

**A PRELIMINARY QUANTITATIVE STUDY ON DISASTER
MANAGEMENT AND AWARENESS SYSTEMS OF BANGLADESH**

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This report presented in partial fulfillment of the requirements for the Degree of Bachelor
of Science in Environmental Science and Disaster Management

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APPROVAL



This thesis report titled “A PRELIMINARY QUANTITATIVE STUDY ON DISASTER MANAGEMENT AND AWARENESS SYSTEMS OF BANGLADESH”, submitted by Md. Akhirujjaman Mukit (ID: 171-30159) to the Department of Environmental Science and Disaster Management (ESDM), Daffodil International University (DIU) has been accepted as satisfactory for the partial completion of the requirements for the degree of Bachelor of Science (B.Sc.) in Environmental Science and Disaster Management (ESDM) and approved as to its style and contents. The presentation has been held on 17th February of 2021.

A small rectangular box containing a handwritten signature in black ink that reads "Mahfuza".

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DECLARATION

I hereby declare that; this thesis, titled as “**A QUANTITATIVE STUDY OF DISASTER MANAGEMENT AMONG THE CITIZENS OF BANGLADESH**” has been conducted and executed by myself and myself only, under the superintendence of **Dr. Mahfuza Parveen, Associate Professor, Department of Environmental Science and Disaster Management, Daffodil International University**. This thesis is a representation of my own exertion. This thesis paper or any portion of this thesis paper has not been previously submitted to any institution in any kind of format for any kind of qualifications.

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ABSTRACT

This research is based on the crucial topic of disaster management, more specifically disaster management of Bangladesh. It includes the geographic position as well as the disaster and disaster management context of Bangladesh. Rightfully so, the thesis paper is titled as “A Quantitative Study of Disaster Management Among the Citizens of Bangladesh”. The sole purpose of this research is to provide a closer and effective look of the disaster management of Bangladesh. The intent is to help building a better disaster management by finding out the shortcomings and failure in the current disaster management system. The research also follows on to the probable and practical solutions. It does so by providing a deeper look towards the similarly affected disaster-prone developed countries. This research also follows on to the defining factors of the developed countries like Japan. It points out the factors that could be important and beneficial for Bangladesh to learn and perform according to its own needs and benefits. It also put lights on the findings of disaster management at the present time. This includes a host of characteristics as well as people’s views and opinions about them. Solutions and people’s views and opinions about the solutions are also provided in respectful fashion and order. In order to do that a large scale and thorough social survey had been conducted. The survey also serves the intend to collect raw data from the citizens of various stages in the society of Bangladesh. All the information and details of this research were thoroughly checked several times and verified in ideal required processes. The responses of the people have been showcased vividly through individual charts and figures throughout the whole thesis paper. To properly pass on all the information and to get the points across, some specific categories have been made. In order to do that some key factors have been taken into consideration. These includes the importance, much needed aspects as well as the topics regarding proper disaster management of Bangladesh. Depending on these factors this thesis paper has been carefully categorized into five precise and individual chapters. Each chapter of this thesis paper holds their individual reasons and aspects. Individually as well as collectively, they serve the sole purpose of this thesis paper, to help build a proper disaster management of Bangladesh and hopefully this thesis paper would hold its own merit in doing so.

KEYWORDS

Bangladesh, Disasters, Natural, Man-made, Impacts, Setbacks, Problems, Failures, Reasons, Solutions, Role model, Japan, Accountability.

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CHAPTER 1

DISASTER MANAGEMENT AND BANGLADESH

1.1 Introduction

Bangladesh, situated in the delta of the Padma, Jamuna and Ganga rivers the riverine is a country of south-east Asia. With relatively small geographical area, Bangladesh holds the 92nd position in the world in terms of land area with 148,460 km². (Britannica, 2020) But its massive number of citizens makes Bangladesh ranked at 8th in the world in terms of population according to the 2011 census (**Census, 2011**) (**Farid et al., 2011**). This factor alone makes Bangladesh a very densely populated country in the world, 10th to be exact with a population density of 1265.19 people per square kilometer (**UN, 2020**). Geographically Situating in the delta naturally makes Bangladesh a very vulnerable country for natural disasters. Almost every year Bangladesh is faced with multiple serious natural disaster challenges with a host of man-made challenges alongside as well. A big population with a very dense population makes these challenges a lot harder to deal with. Disaster management plays a very crucial part in facing disasters whether it's natural disaster or man-made. In terms of both natural and man-made disasters, disaster management holds its effectiveness with each and every single moment. Disruptions, disfunctions or deficiencies of any kind could result a huge damage to human lives and their goods as well. With proper disaster management and its practical implication could eventually lead to a much less risky and much less vulnerable Bangladesh as a country. To do that or to start the process of doing that the very first needed element is the proper information about every aspect regarding disasters of Bangladesh and disaster management of Bangladesh. If the deficiencies could be pointed out from the very root, if the general raw concerns of the citizens could be extracted from every single different stage, if the deficiencies are precisely dealt with and made sure of a proper structural plan of implications and finally if the implications as well as accountabilities are made sure of then there is no option but making sure to have a proper disaster management system in Bangladesh. With the hope and target of ensuring the safety of the citizens of Bangladesh as well as the reduction of losses, there is no other way to accomplish that very goal. Maybe it is impossible to lose the name of Bangladesh as a "land of natural disasters" but only and only the ensure of proper disaster management could lead up to the losing the aspect of Bangladesh in the whole world as a "vulnerable country" (**WorldBank, 2013**).

1.2 Purpose and Objectives of the Research

Disaster management in modern days has become quite relevant as well as one of the most important topics in the whole world and rightfully so. This is high time the world took a clearer look in the very much needed, important disaster management sector. This research is a nod to that clearer look from a fellow student of Environmental Science and Disaster Management. The sole purpose of this research is to provide a closer and proper glance of the disaster management of Bangladesh specially through the views of citizens of all stages, ages and capacities.

The objectives of this research are much clear and specific as well. They could be summed up into such followings:

- 1. To understand the disaster management of Bangladesh.**
- 2. To identify the major disasters and their impacts in Bangladesh.**
- 3. To find out the deficiencies in current disaster management.**
- 4. To pave a way to find the proper steps towards solving the deficiencies.**
- 5. To make the authorities as well as the citizens aware regarding disaster management issues.**
- 6. To push the wheel towards making Bangladesh a better, safer country.**

1.3 Study Area

The study area for this thesis were selected by keeping in mind the geographical, economical and also the population aspect of Bangladesh. The thesis area was mainly divided by following the government's administrative map into eight main divisions covering the complete geographical area of Bangladesh. The mainly focused eight divisions are: Dhaka, Chittagong, Rangpur, Rajshahi, Khulna, Sylhet, Barishal and Mymensingh. Each of the divisions were individually surveyed to acquire individual and more specific raw data for the research. Covering these divisions individually eventually lead to cover the whole geographical area of Bangladesh.



Figure 01: Location map of the study area - Bangladesh

Source: Administrative map of Bangladesh (WorldMap, 2020)

1.4 Research Methodology

This research required primary as well as secondary data to be properly completed. A vast survey was conducted on 700 citizens living in various divisions covering the whole geographic area of Bangladesh. Like every other work field in the world this thesis also faced a massive impact of Coronavirus. Due to the global outbreak of COVID-19 it was absolutely impossible to convey all of the survey physically. Internet worked as a blessing in this specific part of the thesis. Majority portion of the survey was conducted using google

form. The specific and individual parts of society which was unable to reach the platform of google form were surveyed physically. This ensured covering of the maximum portion of society even in this extreme crisis.

By achieving the target of reaching out to a total of 700 people, each and every divisions of Bangladesh were covered. Each division were covered with similar and close to identical respective portions. The survey in Khulna, Sylhet, Barishal and Mymensingh were covered with the participation of 87 people each. As a result, each of the division contributed a respective 12.43% of the whole survey.

However, in the case of Dhaka, Chittagong and Rangpur, each of them was covered with the participation of 88 people each. As a result, each of the division contributed a respective 12.57% of the whole survey, coming up just a little bit ahead of other divisions.

The sole objective of maintaining a close to similar if not identical ratio in survey was to get an equal or as close to equal evaluation and feedback as possible from each division.

