
# Launch disasters in Bangladesh: A geographical study

Naznin Afrose Huq[1], Ashraf Mahmood Dewan[1]

[1] Dept. of Geography and Environment, University of Dhaka

Correspondence: Naznin Afrose Huq (email: n_afrose@hotmail.com)

## Abstract

Bangladesh is a riverine country and communication by waterways is of great importance especially in the southern region of the country. From Chandpur southwards, waterway is the only means of transport and so a large number of people has to travel by motor launches in the coastal areas and inland. Since the early 1950's, motor launch services have become popular and in the period 1997-98 there were 1,853 registered launches operating 227 routes. But this important mode is ridden with tragic disasters every year, incurring a heavy toll of human lives. Since 1977, there were 248 motor launch accidents recorded by BIWTA (Bangladesh Inland Water Transport Authority) with a loss of 2,309 1ives, 374 persons injured and 208 persons missing. This paper attempts to roughly trace out the causes and the geographical distribution of the accidents through an analysis of a time series data covering the period between 1977 and 2000. It was found that the most frequent type or cause of launch accidents was collision, followed by foundering and overloading. The least frequent accident types were due to under-water currents, shoals, leaning electricity poles and country boats travelling without lights at night and manned by untrained operators, followed by cyclones. Interestingly, overcrowding did not seem to be the most typical of launch disasters in the country.

**Keywords:** collision, foundering, launch disasters, overloading, riverine transportation, time series data

## Introduction

Bangladesh is a riverine country and communication by waterways is of great importance especially in the southern region of the country. Inland water transport plays a vital role in the national life. During the Pakistan period, in order to enhance the role of water transport in the economic sector of the country, five major inland ports were established with modern facilities in Dhaka, Narayanganj, Chandpur, Barisal and Khulna (Fig. 1).

With the increase of commerce and industry in the post-Independence period, six more inland ports were upgraded and modernised since 1971 for easy movement of passengers and cargoes. These ports are Patuakhali, Nagarbari, Aricha, Dauladia Baghabari and Narshingdi. Apart from providing ports in the major cities and commercial centres landing facilities were provided to the people of the remote areas. Wayside terminals (ghats) were provided since 1971 and at present there are 1325 launch terminals for meeting the demand of the people in remote areas where water transport is the only mode of transport. Out of these only 136 launch terminals are managed and maintained by the government agency of BIWTA (Bangladesh Inland Water Transport Authority).

In places inaccessible by land transport like roads and railways, water transport acts as a gateway to communication with the rest of the country. The facilities provided in the launch terminals are floating steel pontoons of different sizes. These pontoons are connected to the shore by a wooden jetty and gangway. The pontoons are used for berthing of vessels, embarkation and disembarkation of passengers and loading and unloading of cargoes. In addition to these inland

ports there are 23 coastal and offshore island terminals. From Chandpur southwards waterway is the only means of transport and so large numbers of people have to travel by motor launches in the coastal areas and inland.

