

Public perception on cyclone evacuation during COVID-19 pandemic in the southwestern
coast of Bangladesh

バンングラデシュ南西海岸での COVID-19 パンデミック時のサイクロン避難に関する一般の認識

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1 Introduction

1.1 Background

Bangladesh; a highly natural disaster-prone South-Asian country. Due to the geographical location and topographical characteristics the coastal belt; almost 716 square Km [1] of the country is highly affected by devastating tropical cyclones. From 2013 to 2020; in this recent seven years it happened the eight cyclones where most of them were very devastating [1] especially the super cyclone- Amphan held in May 2020 [2]. Since the beginning of 2020, people all over the World have been living with the consequences of the global coronavirus disease 2019 (Covid-19) pandemic. So, the area of the World where severe natural disaster occurred after detecting the first case of Covid patient had been faced the new dimension of experiences for facing the co-occurrences of natural disaster and human disease pandemic [3]. The significant concern at the time of occurrence of such complex disasters relate to evacuation procedures [4]. According to Yourex-West [5]

during the spring flooding in 2020 the authorities of Fort McMurray and Alberta relocated the affected peoples to hotels instead of more crowded and conventional evacuation shelters where peoples had to face severe difficulty to maintain social distancing leading to take decision returning their home. But! in case of Bangladesh during Amphan under Covid-19 situation where houses were inundated and shelters were also insufficient to maintain the standard social distancing, so peoples were unable to return back to home but in this study, there are no direction on approach for effective and efficient evacuation of peoples in both individual and institutional levels in such overlapping and critical condition. Since such nightmare situation of super cyclone Amphan and COVID-19 overlapping are very much critical. Like 2011 Earthquake in Japan [6].

1.2 objectives of the study

Since there are many lacking in existing literatures to identify more influencing factors for people's evacuation decision during disaster with the group-based classification of these factors which should be identified to reduces the risks during concurrent of storm surges and pandemic situation. This study was focused on increasing evacuation rate ensuring possible controlled environment against spreading the pandemic during the natural disaster and considering a unique factor as COVID-19 response for evacuation during Amphan two objectives has been specified for this study as follows.

Objective-i): To evaluate the factors for effective evacuation during cyclone 'Fani-2019' comparing with Amphan-2020 under COVID-19 pandemic.

Objective-ii): To compare the people's evacuation perceptions during both cyclones.

2 Materials and Methods

2.1 study area selection

Koyra, as shown in Figure 1 located in the southwestern part of Bangladesh is the connecting area with between terrestrial part of country with the Bay of Bengal. Since this area is directly exposed with the coastal Bay, almost in every year it is facing by coastal disaster. The

study area is selected according to the high disaster prone and vulnerability of the coast.

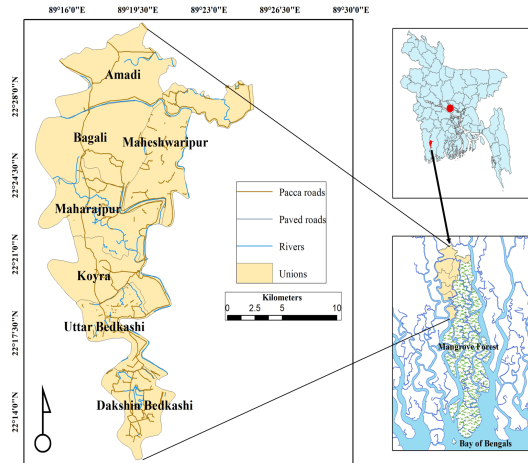


Figure 1. Study area description

2.2 data collection

In terms of data collection, authors conducted a direct households survey from February 12 to February 16, 2021. Due to the Covid-19 pandemic since the authors were unable to visit the field directly, they were collaborated with local expert academicians under whom a group of enumerators (21 members) was collected the direct field data satisfying the questionnaire for a systematic random sampling. For selecting the numbers of the households, it has been followed the stratified random sampling methods using the "Neyman Allocation Equations". The number of total households was 400 which was distributed into seven unions of the Koyra. Unions are the smallest administrative units of the country that is responsible to manage all

kinds of vulnerabilities and to ensure the agricultural production.

2.2 methods

Using Systematic Random Sampling process for conducting the households survey, then descriptive statistical methods will be followed for data analysis. Figure 2 shows the workflows of total procedures. For verifying the results, multivariable statistical data analysis, focusing the standard data deviations, multiple and logistic regression will be also checked.

