical shape of the freight rate per ton of a given commodity as a function of the distance. (b) The cost per ton of a particular commodity carried by a given ship as a function of the distance.



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## 11. LIMITATIONS OF THE PRESENT STUDY AND SCOPE FOR FURTHER STUDY

The present study has been done on the basis of the present scenario of the operating environment in which the public sector foodgrains and other foods-staffs are moved in the inland waterways of Bangladesh. Although the output of the model in no way demands to be the optimum, the computer model that has been developed for calculating the freight rates can be used for any other operating scenarios and would be able to assist in optimizing the transport cost, if needed.

1) The effect of the following factors on the freight rate have not been considered

a) Further possible improvement in the waterways of Bangladesh in various forms viz. improved dredging facilities, installation of navigational aids, IWT development projects, improvement in cargo handling, port access etc. or the possible future deterioration of the water-ways in the absence of any improvement plan.

b) The trade off between the advantage of cost saving due to really significant shortening of the interzonal transport distance and the extra cost needed for such improvement.

c) Any future improvement in the design and construction of inland and bay crossing vessels.

d) Any change in the freight rate of other modes of transports.

2) It has not considered any change in the operating policy dictated in the tender condition viz. partial loading in restricted water and hence the trade off between the disadvantage of increased per ton km cost due to decreased payload and the advantage of the reduced route length, minimum length of travel

and hence the delay that can be made by any specific vessel in transit to take the advantage of tide because although the depth on some shoals at low water is less than the specified navigability, the shoals can be negotiated during other times of the tidal cycle.

Despatch and demurrage are the essential items in shipping economics, the optimum value of which have not been found in the study. It has also not considered the pilferage into account or the advantage and disadvantages of the block system, which are related with the conditions to be prescribed for tendering. It does not differentiate between owner operated vessel or chartered vessel, which are to be defined in the tender condtions.

The study does not consider the impact of competition i.e. does not decide on how many contractors should be there in total to carry the total transportation task involved nor finds
What compensation is to be paid by the contractor in case of loss of foodgrains due to accidents or various security money and guarantee to be deposited by the bidder to participate in the tender.

The difference between BIWTC vessels and Private vessels have not been taken into account, which are related with the quality of the movement to be defined in the tender conditions.

It does not consider any change in free time to be allowed in the loading and unloading port or the time within which a vessel is to report the loading point.

(3) The study has not considered the impact of absence of such rationalization of freight structure in Road/rail modes on the proposed freight rates.

4) The study is based on data and various other information collected from the relevant organizations and not on actual surveying with the survey vessels, which is beyond the scope of the present study.

5) The output of the present model is not based on minimum possible transport cost that can be achieved within the existing operating scenario and fixed resources but takes the average of the freight rates determined for the selected vessels.

6) The study has not considered the minimum possible transport cost achieved within the possible operating scenarios nor has attempted to find the optimum freight rates among all possible class of vessels, sizes and speed variations.

7) The study has been made on the basis of the replacement cost of the vessels and not on historical prices.

8) There remains the scope of study on optimum route planning and modal planning of the food grain movement which depends on the demand, storage capacity supply etc., which may lead to further saving of Government resources.

## 12) POSSIBLE SAVINGS ON IMPLEMENTATION OF THE PROPOSED FREIGHT RATES

Annexure B, C & D show in the tabuler form respectively the monthwise tonnage of wheat moved through inland water in 1991, 1992 and 1993 as per central movement programme, Routewise tonnage of wheat movement and modal share of wheat movement in 1991, 1992 and 1993. In addition to such movement there are also central movement programme of Rice, Vegetable oil etc. Wheat movements are also planned by RCFs on the basis of demand and supply of various regions. On the basis of previous data on central movement of wheat it is found that the average yearly central movement of wheat is nearly 0.3 m tonne, which is slightly above 20% of the total central movement of wheats through various modes. On the basis of the average yearly tonnage figure for each route available form Annexure C and the data on saving /ton from column 9 of Table 8, it is found that about 10 million Taka would eb saved annually only in centrally planned movement of wheat, if the proposed freight rates are implemented.

This indicates that there would be average saving of about Tk. 33/T/anum. On the basis of the figures on food grain movement of previous years and the modal share as per Annexure D, it can be forecasted that there would be average movement of at least 0.6 million tonnages of food grains and other food stuffs annually in public sector. If that is so, the anticipated saving / year would be nearly 2.0 million Taka, which is about 10% of the total expenditure of DOF in movement through water, provided the proposed freight structure is implemented by the Government.

## 13. DISCUSSION, CONCLUSIONS AND RECOMMENDATION

The main purpose of this study was to rationalise the freight structure for movement of public sector foodgrains through inland waters of Bangladesh. With a view to accomplish that it was found convenient to formulate a Computer Model which would enable general evaluation of IWT system of foodgrains movement for a two port route, taking into account the natures of various operating parameters affecting such system. Although in the TOR it was not mentioned that such a modeling would have to be developed and it takes a lot of time and energy for developing such a model, the job was done with an anticipation that this would ultimately benefit the DOF because they would be able to evaluate any other scenario in a reasonably realistic manner at relatively low cost. The model outputs required freight rates for selected vessel types and the effective route lengths and the freight rates for selected routes when the operating and economic characteristics of the selected vessel types and routes are fed as input to the model.

From the results obtained so far, it is revealed that in general the existing PMC rates are higher than the Proposed Freight Rates or the existing market rates.

There are many inconsistencies prevailing among the existing freight rates of DOF in the sense that the rates are different for equal route lengths under different category of contractors. While for some routes the PMC rates are higher than DBCCs, for others the opposite is the case. Also among 29 different IBCCs, the basis rates/ton km are not consistent.

To stream line such inconsistencies and rationalise the freight structures, the freight rates have been proposed for various selected routes irrespective of PMCs and DBCCs, because as long as the executing agency is one, which is DOF, it is not healthy

if differential rates are paid to the contractors for the same routes just because the movement was done under different contracting systems. A separate basis rate (Tk./T-km) has been proposed for the intra district movements because in general the routes required for such movements would have to have shallow draft characteristics, for which the mechanized countryboats have been found convenient.

There are two important aspects for such modelling (1) structure of the model and (2) Input data. Both of the aspects have been taken care of by collecting various data, checking and cross checking of the data, and field visits to more familiar with the operational scenario to be simulated for such modelling. 'Garbage in' will make 'Garbage out', the basic theme was vary much remembered and precautionary measures were taken.

However, it should be mentioned here that in performing such an experiment certain heuristic decisions and assumptions had to be made in the modelling for simplifications. But these were not that severe so as to make the model results far from real life. This was proved when the model results were validated.

However as the 'Proposed Freight Rates' are to be considered as the basis freight rates and the carrying contractors are to be decided through open competition, any minor deviation of the 'Proposed Freight Rates' from the practicable freight rates would be compensated by the actual bids by the contractors.