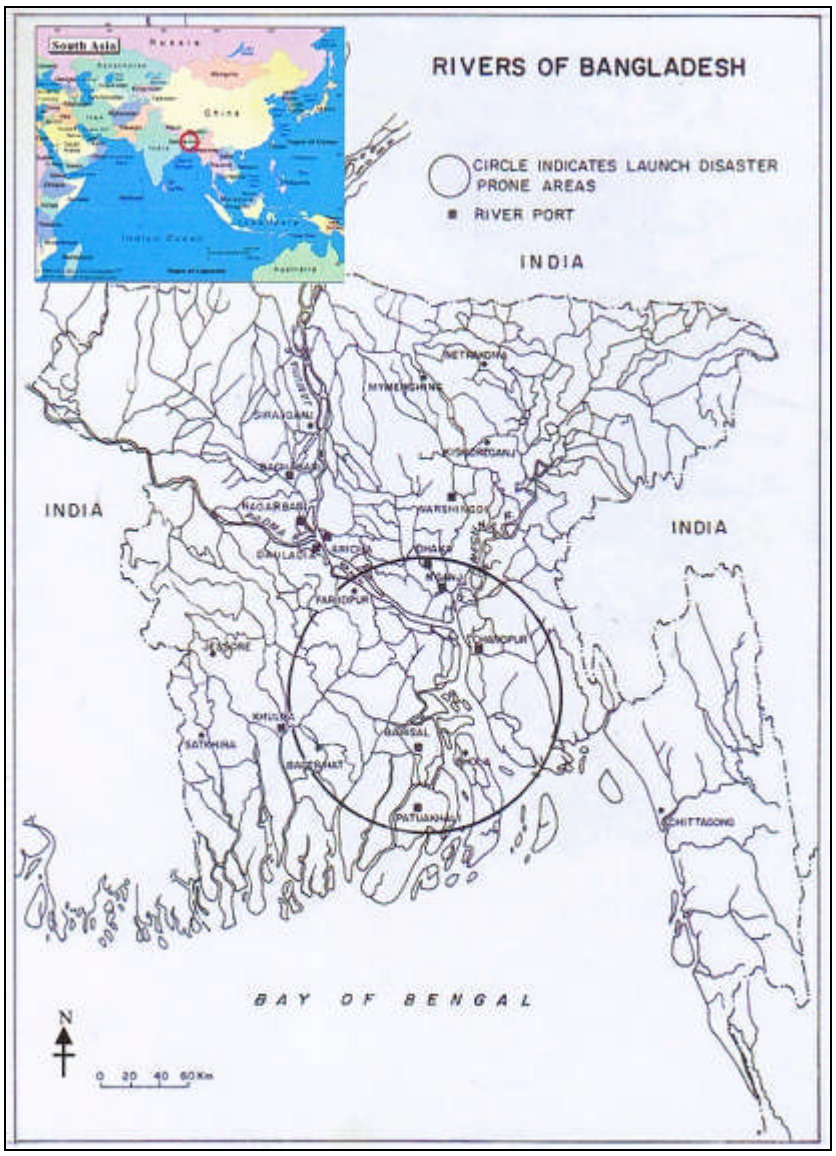


**Figure 1.** *River systems in Bangladesh which become the scenes for launch accidents*

Since Independence in 1971 movements of people from the southern districts of Bangladesh have increased much more and water transport is the only mode of transport to the capital city of Dhaka. Inter-district and intra-district movements within the southern districts of Barisal, Bhola, Patuakhali, Jhalokathi, Borguna, Pirozpur and their sub-districts are by water transport. These districts and sub-districts of southern Bangladesh are connected to the capital city of Dhaka with water transport although very few places are now accessible by all-weather road transport. But people prefer water transport, as it is cheap. The main river-port of the Dhaka City is known as the Sadarghat port from where 200 small and large motor launches go to different destination daily.

There are one storey, two storey and three storey motor launches which ply on different destinations daily. Motor launches travelling to near destinations around the capital city are

smaller in size and they make more than one return trip throughout the day. Large motor launches going to distant locations have specific time schedules. Their departure time from Dhaka port is between 4.00 in the afternoon till 8.30 in the evening and arrival time is early morning between 5.00 am to 9.00 am. In these launches the daily average number of passengers is 50,000. However, the number of passengers increases on weekends and it becomes three times of the average during festive times. There are very few inspectors in the launch terminals to check the overloading of passengers. It appears that most of the officials are corrupt and are bribed regularly to overlook the overloading of passengers by the launch owners.

*The river system of Bangladesh*

Bangladesh has about 14,000 km in length of river network. In this network there are 700 rivers (BIWTA). The three major river systems of the Ganges, the Brahmaputra and the Meghna converge in Bangladesh to form one of the world's largest deltas (Jansen, *et al.*, 1994). These three mighty rivers also generate one of the most complex river systems in the world. The number of watercourses increases from northwest to southeast in Bangladesh. Before the advent of the road and rail transport the rivers were the main arteries of movement for passengers and cargoes. Cities, towns, villages and market centres all grew up along rivers and canals for easy transport. Indeed, the whole economy of Bangladesh depends on the waterways.