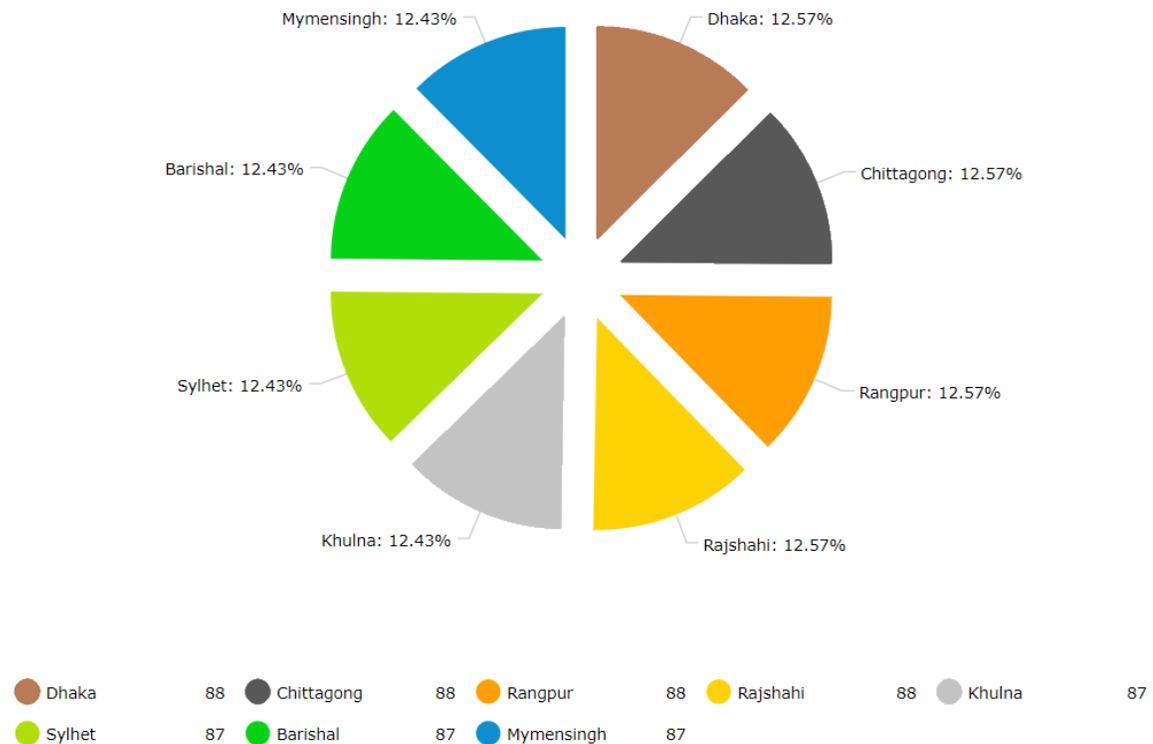


Figure 02: Data collection ratio (Survey)

This survey worked as the primary data. But a respectable portion of the survey secondary data as well. Huge portion of secondary data like, a host of statements, reports and other information from the authorities and government also have been collected for sake of the research.

The authenticity factor is one of the most important parts here to be strongly pointed out the. Whatever may the nature of the data be, each and every information was verified, analyzed and finally, addressed in ratios, rates and percentages accordingly.

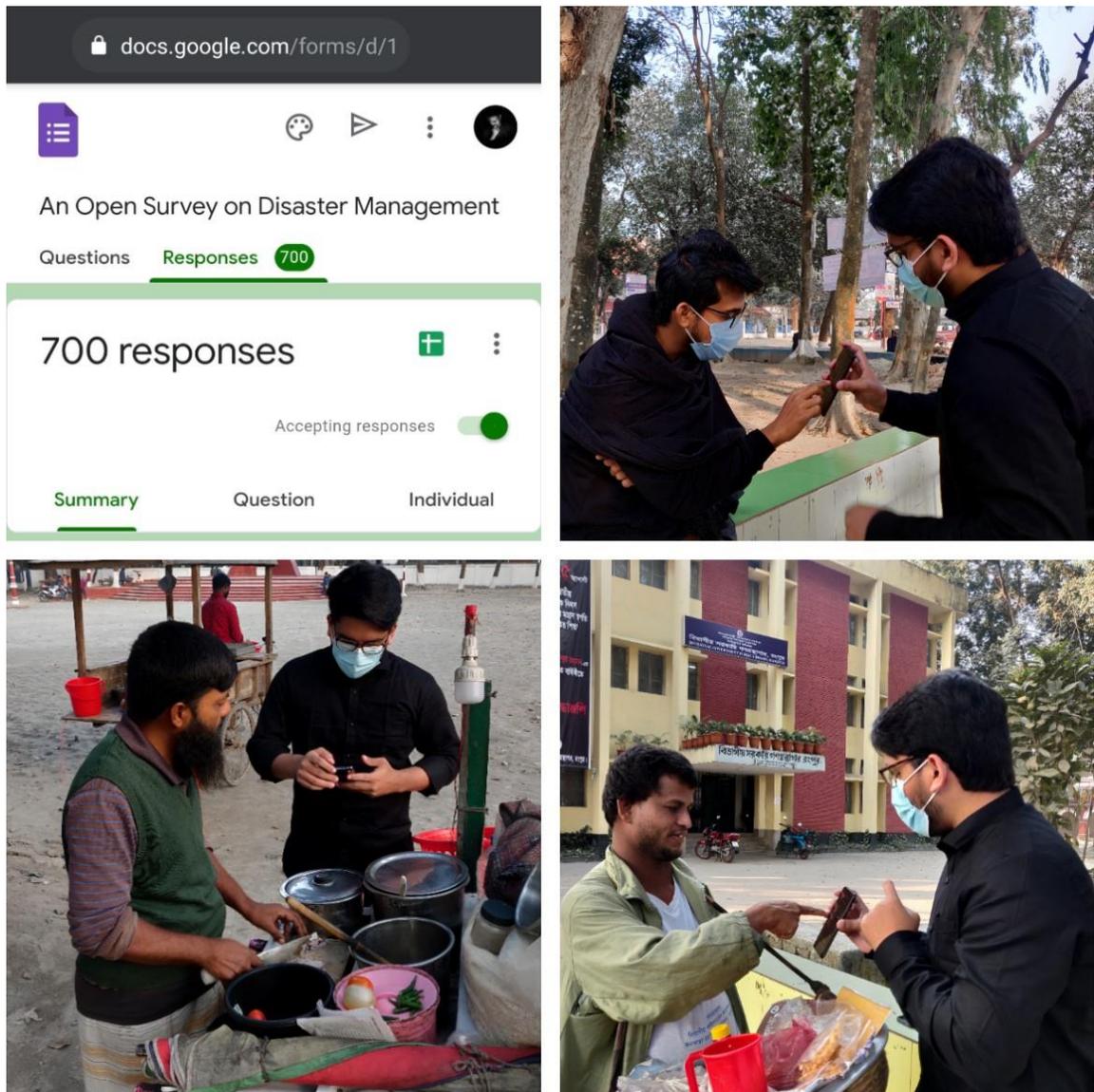


Figure 03: Data collection (Survey)

1.5 Disaster Management of Bangladesh

The main approach and response taken by the government of Bangladesh about anything regarding disaster management goes through the Directorates of Disaster Management also known as the DDM.

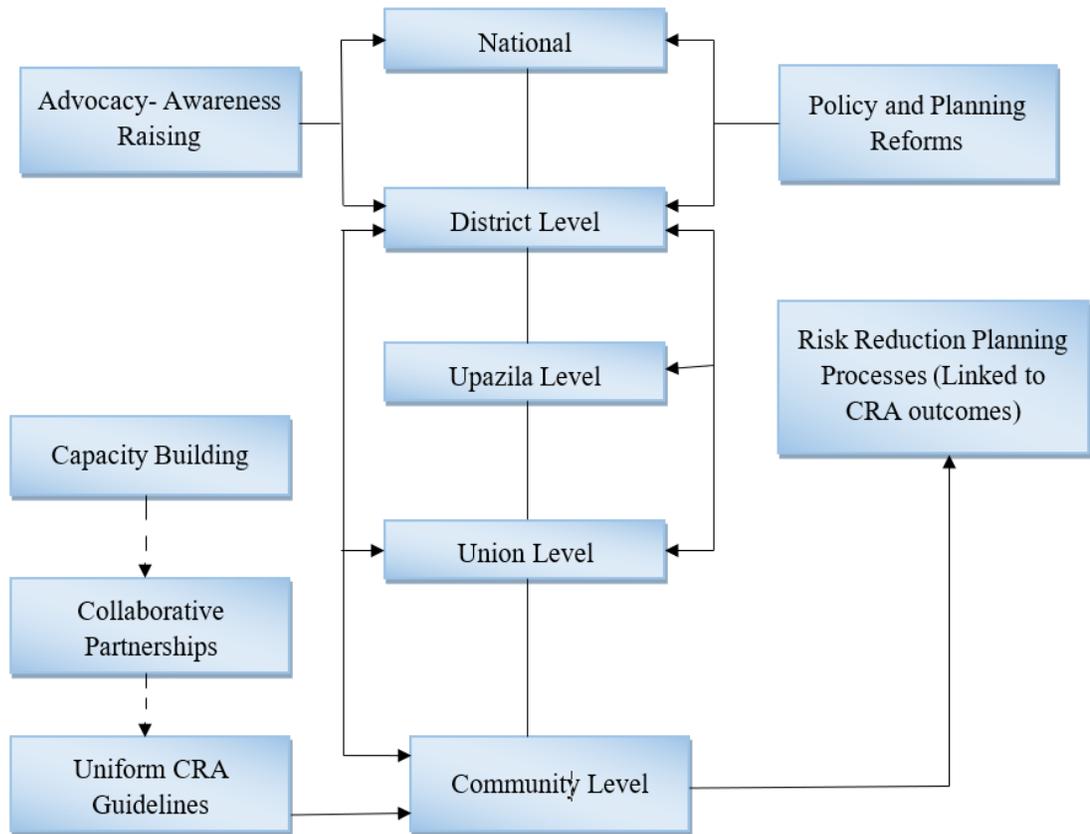


Figure 04: National plan for disaster management (Bangladesh)

Source: (Ministries of Disaster Management and Rescue, 2020)

This is the concerning authority or governing body of Bangladesh government regarding any kind of disasters. DDM covers some precise factors regarding disaster management. Those are as follows: government's vision, creation of directorates, subsection, public service, ethics committee, workers, congresses, congresses loges, field work, emergency response, emergency response center and so on (**Directorates of Disaster Management, 2020**). DDM also interacts with the government in ensuring the laws, policies and any kind

of indications from the government regarding disaster management. This includes the permanent dictum of disaster act provided in 22-04-2010, latest edition of the permanent dictum of disaster act provided in 15-01-2015, national disaster management planning act provided in 27-03-2017 and the permanent dictum of disaster act provided in 08-11-2019 (**Directorates of Disaster Management, 2020**). Collaborating with Ministries of Disaster Management and Rescue also known as MODMR, Bangladesh managed to provide a particular guideline and plan for disaster management in national scale. The following figure showcases each and every step of the national plan for disaster management in Bangladesh.