Another very important issue that should be discussed here is that the proposed freight rates are the out put of the model based on existing operating scenerio which has been defined by a set of input parameters. Hence the freight rates are conditional to such input parameters and any change of these parameters viz. fuel cost, free time at port, miscellaneous delay, working hours/day etc. would also change the value of the 'Proposed

Freight Rates.' The advantage of the modelling would tremendously be felt in such cases of changed operating scenerio when other sets of outputs would easily be available by just pressing some buttons of the computer.

It is also recommended that DOF should make a short study on 'Framing the tender condition' before implementation of the findings of this study.

The consultants found the present study very stimulating and challenging. It indicated to him that this kind of study is indeed practical and very much elpful to DOF. The biggest payoffs would be in the implementation of the 'Proposed Freight Structure' to establish financial discipline and consistencies in the movement of public sector foodgrains and other foodstaffs by DOF.

Finally, the consultants recommend that further study may be undertaken by DOF for optimising the total transport cost of movement by investigatng the operating effeciencies of all possible vessel sizes, speed and operational policies and demand and supply of various regions.

ANNEXURE A: CHARGES, LEVIES AND DUES IN INLAND WATER TRANSPORT EFFECTIVE FROM 1.7.93.

Conservancy, pilotage, canal and ferry charges.

| DESCRIPTION | BASIS OF LEVY | RATE EFFECTIVE FROM 1.7.93 |
|---|---|---|
| A. CONSERVANCY FEES | Per gross tonnage per annum | |
| Coasters | -do- | Tk. 61.00 |
| Oil tankers | -do- | Tk.137.00 |
| Flats | -do- | Tk. 11.00 |
| Barges | -do- | Tk. 11.00 |
| Self propelled cargo vessels | -do- | Tk. 22.00 |
| Tugs | -do- | Tk. 19.00 |
| B. PILOTAGE FEES | Per beat | Tk.200.00 |
| C. CANAL CHARGES | | |
| I. Ratherhat, Bagerhat, Jatrapur, Paikgacha Katakhali, Alaipur | | |
| -All loaded vessels | Per 100 mds. | Tk. 10.00 |
| -Empty boats of more than 25 mds. upto 200 mds. capacity | per boat | Tk. 2.50 |
| -Empty boats of more than 200 mds. upto 500 mds. capacity | -do- | Tk. 2.50 |
| -Empty boats of 500 mds. or more capacity | -do- | Tk. 5.00 |
| -Floats of tikber | Each timber | Tk. 1.50 |
| -Rafts of bamboo | Every 100 or part thereof | Tk. 1.50 |
| -Donga, dingi and fishing boats: | | |
| a) Minimum toll | per dingi/donga/boat | Tk. 1.50 |
| b) Over 25 mds upto 50 mds. | -do- | Tk. 2.50 |
| c) Above 50 mds. | -do- | Tk. 5.00 |
| II. Karnapara-Kunda | | |
| - Cargo vessels | Per 100 maunds | Tk. 5.00 |
| - All boats of 12 1/2 mds. or each multiple thereof | Per 100 maunds | Tk. 1.00 |
| - Empty boats of less than 100 mds. capacity. | Per boat | Tk. 1.50 |
| - Empty boats of 100 mds & more | -do- | Tk. 2.50 |
| - Floats of timber | Each timber | Tk. 1.50 |
| - Rafts of bamboo | Every 100 or part thereof | Tk. 1.50 |
| - Minimum toll | | Tk. 1.50 |

| DESCRIPTION | BASIS OF LEVY | RATE OF EFFECTIVE FROM 1.7.93 |
|---|---|---|
| C. CANAL CARGES (CONTD. | | |
| iii) Taltala/MBR Canal | | |
| - Coasters, cargo launches, flats barges | Per ton | Tk. 1.50 |
| - Minimum toll on coaster, cargo launches, flats, barges | -do- | Tk.44.00 |
| - Countryboats | Every 100 mds or part thereof | Tk. 7.00 |
| - Empty boats of 100 mds.& more capacity | -do- | Tk. 8.00 |
| - Floats of timber | Each timber | Tk. 1.50 |
| - Rafts or bamboo | Every 100 no.or part thereof | Tk. 1.50 |
| - Donga, dingi & fishing boats: | | |
| a) Minimum toll | Per donga/dingi/boat | Tk. 2.50 |
| b) 25 mds. upto 50 mds | -do- | Tk. 2.50 |
| c) Above 50 mds. | -do- | Tk. 5.00 |
| 3. Port charges (Terminal, Landing and Shipping, Berthing, Storage, Portroad user and Coolies charges). | | |
| A. Terminal charge | Per passenger | Tk. 1.50 |
| B. Landing and Shipping charges | | |
| As per 1966 Port Rule for loading and unloading all kinds of goods | Per Quintal(100 kg) of loading or unloading | Tk. 2.50 |
| - Goats or sheep | Per head | Tk. 4.00 |
| - Cattle | -do- | Tk.10.00 |
| - Animals not otherwise specified | -do- | Tk.10.00 |
| - Bird | -do- | Tk. 1.00 |
| - Trucks and Buses | Each | Tk.20.00 |
| - Motor, Car & Pickup | Each | Tk.10.00 |
| - Scooter | Each | Tk. 5.50 |
| - Bicycle | Each | Tk. 1.25 |
| - All goods measured in cubic units | Per cft | Tk. 0.15 |
| C. Berthing Charges | | |
| a) Countryboats | Per berthing not exceeding one day | Tk. 1.00 |
| - Carrying capacity upto 50 mds.of cargo | | |
| - Carrying capacity exceeding 50 mds. upto 100 mds | -do- | Tk. 2.00 |
| - Carrying capacity exceeding 100 mds upto 200 mds. | | Tk. 3.00 |
| - Carrying capacity exceeding 200 mds upto 500 mds. | | Tk. 5.00 |
| - Carrying capacity exceeding 500 mds upto 1000 mds. | | Tk. 7.00 |
| - Carrying capacity exceeding 1000 mds | -do- | Tk. 8.50 |

| DESCRIPTION | BASIS OF LEVY | RATE OF EFFECTIVE FROM 1.7.93 |
|---|---|---|
| b) Cargo Vessels | | |
| - Carrying capacity upto 50 tons of cargo | -do- | Tk.55.00 |
| - Carrying capacity over 50 tons upto 100 tons of cargo | -do- | Tk.70.00 |
| - Carrying capacity over 100 tons upto 250 tons of cargo | -do- | Tk.88.00 |
| - Carrying capacity over 250 tons upto 500 tons of cargo | -do- | Tk.104.00 |
| - Carrying capacity over 500 tons upto 750 tons of cargo | -do- | Tk.131.00 |
| - Carrying capacity over 750 tons upto 1000 tons of cargo | -do- | Tk.173.00 |
| - Carrying capacity over 1000 tons upto 1500 tons of cargo | -do- | Tk.218.50 |
| - Carrying capacity over 1500 tons upto 2000 tons of cargo. | -do- | Tk.312.00 |
| - Carrying capacity over 2000 tons upto 2500 tons of cargo. | -do- | Tk.468.00 |
| - Carrying capacity over 2500 tons upto 3000 tons of cargo. | -do- | Tk.632.00 |
| - Carrying capacity over 3000 tons | -do- | Tk.944.00 |
| D. Storage Charges | | |
| a) Foreshore | | |
| i) Covered storage | per sq.ft./day | Tk. 0.80 |
| ii) Uncovered storage | -do- | Tk. 0.15 |
| b) Terminal storage | per sq.ft./month | Tk. 7.05 |
| c) Godown storage | -do- | Tk. 5.45 |
| d) Floating storage | -do- | Tk. 4.70 |