The combined waters of the Ganges and the Brahmaputra-Jamuna meet the Meghna in a large confluence south of Chandpur, which can be as wide as 11 km during the monsoon. From this point southwards the Meghna becomes one of the largest rivers in Bangladesh (Rashid, 1991). The rivers Padma and Jamuna are very unstable and are inclined to lateral migrations. Both rivers can be classified as braided channels that are indicative of high sediment loads and slow water flows.

Massive siltations lead to a reduction of the river system and resulting in serious navigational problems. Siltation and the inadequate depth of water for vessel movement are hindering the growth of this mode of transport in Bangladesh. As a result, it is gradually losing its importance in comparison to road transport.

The siltation problem may be attributed to three causes: (1) the increase in the volume of sediments carried by the river system due to deforestation in Nepal and the northern part of India; (2) the reduction of river flow due to withdrawal of water for irrigation in India and Bangladesh; and lastly, (3) the construction of dikes and embankments in the coastal region (Jansen et. al. 1994). The BIWTA tries to maintain a 5968 km navigable waterway during the monsoon and 3600 km during the dry season. In these routes various navigational aids are provided to make night-time navigation possible.

Accordingly, the inland waterways are divided into 4 classes.

(1) Class I: Arterial/trunk routes maintained at a depth of 12 feet (3.6 m) throughout the year. Length of Class I route is 683 km or equivalent to only 11 percent of the total network. Class I route links the seaports of Chittagong and Mongla and the inland ports of Dhaka, Barisal and Khulna.
(2) Class II: Secondary routes maintained at a depth of at least 6 feet (1.8m) throughout the year. This class of route comprises 1,000 km of secondary route or equivalent to only 17 percent of the river network, and is kept open for passenger launches and cargo barges.
(3) Class III: These are feeder routes of regional importance. The mean depth of the route is 3 feet (90cm) which is equivalent to 32 percent of the total network, and having a length of 1,885 km.
(4) Class IV: Seasonal routes of less than 3 feet (less than 90 cm). Its total length of 2,400 km is equivalent to 40 percent of the total network.

It must be emphasized that between 2,150-2,500 km of these routes are seasonal routes (BIWTA) which means that in the wide expanse of a waterway only a narrow stretch of waterway is usable for navigation. As such, maneuvering mechanical water transport requires a very good

knowledge and skill of driving the vessel, conditions that are unfortunately lacking in the majority of the operators of the passenger launches plying the river routes.

## Methodology and sources of data

The study is based on secondary data collected from BIWTA. BIWTA provides the infrastructural facilities to the inland water transport. In the particular case of launch disasters it is the only organisation that has the practical ability (authority) to salvage the capsized launch. BIWTA owns two salvage vessels whereas the motor launch owners association possesses none. The salvage vessels are stationed at two different places. When disaster strikes a salvage vessel would normally take nearly two days to reach the site. This slowness is due to both the slow speed of the vessel itself and the lengthy bureaucratic process involved in hiring the vessel.

At the time of a disaster, some passengers save themselves by jumping into the river in the hope to be rescued by other boats. Those who are trapped inside the capsized launch are salvaged only two or three days later. The dead bodies are counted and that provides the official figures of the disaster. This means that the few dead bodies that float away downstream or are trapped in the fishing nets spread on the river beds are not counted in the official figures. Relatives would reach the disaster site to identify dead bodies of their relatives and when the dead body of a relative is not recovered it is counted as missing. The launch owners never disclose the actual number of passengers they were carrying in their ill fated launches, as they know they have committed deliberate overloading. It is only when official figures of dead bodies are released after the capsized launch is salvaged that the public learns the extent to which the launch had been overloaded at the time of disaster.

What this tantamount to is that the number of casualties reported by the BIWTA would vary by about 5 percent from the actual figure involved in a launch disaster. In addition, survivors of a launch disaster would also provide useful information about the irregularities committed in relation to the ill fated launch.