CHAPTER 2

IMPACTS, PROBLEMS AND THEIR REASONS

2.1 Bangladesh: A Land of Disasters

Bangladesh is no stranger when it comes to disasters. Almost every year if not every year Bangladesh has to face a number of natural as well as man-made disasters. Situating at delta position already results a host of natural challenges. Added with that Bangladesh is known as a country of rivers hosting more than 310 rivers and tributaries. Along with these, Bangladesh also faces towards the Bay of Bengal (**Sarker *et al.*, 2003**). All of these results a frequent visit of natural disasters. As a matter of fact, Bangladesh faced 219 natural disasters from 1980 to 2008 alone. The cyclones occurred in 2009, 2007, 1991 and 1970 killed respectively 190, 3,363, 136,000 and 364,000 people (**ADRC, 2013**). To find out which natural disasters affect Bangladesh the most, I conducted a survey among the people of all the stages of society. As I elaborated earlier that Bangladesh is a land of natural disasters. So, this survey hit people on a personal level because a lot of them if not all of them suffered and still suffer from these disasters. The fact of the survey was quite clear to them. The result in the following figure shows their decisions.

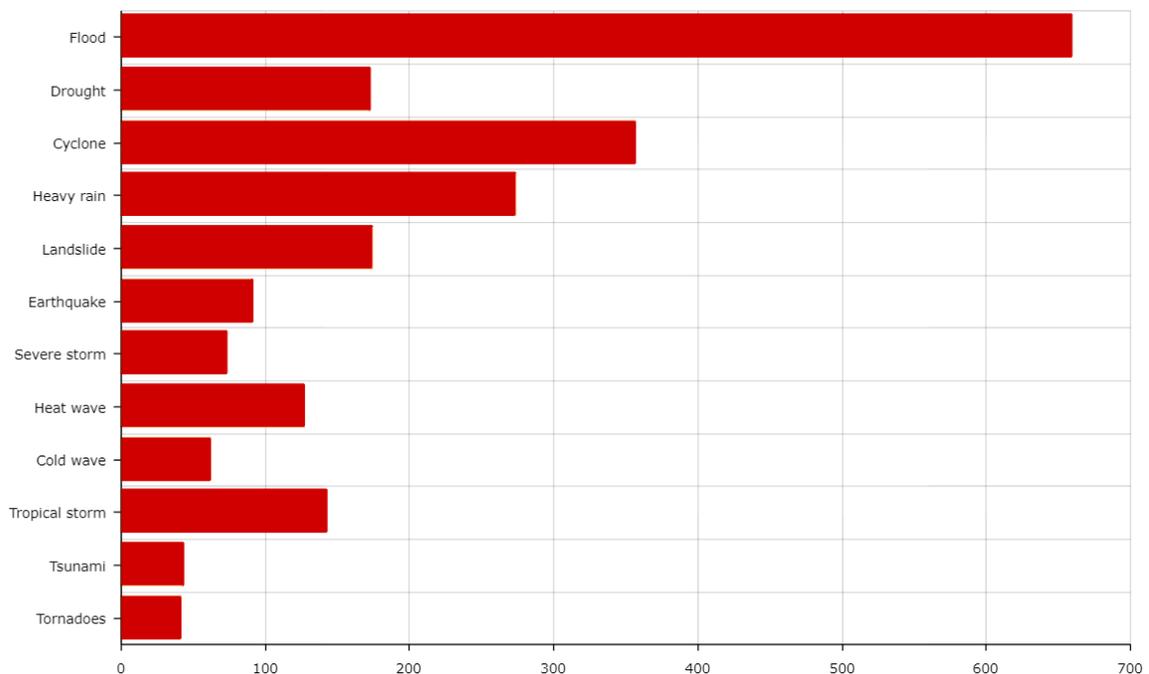


Figure 05: People on the most affecting natural disasters of Bangladesh

Source: Social survey (Primary data)

People selected flood above the rest by a far margin as the most affecting natural disaster of Bangladesh following cyclone in second, heavy rain in third, drought as fourth, landslides as fifth and later on other natural disasters.

By adding man-made disasters into this picture, it becomes a whole lot worse altogether. This shows how damaging the disasters of Bangladesh are and how frequently they damage. If the previous man-made disasters of Bangladesh are taken into account, there are four main man-made disasters that suffered and still suffers Bangladesh the most among a host of others. They are: fire accidents, transport accidents, industrial accidents and oil spillage (**Chen, 1973**). I conducted a survey upon this matter as well. To find out people's opinion, it was a necessary thing to do. In terms of the kind of man-made disasters, people gave their valuable opinion on this specific matter too. They kept the impact and damage factors very closely as a lot of them suffered and still suffer from them personally and quite directly. Majority of the people selected transport accidents by a large margin as the most affecting man-made disasters of Bangladesh following fire accidents as second, industrial accidents as third and oil spillage as fourth. The following figure showcase it pretty well.

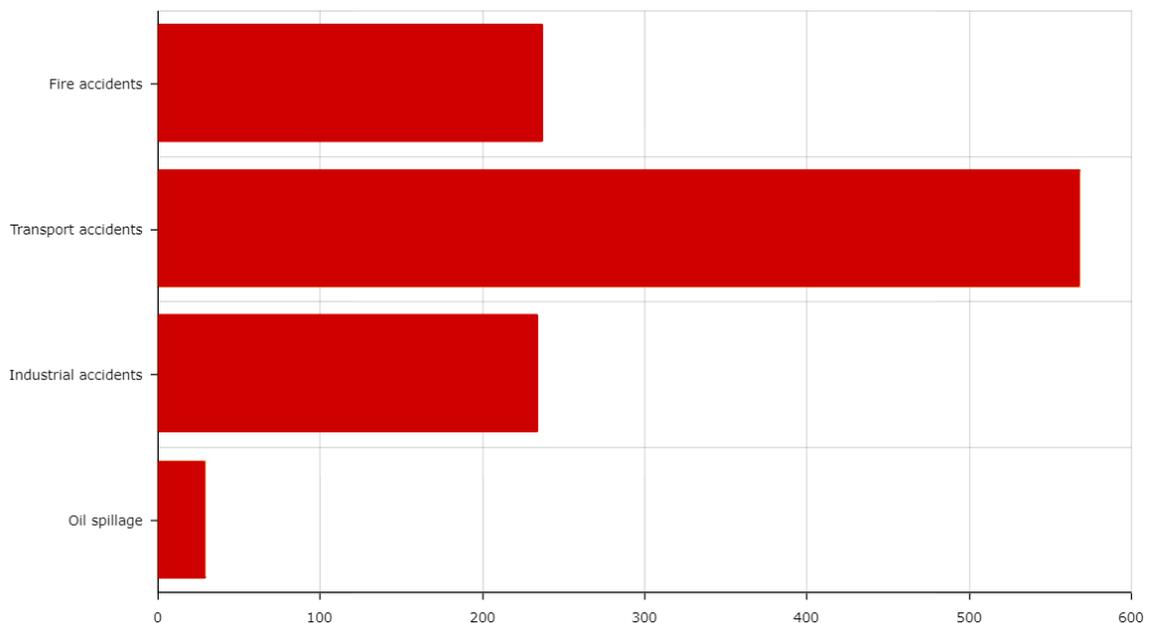


Figure 06: People on the most affecting man-made disasters of Bangladesh

Source: Social survey (Primary data)

2.1.1 Most Disaster Impacted Areas in Bangladesh

Bangladesh itself was formed by the liberation war back in 1971 which itself was a man-made disaster (Saikia, 2004). Ironically, the country that was formed by a man-made disaster now suffers drastically from it. 2013 Rana Plaza incident, 2012 Tajrin Garment factory fire incident, 2010 Nimtoli tragedy and Sundarbans oil spillage are just to name a few in a whole lot bigger picture of man-made disasters in Bangladesh (Barua and Ansary, 2017). These man-made disasters can be traced by following a simple and certain trail, population density and the way of living. By following this trail, the capital of Bangladesh, Dhaka as well as mega city like Chittagong come into the discussion. So, I conducted a survey based on this trail and people of different parts of the society tend to agree with this matter. The response gets quite clear by following the provided figure.