4. Way-side Launch Station Charges (terminal,Landing and Shipping, Berthing and Coolie charges).

| | | |
|---|---|---|
| a) Landing and Shipping Charges | | |
| i) Passenger baggage exceeding 1 md. | Per maund | Tk. 0.20 |
| ii) General cargo | -do- | Tk. 1.00 |
| iii) All goods measured in cubic units | Per cft. | Tk. 0.75 |
| b) Berthing Charges | | |
| i) All cargo vessels not liable for registration | Per berthing | Tk. 7.50 (average) |
| ii) Other cargo vessels | Per berthing | Tk.10.00 |
| c) Coolie Charges (distance not exceeding 100 yards) | | |
| i) Passenger baggage | Per maund or part thereof | Tk. 2.00 |
| ii) General cargo | -do- | Tk. 0.75 |

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ANEXURE B : AMOUNT OF WHEAT MOVED THROUGH INLAND WATER IN 1991, 1992 AND 1993 AS PER WHEAT MOVEMENT PROGRAMME PREPARED BY DIRECTORATE OF MOVEMENT, STORAGE AND SILO OF DIRECTORATE GENERAL OF FOOD ( All figures are in tonnes).

| | 1991 | | | | | | | | | | | | 1992 | | | | | | | | | | | | 1993 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |
| Chittagong-Dhaka | [illegible] | 3500 | 7000 | - | 2000 | 3000 | 2000 | 2000 | 4000 | - | 5000 | 5000 | 5000 | 3000 | 2500 | 2500 | 1000 | 2000 | 3000 | 2400 | 2500 | 4500 | 2700 | - | - | - | 1500 | - | - | - | - | - | - | 500 | 1000 | - |
| [illegible] | [illegible] | [illegible] | 25000 | - | 10000 | 4000 | - | 1500 | 9000 | - | 12000 | 8000 | 3500 | 6000 | 7350 | 3000 | 3000 | 4000 | 2000 | 2300 | 1500 | 1500 | 2800 | - | 14000 | - | 9500 | - | - | - | - | - | - | 5000 | - | - |
| Chittagong-[illegible] | - | - | 2000 | - | - | 500 | 1500 | 600 | 2500 | - | 4000 | 3000 | 600 | - | 500 | 1000 | 100 | 1000 | 600 | 900 | - | 700 | 700 | - | - | - | - | - | - | - | - | - | - | 1600 | - | - |
| Chittagong-Rasulpur | - | - | 1000 | - | - | - | - | - | 500 | - | - | 500 | 400 | - | - | - | - | 700 | 300 | 600 | - | - | 150 | - | 500 | - | - | - | - | - | - | - | - | - | - | 300 |
| Chittagong [illegible] | - | - | - | - | 3000 | 2000 | 250 | 2100 | - | 3500 | 6000 | 3000 | 600 | 500 | - | - | 600 | - | - | 500 | - | - | 1500 | - | 1500 | - | - | - | - | - | - | - | - | - | - | - |
| Chittagong [illegible] | - | - | - | - | - | 10000 | 7500 | 1250 | - | - | - | - | - | - | - | - | - | - | - | 950 | - | - | - | - | - | - | - | - | - | - | - | 1250 | - | - | - | - |
| Chittagong [illegible]bazar | - | - | - | - | - | 5000 | 1000 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 150 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| [illegible] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 600 | - | - | 300 | - | - | - | 220 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Chittagong-Barapop | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 25 | - | - | - | - | - | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Chittagong-Banian | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 500 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Chittagong Silo- | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Narayanganj Silo | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 10000 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



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| Name of the Route | 1991 | | | | | | | | | | | | 1992 | | | | | | | | | | | | 1993 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |
| Mongla Khulna-Bagerhat | - | 1500 | 1000 | - | 2000 | 2000 | 1000 | 800 | 1500 | - | 3000 | 2250 | 1500 | 1000 | 500 | 1600 | 2000 | 2400 | 1500 | - | - | - | - | - | 1200 | - | 1000 | 900 | 1300 | - | - | - | - | 1500 | 1500 | - |
| Mongla Barisal | - | - | - | - | 1000 | 2000 | 1500 | 1700 | 1000 | - | 3000 | 1500 | 750 | 1500 | 550 | 2400 | 1000 | 800 | - | - | - | - | 350 | - | - | - | - | - | 300 | - | - | - | - | - | 1000 | - |
| Mongla Baghabari | - | - | - | - | 500 | - | - | - | - | - | - | 1500 | 750 | - | 300 | 600 | - | - | - | - | - | - | - | - | - | - | - | - | 600 | - | - | - | - | - | - | - |
| Mongla Pirojpur | 500 | - | 500 | - | 300 | 300 | 250 | 500 | 1000 | - | 250 | 500 | - | - | - | 500 | - | -600 | 300 | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | 600 | - |
| Mongla Bhanpur | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla Nagarkanda | - | - | - | - | - | 300 | 250 | 500 | - | - | - | 300 | - | 250 | - | - | - | - | - | 500 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | 600 | - |
| Mongla-Khulna(DCF) | - | - | 5000 | - | 1500 | 3000 | 3225 | 2000 | 1250 | - | 3500 | 1500 | - | 500 | 500 | 250 | 500 | - | - | 2900 | - | 1000 | - | - | 650 | - | 4500 | 900 | 2500 | - | - | - | - | - | - | - |
| Mongla Mahesarpasa | - | - | 5000 | - | 7300 | 7500 | - | - | - | - | 4000 | - | - | - | - | 1000 | 1848 | 6000 | - | - | 2300 | 2500 | 13125 | - | 10000 | - | 18000 | - | 15630 | - | - | - | - | - | - | - |
| Mongla Khulna(CSD) | - | - | 6450 | - | 7000 | 7825 | - | - | - | - | 3500 | - | - | - | - | 1250 | - | - | 900 | 2525 | - | - | 38000 | - | 12500 | - | 1000 | - | - | - | - | - | - | - | - | - |
| Mongla Fultala | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Chalna | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Bhola | - | - | 800 | - | 800 | 1000 | 250 | - | - | - | - | - | 500 | 250 | - | 500 | 900 | - | 300 | 400 | 300 | - | - | - | - | - | 300 | 600 | 600 | - | - | - | - | - | 600 | - |
| Mongla-Lalachan | - | - | - | - | 600 | 900 | - | - | - | - | - | - | - | - | 250 | - | 900 | - | - | 300 | - | - | - | - | - | - | - | 300 | 300 | - | - | - | - | - | 300 | - |
| Mongla Burhanuddin | - | - | - | - | 600 | 600 | - | - | - | - | - | - | - | - | - | - | 900 | - | - | - | - | - | - | - | - | - | - | - | 600 | - | - | - | - | - | - | - |
| Mongla [illegible] | - | - | 300 | - | - | 300 | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla Bajitpur | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla Chosarhat | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla Matlachan | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | 250 | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - |

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ANNEX. B CONTD.

