

Article

Nutritional status and socio-demographic characteristics of the people of south-west coastal region in Bangladesh

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Abstract: Bangladesh is in danger area of the world because of its geographic location and the coastal zone of Bangladesh is worldwide recognized as an extremely vulnerable area. For determining disaster related losses and possible disaster management options, the south-west coastal belt Manirampur upazila and Abhaynagar upazila of Jessore district were selected. The survey was conducted by pre-structured questionnaire among six villages from Bagutia union of Abhaynagar upazila and Haridaskati union of Manirampur upazila, during January-June, 2015. A total of 100 households were randomly selected from the six study villages which were based on mainly livelihood pattern of the households (crop production, shrimp culture and others). The average income of the respondents was found 2001-4000 Tk. per month. Average land holding capacity per household was about 80 decimal. About 90% respondents of the study area said the intensity of disaster was more than before. Most of the respondents thought they were vulnerable to disaster. Most of the respondents were experienced with water logging condition. This study attempts to develop a proposed solution for enhancing DMS which reducing loss and copes with all kind of disaster in Bangladesh. In the study area 80% people to wanted TRM and 20% people do not want TRM; they thought TRM might be the probable solution of disaster vulnerability. It can be concluded that number of victim people caused by disaster decreases because of technological advancement but disaster occurrence increases from past to recent due to climate change impact.

Keywords: disaster; vulnerability; bhabodah; socio-demographic status; south-west coastal region; disaster management

1. Introduction

Bangladesh is known as one of the most vulnerable countries across the globe under climate change. Bay of Bengal lies to the south, and to the north is the Himalayan mountain range. The country is located between and a continuous 23°34' and 26°38' north latitude and 88°01' and 92°41' east longitude (Ahmed, 2006). Southwest coastal region of Bangladesh is a unique brackish water ecosystem comprising the districts of Satkhira, Khulna, Bagerhat and the southern part of Jessore. The water resources sector of the country would most likely be affected significantly due to anticipated changes. Bangladesh is generally considered to be one of the most vulnerable regions in the world to climate change induced sea level rise. Southwest coastal region is more vulnerable to climate change induced sea level rise due to low elevation from sea level and a continuous process of land subsidence (Huq *et al.*, 1999). A possible scenario for climate change would have temperature rising up

to one degree Celsius, monsoon precipitation increasing by as much as 10%, dry season precipitation reduced and sea level rising by 30 centimeters or more (Ali, 2000). These changes would have several critical impacts in the southwest coastal region. The southwest region of Bangladesh is characterized by numerous morphologically active tidal rivers which form the main drainage network for coastal polders and low-lying beels. The entire river system of the region is vulnerable to excessive sedimentation by the incoming silts from the downstream sea with high tide, especially during the dry season. Disaster is also viewed as a mental construct imposed upon experience. This is because to understand disaster knowing the number of deaths, the value of property destroyed or the decrease in per capita income is not sufficient. The symbolic component requires knowledge of the sense of vulnerability, the adequacy of available explanation and the society's imagery of death and destruction (Barkun, 1977). The study area consists a large number of beels which are very potential for TRM process. A sequential operation for TRM process is needed for long term solution of drainage congestion in the area. The southwest region of Bangladesh is characterized by numerous morphologically active tidal rivers which form the main drainage network for coastal polders and low-lying beels. The entire river system of the region is vulnerable to excessive sedimentation by the incoming silts from the downstream sea with high tide, especially during the dry season (Doha and Chowdhury, 2007). The southwest coastal zone of Bangladesh is one of the disaster prone areas of the country. Moreover, increasing pressure of population on this area put more people at risk of suffering and economic losses due to disaster. After conceptualize this truth, the study has been focused to know the existing vulnerable condition of the community and try to reach the goal by evaluating how much awareness and motivational works needs to the country's people. At the most basic level, Bangladesh is likely to be impacted by climate change by a number of factors including cyclone, floods, droughts and long term sea level rise (Britton, 1986). For mitigating the future demand, research from different angles on climate change vulnerability is very much crucial in addition it should be given emphasize on awareness growing about the climate change impacts which makes their lives vulnerable (Coppola, 2007). A study on media, preparation and related behavior in Bangladesh revealed that early, easily understandable and language appropriate warning dissemination through radio can reduce the potential death toll of catastrophic cyclone and tidal bore (Frankenberger and Shaw, 1993). The study, conducted by the forum for development, journalism and communication studies, recommended that relevant authorities develop innovative warning signal systems and take necessary steps to disseminate the warning in easily understood language through radio at least two days before a cyclone hits, hence mitigating the loss of lives and property every year in Bangladesh (Disaster Management Bureau, 2010). The public confidence is increasing in broadcast media since self- evacuation and poor quality of shelter are the major causes of death. This study was conducted to investigate the existing disaster management processes and their limitation, the condition during the disaster of the study area, the socio-economic impacts of disaster on the study area and the existing adaptation procedures and possible mitigation measures with respect to climatic change in the study area.