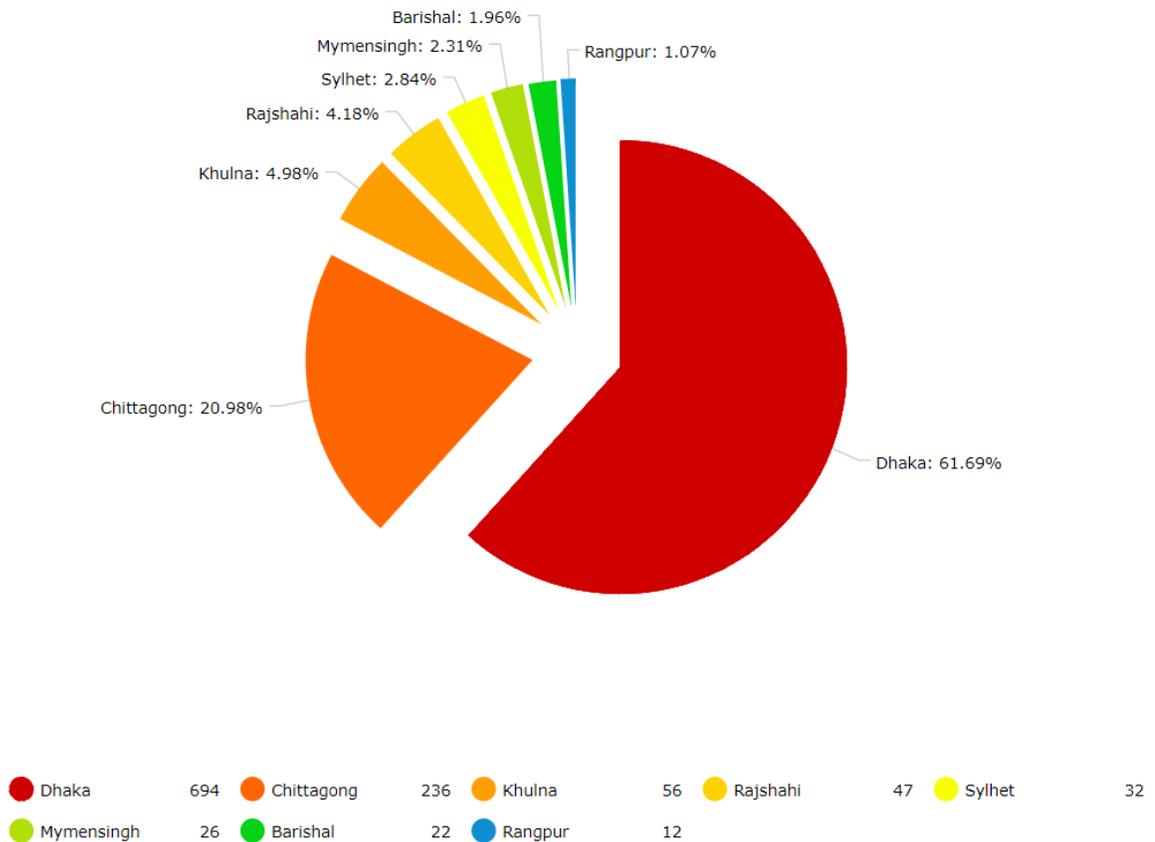


Figure 07: People on the most man-made disaster impacted areas of Bangladesh

Source: Social survey (Primary data)

Disasters of both natural and man-made are quite familiar in Bangladesh. Though not as specifically as man-made ones, natural disasters hold their own particular territory too. When it comes to natural disasters, Bangladesh is no stranger to facing them in regular basis either. Divisions like Chittagong, Khulna, Sylhet, Rangpur are mainly affected by them almost and if not, every year following by other divisions like Dhaka, Rajshahi, Mymensingh and Barishal. They are the direct impacted areas. People living these areas are basically the front lines of natural disasters (UNOCHA, 2012).

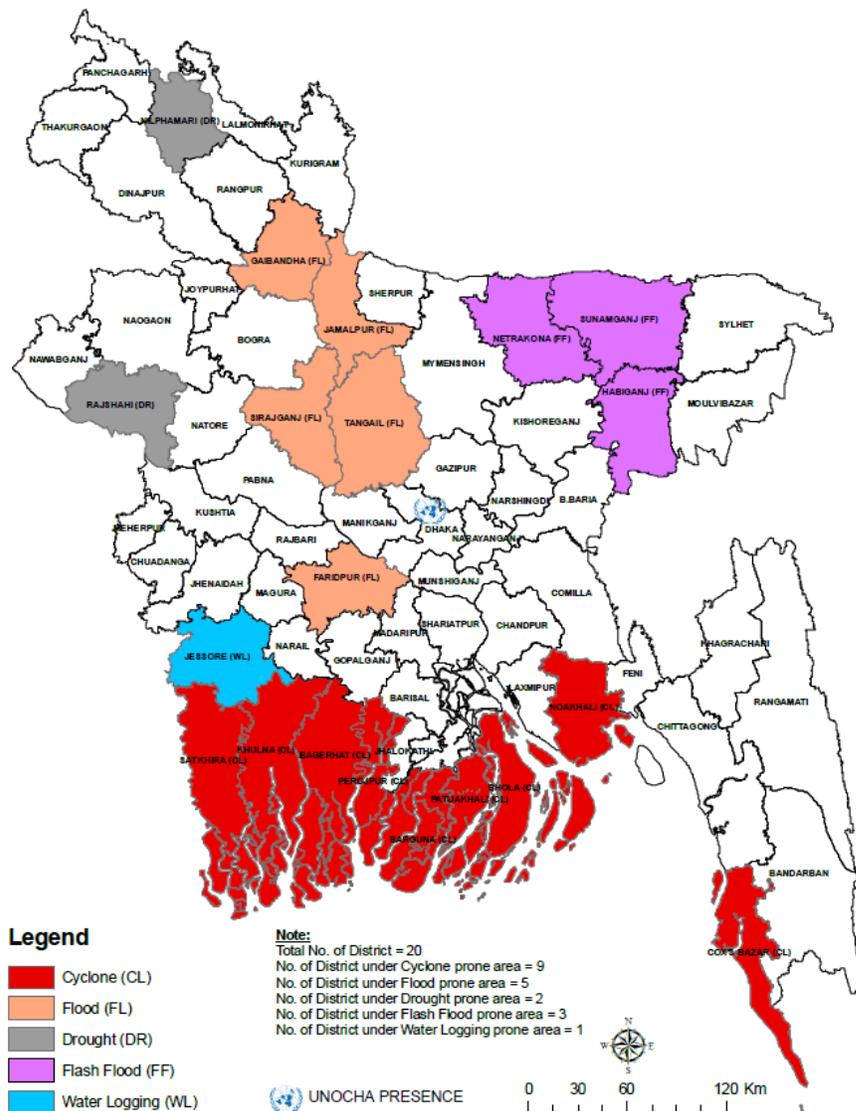


Figure 08: The most natural disaster impacted areas of Bangladesh

Source: (UNOCHA, 2012)

Damages from natural disasters as well as man-made disasters of Bangladesh can be simply indicated and identified by observing population, population density and the way of living of a certain area as I mentioned before. More population, more population density tends to lead more damages from disasters and it is indeed the case of reality more often than not. United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) completely agrees with this point as well (UNOCHA, 2012). So, I conducted a survey on this factor to gather people's opinion on this matter and they tend to agree with it too. While it was clear from the beginning that the people are both directly and indirectly affected from natural disasters in a regular basis, but after conducting the survey, it was quite clear that people of Bangladesh from all stages of the society have a very clear idea and consciousness about frequently occurring natural disasters and their impacts. Their opinions are perfectly expressed through the following figure.

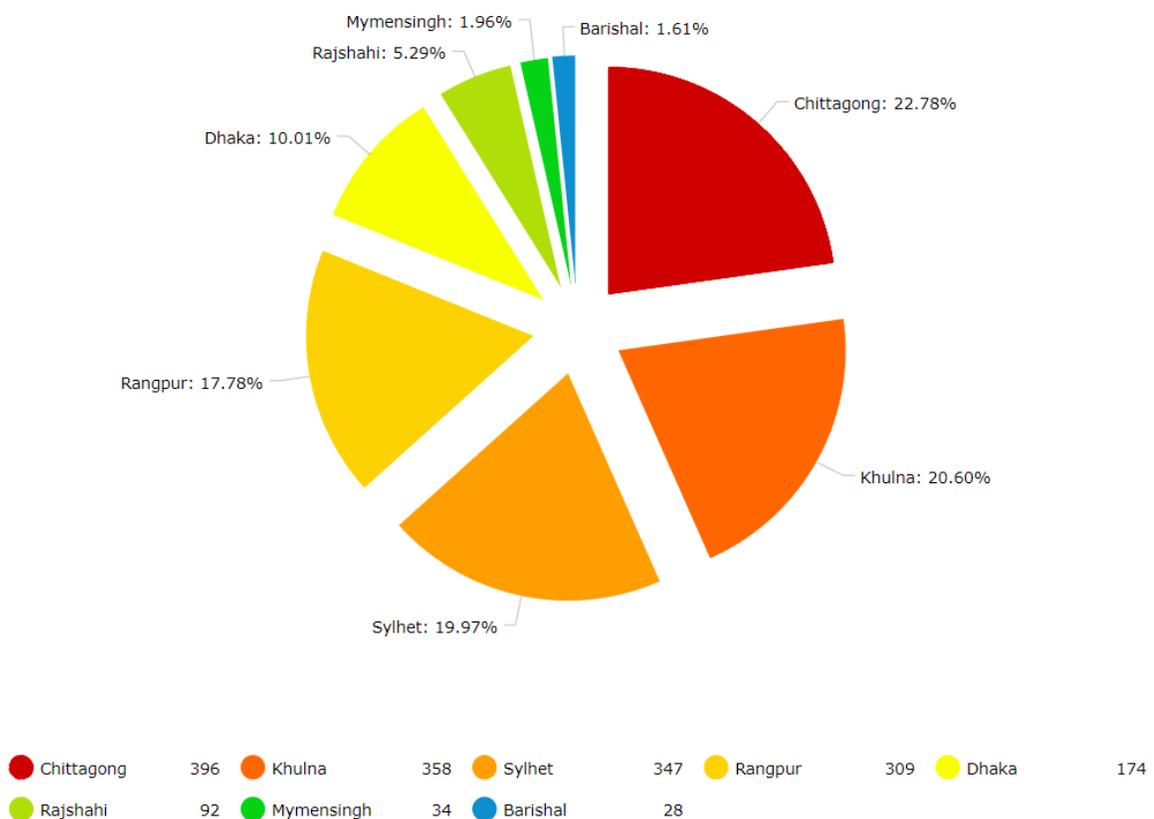


Figure 09: People on the most natural disaster impacted areas of Bangladesh

Source: Social survey (Primary data)