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| Name of the Route | 1991 J | F | M | A | M | J | J | A | S | O | N | D | 1992 J | F | M | A | M | J | J | A | S | O | N | D | 1993 J | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mongla-Khulna-Barisal | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Charasashuan | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Nalakathi | 300 | - | 1550 | - | 300 | - | - | - | - | - | 500 | 500 | - | - | 300 | 400 | 400 | - | - | 300 | 900 | - | - | - | - | - | - | - | - | - | - | - | - | - | 600 | - |
| Mongla-[illegible] | - | - | 250 | - | 250 | - | - | - | - | - | - | - | - | 250 | 300 | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - |
| Mongla-Nalchiti | 200 | - | 250 | - | - | - | - | - | - | - | - | 250 | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | 300 | - | - |
| Mongla-Amua | - | - | 250 | - | 250 | - | - | - | - | - | - | 250 | - | - | - | 300 | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 |
| Mongla Barisal LSD | - | - | - | - | 250 | 900 | 1000 | 750 | 500 | - | 1000 | 700 | 250 | 250 | 600 | 600 | 400 | 300 | 600 | 1700 | 500 | 3000 | - | - | 3300 | - | 400 | - | - | - | - | - | - | - | 300 | - |
| Mongla Babugonj | - | - | - | - | 250 | 300 | 250 | - | - | - | - | - | - | - | - | 300 | - | - | 300 | 300 | - | - | - | - | - | - | - | - | 300 | - | - | - | - | 300 | 300 | - |
| Mongla Agoijhara | - | - | - | - | 250 | 300 | - | - | - | - | 250 | 250 | - | 250 | - | 300 | 300 | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | 300 | - | - |
| [illegible] | - | - | - | - | 250 | 300 | - | - | - | - | - | 250 | - | - | - | 600 | - | - | - | 300 | - | - | - | - | - | - | - | - | 300 | - | - | - | - | 300 | 300 | - |
| Mongla Gournadi | - | - | - | - | - | 600 | 250 | - | - | - | - | - | - | - | - | 600 | - | - | 300 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - |
| Mongla-Nalaskathi | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | 300 | - |
| Mongla-Mehadiganj | - | - | - | - | - | 300 | - | - | - | - | - | - | 250 | 300 | - | 300 | 300 | - | - | 300 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - |
| Mongla-Sikarpur | - | - | - | - | - | - | - | 250 | - | - | 250 | - | - | - | 300 | 600 | - | - | 300 | 600 | - | - | - | - | 300 | - | 300 | - | - | - | - | - | - | - | 300 | - |
| Mongla-Paroipur | - | - | - | - | 400 | 400 | - | - | - | - | 250 | 600 | 250 | - | 300 | 400 | - | 400 | - | 300 | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | 300 | - |
| Mongla-Bhandaria | - | - | - | - | 300 | 300 | - | - | - | - | - | 300 | - | - | - | 300 | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Swarpkathi | - | - | - | - | 300 | - | - | - | - | - | - | 300 | - | - | - | 300 | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Indernat | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Mothbaria | - | - | - | - | - | - | - | - | - | - | - | 250 | - | 250 | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 250 |
| Mongla-Barail | 600 | - | 200 | - | - | - | - | - | 300 | - | 900 | 700 | - | - | - | - | - | 400 | 300 | 300 | - | - | - | - | 600 | - | - | - | - | - | - | - | - | - | - | 600 |

ANNEXURE B CONTD.



BEST AVAILABLE DOCUMENT

| Name of the Route | 1991 | | | | | | | | | | | | 1992 | | | | | | | | | | | | 1993 | | | | | | | | | | | |
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| | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |
| Mongla-Khulna Sohagora | 300 | - | 300 | - | - | - | 250 | 400 | 600 | - | 300 | 300 | - | - | - | - | - | 600 | 300 | - | - | - | - | - | 600 | - | - | - | - | - | - | - | - | - | - | 300 |
| Mongla-Nalia | 300 | - | 400 | - | - | - | - | - | 400 | - | 250 | - | 250 | - | - | - | 300 | 300 | - | 300 | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | 200 |
| Mongla-Nalian | - | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Patuakhali | - | - | - | - | - | - | - | - | - | - | 250 | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Bagerhat | 1500 | 750 | 550 | - | - | - | - | 500 | 1000 | - | 1500 | 2000 | - | 500 | 100 | 3550 | - | 1300 | - | 3000 | - | - | - | - | - | - | - | - | 1000 | - | - | - | - | 1000 | 1000 | - |
| Mongla-Rampal | - | - | 150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Paranda | 250 | - | 150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Morelganj | - | 250 | 150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Fakirhat | - | 250 | 150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Mongla | 250 | 250 | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Kaliganj | - | - | 150 | - | - | - | - | - | - | - | - | - | - | 100 | 50 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Gorkabazar | 500 | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Sathkhira(SD) | 600 | 750 | 600 | - | 150 | - | 125 | - | - | - | 2000 | 3000 | 750 | - | - | 2500 | - | - | 1200 | 900 | - | - | - | - | - | - | - | 450 | 1500 | - | - | - | - | 750 | 650 | 400 |
| Mongla-Kalaroa | 300 | 250 | 300 | - | - | - | 125 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Paikgacha | 300 | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Daulatpur | - | 250 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Keshabpur | 250 | 250 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Jessore | 700 | - | - | - | - | - | - | - | - | - | - | - | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

ANNEX B CONT'D..