2. Materials and Methods

2.1. Selection of the study area

For this study, the south-west belt of Bangladesh was selected. To conduct this study Manirampur upazila and Abhaynagar upazila of Jessore district was selected (Figure 1). Primary data were collected through questionnaire survey. The survey was conducted through bagutia union of Abhaynagar upazila and haridaskati union of Manirampur upazila. Selection criteria of the union are based on mainly geographic location, salinity prone, agricultural practice and livelihood pattern of the households (Shrimp culture and various occupations).

2.2. Description of the study area

Abhaynagar upazila is located between 23°1'N 89°26'E and Manirampur is located at 23.0167° 89.2333°E. Manirampur is the second largest upazila of Bangladesh with an area of 444.72 square kilometres (171.7 sq mi). Manirampur upazila is an upazila of Jessore district in the division of Khulna, Bangladesh. It is bounded by Jessore sadar upazila on the north, kalaroa and jhikargachha upazila on the west, Abhaynagar upazila on the east, and dumuria and keshabpur upazilas on the south. (land zoning report: Jessore Sadar upazila, Jessore district).

2.3. Basic information of Jessore district

2.3.1. Area and location

Jessore district is located in the south- western borderline of Bangladesh and the first district of joint Bengal and now the 13Th largest district in Bangladesh. The Geo position of the district is between 22°47' to 23°47' North

latitudes and between 88°40' to 89°50' east longitude. Jessore District is bordered by Magura and Jhenaidah districts to the north, Khulna and Satkhira districts to the south, Narail and a part of Khulna district to the east, West Bengal (Indian State) to the west.

2.3.2. Administration

The area of Jessore is 2606.94 Sq Km. It is under Khulna division. There are 08 municipalities in Jessore named Jessore, Ovoinagor, Bagharpar, Sharsha, Monirampur, Keshobpur, Jhikorgacha and Choughacha. The number of upazilla (sub district) in Jessore district is 08, named- Jessore Sadar, Ovoinagor, Bagharpar, Sharsha, Monirampur, Keshobpur, Jhikorgacha and Choughacha containing 92 unions, 1254 mauzas and 1419 villages.

2.3.3. Population

As per latest authentic report the total population of Jessore district is 27,64,547 (Male- 13,86,293 and Female- 13,78,254), Sex ratio 101:100, Population Density 1060/Sq Km and annual growth rate is 1.11%.

2.3.4. Literacy

The Literacy Rate of Jessore district is 56.50% (Male- 59.40% and Female- 53.70%), School attendance rate is 58.30% for 5 to 24 years age group.

2.3.5. Rivers

Main rivers are kapothakkha, vhoynab, chitra, horihor, betraboti, dandra, kodla, isamoti etc.

2.3.6. Agro products

The main agro products are paddy, wheat, sugarcane, jute, coconut, banana, betel nut, night queen and many other flowers, vegetables, cotton, date and date based products etc.

