

## **POTENTIALITY OF DISASTER MANAGEMENT EDUCATION THROUGH OPEN AND DISTANCE LEARNING SYSTEM IN BANGLADESH OPEN UNIVERSITY**

**Saima AHMAD**  
Assistant Professor  
School of Social Sciences Humanities and Languages  
Bangladesh Open University, BANGLADESH

**Dr. Sharkar Md. NUMAN**  
Associate Professor  
School of Science and Technology  
Bangladesh Open University, BANGLADESH

### **ABSTRACT**

Bangladesh Open University (BOU) is the only public educational institution in Bangladesh, where, a dual-mode method of learning system has been introduced. Established in 21<sup>st</sup> October, 1992, the University now accommodates 1,74,459 learners in 2012. The wide range networking of this university provides it a great prospect to execute a broad spectrum of activities to accomplish its social responsibilities.

Despite the aims of BOU at continuous quantitative improvement and greater equity in the society, like most of the ODL method universities in the world, BOU framed a limited objective to create awareness and preparedness about the contemporary global disaster proneness among its learners. Bangladesh for its geographical location, experiences several natural disasters like annual flood, heavy rainfall, cyclone and tidal surge, earth quake, river bank erosion, drought, etc. Lack of awareness of the sustainable use of the natural resources, and the consequences of the heedless consumption of them by the inhabitants enhanced the degree and frequency of these natural disasters during the last decades. The present study emphasizes on the role of Bangladesh Open University in creating awareness among its learners about the causes and pattern of disasters, pre and post disaster management strategies, etc. The study proves that BOU is a unique educational institution which, through the ODL method of teaching, using various educational medium like, tutorial support, printed study materials, electronic media, internet, and cellular phone, etc. can provided a wide range of knowledge about the disaster vulnerability, risk reduction and management strategies to its learners.

**Keywords:** ODL, natural and man-made disaster, Vulnerability, risk reduction, disaster management.

### **INTRODUCTION**

Bangladesh Open University is a public educational institution where open and distance learning method has been introduced as a method of learning. The university has six schools which cover multidisciplinary 24 formal and 19 non-formal programs those are from certificate

to master's level program. A total of 1,74,459 learners were enrolled in 2012 at different programs.

The School of Social Sciences Humanities and Languages (SSHL) is one of the leading schools of BOU where totally 51,185 learners were enrolled in 2012. SSHL is one of the biggest and leading school of BOU, which offers three years BA/BSS program where a huge number of learners are enrolled each year. This school also offers four years Honors graduation program as well as some certificate level program like BELT, CELP, CALP. These programs facilitate the learners to extend their life and skill oriented knowledge to achieve an improved livelihood. The extensive network of this university gives it a great chance to contribute to the society in many ways. For example, working people along with the general full time students can obtain an opportunity to study for higher education acquire more educational qualification in productive sectors as here; the educational programs are effectively linked with the needs of the people, employment, and development. However, besides the advancement of socio-economic and cultural status, awareness about the occurrence of disasters in an escalating frequency in Bangladesh is now a prime concern.

Needless to say, Bangladesh is in such a geographical position, where she experiences a number of natural hazards like annual flood, heavy rainfall, cyclone and storm surge, river bank erosion, deforestation, droughts, etc. (Table 1 and Fig.1). The degree and frequency of these calamities has accelerated in number during the last decade as a consequence of the global climatic change and environmental deterioration of the whole country. Every one now realizes that a slight more awareness, co-operation, and motivation in the local societies will definitely decrease the rate of fatalities in any category of disaster. Taking proper safety measures and rehabilitation programs to mitigate the losses in pre and post disaster situation is the main concern of the mass people rather than cursing the fate. Unfortunately, the general people do not have adequate knowledge about disaster management strategies. This study has given emphasis on the role of the Open University of Bangladesh to develop awareness among its learners at grass-root level. The different methods of teaching like open and distance education system through variety of media like printed materials, electronic media like TV and radio, CDS and VCDS, internet, and cellular phone etc. have given a great access to Bangladesh Open University to spread the knowledge about the recent geo-environmental situation of Bangladesh to its huge number of learners and huge number of vulnerable citizen. BOU is the only educational institution which has diverse opportunities to use different types of study materials to train up the mass population about the pre and post disaster management to mitigate the total socio-economic losses in Bangladesh. The present study shows the proposed ways to train people about the natural and man-made disaster occurring in the country and the ways forwards to integrated the disaster management strategies.