BEST AVAILABLE DOCUMENT

| Name of the Route | 1991 | | | | | | | | | | | | 1992 | | | | | | | | | | | | 1993 | | | | | | | | | | | |
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| | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |
| Mongla-[illegible] Bazaar | - | - | - | - | - | - | 250 | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Pathargbata | - | - | - | - | - | - | 250 | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla Pargana ISD | - | - | 800 | - | 300 | 400 | 500 | - | - | - | - | - | - | 250 | 300 | 600 | 700 | 300 | - | - | - | - | - | - | - | - | - | - | 600 | - | - | - | - | 300 | 300 | - |
| Mongla-Bakai | - | - | 300 | - | - | 300 | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - |
| Mongla-Taltali | - | - | 300 | - | - | 300 | - | - | - | - | - | - | 250 | - | - | 300 | - | 300 | - | 300 | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - |
| Mongla-Pathargbata | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | 300 | - |
| Mongla-Bawa | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - |
| Mongla-Madaripur | 300 | 500 | 1000 | - | - | - | 300 | 1650 | 2700 | - | 1500 | 1200 | - | - | - | 700 | - | 600 | 900 | 850 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1200 | 600 |
| Mongla-Charamuguria | 200 | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Chaserhat | 1000 | - | - | - | - | - | - | - | 1000 | - | 1500 | 600 | - | - | - | 700 | - | 400 | - | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | 600 | - |
| Mongla-Falkini | - | 250 | - | - | - | - | 300 | - | 300 | - | 500 | 300 | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Shibchar | - | - | 500 | - | - | - | 500 | 1000 | 1000 | - | 1000 | 900 | - | - | - | 300 | - | 600 | 1200 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Ghaserhat | - | - | - | - | - | 300 | 300 | - | 300 | - | 500 | - | - | - | - | 300 | 300 | 300 | 300 | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | 300 | - |
| Mongla-Gopalgonj | 500 | - | 900 | - | - | 300 | 700 | 700 | 1200 | - | - | 600 | - | - | - | 300 | - | 900 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 900 | - |
| Mongla-Sinhiaghat | 600 | - | - | - | - | 300 | 550 | 400 | - | - | - | 600 | - | - | - | 600 | - | 300 | 300 | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | 600 | - |
| Mongla-Potaliparа | - | - | 300 | - | - | 300 | 250 | 400 | 800 | - | - | 600 | - | - | - | 300 | - | 600 | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | 900 | - |
| Mongla-Tongipar | - | - | 300 | - | - | 300 | - | - | 500 | - | - | - | - | - | - | 300 | - | 600 | - | - | - | - | - | - | - | - | - | - | 250 | - | - | - | - | - | 300 | - |
| Mongla-Charia | 300 | - | - | - | - | - | 500 | 950 | 1700 | - | 1350 | 600 | - | - | - | - | 400 | - | 300 | 700 | 1200 | - | - | - | - | - | - | - | - | - | - | - | - | - | 600 | - |

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| Name of the Route | 1991 | | | | | | | | | | | | 1992 | | | | | | | | | | | | 1993 | | | | | | | | | | | |
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| | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |
| Mongla-Khulna-Daulatkha | 300 | - | - | - | - | - | - | 300 | 250 | - | 500 | - | - | - | - | - | - | - | 300 | 300 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | 200 | - |
| Mongla-Chakaiphat | 400 | - | - | - | - | - | - | - | 250 | - | 500 | 300 | - | - | - | - | 300 | - | - | 300 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Maria | - | - | - | - | - | - | 300 | 350 | 700 | - | 700 | 300 | - | - | - | - | - | - | 300 | 300 | 600 | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - |
| Mongla-[illegible] | - | - | - | - | - | - | 300 | 300 | 600 | - | 700 | - | - | - | - | - | - | - | - | 300 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Jaikira | - | - | - | - | - | - | 400 | 600 | 600 | - | 250 | - | - | - | - | - | 300 | - | - | 200 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-[illegible] | - | - | 300 | - | 1400 | 1300 | 500 | - | - | - | 500 | 250 | - | - | 300 | 1000 | 400 | 300 | - | 1100 | - | - | - | - | - | - | - | - | - | - | - | - | - | 600 | 300 | - |
| Mongla-Bahura Aulipur- | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla Khepupara | - | - | - | - | 300 | 300 | 250 | - | - | - | - | - | - | - | - | 500 | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - |
| Mongla Subidkhali | - | - | 250 | - | - | - | 250 | - | - | - | 250 | 250 | - | - | - | 300 | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - |
| Mongla Pora | - | - | 800 | - | - | - | - | - | - | - | - | 250 | - | - | - | 300 | - | 300 | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | 500 | - | - |
| Mongla [illegible] | - | - | 250 | - | - | - | - | - | - | - | 250 | 250 | - | - | - | 300 | 300 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - |
| Mongla-Fakirhat | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Dasina | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | 300 | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla-Tezakhia | - | - | - | - | - | 300 | 250 | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Mongla [illegible] | - | - | - | - | - | - | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - |
| Mongla [illegible] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - |
| Mongla [illegible] | - | - | - | - | - | - | - | - | 500 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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| Name of the Route | 1991 | | | | | | | | | | | | 1992 | | | | | | | | | | | | 1993 | | | | | | | | | | | |
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| Narayanganj Nagarbari | | - | 500 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj Serajganj | 1000 | 1500 | 1000 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj Palakopa | 300 | 300 | 500 | - | 200 | 300 | 300 | 300 | 200 | - | 300 | 300 | 300 | 200 | - | 300 | - | 300 | - | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | 200 | - | 300 |
| N.ganj Fatulla | - | 200 | 250 | - | 300 | 200 | 200 | 200 | 300 | - | 200 | 200 | 200 | 150 | 200 | 200 | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 200 | - | 500 |
| N.ganj Chorasal | - | - | - | - | - | - | - | - | - | - | - | 400 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj Murapara | 800 | 750 | 500 | - | 700 | 400 | 600 | 500 | 700 | - | 500 | 800 | 700 | 600 | 50 | 150 | - | 600 | 300 | 300 | 500 | - | - | - | 250 | - | 200 | - | - | - | - | - | - | - | - | - |
| N.ganj-Gopaldi | 600 | 500 | 550 | - | 200 | 200 | 300 | 300 | 500 | - | 800 | 600 | 400 | 200 | 100 | 200 | - | 200 | 300 | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj-Sonargaon | 600 | 750 | 550 | - | 600 | 200 | 300 | 400 | 600 | - | 700 | 600 | 400 | 200 | 100 | 250 | - | 400 | 200 | 200 | - | - | - | - | 250 | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj-Morkadim | - | 400 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj-Fatakhali | - | 300 | 800 | - | - | - | - | - | - | - | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| [illegible] | | [illegible] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj-Lohajang | - | 250 | 300 | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj-Syedpur | - | 250 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj-Abdullahpur | - | - | 300 | - | - | 300 | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj-Srinagar | - | - | 300 | - | - | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj-Kalirganj | 700 | - | 300 | - | - | 400 | - | 200 | 500 | - | 500 | - | - | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj-Fatulla | [illegible] | - | 700 | - | - | - | - | 500 | - | - | 1000 | - | - | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| [illegible] | [illegible] | - | 200 | - | - | - | - | 200 | 250 | - | 250 | 200 | - | - | - | - | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 200 | 200 | - |
| N.ganj-Bhikaon | 200 | - | - | - | - | - | 200 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 350 | - | - |
| N.ganj-Doulatpur | 300 | - | - | - | - | - | 300 | 300 | - | - | - | - | - | - | - | - | - | 500 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| N.ganj-Balirtek | - | 200 | - | - | - | 100 | - | 200 | 250 | - | 200 | - | 200 | - | 200 | - | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | - | - | 400 | - |