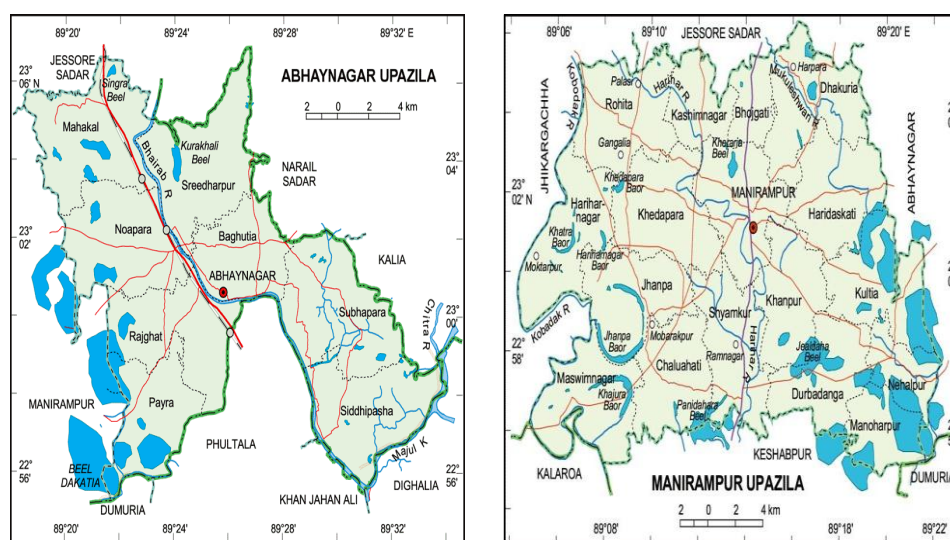


Figure 1.a. Map of Abhaynagar upazila; b. Map of Manirampur upazila, Jessore, Bangladesh.

2.4. Sampling unit

The survey was conducted through Bagutia union of Abhaynagar upazila and Haridaskati union of Manirampur upazila. Unions were selected as crop cultivation, shrimp farming and water logged area. The household members whose ages are more than 30 years and have vast knowledge and experience regarding disaster and local knowledge were treated as sampling unit.

2.5. Questionnaire preparation

A draft questionnaire was prepared for the survey of related issues. The questionnaire contains some basic information like socio-economic condition, health impact, social status, culture, livelihood pattern, nutritional status, women empowerment, shrimp culture, agricultural practice and related issues.

2.6. Village selection criteria

The villages were selected based on geographically. Only 100 households were selected from the two unions and six study villages, 50 for each union. For this study, the southwestern coastal belt Abhaynagar upazila and Manirampur upazila of Jessore district was selected. Primary data were collected through questionnaire survey.

2.7. Households selection

For questionnaire survey, 50 households were selected from each union randomly. This type of primary data collection system from each level helps to find out accurate socio-economic status. But this study is conducted into agrarian farmer, shrimp farmer, water logged people and others occupational groups.

2.8. Data collection

Primary data were collected through questionnaire survey from the study area from January-June, 2015 through three interval survey. Socio-economic data were collected from Bangladesh Bureau of Statistics, local government engineering department (LGED), national or international NGO. In case of Secondary data and information was collected from different government and non-government organizations, statistical report, articles, published paper, official's records and literature review. Some data are collected from differentmap-website, journal and papers relevant to the Khulna University, social information are collected from upazilla parishad office.

2.9. Data input and analysis

The surveys data have been edited and coded manually and processed by MS excel. Qualitative data have been manually complied according to diverse issues considering the research sites. For data processing and analyzing, MS excel has been used for some descriptive statistics like: frequency, percentage, mean, standard deviation etc. All the collected data were analyzed using computer by prominent program (MS word, MS excel 2010). After collecting the secondary data, efforts made for interpretation and processing them. After data processing the data was sorted for analysis.