2.1.2 Importance of Disaster Impacted Areas

As it is clearly evident from the discussion already provided, both natural disaster as well as man-made disasters take a huge toll towards the people of Bangladesh. Now comes a very crucial part of this research, the important of disaster impacted areas. If natural disasters are taken into consideration, the mainly affected divisions are Chittagong, Khulna, Sylhet and the capital, Dhaka. When man-made disasters are taken into consideration, the mainly affected divisions are Dhaka, Chittagong, Khulna. But the question still being asked, why is these divisions are so important? There are a whole lot of reasons for these divisions to be extremely important for Bangladesh. Dhaka being the capital city of the country, holds the largest economy of Bangladesh providing more than 40% of the gross domestic product of the whole country with a GDP of \$210 billion as of 2019 (**Ahmed and Salan, 2019**). Chittagong however comes a close second to Dhaka providing more than 12% of the gross domestic product of the whole country with a GDP of \$85 billion as of 2019. Being situated in the north pole of Mongla port, Khulna comes in as the third largest economy of Bangladesh in terms of providing the gross domestic product of the country. Finally, Sylhet comes in as the fourth largest economy of Bangladesh with a GDP of \$36 billion as of 2019 (**Ahmed and Salan, 2019**). From these statistics and facts alone it is clearly evident how massively important these areas are for Bangladesh not only for surviving but also to become more powerful and stronger on the way of having of sustainable economy (**Asadullah, Savoia and Mahmud, 2014**). But sadly enough, especially these areas are heavily impacted from both natural and man-made disasters.

2.2 Problems Created by Disasters

In terms of creating problems disasters tend to follow on into several stages including pre-disaster, during the disaster and also post-disaster as well. This stands true for both natural disasters and man-made disasters. In both cases there are some main problems that can be observed quite frequently and consistently. These includes problems like economic halt,

development setbacks, service failures, work-chain disruptions, unsettling lives, disturbance in law and order, migration of population and most importantly introduction of other disasters (Petrucci, 2012). To follow up this matter and to gather the public opinion, I conducted a survey regarding this matter and people responded quite responsibly. The following figure show the people’s opinion quite vividly.

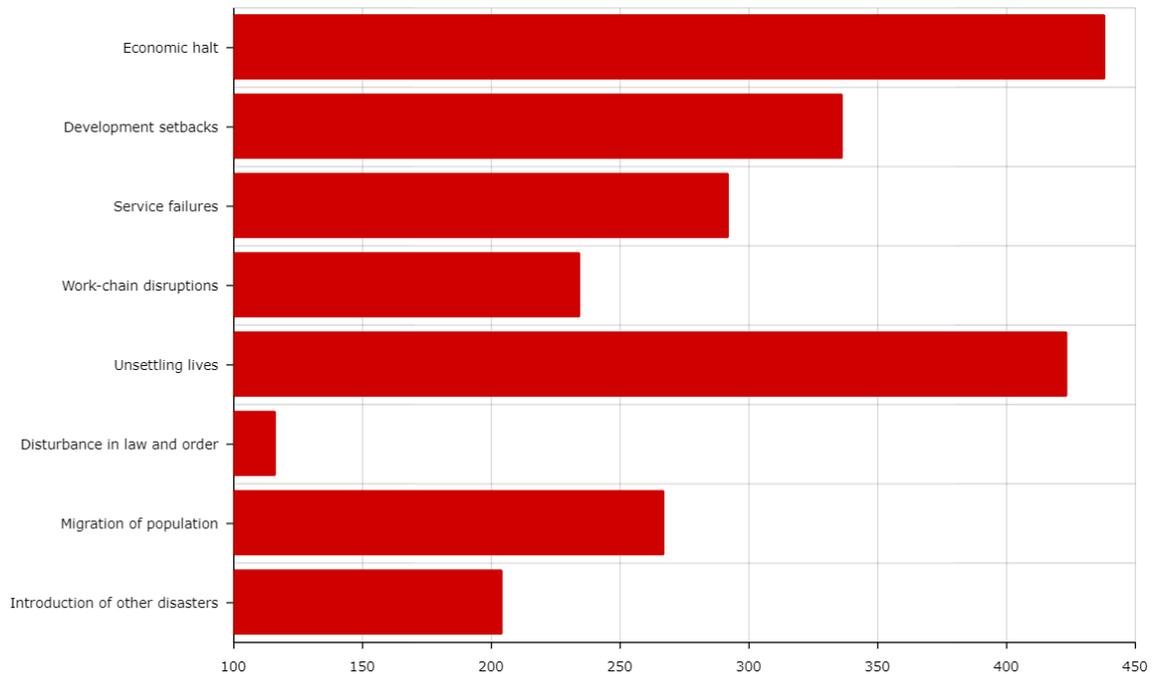


Figure 10: Problems created by disasters

Source: Social survey (Primary data)

As the figure shows, people selected economic halt as the biggest problem created by disasters followed by unsettling lives in second, development setbacks in third, service failures as fourth following on other problems. All of these are in fact a major threat in the way of any kind of developments whatsoever. Because individually all the problems lead to one thing and one thing only, damages and setbacks which concerning for any nation let alone a developing country like Bangladesh. With as massive population as Bangladesh has, it is quite hard to manage and improve every step along the way itself. Added these problems into that challenge, the tasks get a whole lot harder to accomplish. Which is another important reason why identifying these problems are so much important. Hence

conducting my survey. It could at least gather up and display the problems at their raw forms and hopefully be helpful in resolving the issues as per necessity.

2.2.1 Economic Halt

Any disturbance in the process of economy is generally a cause of halt and it is the reality in more often cases than not. Disasters introduce a whole lot of new problems as well as exceeding a lot of on-going problems. This could be anything from stepping down in quality to shutting down of production. Disasters provide a major disruption in demand and supply too. This cause economic halt in small individual portions as well as in a large scale (**Anderson, 1995**). Even GDP tends to take a dive in case of disasters. Because of disasters involving and affecting every step of normal lives on the way, it deeply harms the economy on individual levels as well as on a collective measure. Natural disasters alone used an economic damage of more than \$17 billion since 1980 in Bangladesh. Almost 14% of total GDP of the country is still completely interacted and affected by the natural disasters alone (**Benson and Clay, 2003**).

2.2.2 Development Setbacks

Bangladesh holds some major goals to advance forward just like many other developing countries. Bangladesh holds sustainable development goals and aims to fulfill the by 2030. A lot of measured methods and plans have been taken into consideration. But being the land of disasters, it is way to harder to achieve those goals than the calculation on papers. Setbacks, delays, stoppages are bound to occur due to constant and regular disasters (**Islam and Shamsuddoha, 2018**). Even if the comparatively small developments such as small roads, bridges or any kind of small-scale constructions are taken into the accounts, the setbacks are quite large in numbers let alone the larger scale ones. But all of these add up to the larger scale development setbacks taking a huge hit in the progress of the country.

2.2.3 Service Failures

The major services take hit in the disaster are the ones that are needed the most. Network services, transport services, responds services, security services, emergency health care services and so much more to name a few that take a major and crucial hit in disasters. These services are most needed in the face of disasters. But due to the major importance and need they take the largest hit. People cannot reach out due to the network services, transport services and respond services failures (**Savas *et al.*, 2014**). But it becomes even scarier when life and death situation are faced in these situations. Services life emergency health care fails to cope with the demand due to the shortage of services in the hospitals and other medical facilities (**Mohiuddin, 2020**).

2.2.4 Work-chain Disruptions

If the global view of the work chain disruption due to disasters are taken into accounts, it paints a quite clear picture. UK strike by fuel tanker drivers in 2012, sinking of MSC Napoli in 2007, sinking of Rena container ship in 2012, Thailand floods in 2011, Japanese earthquake and tsunami in 2011 are to name few examples in the huge scale of global work-chain disruptions. Bangladesh is in the crisis of work chain crisis from disasters for a really long time. Specially the garment sectors of Bangladesh are heavily impacted by the disasters and their effects. Added into that all the other major economic sectors and it results to a massive loss of productivity and a huge work-chain disruption as well (**Chowdhury and Quaddus, 2015**).

2.2.5 Unsettling Lives

The topic of unsettling lives due to disasters could be approached by several ways. Due to disaster impacts daily lives of the people get heavily impacted as they are a regular and often occurring disasters. This result huge uncertainty in daily need and daily activities of the people. Because of the lifestyles and work sectors of most of the people, the disasters

impact them almost every steps of living. This makes their lives unsettling in an unwanted and unpleasant way (**Donner and Rodríguez, 2008**). More often than not this uncertainty and unsettling of lives tend to lead the people towards migration in individual as well as collective numbers.

2.2.6 Disturbance in Law and Order

Law and order are made to keep balance and that is also the very first thing that is threatened and gets heavily impacted from disasters. Disturbance of this balance provides an awful opportunity to the ill people to take up the crime rate higher. It influences people to be involved into antisocial activities. Also, helpless people are often forced to break the law and order just for the sake of basic necessity of surviving. All of these add up to increase all kinds of the crime rates but specially murder and robbery takes an awful increase in crime rate (**Quarantelli, 1994**).