It is within the ambit of such an overviewed scenario of a launch disaster in Bangladesh that the present study sets itself. With the help diagrams and tables, the study has a twofold aim of uncovering the actual causes of Bangladeshi launch disasters, and the geographical distribution of such disasters.

*Historical background of water transport in Bangladesh*

Traditionally, from the earliest times till the end of the 19's century, boats had played an important role in the transport sector of Bangladesh. During the British rule boats played a more specifically major role in the passenger and freight traffic of the country. During this colonial time, to facilitate the passenger service steamer services were introduced. A British private enterprise in the name of The Indian General Steam Navigation Company was launched in 1844. By 1860, there were five other companies competing for the river traffic on the Bengal delta (Munshi, 1992). Subsequently, a regular steamer service on the Brahmaputra was inaugurated in 1860. The success of this service led to the introduction of steam navigation in the Surma valley in the northeastern part of Bangladesh in 1863 (Munshi, 1992). Needless to say, the British Steam Navigation Companies dominated the mechanized inland water transport sector in the British period, Pakistan period and in the post-independence period of Bangladesh till 1985 (BIWTA 1995). During the 1960's, some local operators such as Pak Bay, Sinclair Murray, and Chalna Literage started operating in the cargo sector and Pak Waterways in the passenger sector. Even in this time, the entire passenger and cargo traffics of the country were operated by the private sector, 70 percent of which was shared by British-owned companies.

In 1958 with the inception of East Pakistan Inland Water Transport Authority navigation by waterways was improved. Mileage of waterways was increased and numerous points of

embarkation/disembarkation were established throughout the country. IWTA (Inland Water Transport Authority) distributed, in early 1960s, Gray Marine Diesel engines to local entrepreneurs, which resulted in the introduction of wooden passenger vessels owned and operated by local operators in the waterways of the country, thus curbing the monopoly of the British-owned companies (BIWTA 1995).

Later on, with the growth of expertise, steel hull passenger vessels were constructed in the private sector for safer journey. However, the use of this predominant mode of transport has been on the decline due to episodes of water diversion for irrigation purposes in India, which resulted in reduced dry season flows for the transport. Thus, there has been a reduction in the length of dry-season navigable rivers in recent years. Due to the siltation of the rivers in the northern part of the country all year round navigation is now significantly reduced. At present, the initial total length of navigable inland waterways that stands at 5,968 km in rainy season has been decreased to 3,600 km in dry season.

Nevertheless, motor launch services have become popular since the late 1950's so much so in the period between 1997-98 there were 1,853 registered launches operating in 227 routes (BIWTA 1998). At present, the passenger service of inland water transport is operated both by public and private sector organisations. There are 536 private operators providing passenger service. Table 1 shows the fact that through time the private sector has increased its passenger service while that of the public sector has declined.

**Table 1. The growth of passengers and launches in Bangladesh (1961-1990)**

| Carrier | Year | Public sector | | | | Private sector | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. of vessels | % | No. of Passengers | % | No. of vessels | % | No. of Passengers | % | No. of vessels | % | No. of Passengers | % |
| Passenger Vessels/ Launches | 1961 | 476 | 87.0 | 85,969 | 96.0 | 71 | 13.0 | 3,545 | 4.0 | 547 | 100.0 | 89,514 | 100.0 |
| | 1990 | 68 | 4.0 | 15,314 | 5.5 | 1,629 | 96.0 | 170,509 | 94.5 | 1,697 | 100.0 | 275,337 | 100.0 |

*Source*: BIWTA, Annual Report 1998

## Findings of the study

*Magnitude of motor launch disasters*

Since 1977 there have been 248 motor launch accidents recorded by BIWTA with a loss of 2,309 lives, 374 persons injured and 208 persons missing. Out of a total of 248 accidents 140 or 56.4 per cent of the accidents were included in the study as these involved the loss of human lives and may therefore be termed as transport related disasters. In the period between 1997-98 inland waterways carried a total of 87.8 million passengers or equivalent to 17 percent of the total share of all transport modes. Unfortunately, it is this important mode of transport that is beset with several tragic accidents.