3. Results and Discussion

3.1. Socio-demographic characteristics

3.1.1. Gender issues

Gender is essential issues for the survey. Specific gender faced specific problems. The field survey report show that in the study area 70% were male and 30% were female (Figure 2). Sex ratio of the respondent of present study is more or less similar with the study of Islam *et al.* (2015).

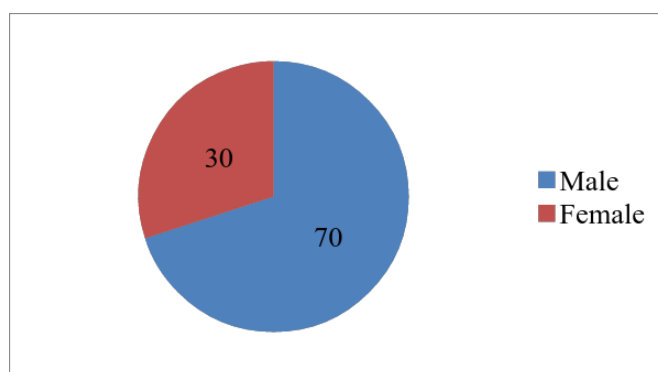


Figure 2. Gender of the respondents.

3.1.2. Age of the respondents

Age selection is also important in questionnaire survey for the effective results. Bellow the figure shows that age of study area are divided into four categories. In the study area about 17% were 15-30 years old, 40% were 31-45 years old, 30% were 46-60 years old, 13% were above 60 years old (Figure 3). Age of the respondent of present study is more or less similar with the study of Sharif *et al.* (2015); Hossain *et al.* (2015) and Islam *et al.* (2014).

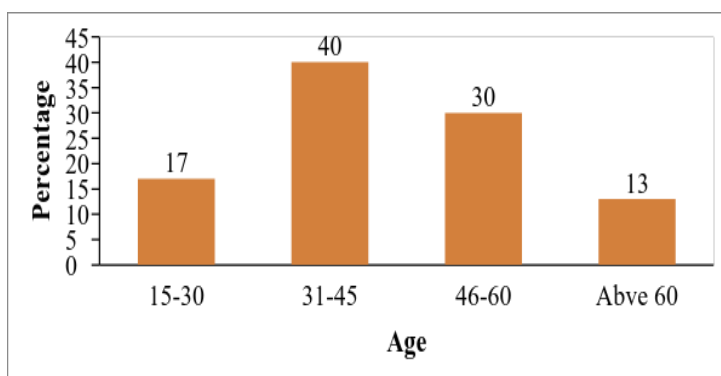


Figure 3. Age of the respondents.

3.1.3. Educational status of the respondents

Based on survey data, most of the respondents (40%) are illiterate, they can't read and write and some have minimum literacy (Figure 4). The education status of respondent of present study is more or less similar with the study of Sharif *et al.* (2015); Hossain *et al.* (2015); Islam *et al.* (2015); Islam *et al.* (2015) and Islam *et al.* (2014).

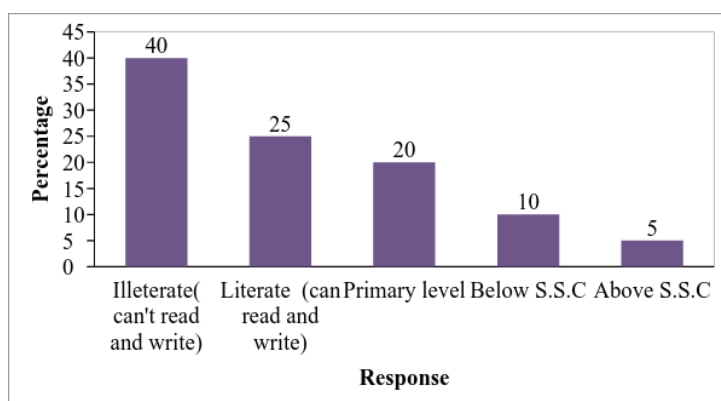


Figure 4. Educational status of the respondents.