### **Objectives of the Study**

The general objectives of this study are as follows –

- To educate the BOU learners on disaster management issues.
- To gather specific knowledge about the characteristics and types of disaster from local people to enhance the implication of disaster management strategies.
- To use the BOU's learners as a resource person to disseminate preventive methods for the local area people about the forth coming disaster.
- To integrate the local area people with the policy makers for a local area participatory disaster management process.

### **Justification of Disaster Management Training through ODL Method**

Like any other country in the world, coping with the rapidly increasing frequency of disasters necessitates an integrated disaster management strategy and action plan at individual, community, local, and national level in Bangladesh.

The disaster management experts are w emphasizing on the necessity of capacity building enhancement of the local people by changing their perception about the causes, precautions, and reduction and management strategies of disaster occurrence, as the old and traditional concept of pre & post disaster relief and rehabilitation paid no contribution towards the development process of Bangladesh. This study focuses upon the role of ODL method of teaching and learning to achieve this goal through some steps as following:

- There is a good opportunity for SSSL to develop disaster management capacity of its huge number of learners and thus create awareness among mass people through the huge network of the BOU administration.
- The support of the media division of BOU is a vital way to create public awareness by educating the learners about disaster management.
- Training up and educating the learners of BOU, through the ODL system will strongly contribute the mainstreaming of the grass-root level participation of the backward section of population in Bangladesh.

### **Concept of Disaster and Disaster Management**

Before discussing the potential disaster management training and education through ODL method, some key concept about climate consequences disaster and its management should be described in a nutshell.

Disasters, both natural and man-made, are the events which affect large number of people in an affected community. The Asian Development Bank (ADB, 1991) stated that a disaster is an event, natural or man-made, sudden or progressive, which impacts with such severity that the affected community has to respond by exceptional measures. According to *The Center for Research on the Epidemiology of Disasters* (CRED) in Brussels, Belgium, "A disaster is a situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance."

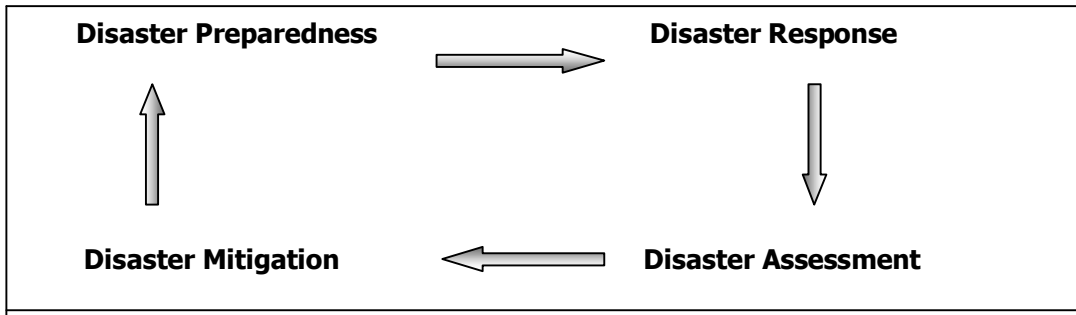
#### **Definition of Hazard:**

According to EM-DAT (CRED, 2012), Hazard is the threatening event, or probability of occurrence of a potentially damaging phenomenon within a given time period and area.

#### **Types of Hazard:**

According to IFRC (2012), hazards are of two types, such as-

- Natural hazards, which are naturally occurring physical phenomena caused either by rapid or slow onset events which can be geophysical (earthquakes, landslides, tsunamis and volcanic activity), hydrological (avalanches and floods), climatological (extreme temperatures, drought and wildfires), meteorological (cyclones and storms/wave surges) or biological (disease epidemics and insect/animal plagues).
- Technological or man-made hazards (complex emergencies/conflicts, famine, displaced populations, industrial accidents and transport accidents) are events that are caused by humans and occur in or close to human settlements. This can include environmental degradation, pollution and accidents.



**Figure 1: Disaster Management Procedure**

Besides the major causes, there are a variety of environmental and social challenges, such as climate change, unplanned-urbanization, under-development/poverty as well as the threat of epidemics, shape humanitarian assistance in the future as well. These exacerbating factors will result in increased frequency, complexity and severity of disasters.