2.2.6 Introduction of Other Disasters

Any disasters whether its natural or man-made takes their toll before, during and after the disasters. They impact on the key and main sectors like I already explained before. But it gets much worse when a certain disaster more often than not introduces another disaster or several other disasters along the way. Disaster like flood tends to introduce disaster like famine. Same could be said about drought, heavy rainfall and others too. Most of the disasters if not all of them cause a serious damage to human as well as animal lives leaving a lot of contamination to spread. In most cases the contamination spread in a wide range of landscape and a lot of cases those contaminations are very harmful and sometimes even could be deadly. This shows how much harmful impact it could bring if disasters tend to introduce other disasters along them (**Modica and Zoboli, 2016**). A lot of disasters directly influence to the introduction of other major disasters. Heavy rain fall could turn into floods, earthquakes could turn into landslides, drought could turn into famine and so much more

example could be given in this particular matter. All of them are quite serious in terms of damaging human lives and their goods as well (Modica and Zoboli, 2016).

2.3 Key Reasons Behind Disaster Management Failure

Disaster management holds a large sector to cover in case of finding its main reasons of failure. But there are some key reasons to work on. Reasons like ignorance of authorities, ignorance of people, lack of proper education, absence of effective laws are to name a few examples (Seneviratne, Baldry and Pathirage, 2010). So, to find out the key reasons of failure in its core, I conducted a survey regarding this matter and people gave their valued opinion as the following figure shows vividly. People selected absence of proper disaster management as the very first reason by following lack of proper education in second, ignorance of authorities in third, insufficient role of authorities in forth following by other key reasons.

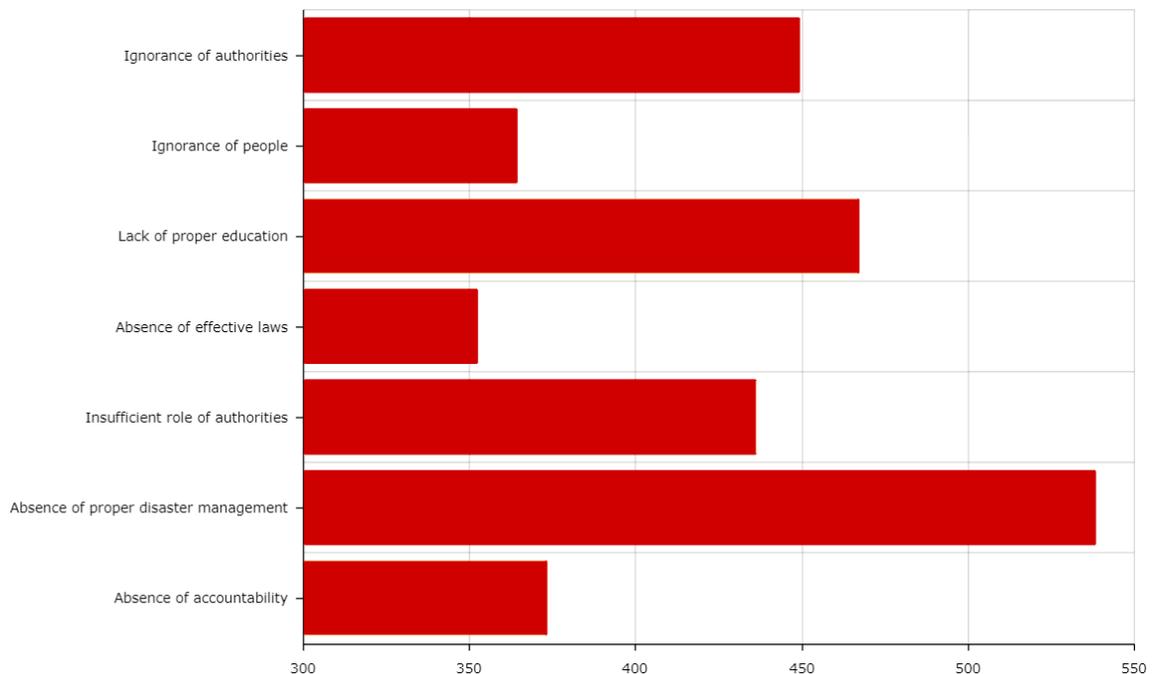


Figure 11: Key reasons behind disaster management failure

Source: Social survey (Primary data)

2.3.1 Ignorance

The key reason for any kind of management to fail is ignorance. Ignoring the key factors of the management as well as the necessary requirements lead any management sector towards failure and disaster management is not exception to this factor. From risk assessment to the final steps of the disaster management each and every task needs to be taken into serious consideration. Ignoring any steps could lead to fatal losses, injuries and even deaths. This is why the ignorance topic is so much important in the disaster management discussion. To provide and maintain a proper service a regulating structure is needed which stands on constant checking and ensuring. Ignorance could do no good ensuring this massive responsibility. Even after disaster impact, lacking and limitations are a must to be identified and need to resolve accordingly. That is simple not possible is ignorance is present in that discussion (**Kutsch and Hall, 2010**).

2.3.2 Lack of Proper Education

Education is the main key to resolve almost every issue that is needed to be tackle with. Disaster management is not excluded from that factor. Education could provide almost every required factor that have been discussed here. It helps not only to prepare the people prior to the disasters but also ensures their actions during the disasters and helps to mitigate the impact in a large margin. It comes into importance for even post disaster impacts. It educated the common people of what to do and what not. Specially in the situation of disaster crisis, that is a huge service to be helped with. Basically, education regarding disasters, disaster management gives people of all the stages of society an armor to tackle the impact of the disasters and it has been proven and still being proved all over the world but specially in the European countries. It is high time that we emphasized on this matter with a whole lot importance than before (**Khorrman-Manesh et al., 2015**). Lacking of this huge asset put a massive dent in the preparedness and strength of disaster management sector. Without proper education regarding this sector people as well as the authorities stand helpless in the face of disasters when the responses are needed in real time and on

the spot. It makes the management work helplessly. Because it does not matter how massive of a disaster management a government or authority provides, if the proper education and knowledge regarding their work is lacking, it would not do any help whatsoever.

2.3.3 Absence of Effective Laws

Although the government of Bangladesh made their efforts in terms of creating effective laws regarding disaster management, it failed to show its proper benefit as of yet. Specially the law passed back in 2012 as the disaster management act is something to be glad about, but the effectiveness is nowhere near in the reality and there are a host of reasons for that (**Bangladesh National Parliament, 2012**). If history and current conditions are taken into consideration, it is quite clear that laws like the 2012 disaster management act could do none to a very little effects in reality. Compared to many developed countries, Bangladesh is far away along with its citizen in terms of effective laws. There are a lot of reasons for not obeying or respecting the laws like other developed or even other developing countries. Geography as well as phycology among a lot of other factors plays a very important part in this matter (**Gabriel and Greve, 2003**). So, to resolve this issue a thorough study and a closer look is needed before making and enforcing laws regarding disaster management.

2.3.4 Insufficient Role of Authorities

Disaster management heavily depends on the role of authorities. Specially, when it comes to quick and immediate response on the face of disaster crisis, authorities hold a huge part. All the stages and steps in terms of authorities of a country holds their own capacity and ability to response. These authorities include traditional, local, district, provincial and finally national. All of these authorities are the very first responsible body when it comes to protection, assistance, provision, implement and also providing coordinate capacity. It is key to understand that disaster management authorities are in fact the most involved

governing body when it comes to facing the disaster impact. Not only they can get hold of the situation quicker than anyone else but also, they are the one who holds the most capacity and flexibility to mitigate and sometimes even avoid the massive losses and damages caused by disasters. But the major problems create when the much need authorities fail to do their proper role leading to major and massive calamities (**Keele, 2005**).

2.3.5 Absence of Proper Disaster Management Strategies

Strategies regarding disaster management holds a significant value in terms of avoiding and mitigating the damages and losses caused by the disasters. Disaster management strategies include all the phases that are necessary to ensure a solid framework of disaster management. This includes all the stages and phases of the structure as well. Judging from the evolution of communities and societies as well as living styles of the people in 21st century, the strategies are bound to improve and need to upgrade constantly in the face of need (**Pearce, 2003**). The fact that disaster management strategies keep hold of each and every step of disaster management makes it so much important itself. It is crucial to ensure that the strategies work perfectly. When they do not however present a disaster itself which results far more danger and massive destruction (**Comfort, 2005**).

2.3.6 Absence of Accountability

Although all of the discussed factors hold very important roles of their own but I simply cannot mention it enough that how massively important accountability is. Without accountability everything in this whole discussion fall apart. If accountability is taken out of the equation no one really is responsible for anything anymore. Sadly enough, which is a reality and often the case when it comes to failure of any kind and in any stages. Does not matter how limited the resources are, this is the most important and essential part of any governing body to be onboard with. Nothing can hold together a proper disaster management with the absence of accountability (**Linn, 2000**).

CHAPTER 3

**DIFFERENT GENERATIONS AND DISASTER
MANAGEMENT CONCERN**

3.1 Opinions of Elder and Younger Generations

It could be easily guessed that does not matter which age people are in, they should care and act towards the same goal of proper disaster management. While most of the part that is indeed the case. But in reality, there are a clear margin to be identified and clearly visible. I conducted some specific surveys to find out just that, each of their valuable opinions.

3.1.1 Current Stage of Disaster Management

Citizens of Bangladesh from various backgrounds and from different stages of society were asked if they are satisfied in current disaster management of Bangladesh.

