



Scientific Review

ISSN(e): 2412-2599, ISSN(p): 2413-8835

Vol. 2, No. 10, pp: 105-108, 2016

URL: <http://arpgweb.com/?ic=journal&journal=10&info=aims>

Study on Cyclone Shelters at Cox Bazar Using R/S Technology and GPS System

Suraiya Begum*

Chief Scientific Officer, Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Md. Shah Alam

Chief Scientific Officer, Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Md. Hashem Uddin

Principal Scientific Officer (cc), Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Abu Muhammad

Sr. Engr., Shumangal Chakma, Asstt. Engr. Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Md. Sahab Ali

Asstt. Engr. Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Sumongol Chakma

Asstt. Engineer, Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Shammi Shawal

Research Asstt., IWFm, Bangladesh University of Engineering & Technology (BUET)

Abstract: Bangladesh is a disastrous country having an approximate area of 147,570 sq.km. It has a close proximity with Himalayas and bounded between 20°34' to 26°38'N latitude and 88°01' to 92°41'E longitude. It has alluvial deltaic plain faced natural disasters with increasing frequency and intensity. Due to the geographical location, the country frequently suffers from devastating natural disasters like floods, cyclones with accompanying storm surges, tornadoes, river-bank erosion, drought and earthquakes. Among them, cyclones and floods are the most common and disastrous to mention. With its fragile state of economy, Bangladesh depends predominantly on agriculture that has strong linkage with seasonal weather system. Natural disasters disrupt the nation's food supply and decimate the livelihoods of the many Bangladeshis who work with agriculture. Large-scale disasters in such a small country can negate poverty-reduction efforts and divert development resources from more productive uses. The colossal losses of lives and properties caused by natural disasters with repeated frequency in short intervals make Bangladesh as one of the most disaster prone countries in the world. It hampers the socio-economic condition of the country. Disaster management and preparedness is thus necessary to mitigate the losses due to them, to save the people of coastal areas and their properties. Cyclone shelters play an effective role in this regard. Disaster Management Bureau (DMB) as well as Ministry of Food and Disaster Management are responsible for this work. They have been constructing a large number of multipurpose shelters, meeting both educational institutions and emergency needs. Despite considerable progress by the Disaster Management Bureau (DMB) in this regard, future disaster risk investments still remain low. The study on such disasters and its management over the country is thus very important too. The result of this study and prepared map will help the policy makers as well as the people at the vulnerable areas to take necessary steps and measure in the field of disaster management, food security etc. for sustainable development. Study on cyclone shelters and mapping of their locations will be presented in this paper.

Keywords: Disaster management; Natural calamities; Preparedness; Remote sensing.

1. Introduction

Bangladesh faces natural disasters every year. Cyclones and storm surges are most destructive that damage houses, crops, roads, electric supply and cause death to people/cattle of the locality (Fig-1). So they have to move safer places like cyclone shelters to save their lives and properties (Fig-2). Study on disaster management/preparedness and socio economic condition of cyclone shelters are thus necessary.

Fig-1. Cyclone damage



Fig-2. Cyclone shelter



2. Objectives

- To find out the location of cyclone shelters and locate them in the map
- To study the disaster management regarding cyclone shelters
- To study socio-economic condition of those shelters.

3. Data Used

Topo Sheet, Aerial Photo , DLR Map, LGED Map
Field data, Goggle Satellite data etc.

4. Study Area

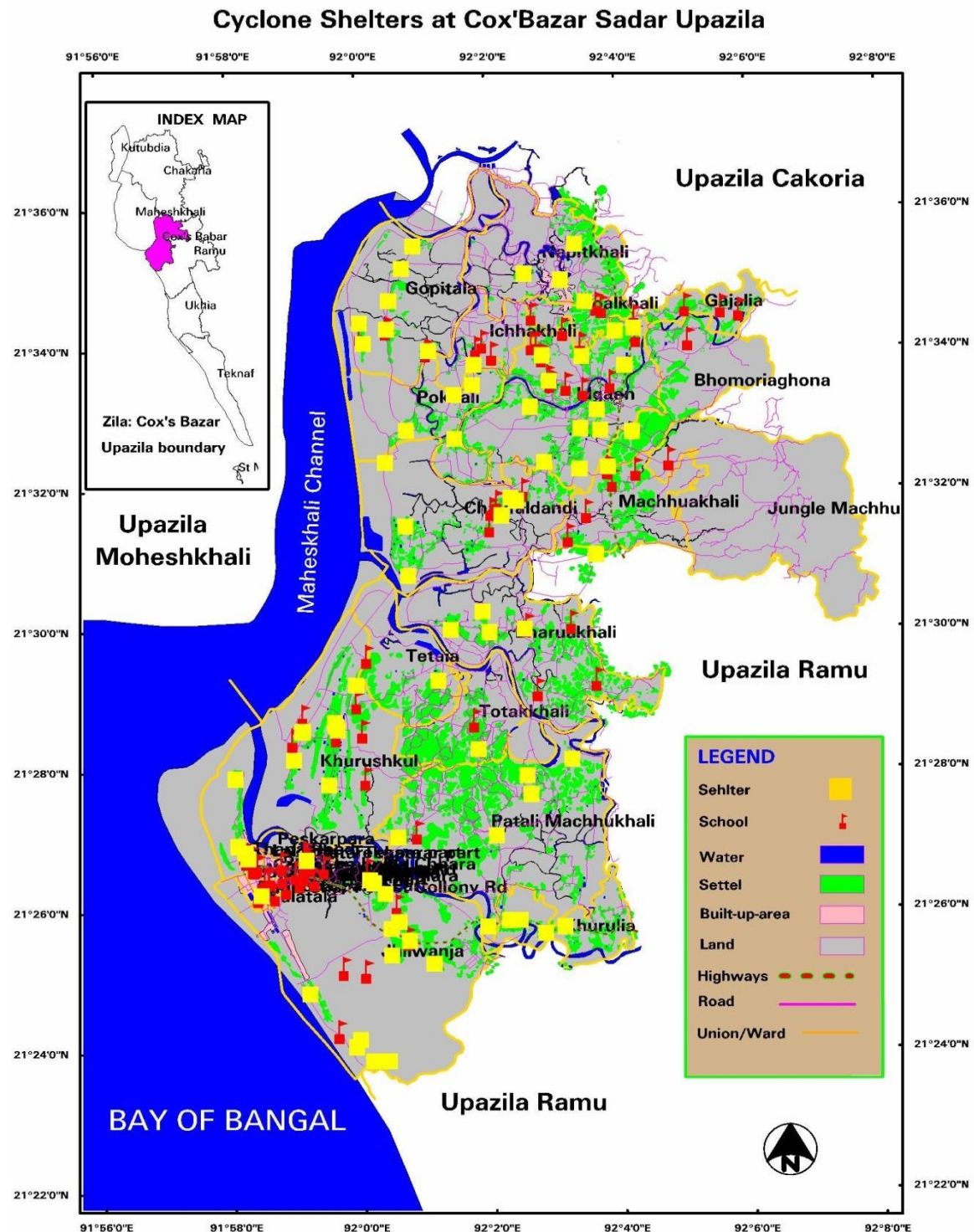
Cox'Bazar Sadar Upazila of Bangladesh was the study area. The study was mainly done on Cyclone Shelters of coastal areas related to disaster management of the country Bangladesh.