Disaster management is a specific type of emergency management. It is an applied science, which seeks by the systematic observation and analysis of the disaster to improve measures relating to prevention, mitigation, preparedness, emergency response and recovery (Rahman, 2001).

The overall disaster management procedure is performed in a cyclic procedure shown in Figure 1.

In the disaster management procedure, disaster preparedness is the prime phase. Forecasting about the forthcoming disaster, minimize the effects of it by taking measures, to expedite emergency action, rehabilitation, and reconstruction by the people and the concerned organization, etc. is the main concern of this stage.

Secondly, disaster response means to integrate actions like warning, evacuation, search and rescue, emergency relief, trauma management, security, communication and information management, rehabilitation and reconstruction, taken by the local people and the concerned authority.

Thirdly, disaster assessment reveals the socio-economic losses of the disaster affected area. The assessment includes, identification of information needed, collection of data from reliable sources, analyzing and interpreting the data, and forecasting for decision making in the report.

Fourthly, disaster mitigation encompasses all pre-disaster measures for the long-term situation. The main objective of the disaster mitigation is to reduce the impact of the disaster by training or educating the grass-root level population for enhancing the capacity to face the disaster.

This process includes measures, such as, construction of tremor resistant infrastructures, resettlement of hazard prone area, educating and training people to create professional experts, and creating public awareness, etc.

### Disasters in Bangladesh

The disasters occurring in Bangladesh throughout the decades can be identified as the natural disasters, occurred in a certain season while the type of these differ depending on the location, nearness of hills, rivers, or ocean etc. On the other hand, man-made disasters are the resultants of the unplanned ignorant activities of the local inhabitants.

**Table: 1**  
**Natural and Man-made Disasters in Bangladesh**

<b>Natural Disasters</b>	<b>Man-made Disasters</b>
<b>1. River Flood</b>	<b>1. Water-logging</b>
<b>2. Rainfall Flood</b>	<b>2. Water pollution</b>
<b>3. Storm surge Flood</b>	<b>3. Air Pollution</b>
<b>4. River Bank Erosion</b>	<b>4. Loss of land fertility</b>
<b>5. River fill up and char lands</b>	<b>5. Deforestation</b>
<b>6. Cyclone, Nor'westers &amp; Tornado</b>	<b>6. Bio-diversity loss.</b>
<b>7. Seismic Hazard (Earth quake)</b>	<b>7. Arsenic Contamination</b>
<b>8. Global warming impacts</b>	
<b>9. Drought</b>	

Over extracting of natural resources, polluting the land, water, and air by different factors such as-industrial waste, chemical fertilizer, smoke and fumes, CFC gases, non-degradable and non-recyclable products disposal, etc. are the main reasons of man-made pollution (Nizamuddin, 2001).

The natural and man-made disasters in the context of Bangladesh have been described for the convenience of the study the disaster of both categories has been listed in Table 1. A spatio-temporal overview of the natural disasters which occur in Bangladesh is shown in Table 2.

**Table: 2**  
**Spatio-temporal State of Natural Disasters in Bangladesh**

<b>Type of Disaster</b>	<b>Spatial Distribution</b>	<b>Season of Occurrence</b>
<b>River Flood</b>	The over flown river banks of the major rivers like the Padma, the Meghna, the Brahmaputra along with their tributaries and distributaries. About 30% of the total land area is prone to river flood.	<b>Rainy Season (June –September)</b>
<b>Rainfall Flood</b>	Rainfall with high intensity and prolonged duration causes this type of flooding at the catchments area of the over flown rivers.	<b>Rainy Season (June-September)</b>
<b>Storm Surge Flood</b>	South and south east coastal area (12,000 sq.km.) of Bangladesh. Inland intrusion of surge water is from 15km (Chittagong area) - 55km (south-west region).	<b>During cyclone and Tornado in Summer &amp; Monsoon Season (April-June &amp; September-November)</b>
<b>River Bank Erosion</b>	On the banks of the extensive flow rivers, like Tista, Jamuna, Padma.	<b>Rainy Season</b>
<b>River fill up and char (Choking)</b>	The braided rivers like Padma, Meghna, etc. in the northern region of Bangladesh.	<b>Dry summer &amp; winter season</b>
<b>Cyclone, Tornado and Nor'westers</b>	The Bay of Bengal, which is in the humid tropical area or at Inter-tropical Convergence Zone (ITCZ) of the globe, is the ideal breeding ground for tropical cyclone.	<b>April-June or September-November</b>
<b>Seismic Hazard (Earthquake)</b>	The significant zone of earthquakes hazard are - (i) Assam fault zone, (ii) Tripura Fault zone, (iii) Sub-Dauki Fault zone, and (iv) Bogra fault zone.	<b>Major earthquakes affected Bangladesh were in the month of January, June, July and August</b>
<b>Sea-level Change</b>	Coastal Area and low-lying areas.	<b>Whole year</b>
<b>Climate change for global warming</b>	River banks and low-lying areas.	<b>Whole year</b>
<b>Drought</b>	Several districts like Naogoan, Chapainawabganj, Nilphamari, and Thakurgoan of northwestern Bangladesh.	<b>March- May</b>