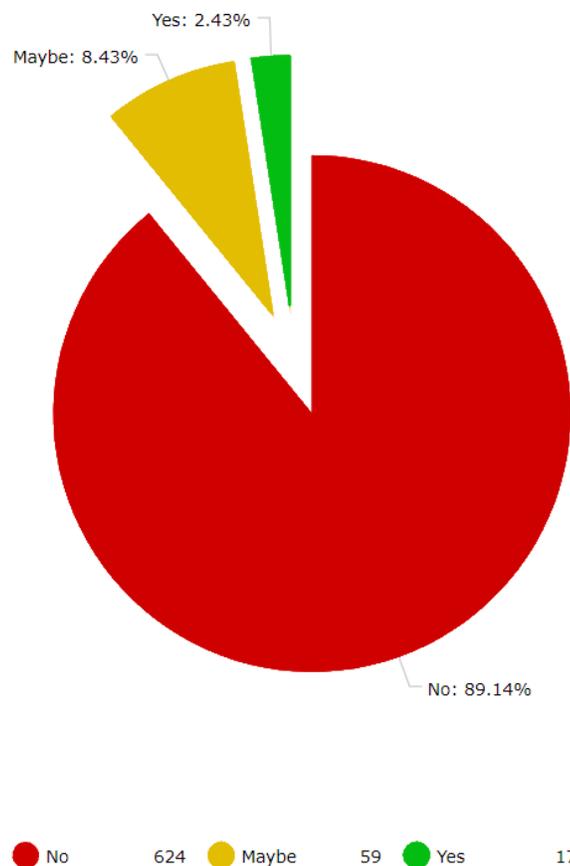


Figure 12: Citizens on being satisfied in disaster management of Bangladesh

Source: Social survey (Primary data)

As the figure portraits, a huge majority of the people, 89.14% to be exact are not satisfied in current disaster management of Bangladesh with 8.43% in unsure state and having only 2.43% satisfied. This shows how unsatisfied the citizens are with current disaster management system and this is a perfect showcase of current stage of disaster management in Bangladesh which is nowhere near to be good let alone being perfect.

3.1.2 Role of Authorities and Law Enforcement

When it comes to the role of authorities and law enforcement, people gave their honest opinions on this matter as well as providing a remarkable feedback.

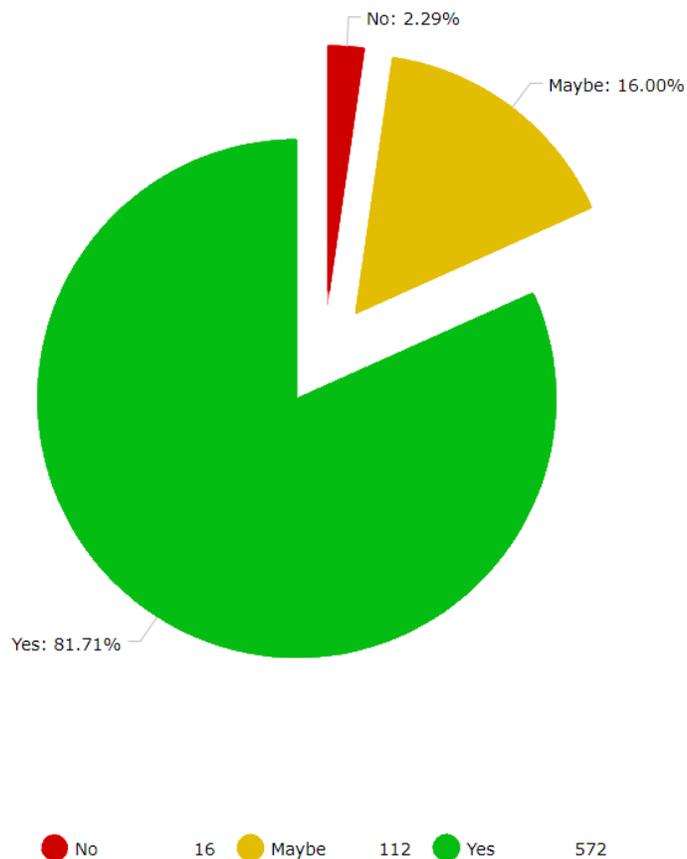


Figure 13: Authorities and law enforcement in having a major role in disaster management

Source: Social survey (Primary data)

The figure shows how people agreed to the fact that authorities and law enforcement indeed have a major role in disaster management with majority of people, 81.71% to be exact, saying yes with 16% being unsure and only 2.29% saying no. This shows how much influence and impact authorities and law enforcement could bring if they serve their sole purpose and do their job. However, when it comes to doing a proper job, it is a completely different scenario. When people were given the chance to be honest about their views and giving their opinions, they responded vividly and it perfectly visible in the following figure. The majority of people are not onboard with authorities and law enforcement doing their proper job. With 84.86% of the people saying no, 11.29% being unsure and only 3.86% of the people saying yes, it clearly shows the lacking of authorities and law enforcement on doing their proper job. Which is without any doubt, alarming.

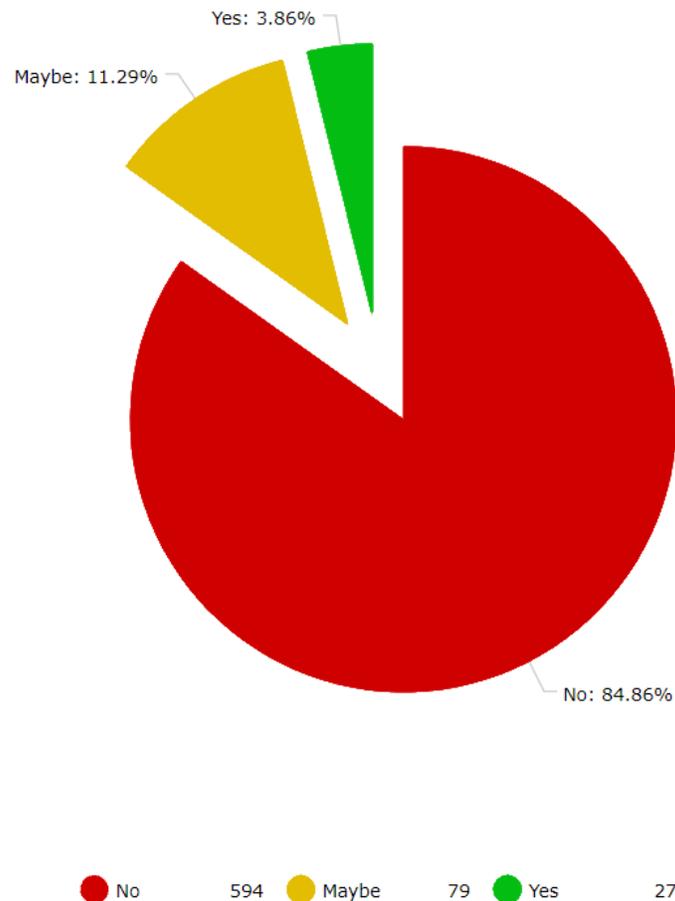


Figure 14: Authorities and law enforcement in doing their proper job

Source: Social survey (Primary data)

3.1.3 Contribution and Efforts of the People

It is bound to be a fact that contribution and effort of the people plays a very important part in disaster management. Because the very sole purpose and everything surrounding it is in fact based on keeping the people in the very center. Disaster management is built for the sake of wellbeing of the people. As people are involved so heavily in this, if they just play their role accordingly, it would bound to make a massive positive change in disaster management altogether. So, it is no surprise that when it comes to people's contribution, people agreed to this factor in a huge margin. With 78.14% of people agree to the fact that people's effort and contribution do play a vital role in disaster management following by 17.43% of people being unsure and only 4.43% of people disagreeing to this matter.

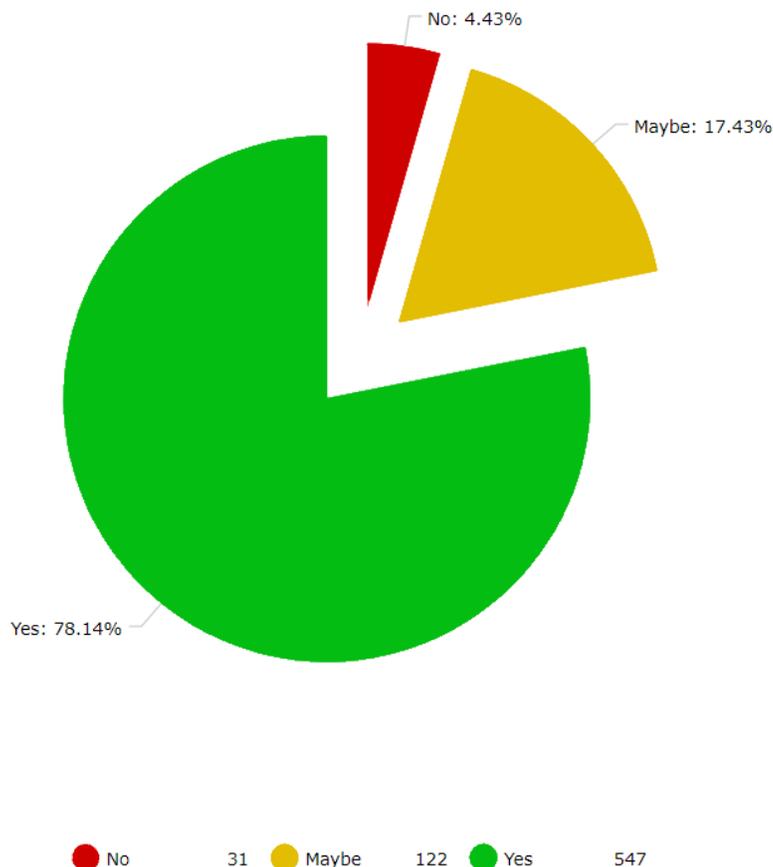


Figure 15: Contribution and effort of the people playing a vital role in proper disaster management

Source: Social survey (Primary data)

3.1.4 Solutions

At the very first stage or at the very beginning of any solution is to identify or accept that there is indeed a problem that is required and much needed to be solved. Once this stage is completed other parts come into places in a solvable order. There is no one path solution when it comes to disaster management specially in a country like Bangladesh. The only way to achieve the solutions to solve each and every problem that have been discussed.