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| Name of the Route | 1991 | | | | | | | | | | | | 1992 | | | | | | | | | | | | 1993 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |
| Ashugonj-Mallikpur | 1000 | - | 500 | - | - | - | 300 | 500 | 400 | - | 1050 | 750 | 550 | - | - | 1100 | - | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | 250 | - | 1500 | - | 500 |
| Ashugonj-Bharabazar | 250 | - | 250 | - | - | - | - | - | - | - | 450 | 200 | 200 | - | - | - | - | 300 | - | - | - | - | - | - | - | - | - | - | - | 250 | - | - | - | 200 | - | - |
| Ashugonj-Panigaonj | 250 | - | - | - | - | - | - | - | - | - | 450 | 300 | 250 | - | - | - | - | 200 | - | - | - | - | - | - | - | - | - | - | - | 250 | - | - | - | 200 | 100 | - |
| Ashugonj-Bachna | 250 | - | 250 | - | - | - | - | - | - | - | 100 | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | - | - | - | - | 300 | - |
| Ashugonj-Balpura | - | - | 1000 | - | - | - | 500 | 700 | 500 | - | 1000 | 700 | - | - | 300 | 300 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | 500 | 500 | 500 | - |
| Ashugonj-Burna | 500 | 150 | - | - | - | - | 300 | 300 | 400 | - | - | 500 | - | - | 100 | 300 | - | 300 | 200 | - | - | - | - | - | 200 | - | - | - | 300 | - | - | 200 | - | 300 | 200 | - |
| Ashugonj-Brahman | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 500 |
| Ashugonj-Kalinganj | 150 | 200 | 300 | - | - | - | - | - | - | - | 350 | 200 | 250 | 100 | - | 150 | - | 150 | - | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 200 | - |
| Ashugonj-Kabinagar | - | 500 | 700 | - | 200 | 300 | 100 | 300 | 400 | - | 400 | 500 | 500 | - | - | 400 | - | - | 200 | 200 | 200 | - | - | - | - | - | - | 300 | - | - | - | - | - | 300 | 200 | 300 |
| Ashugonj-Uttanchar | - | 100 | 200 | - | 200 | 200 | 300 | - | 400 | - | 500 | 200 | 300 | 100 | - | 50 | - | 100 | 100 | 100 | 150 | - | - | - | - | - | - | - | - | 200 | - | - | - | 100 | 200 | 300 |
| Ashugonj-Nasirnagar | - | - | 300 | - | 100 | - | 200 | 200 | 200 | - | 300 | 100 | 250 | 100 | - | 200 | - | 100 | 100 | 100 | 150 | - | - | - | - | - | - | 200 | - | 100 | - | - | - | 300 | 200 | 300 |
| Ashugonj-Ameerigonj | - | - | - | - | 300 | - | - | - | - | - | 600 | 250 | - | - | - | 300 | - | 200 | - | - | - | - | - | - | - | - | - | - | 250 | 200 | - | - | - | - | - | 300 |
| [illegible] | | | | - | 200 | - | | - | - | - | 300 | 250 | - | - | - | 400 | - | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ashugonj-Itna | - | - | 250 | - | 300 | - | - | - | - | - | - | 250 | - | - | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ashugonj-Mithamain | - | - | 250 | - | 200 | - | - | - | - | - | - | 500 | - | - | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ashugonj-Srikali | - | - | - | - | - | - | - | - | - | - | - | 250 | - | - | - | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ashugonj-Baliamuri | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ashugonj-Nagachia | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| [illegible] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 150 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 50 | - | 200 |

ANNEX B CONTD.



BEST AVAILABLE DOCUMENT

| | 1991 | | | | | | | | | | | | 1992 | | | | | | | | | | | | 1993 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Name of the Route | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |
| Ashuganj Matlab | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 50 | - | - | - | 200 |
| Ashuganj Kipara | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 50 | - | - | - | 150 |
| Ashuganj Birisiri | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 50 | - | 150 | - | - |
| Ashuganj Tipsia | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 50 | - | - | - | 150 |

ANNEX B CONTD.



BEST AVAILABLE DOCUMENT

ANNEXURE C : ROUTEWISE PROGRAMME OF WHEAT MOVEMENT THROUGH INLAND WATER [illegible] (Figures in tonnes).

| Sl.No. | Name of Route | 1991 | 1992 | 1993 | Average/Yr. |
|---|---|---|---|---|---|
| 1a. | Chittagong-Dhaka | 38,500 | 31,100 | 3,000 | 24200.00 |
| 1b. | Chittagong-Ctg.DCF | 18,750 | 950 | 1,250 | 6983.33 |
| 2 | Chittagong-N.Gonj | 86,000 | 36,950 | 28,500 | 50483.33 |
| 3 | Chittagong-Mirkadim | 14,100 | 6,100 | 1,800 | 7333.33 |
| 4. | Chittagong-Rasulpur | 2,000 | 2,150 | 800 | 1650.00 |
| 5. | Chittagong-Chandpur | 15,250 | 3,700 | 1,500 | 6816.67 |
| 6 | Chittagong-Cox'sbazar | 6,000 | 150 | - | 2050.00 |
| 7 | Chittagong-Swandip | - | 1,220 | - | 373.33 |
| 8 | Chittagong-Baragop | - | 75 | - | 25.00 |
| 9 | Chittagong-Raujan | - | 500 | - | 166.67 |
| 10 | Chittagong N.gonj Silo | - | 10,000 | - | 3333.33 |
| 11 | Mongla\Khulna-Nagarbari | 15,050 | 10,800 | 7,900 | 11250.00 |
| 12 | Mongla-Serajgonj | 11,700 | 7,350 | 1,300 | 6783.33 |
| 13 | Mongla-Baghabari | 2,000 | 1,850 | 600 | 1483.33 |
| 14 | Mongla-Bhanga | 4,100 | 1,400 | 900 | 2133.33 |
| 15 | Mongla-Sadarpur | 300 | - | - | 100.00 |
| 16 | Mongla-Nagarkanda | 1,350 | 1,050 | 600 | 1000.00 |
| 17 | Mongla-Khulna(DCF) | 20,975 | 5,650 | 8,050 | 11558.33 |
| 18 | Mongla-Mahessarpasa | 23,800 | 21,773 | 33,630 | 26407.67 |
| 19 | Mongla-Khulna(CSD) | 24,775 | 42,675 | 13,500 | 26983.33 |
| 20 | Mongla-Phultala | - | 300 | - | 100.00 |
| 21 | Mongla-Chalna | - | 200 | - | 66.67 |
| 22 | Mongla-Bhola | 2,850 | 3,150 | 2,100 | 2700.00 |

Annexure C) Contd..