Source : Ahmad, Nizamuddin, Choudhury, Ali & Choudury, Elahi, 2001

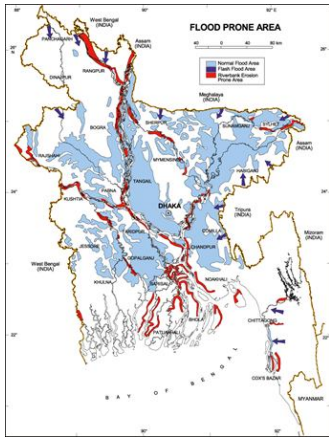
There are numerous man-made disasters occurring regularly in an accelerating rate in Bangladesh. Table 3 shows the spatio-temporal distribution of the different category of man-made disasters.

**Table: 3**  
**Spatio-Temporal Situation of Man-made Disasters in Bangladesh**

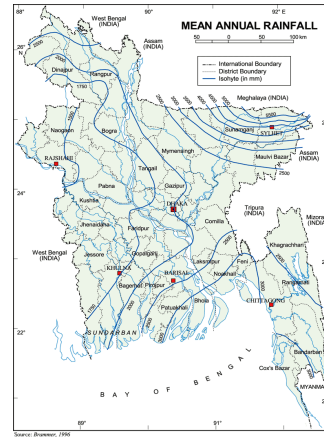
<b>Type of Disaster</b>	<b>Spatial Distribution</b>	<b>Season of Occurrence</b>	<b>Causes</b>
<b>Water Logging</b>	<b>Urban centers</b>	<b>Rainy Season</b>	<b>1. Clogging of natural drainage and sewerage 2. Lack of water retention space</b>
<b>Water Pollution</b>	<b>Industrial and agricultural areas</b>	<b>Whole year</b>	<b>1. Disposal of chemical wastage 2. Disposal of Hospital wastage</b>
<b>Air Pollution</b>	<b>Urban centers</b>	<b>Dry Summer and winter</b>	<b>1. Exhaust from vehicles 2. Exhaust from industries 3. Exhaust from Brick fields.</b>
<b>Loss of land fertility</b>	<b>Urban agricultural land areas</b>	<b>Whole year</b>	<b>1. Use of chemical fertilizer 2. Disposal of non-degradable products</b>
<b>Deforestation</b>	<b>Whole year</b>	<b>Whole year</b>	<b>1. Cutting down trees for logs, furniture, etc. 2. Clearing land are a for presidential purpose 3. Polluted water and plant disease.</b>
<b>Arsenic Poisoning</b>	<b>Whole year</b>	<b>Whole year, more in dry winter</b>	<b>Arsenic Contamination</b>
<b>Bio-Diversity Loss</b>	<b>All over Bangladesh especially in Sunderban and Chittagong hill tracts.</b>	<b>Whole year</b>	<b>1. Loss of vegetation. 2. Loss of food &amp; Shelter 3. Killing of birds and other animals for various purposes.</b>

**Source : Nizamuddin K(edited), 2001,Islam,N.2005,Task Forces,1991.**

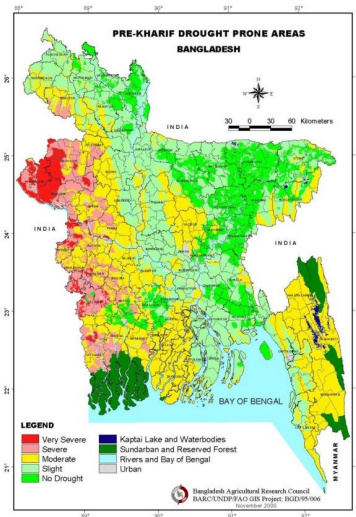
**Figure 2 : Normal Flood, Annual Rainfall & Major Natural Disasters in Bangladesh**