**Table 2. Launch disaster statistics for Bangladesh, 1977-2000**

| Year | No. of accidents | No. of death | No. of persons injured | No. of persons missing |
|---|---|---|---|---|
| 1977 | 5 | 29 | 0 | 0 |
| 1978 | 7 | 20 | 0 | 0 |
| 1979 | 8 | 73 | 0 | 0 |
| 1980 | 1 | 4 | 0 | 0 |
| 1981 | 3 | 20 | 0 | 0 |
| 1982 | 2 | 0 | 0 | 0 |
| Year | No. of accidents | No. of death | No. of persons injured | No. of persons missing |

| | | | | |
|---|---|---|---|---|
| 1983 | 3 | 29 | 0 | 0 |
| 1984 | 5 | 41 | 0 | 0 |
| 1985 | 12 | 80 | 0 | 0 |
| 1986 | 11 | 426 | 0 | 0 |
| 1987 | 11 | 51 | 0 | 0 |
| 1988 | 11 | 108 | 0 | 0 |
| 1989 | 5 | 32 | 30 | 0 |
| 1990 | 13 | 168 | 0 | 0 |
| 1991 | 11 | 19 | 3 | 0 |
| 1992 | 17 | 5 | 3 | 0 |
| 1993 | 24 | 183 | 24 | 0 |
| 1994 | 27 | 303 | 20 | 0 |
| 1995 | 19 | 40 | 79 | 60 |
| 1996 | 20 | 147 | 5 | 47 |
| 1997 | 11 | 102 | 36 | 2 |
| 1998 | 10 | 91 | 91 | 58 |
| 1999 | 6 | 114 | 0 | 11 |
| 2000 | 6 | 224 | 88 | 30 |
| Total | 248 | 2,309 | 374 | 208 |

*Source*: BIWTA, 1995; 1998

*Types and causes of motor launch accidents*

The study finds that all launch accidents may be classified into five types or categories, namely collision, foundering, overloading, cyclone, and others. As depicted in Table 3, the most frequent type or cause of launch accidents is collision, followed by foundering and overloading. The least frequent accident types are others, followed by cyclones. Interestingly, overcrowding does not seem to be the most typical of launch disasters in the country.

**Table 3. Launch disaster statistics for Bangladesh, 1977-2000**

| No. | Type or cause of accident | Number of accidents | % |
|---|---|---|---|
| 1 | Collision | 59 | 42 |
| 2. | Foundering | 42 | 30 |
| 3. | Overloading | 28 | 20 |
| 4. | Cyclone | 10 | 7 |
| 5. | Others | 1 | 1 |
| Total accident types/causes covered in the study | | 140 | 100 |

*Collision*: Motor launch collisions have been identified as the major type of accidents in the inland waterways of Bangladesh. It appears that the majority of vessels plying the rivers do not have fitness certificates or route permits. The regime of the river changes from season to season. During the monsoon, the width of the waterways increases to several kilometers but the navigable channel is still generally narrow, shallow and meandering. The fact that the launch operators do not have a license means that they are unskilled. Because they have no proper knowledge and training on the rules and regulation involved in navigating the launches, especially during night-time journeys (Photo 1) they misunderstand the signs and signals, which cause the accidents.

**Photo 1.** *Night-time traveling needs special training, which the untrained launch operators normally lack*

The inexperienced operators try to go faster to prove that they can arrive at the appointed destination early and in speeding they try to overtake other launches. Thus collision is the result of this reckless driving of the motor launches in the rivers of Bangladesh. The more revealing question, however, is that launch owners prefer to hire these untrained operators and crew at because they are cheaper. So, maximizing profits by the capitalist owners is really at the heart of launch collisions in Bangladesh. This practice prevails because in Bangladesh there seems to be no system of penalizing launch owners for hiring unlicensed and untrained operators. If there is any provision for prosecution, the owners usually get away easily by bribing the officials concerned. Thus, without any fear of punishment and the owners are free to repeat the same practice of hiring unqualified operators again.