BEST AVAILABLE DOCUMENT

| Sl.No. | Name of Route | 1991 | 1992 | 1993 | Average/Yr. |
|---|---|---|---|---|---|
| 23 | Mongla-Lalmohan | 1,500 | 1,450 | 900 | 1283.33 |
| 24 | Mongla-Borhanuddin | 1,200 | 900 | 600 | 900.00 |
| 25 | Mongla-Doulatkhan | 850 | - | - | 283.33 |
| 26 | Mongla-Najirpur | 300 | 300 | - | 200.00 |
| 27 | Mongla-Ghoserhat | - | 300 | - | 100.00 |
| 28 | Mongla-Charfeshan | 300 | 250 | 300 | 383.00 |
| 29 | Mongla\Khulna-Hajirhat | 300 | 300 | - | 200.00 |
| 30 | Mongla-Charsasibhusan | 300 | 300 | 200 | 200.00 |
| 31 | Mongla-Jhalkathi LS | 3,150 | 2,300 | 600 | 2016.60 |
| 32 | Mongla-Rajapur | 500 | 850 | 300 | 550.00 |
| 33 | Mongla-Nalchiti | 700 | 300 | 600 | 533.00 |
| 34 | Mongla-Amua | 750 | 600 | - | 450.00 |
| 35 | Mongla-Barisal LSD | 5,100 | 8,200 | 4,000 | 5766.67 |
| 36 | Mongla-Babugonj | 800 | 900 | 600 | 766.67 |
| 37 | Mongla-Agoirjhara | 1,050 | 850 | 900 | 935.35 |
| 38 | Mongla-Muladi | 800 | 900 | 300 | 666.67 |
| 39 | Mongla-Gournadi | 850 | 1,200 | 900 | 985.33 |
| 40 | Mongla-Kalaskathi | 300 | 300 | 300 | 300.00 |
| 41 | Mongla-Mehediganj | 300 | 1,750 | 600 | 833.33 |
| 42 | Mongla-Sikarpur | 500 | 1,800 | 900 | 1066.67 |
| 43 | Mongla-Perojpur | 1,650 | 1,850 | 600 | 1300.00 |
| 44 | Mongla-Bhandaria | 900 | 600 | - | 500.00 |
| 45 | Mongla-Sriramkathi | 600 | 600 | - | 400.00 |
| 26 | Mongla-Inderhat | 300 | 300 | - | 200.00 |
| 47 | Mongla-Mothbaria | 250 | 850 | 250 | 450.00 |

Annexure C Contd..



BEST AVAILABLE DOCUMENT

| Sl.No. | Name of Route | 1991 | 1992 | 1993 | Average/Yr. |
|---|---|---|---|---|---|
| 48 | Mongla-Narail | 2,700 | 1,000 | 1,200 | 1633.30 |
| 49 | Mongla\Khulna-Lohagora | 2,450 | 900 | 900 | 1416.67 |
| 50. | Mongla-Kalia | 1,450 | 1,150 | 600 | 1066.67 |
| 51 | Mongla-Naldi | 300 | - | - | 100.00 |
| 52 | Mongla-Baradia | 250 | 300 | - | 183.33 |
| 53 | Mongla-Bagerhat | 7,800 | 8,450 | 3,000 | 6416.67 |
| 54 | Mongla-Rampal | 150 | - | - | 50.00 |
| 55 | Mongla-Rayenda | 400 | - | - | 133.33 |
| 56 | Mongla-Morelgonj | 400 | - | - | 133.33 |
| 57 | Mongla-Kachua | 400 | - | - | 133.33 |
| 58 | Mongla-Gourambha | 750 | - | - | 250.00 |
| 59 | Mongla-Fakirhat | 150 | 150 | - | 100.00 |
| 60 | Mongla-Sathkhira | 700 | - | 3,750 | 1483.00 |
| 61 | Mongla-Kalaroa | 7,225 | 5,350 | - | 1783.33 |
| 62 | Mongla-Parulia | 500 | - | - | 166.67 |
| 63 | Mongla-Baradal | 550 | - | - | 183.33 |
| 64 | Mongla-Nakipur | 750 | - | - | 250.00 |
| 65 | Mongla-Basantapur | 700 | 200 | - | 300.00 |
| 66 | Mongla/Khulna-Asasuni | 500 | - | - | 166.67 |
| 67 | Mongla-Patkelghata | 500 | - | - | 166.67 |
| 68 | Mongla-Barguna LSD | 2,000 | 2,150 | 1,200 | 1783.37 |
| 69 | Mongla-Betagi | 850 | - | 300 | 383.00 |
| 70 | Mongla-Taltali | 600 | 1,150 | 300 | 683.33 |
| 71 | Mongla-Patharghata | 300 | - | 600 | 300.00 |
| 72 | Mongla-Bamna | 300 | 300 | 300 | 300.00 |

Annexure C Contd..

BEST AVAILABLE DOCUMENT

| Sl.No. | Name of Route | 1991 | 1992 | 1993 | Average/Yr. |
|---|---|---|---|---|---|
| 73 | Mongla-Madaripur | 9,150 | 3,050 | 1,800 | 4666.67 |
| 74 | Mongla-Charmuguria | 450 | - | - | 150.00 |
| 75 | Mongla-Tekerhat | 4,100 | 1,100 | 900 | 2033.33 |
| 76 | Mongla-Kalkini | 1,650 | 300 | - | 650.00 |
| 77 | Mongla-Shibchar | 4,900 | 2,400 | - | 2433.00 |
| 78 | Mongla-Ghaserhat | 1,400 | 1,200 | 600 | 1066.67 |
| 79 | Mongla-Gopalgonj | 5,100 | 1,200 | 900 | 2400.00 |
| 80 | Mongla-Sindiaghat | 2,350 | 1,200 | 900 | 1483.33 |
| 81 | Mongla-Kotalipara | 2,650 | 1,200 | 900 | 1583.33 |
| 82 | Mongla-Tungipar | 1,100 | 900 | 550 | 850.00 |
| 83 | Mongla-Angaria | 5,400 | 2,600 | 600 | 2866.67 |
| 84 | Mongla/Khulna-Damudda | 1,350 | 900 | - | 750.00 |
| 85 | Mongla-Goshairhat | 1,450 | 900 | - | 800.00 |
| 86 | Mongla-Naria | 2,350 | 1,200 | 300 | 1283.33 |
| 87 | Mongla-Bhedarganj | 1,800 | 600 | - | 800.00 |
| 88 | Mongla-Jajira | 1,850 | 900 | - | 916.67 |
| 89 | Mongla-Patuakhali | 4,250 | 3,100 | 900 | 2750.00 |
| 90 | Mongla-Bandura Aulipur | 300 | 300 | - | 200.00 |
| 91 | Mongla-Khepupara | 850 | 800 | 300 | 650.00 |
| 92 | Mongla-Subidkhali | 1,000 | 600 | 300 | 633.33 |
| 93 | Mongla-Boga | 1,150 | 900 | 500 | 850.00 |
| 94 | Mongla-Golachipa | 750 | 900 | 300 | 650.00 |
| 95 | Mongla-Kalisuri | 300 | 300 | - | 200.00 |
| 96 | Mongla-Dasmina | 300 | 600 | - | 300.00 |
| 97. | Mongla-Tegachia | 550 | 300 | - | 283.33 |

Annexure C Contd..