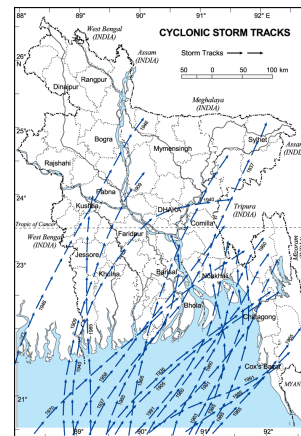
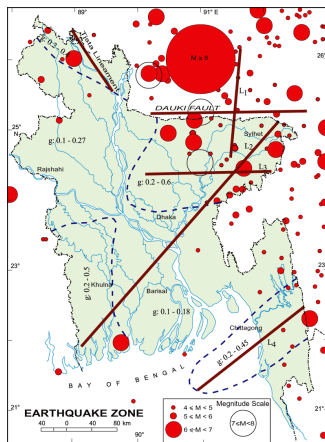
**Map:1(a) Floods (Normal) in Bangladesh, 2007**



**Map:1(b) Mean Annual Rainfall, 200**



**Map:1(c) Drought Situation in Bangladesh, 2000**





**Map:1(d) Earthquake Zone in Bangladesh, 2007 Map:1(e) Cyclonic Storm Tracks in Bangladesh**  
**Source: Banglapedia, 2007 & Bangladesh Agricultural Research Council, UNDP & FAO**  
**Identifying the Disaster Vulnerable Section of Population**

**This study accentuates to identify and measure the vulnerabilities of the people in reference to a certain disaster.**

- 1. The landless village people,**
- 2. The riverbank, char and coastal area residents,**
- 3. The farmers, fishermen, and fisheries processing laborers,**
- 4. Cattle, poultry and dairy farmers and business men,**
- 5. Female, children and aged people of the community,**
- 6. Slum and squatter dwellers in the urban areas,**
- 7. Unskilled and illiterate people population,**
- 8. Disabled and diseased persons,**
- 9. People with less hygienic concerns.**

**All the natural and man-made disasters in Bangladesh cause a great amount of loss in the total infrastructure of a country which sometimes exceeds the limit to cope and bear. In these cases, financial and other kinds of aids and reliefs from other countries are offered. However, the domestic or international aid and reliefs can only ease the pain and cover the loss temporarily. The basic need for a disaster prone area is the long-term planning strategies taken by the government confirming people's participation at grass-root level, along with educating the local people and creating awareness about the probable type and magnitude of disaster is a need of time. Moreover, enriching knowledge of disaster management and formation of data base for the vulnerable population, should be emphasized by the planning bodies of disaster management (Islam,R, 2008). To reduce the vulnerabilities, at least four to ten people of a locality should be trained about the pre and post disaster management strategies. This will definitely mitigate the loss of life and property during a natural disaster occurrence. On the other hand, creating awareness among the locality about the precaution to avoid the resultant of man-made disaster should not be ignored anymore.**

### **Suggested Method Of Training Through SSSL, BOU**

**Some suggestions has been given here as the process of disaster management training and education through ODL from the SSSL of BOU. These include the medium of teaching, phases of teaching, evaluation of teaching.**

#### **Medium of Teaching in ODL Method**

- 1. Study materials,**
- 2. Broadcasting media like, educational television and radio channels,**
- 3. CDs, Cassettes, and flyers,**
- 4. Ensured teaching facilities at study center (SC) and regional resource center (RRC's), and**
- 5. On campus lecture classes (optional).**