3.1.4. Occupation of the respondents

In the survey report the occupation status is not good. About 60% people were fishing, 23% were agriculture, 15% were business and 2% were teacher (Figure 5). The occupation of the respondent of the present study is more or less similar with the study of Islam *et al.* (2014).

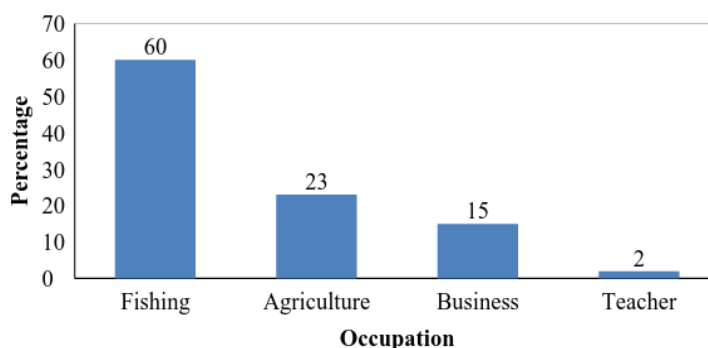


Figure 5. Occupational status of the respondents.

3.1.5. Monthly income of the respondents

Socio-economic condition indicated the income level of the family. The figure shows that 60% were extremely poor. 20% were poor, 15% were middle class, and 5% were rich in the study area (Figure 6). The monthly income of the respondent in present study is more or less similar with the Hossain *et al.* (2015) and Islam *et al.* (2014).

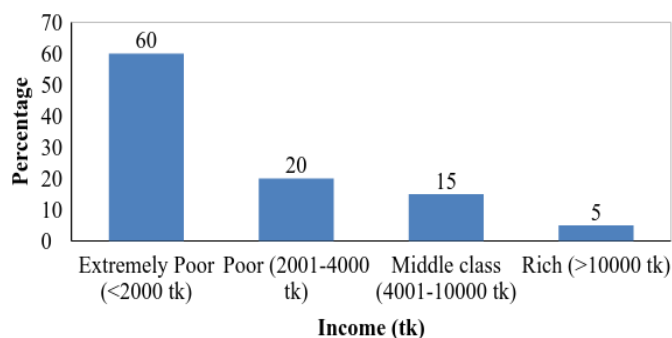


Figure 6. Monthly income of the respondents.

3.1.6. Size of the family

Household size represents the family members of the family. The field survey it has been found that 20% were 1-3 members, 70% were 3-6 members, 10% were above 6 members of the family (Figure 7). The family size of the respondent of present study is more or less similar with the study of Sharif *et al.* (2015); Hossain *et al.* (2015) and Islam *et al.* (2014).

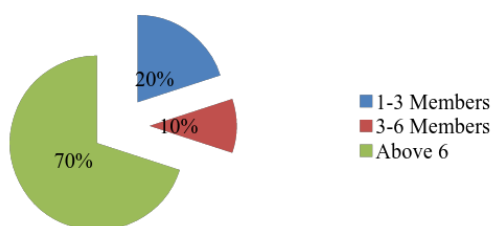


Figure 7. Size of the family.

3.1.7. Religion status of the respondents

The survey showed that, about 95% respondents were Muslim and 5% respondents were Hindus. None was found to other religion such as Christian, Buddhist or others. The religion status of the respondent of present study is more or less similar with the study of Sharif *et al.* (2015); Hossain *et al.* (2015); Islam *et al.* (2015) and Islam *et al.* (2014).

3.1.8. Sex ratio of the household member

Sex ratio of the household member was 1.08 in the study area. The sex ratio of the present study is more or less similar with the study of Islam *et al.* (2014) and Asif *et al.* (2015).

3.1.9. Household condition

The household condition of the study area is not so well. The figure show that 50% were Mud, 20% were Tin shed, 20% were Straw, 10% were Brick (Figure 8). The household condition of the respondent of present study is more or less similar with the study of Sharif *et al.* (2015); Hossain *et al.* (2015); Islam *et al.* (2014) and Asif *et al.* (2015).