5. Methodology

Aerial photo and Satellite data were collected and processed. The data were then rectified digitally by using ERDAS/IMAGINE Software to remove the containing errors. The rectified Ortho-photos were then generated to construct the Ortho-mosaic. The raster image of the study area was prepared and the boundary layer was generated by digitizing. It was then overlaid on the raster image and photo interpretation of the raster image was done to generate the thematic layers of necessary land covers by digitizing (water bodies, roads, settlements, important features /landmarks like school, etc.).Maps for field investigation were also prepared. Goggle Satellite data were also collected by downloading from internet to use at the time of field data collection. Field data was collected by ground trothing and using GPS. Data/information regarding the cyclone shelters i.e the total number of shelter places as well as their names was collected from Internet and other reliable sources.

6. Result & Discussions

Fig-3. Map showing location of Cyclone Shelter at Cox'Bazar Sadar Upazila



Total of 80 cyclone Shelters found in Cox'Bazar Sadar Upazila (Fig-3) for the people to take shelter during and after disasters like cyclones.

But these cyclone shelters are -

- Not sufficient
- Not suitable
- as there are no division for male and female
- as there are insufficient sanitation arrangement
- as some of them were overflowed by storm surge

- as some of them were declared abandoned as they are risky to use (Fig-4).

Many types of problems with the cyclone shelters were found. These problems of the existing cyclone shelter should be solved as soon as possible. The shelters overflowed by storm surge should be high rise buildings and integrated to multistoried. The shelters those are declared abandoned should be repaired to make them usable and new shelters should be constructed.

Fig-4. Risky/ abandoned cyclone shelter



From the location map, the decision makers can find out the more vulnerable area and necessity of new shelters to be constructed.

7. Conclusion

Disasters cannot be stopped or prevented but the losses can be minimized through preparedness. Cyclone shelters play an important role and are very useful for that to save lives and properties and combat the natural disasters. Thus, the study on such disasters and their management over the country is also very important. The result of this study will help the policy makers as well as the people at the vulnerable areas to take necessary steps and measure in the field of disaster management and to act against the adverse impact of natural calamities for the sustainable development of the country.

Acknowledgement

We are grateful to all scientists spatially the scientists of Atmospheric Research Division of SPARRSO.

Bibliography

- [1] Choudhury, A. M., 1974. "Ravages of cyclones published in the journal 'Bangladesh'." *canada*, vol. 1,
- [2] Quadir, D. A., 1994. "An Experiment on the Evolution of Tropical Cyclone using a Numerical Model, Paper presented in the seminar on Monsoon Dynamics" Dhaka, Bangladesh.
- [3] Begum, S., Alam, S., and Ali, S., 2013. "Cyclone monitoring towards disaster management of Bangladesh." *Open Journal of Computer Sciences*, vol. 1, pp. 1-10.
- [4] Chaoudhury, A. M., 1982. "Movement of a tropical cyclone in the presence of Inclined plane Boundaries and an Azimuthal wind." *Journal Bangladesh Math. Soc.*, vol. 2, pp. 27-30.
- [5] Begum, S., Aam, S., and Islam, J., 2014. "Monitoring the cyclone LEHAR using remote sensing and GIS." *Stamford Journal of Environment and Human Habitat*, vol. 3, pp. 07-14.
- [6] Begum, S., Alam, S., and M., N., 2014. "Meteorological and hydrological disasters bangladesh experiences every year monitored through space technology." *Journal of Future Internet*, vol. 1, pp. 21-27.
- [7] Internet Source.