*Foundering*: Many motor launches sink in mid-river due to faulty construction of the very vessels themselves as well as other associated defects (Khalil 1985). Lack of surveyors to run prior checks for faults in the construction of the launch often means proper inspection is either nominal or not done at all. Due to construction fault the stability of the launch is liable to be disrupted by factors such as high bottoms, sudden lateral displacement of passengers etc. During the monsoon, strong winds and high waves make the launch unstable and as the panic stricken passengers run for safety towards the upper deck they cause further imbalance to the vessel, leading it to sink. The number of cabin crew is also too few to tackle problems in emergency situations. The majority of the launches has outlived their economic life. It is the simple case of very old vessels unable to withstand the rigours of strong winds and high waves. It is a sad fact that in 21s` century Bangladesh, the motor launches plying its inland waters should be such that they are not equipped with radar or wireless set. It is no wonder that in cases of emergency they cannot even send an SOS message (Photos 2 and 3).

**Photo 2.** *Foundering is a simple case of a very old vessel giving way to the onslaught of rough seas and high winds*

**Photo 3.** *Foundering is a simple case of a very old vessel not equipped with radar or wireless set*

*Overloading*: Bangladesh is an overpopulated country and the available transport is always in short of supply. To make matters worse, the motor launch owners, in their quest for maximum profit, tend to overload by doubling or tripling the actual carrying capacity of their launches.

Because of this practice of the launches owners' passenger launches also carry commercial cargo along with the passengers in the upper deck of the launch making them highly unstable. During festive seasons homebound travelers bogged only by the single desire to make the journey as fast as they throw away safety considerations and travel in the already overloaded launches. This is how motor launch accidents due to overloading are a very common phenomenon in. Bangladesh (Photo 4).

**Photo 4.** *An overloaded launch*

*Cyclone*: From June to October weather conditions are often very unsettled over the Bay of Bengal and the inland. Cyclones, gusty winds and heavy rainfalls are the usual phenomena at this time of the year. As most launches are typically not equipped with radio reception equipments (Photos 5 and 6) broadcast weather news do not get disseminated to the launch operators. It is only common sense that in cases of inclement weather the launch operators must be notified in good time so that they can determine whether to proceed with the journey or anchor their launches in a nearby shore. Alas, this is often not to be the case in Bangladesh - so technologically ill-equipped vessel conspires with ageing vessel, unskilled operators, strong winds and high waves to make the waterways of Bangladesh predictable scenes of disaster.

*Other causes*: Other causes of launch disasters in Bangladesh usually relate to factors such as under-water currents, shoals, leaning electricity poles and country boats travelling without lights at night. Night-time traveling needs special training, which the untrained launch operators normally lack. Traveling with loud speakers blaring distracting music may also cause accidents. On top of that, the marks, buoys, lights, signals are often not properly maintained and get sometimes displaced by waves; while the lights may be out of order for days. In these hazardous circumstances only the highly trained operators can hope to ply the Bangladeshi treacherous river routes. Many of the launch operators are not trained and so for taking the foolish risk of night-time traveling they let accidents happen.

**Photo 5.** *Inside a typical motor launch*

**Photo 6.** *There is no radio equipment in a typical motor launch*

*Geographical distributions of launch disasters*

Waterways are the only mode of transport from the southern regions of Bangladesh to the capital city of Dhaka. The districts of Barisal, Patuakhali, Bhola, Borguna, Pirozpur, Jhalakathi and their upazilas are linked with inland waterways (Fig.l). Daily 200 small and large motor launch and steamers go to different destination to the southern region from the Dhaka terminal. On an average nearly 50,000 passengers travel by these launches everyday. These vessels ply on the rivers of Padma, Meghna, Arial Kha, Kalabadar, Ilisha, Tetulia, Agunmukhi, Paira, Biskhali, Baleshwar and Sandhya. Table 3 reveals that 21.43 percent accidents occurred in Barisal, 11.43 percent in Patuakhali, 14.28 percent in Bhola, 10.71 percent in Dhaka and Chandpur respectively, Chittagong 7.86 percent, Munshiganj, Kishoreganj, Ghorashal and Brahmanbaria 2.86 percent

each and Khulna 4.28 percent. These are the major areas of accidents in the past 23 years as recorded by BIWTA.