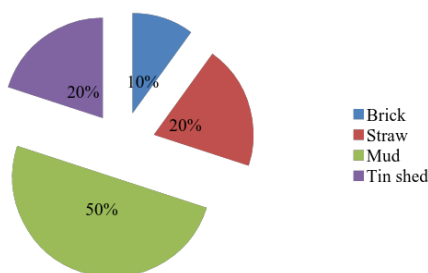


Figure 8. Household condition.

3.1.10. Land holding capacity

In this study, the average land holding capacity per household was 78.42 ± 53.19 decimal with maximum 247 decimal and minimum 4 decimal. The land holding capacity of present study is more or less similar with the study of Islam *et al.* (2014).

3.1.11. Sources of drinking water

From the figure it has been found that 85% used tube well, 3% used Pond water, 10% were rainwater and 2% used PSF (Figure 9). The drinking water facilities of the respondent of present study is more or less similar with the study of Sharif *et al.* (2015); Hossain *et al.* (2015); Islam *et al.* (2014) and Asif *et al.* (2015).

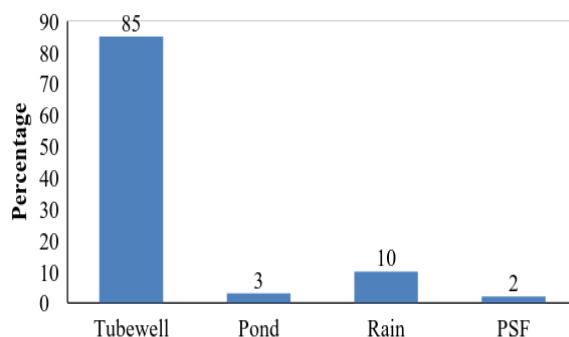


Figure 9. Sources of drinking water.

3.2. Disaster and Disaster Management options

3.2.1. Intensity of disaster

According to the figure it has been found that 90% respondents of the study area said the intensity of disaster was more than before but 10% said severity of natural disasters was normal (Figure 10).

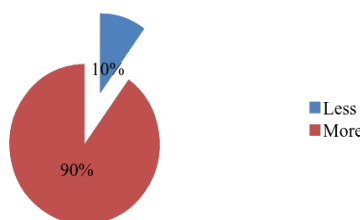


Figure 10. Intensity of disaster.

3.2.2. Respondent’s view about disaster induced vulnerability

The figure indicates that 82% of the respondents fell in disaster induced vulnerability in their locality and 18% respondents do not face themselves or their family members any climate risk induced vulnerability (Figure 11).

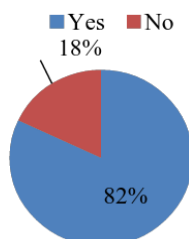


Figure 11. Respondent’s view about disaster induced vulnerability.

3.2.3. People perception about disaster in the study area

To the field survey report shows that in the figure about 80% people said that it was bearable and only 20% people said that it was unbearable (Figure 12).

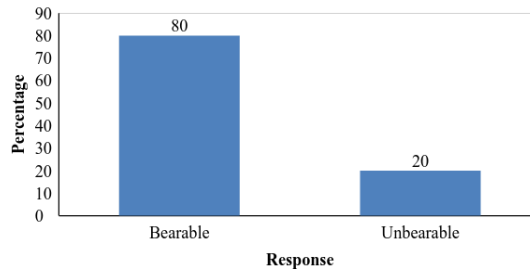


Figure 12. People perception about disaster in the study area.

3.2.4. People experienced with disaster

In the study area people faces many types of disaster. Below the figure shows that about 90% people expressed their opinion to face water logging and 10% people faces flood (Figure 13).