BEST AVAILABLE DOCUMENT

| Sl.No. | Name of Route | 1991 | 1992 | 1993 | Average/Yr. |
|---|---|---|---|---|---|
| 98 | Mongla-Ranagopaldi | 250 | - | 300 | 183.33 |
| 99 | Mongla-Mohipur | - | - | 300 | 100.00 |
| 100 | Mongla-Chilmari | 500 | - | - | 166.67 |
| 101 | Narayanganj-Nagarbari | 500 | - | - | 166.67 |
| 102 | N.ganj-Serajgonj | 3,500 | - | - | 1166.67 |
| 103 | N.ganj-Kalakopa | 3,000 | 1,300 | 500 | 1600.00 |
| 104 | N.ganj-Narisha | 2,150 | 950 | 700 | 1266.67 |
| 105 | N.ganj-Ghorasal | 400 | - | - | 133.33 |
| 106 | N.ganj-Murapara | 6,250 | 3,200 | 450 | 3300.00 |
| 107 | N.ganj-Sonargaon | 5,500 | 1,750 | 250 | 2500.00 |
| 108 | N.ganj-Gopaldi | 4,550 | 1,600 | - | 2050.00 |
| 109 | N.ganj-Mirkadim | 400 | - | - | 133.33 |
| 110 | N.ganj-Katakhali | 1,300 | - | - | 433.33 |
| 111 | N.ganj-Rasulpur | 300 | - | - | 100.00 |
| 112 | N.ganj-Louhajong | 850 | - | - | 283.33 |
| 113. | N.ganj-Syedpur | 550 | - | - | 183.33 |
| 114 | N.ganj-Abdullahpur | 900 | - | - | 300.00 |
| 115 | N.ganj-Srinagar | 550 | -- | - | 183.33 |
| 116. | N.ganj-Kaliganj | 2,600 | 300 | - | 966.67 |
| 117 | N.ganj-Kapasia | 2,500 | 200 | - | 900.00 |
| 118 | N.ganj-Singair | 1,600 | 200 | 500 | 766.67 |
| 119 | N.ganj-Jhitka | 700 | - | 350 | 350.00 |
| 120 | N.ganj-Doulatpur | 900 | 500 | - | 466.67 |
| 121 | N.ganj-Balirtek | 950 | 400 | 200 | 516.67 |
| 122 | Ashugonj-Mallikpur | 4,500 | 1,650 | 2,550 | 2900.00 |

Annexure c Contd..

BEST AVAILABLE DOCUMENT

| Sl.No. | Name of Route | 1991 | 1992 | 1993 | Average/Yr. |
|---|---|---|---|---|---|
| 123 | Ashugonj-Doarabazar | 500 | 1,150 | 450 | 700.00 |
| 124 | Ashugonj-Raniganj | 1,000 | 450 | 550 | 666.67 |
| 125 | Ashugonj-Sachna | 850 | - | 400 | 416.67 |
| 126 | Ashugonj-Raipura | 4,400 | 600 | 1,100 | 2033.33 |
| 127 | Ashugonj-Homna | 2,150 | 900 | 1,200 | 1416.67 |
| 128 | Ashugonj-Bhairab | - | - | 500 | 166.67 |
| 129 | Ashugonj-Ashuganj Silo | 1,250 | 750 | 200 | 733.33 |
| 130 | Ashugonj-Nabinagar | 3,400 | 1,500 | 1,100 | 2000.00 |
| 131 | Ashugonj-Ujanchar | 2,100 | 900 | 800 | 1266.67 |
| 132 | Ashugonj-Nasirnagar | 1,400 | 1000 | 1,100 | 1166.67 |
| 133 | Ashugonj-Ajmerigonj | 1,150 | 500 | 750 | 800.00 |
| 134 | Ashugonj-Lakhai | 750 | 500 | - | 416.67 |
| 135 | Ashugonj-Itna | 800 | 200 | - | 333.33 |
| 136 | Ashugonj-Mithamoin | 950 | 200 | - | 383.33 |
| 137 | Ashugonj-Srikali | 250 | 100 | - | 116.67 |
| 138 | Ashugonj-Baliajuri | - | 200 | - | 66.67 |
| 139 | Ashugonj-Kalmakanda | - | 160 | 250 | 136.67 |
| 140 | Ashugonj-Madan | - | 100 | 250 | 116.67 |
| 141 | Ashugonj-Atpara | - | 100 | 200 | 100.00 |
| 142 | Ashugonj-Lipsia | - | - | 400 | 133.33 |

BEST AVAILABLE DOCUMENT

ANNEXURE D: MODAL SHARE OF INLAND WATER IN THE CENTRAL WHEAT MOVEMENT PROGAMME OF 1991,1992 & 1993. ( ALL FIGURES IN TONNES)

| Year 1991 | Total ton planned | Total Planned through water | Year 992 | Total ton planned | Total Planned through water | Year 1993 | Total ton planned | Total Planned through water |
|---|---|---|---|---|---|---|---|---|
| January | 140,000 | 30,750 | January | 165,700 | 20,350 | January | 130,475 | 46,450 |
| February | 110,650 | 22,750 | February | 104,300 | 16,350 | February | - | - |
| March | 292,370 | 74,350 | March | 78,159 | 17,400 | March | 90,200 | 28,200 |
| April | - | - | April | 204,600 | 40,435 | April | 17,050 | 4,250 |
| May | 182,500 | 49,250 | May | 80,995 | 27,948 | May | 125,700 | 28,930 |
| June | 163,700 | 64,175 | June | 182,470 | 32,950 | June | 1,700 | 1,500 |
| July | 107,650 | 31,025 | July | 60,750 | 18,000 | July | - | - |
| August | 102,500 | 28,400 | August | 104,800 | 30,525 | August | 11,400 | 2,050 |
| September | 245,450 | 41,650 | September | 50,000 | 16,000 | September | - | - |
| October | - | - | October | 28,750 | 13,200 | October | 79,750 | 20,100 |
| November | 380,500 | 72,200 | November | 215,467 | 65,745 | November | 73,000 | 17,750 |
| December | 295,000 | 50,150 | December | - | — | December | 28,600 | 6,150 |
| TOTAL | 2020,320 | 466,200 | Total | 1275,991 | 285,703 | Total | 557,875 | 155,380 |

AVERAGE PERCENTAGE OF INLANDWATER IS = $\frac{466200 + 285703 + 158380}{2020320 + 1275991 + 557875} \times 100 = 23.54$

BEST AVAILABLE DOCUMENT