### Phases of Teaching and Method of Evaluating through ODL System

Semester 1 <sup>st</sup> -2 <sup>nd</sup>	Topics to Learn	Method of Evaluation
<p>1. Include the primary concept of disasters occurring in our country.</p> <p>2. Teach the difference between natural and man-made disaster.</p>	<p>1. The spatio-temporal distribution pattern of the disasters.</p> <p>2. The characteristics of disasters.</p> <p>3. The most common natural and man-made disasters occurring in Bangladesh.</p>	<p>1. Mid-semester assignment can be given for evaluation of the learning process. These assignments should be evaluated by the concerned tutors or teachers.</p>
Semester 3 <sup>rd</sup> - 4 <sup>th</sup>	Topics to Learn	Method of Evaluation
<p>1. Include the pre and post disaster management strategies for both type of disaster.</p> <p>2. Teach the preventive measures for the man-made disaster.</p>	<p>1. The pre disaster management.</p> <p>2. Identify the disaster vulnerable group and ways to help them during any disaster.</p> <p>3. Teach the post disaster management.</p> <p>4. Teach the method of rehabilitation of the effected locality with the available resources and local people's participation.</p>	<p>1. Seminar can be arranged with the tutors of the SC's at RRCs to evaluate the progress of learning of the students.</p> <p>2. Tutors can give valuable opinion to make the program more effective.</p>
Semester 5 <sup>th</sup> -6 <sup>th</sup>	Topics to Learn	Method of Evaluation
<p>1. Teach more precisely about the types, characteristics, and management to the group of students who will be interested to work as disaster management personnel.</p>	<p>1. The preventive methods about the frequency and magnitude of man-made disasters.</p> <p>2. Behavioural lessons to motivate and ensure the local people's participation by their positive attitudes and cooperativeness.</p> <p>3. Teach the students to work as professional to handle the emergency situation which may arise during pre and post disaster time.</p>	<p>Evaluation can be done by assigning learners in small groups for demonstrative classes in the tutorial classes, and or seminars.</p>

All the above mentioned lessons can be taught in all the subjects and courses offered by SSDL from their own perspectives. However, Geography and Environment as a mainstream subject of these geo-environmental issues can play a vital role to propagate the knowledge of disaster vulnerability and the management strategies.

### CONCLUSION

Bangladesh Open University is the most potential university, which has strong prospect to exploit all its resources like, the Regional Resource Centers, Local Centres, Study Centres,

Media center and School to carry out numerous core programs and certificate or training program to teach the mass people of Bangladesh. Moreover, all the schools of BOU, such as the School of Agriculture and Rural Development, the School of Science and Technology, Open School, School of Social Sciences, Humanities and Languages, have high potentiality to become the leading educational school to offer knowledge and create awareness about the disaster management strategies in Bangladesh. This will not only minimize the loss of life and property, but also prevent from further destruction and damage. The whole world is aware and anxious about the gradual destruction of nature which ultimately enhanced the frequency of disaster occurrence. Bangladesh cannot keep herself aside from these global problems anymore. Proper knowledge about the disaster in the context of our own country is needed urgently, as this is the only gateway from the huge loss of life and property, and the damage of the total infrastructure of the country.

#### **BIODATA and CONTACT ADDRESSES of the AUTHORS**



**Ms. Saima AHMED** is an Assistant Professor (Geography & Environment) at School of Social Sciences Humanities and Languages of Bangladesh Open University, Bangladesh. She received M. Phil from University of Dhaka, Bangladesh, in 2008. She has vast experience in the field of geography and environmental science and presented research findings in many international conferences/symposium as well as attended training programs/workshops related to distance education. She is responsible for Geography and Environment related courses and conducting all the academic activities for the BA/BSS Degree and Honors Program at Bangladesh Open University through both distance and On Campus

mode. Ms. Ahmad also created maps and performed analysis in the GIS environment. She has published 4 research papers in national peer-reviewed journals.

**Ms. Saima AHMAD**

School of Social Sciences Humanities and Languages, Bangladesh Open University, Bangladesh

Phone: +8801715068585

E-mail: [saima\\_ahmad68@hotmail.com](mailto:saima_ahmad68@hotmail.com), [saima.ahmad68@gmail.com](mailto:saima.ahmad68@gmail.com)



**Dr. Sharker Md. NUMAN** is an Associate Professor of School of Science and Technology of Bangladesh Open University (BOU), Bangladesh. Dr. Numan is physician by profession, passed MBBS from the University of Dhaka, Bangladesh in 1993. He has completed Masters in Sciences on Epidemiology in 2005 from the University Putra Malaysia, Malaysia. He has participated in many national and international workshop and conference. He joined Bangladesh Open University (BOU) in October 1997 as a Lecturer. He played a significant role in launching the Post-basic Bachelor-in-Nursing program in Bangladesh Open University through distance mode. He has 32 publications

with 06 books at University level.

**Sharker Md. NUMAN**

Associate Professor, School of Science and Technology

Bangladesh Open University, Bangladesh.

Phone: +8801727210110

E-mail: [sharkermd\\_numan@yahoo.com](mailto:sharkermd_numan@yahoo.com)

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