**Table 4. Number and percentage of launch disasters by region in Bangladesh (1977-2000)**

| Region | Number | Percentage |
|---|---|---|
| Barisal | 30 | 21.42 |
| Bhola | 20 | 14.27 |
| Patuakhali | 16 | 11.42 |
| Dhaka | 15 | 10.72 |
| Chandpur | 15 | 10.72 |
| Chittagong | 11 | 7.90 |
| Khulna | 6 | 4.28 |
| Munshiganj | 4 | 2.87 |
| Kishoreganj | 4 | 2.87 |
| Ghorashal | 4 | 2.87 |
| Brahmanbaria | 3 | 2.14 |
| Faridpur | 2 | 1.42 |
| Bagherhat | 1 | 0.71 |
| Satkhira | 1 | 0.71 |
| Netrokona | 1 | 0.71 |
| Sirajganj | 1 | 0.71 |
| Rangpur | 1 | 0.71 |
| Mymensingh | 1 | 0.71 |
| Rajbari | 1 | 0.71 |
| Gazipur | 1 | 0.71 |
| Narayanganj | 1 | 0.71 |
| Jessore | 1 | 0.71 |
| TOTAL | 140 | 100.0 |

*Source*: Adapted from BIWTA, 1995; 1998

## Conclusions

It needs little reiterating of the fact that being an over populated country, there is always a growing demand for transport in Bangladesh. Because of the large gap left by the public sector in the dispensation of transport services, especially in the inland water transport services, the private sector has come to dominate the inland water transport sector in the midst of weak government control and supervision due to the shortage of manpower. Such a situation only means that governed solely by the imperative of profit maximization, the private launch firms and owners have little moral reservations in using unfit vessels and untrained operators in running their business. The study reveals that the majority of motor launch disasters in Bangladesh is related to collisions where unskilled operators and faulty construction of the vessels have confounded the problem. In this almost monopolistic position of the private capitalists running the majority of trips and journeys the passengers travelling by water transport become almost voluntary victims of what are essentially man-made disasters.

Needless to say, proper and systematic inspections of the motor launches and consistently strong government control are vital if invaluable human lives are to be saved. In this vein, some recommendations toward the averting of future launch disasters are put forward herewith:

1. All motor launches should be equipped with radar and radio instruments.
2. All passenger launches should be equipped with life jackets, life buoys, and lifesaving equipments.

3. Annual inspections of motor launches should be made mandatory. Officials-incharge found guilty of misconducts and malpractices such as issuing fitness certificate to unfit vessels should be punished.
4. Overloading of passengers should be made unlawful.
5. Carrying commercial cargoes on the top decks of passenger launches should be prohibited.
6. Launch owners should be penalised if they were found to be hiring launch operators having fake certificates.
7. The launch owners should pay compensations to the surviving passengers or the family members of passengers who perished in accidents caused by human negligence and misconduct.
8. Effective and efficient marine courts should be established.

## References

Bangladesh Inland Water Transport Authority (BIWTA) (1995) *Brochure on Bangladesh Inland Water Transport Authority*. BIWTA, Dhaka.

Bangladesh Inland Water Transport Authority (BIWTA) (1998) *Annual Report*. BIWTA, Dhaka.

Jansen E et al (1994) *Country Boats of Bangladesh*. University Press Ltd, Dhaka.

Khalil GM (1985) A study of passenger launch disasters in Bangladesh. *The Journal of NOAMI* **2**(2), 1-14.

Munshi SK (1992) History of Bangladesh, In: Sirajul Islam Chowdhury (ed) *Transport and communication*, pp. 1704-1971. Asiatic Society of Bangladesh, Dhaka.

Rashid H (1991) *Geography of Bangladesh*. University Press Ltd, Dhaka.