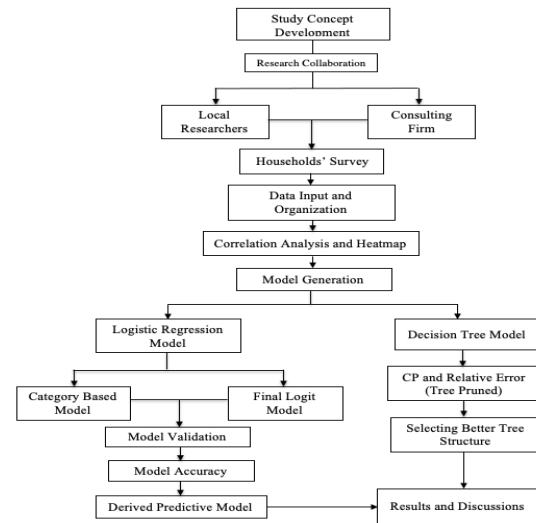


Figure 2. Total workflow of study

3 Expected Outcomes

3.1 differences in public evacuation perceptions

During two major disaster, one occurred in May-2019 and another in May-2020. Authors are

interested to compare the public perception in these two seasons. Foni in before Covid and Amphan is under Covid Pandemics. Figure 3 shows the partial outcomes on it.

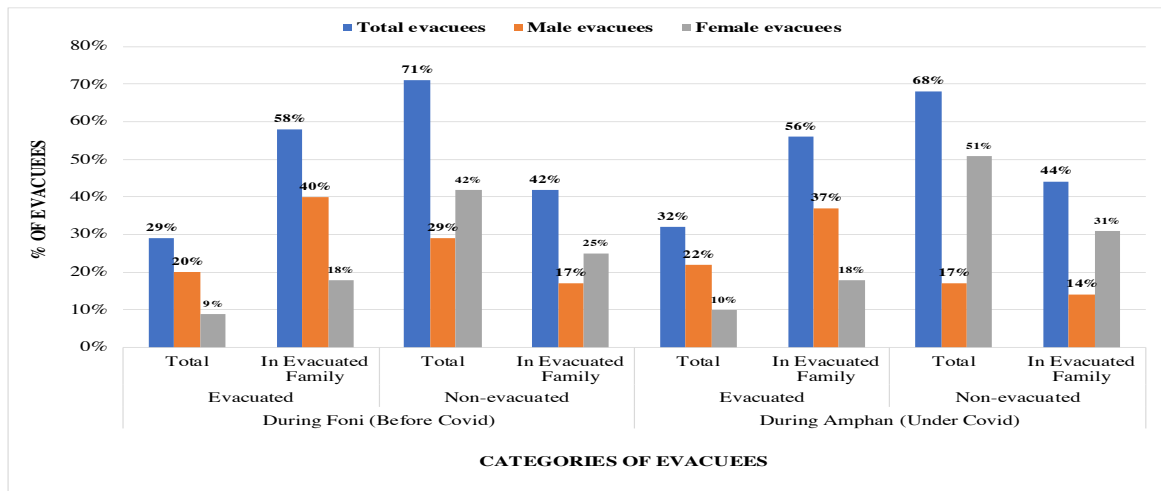


Figure 3. Differences in public evacuation perceptions in two situations

3.2 differences in factors influencing the evacuation decision

To compare among various factors influencing evacuating perceptions at households' level

during the co-occurring of multi hazardous situation Figure 4 is the findings of essential elements for evacuation amid COVID-19. As a result of main three fields of comparison “contents of warning”, “Information path and trust” and “Physical factors” were considered. Here some clear differences have been found. During the Foni peoples were considered the warning of categories of cyclones and they received the alarm via TV, Radio etc. The vulnerable condition of connecting road was the vital factors for taking their evacuation decisions.

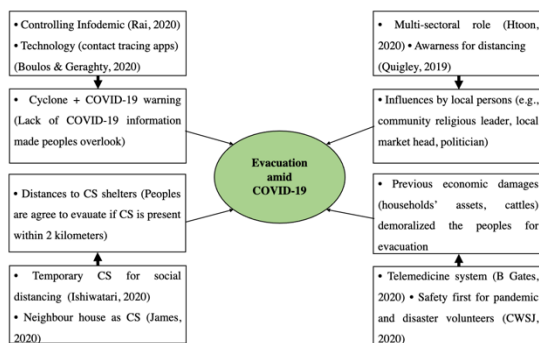


Figure 4. Essential elements for evacuation amid COVID-19

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