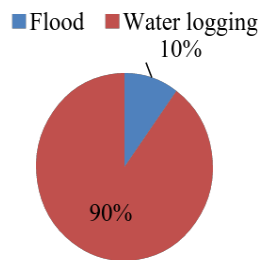


Figure 13. People experienced with disaster.

3.2.5. Death of family member due to disaster

It has been found from the figure that there were 4% people in the locality who were lost their family member due to natural disasters. On the other hand majority of the respondents 96% said that their family members did not die for natural disasters (Figure 14).

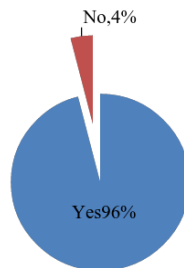


Figure 14. Death of family member due to disaster.

3.2.6. Percentage distribution of disaster affected people

From the field survey result, the figure indicates that the highest 36% female respondents were affected by disaster. Besides 30% said children, 14% said old, 18% said disable and 2% said male were affected by disaster (Figure 15).

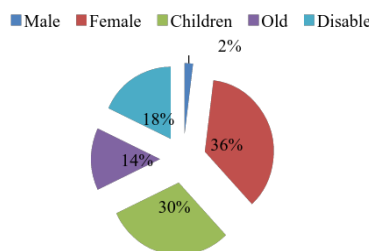


Figure 15. Percentage distribution of disaster affected people.

3.2.7. Quarrelling causes between two villages

In the study area sometimes quarrelling causes between two villages. About 95% people said that sluice gate was the responsible factor for quarrelling and 5% people said other internal village problem may involve (Figure 16).

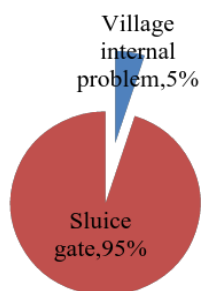


Figure 16. Reason of quarrelling between two villages.

3.2.8. People's perception of the TRM (tidal flood management) in the study area

TRM is main the main problem of the respondents. In the study area 80% people to want TRM and 20% people do not want TRM (Figure 17).

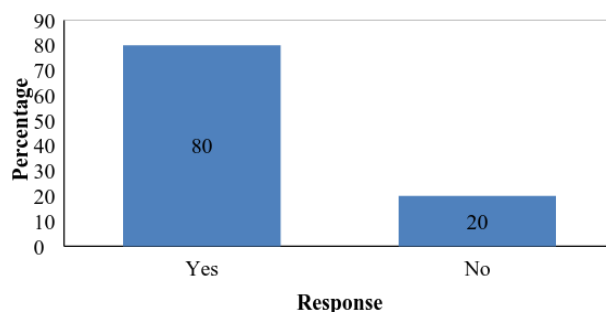


Figure 17. Suitable disaster management option.

4. Conclusions

Disaster in Bangladesh is frequent event and impossible to control it but effective DMS can ensure to save thousands of lives and property. The government of Bangladesh is motivated to establish a sophisticated and practiced disaster management system from national to local level to mitigate the effects of disasters. Having limited resource and the vulnerable condition of the country to natural disaster, the GoB has been made an effort to safer Bangladesh in the 21st century and seeks logistic and financial help of development partners and NGOs. Death of livestock due to flood, drought and extremes temperature event has been a common phenomenon for the community making them poorer. The changing climatic events make the outburst of vector and water borne diseases. Lack of Income and availability of food are further aggravating the human health creating malnutrition, diarrhea and other illness. Hence here is a need of both curative and preventive measures to reduce the effects of new diseases. The techniques of tidal river management (TRM) is a popular and proven process to solve water logging problems in the tidal river area having low lying beels or tidal basins. It is an effective process and has been applied in the KJDRP project in southwest zone of our country. Uniformly raising the land inside a beel and maintaining proper drainage capacity of the river are the two main objectives of TRM. Enhancement is used to effective DMS beneficially in Bangladesh. There are required improvement in the area of communication, remote sensing, and computing capabilities in the field of knowledge shearing and information of disaster management.

Conflict of interest

None to declare.

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