3.2 Role of Different Generations in Proper Disaster Management

It is a tricky part to tackle when the different generation fact includes into this conversation.

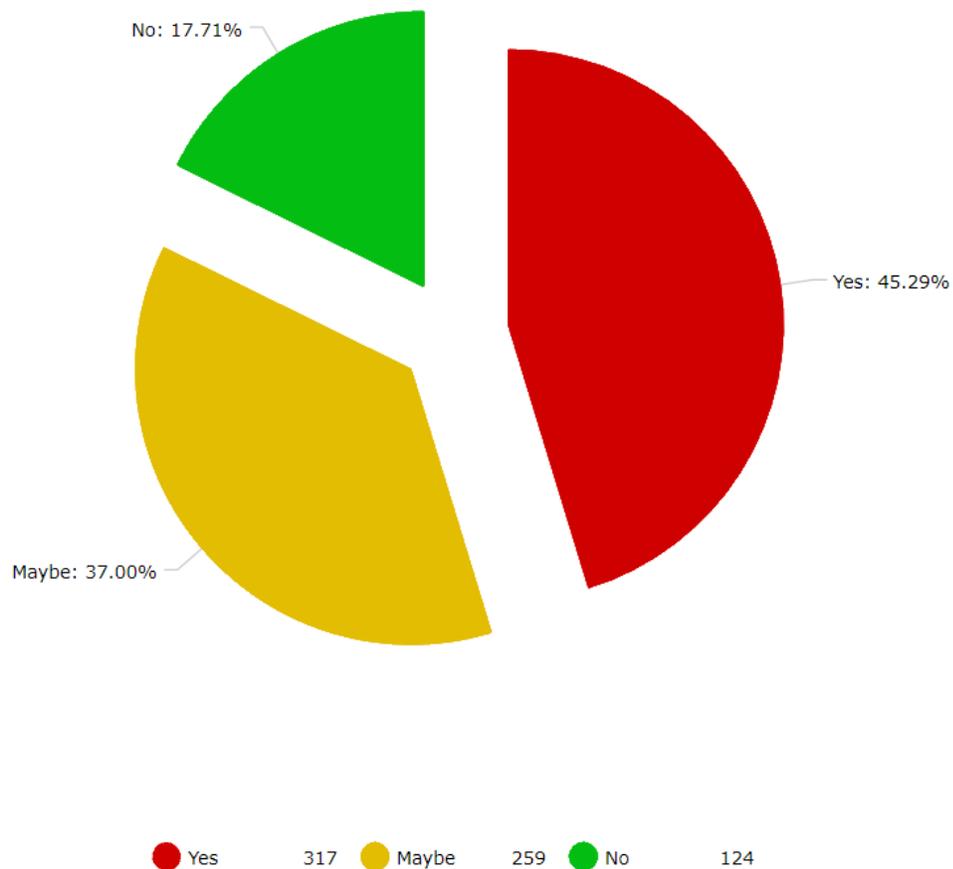


Figure 16: Generation-gap playing an important role in disaster management

Source: Social survey (Primary data)

People tend to lean on this topic too. From the provided figure it is clearly evident that the majority of the people think that generation gap does play an important role in disaster management closely following by 37.00% of people being unsure and 17.71% people saying no. Agreed to the fact that in an ideal society it should not be an issue depending on different generation. But the reality is that, it is in fact is not an ideal society that Bangladesh holds.

However, when it comes to the topic of which generation playing the bigger role, the majority of the people agree to the fact that it is the younger generation who are playing the bigger role with 49.43% of the people agreeing to this fact. 41.71% of people think that both younger and older generation play the big role together while 7.57% of the people on neither and alarmingly only 1.29% of people saying older people doing the bigger role. This is alarming because not one generation can provide the whole feedback of playing their own roles in terms of contributing in disaster management in Bangladesh.

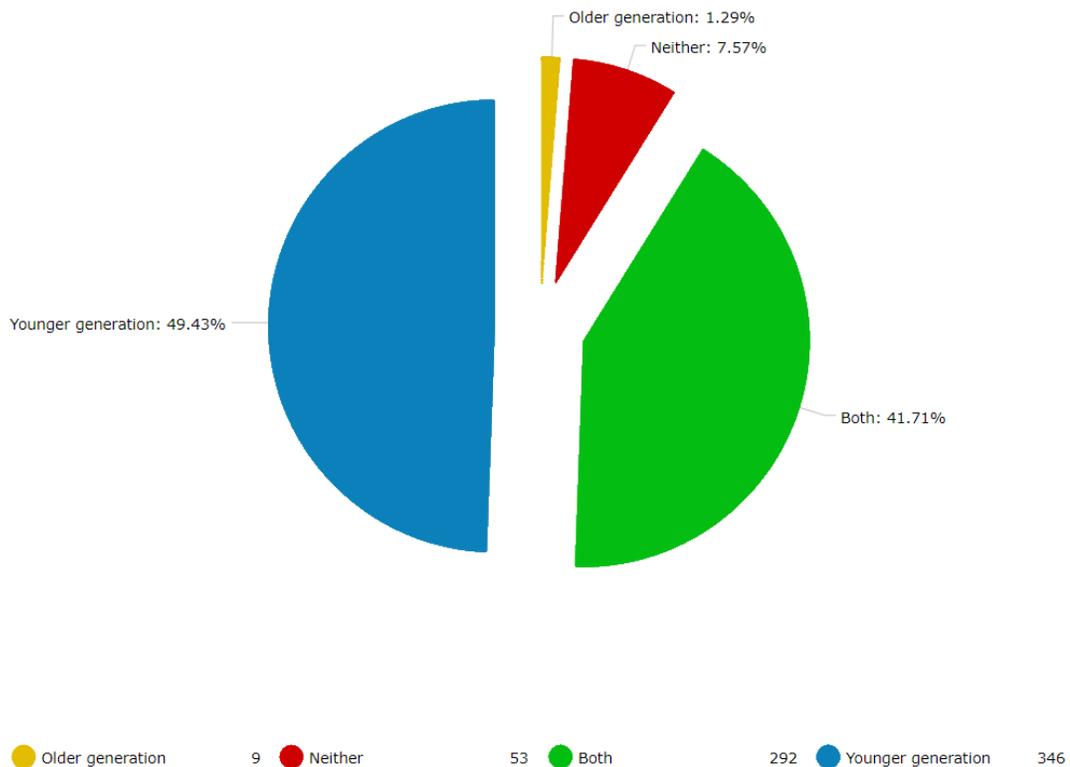


Figure 17: A particular generation playing the bigger role

Source: Social survey (Primary data)

CHAPTER 4

**DISASTER MANAGEMENT OF JAPAN: A ROLE
MODEL FOR BANGLADESH**

4.1 Disaster Management of Japan

Situated in the northwest part of the Pacific Ocean, Japan is an island country in East Asia ranking 61st position in the world in terms of geographical area with a total of 377,975,24 km² (**Britannica, 2019**). Due to its location alone Japan has to face a tremendous number of natural disasters very frequently. Also, in many cases these disasters are extremely dangerous and haunting.



Figure 18: Regional map of Japan

Source: (WorldMap, 2016)

As of the year 2020 with a total population of almost 126.5 million, Japan holds the 11th position in the world in terms of population holding estimated 1.62% of the total world population (**WorldBank, 2020**). With this relatively large population in a very frequent happening disaster area, Japan managed and continues to manage to their disaster management in an impressively functioning and effective way. To achieve this incredible remark Japan took some incredible steps towards their disaster management system which could be a milestone for other countries, in this case, Bangladesh to follow.

The governing bodies and authorities of Japan made a systematic approach of response by the cabinet office according to level of a disaster specifically pointed by levels. In total, there are five levels of response strategies of Japan when it comes to face any disaster. Level 1 indicates “Normal” state of a disaster measuring the severity as “Need to keep watching”. Level 2 indicates “Alert” state of a disaster measuring the severity as “Beware of occurrence of a disaster”. Level 3 indicates “Warning” state of a disaster measuring the severity as “Considerable disaster occurs or expected to occur”. Level 4 indicates “Prepare for Emergency” state of a disaster measuring the severity as “Severe”. Level 5 indicates “Emergency” state of a disaster measuring the severity as “Devastating”. What is more important part to notice and hopefully to learn is that Japan created separate seismic intensity and response of government for each and every level individually providing most impactful and needed response for every disaster. Japan learnt quite quickly that response time is incredibly crucial upon facing the impact of disasters. So, they developed their response method such an efficient way that it ensured the quickest response time possible for every single disaster (**Ogata, 2016**). These important and much needed steps helped Japan face a host of vital disasters one after another.

Japan, as a country, without any doubt is one of the most challenged countries in the global history. Both man-made and natural disasters are known too well to them. Because Japan, as a nation had to face both of them in the most extreme form. They built their nation several times from the brink of perish and they never gave up. From nuclear attack to natural severe impacts, every time Japan was pushed to the ground, they did what they do the very best, learn. They learnt and they developed and eventually but surely, they became stronger than before. Which is the most important lesson to learn from Japan.

4.2 Disaster and Ethical Perspectives

Living in powerful religious and metaphysical conditioning which were completely different from the influences of the rest of the world specially from the western world for several thousand years provided Japan with very strong ethical perspectives. These ethical perspectives helped them to avoid and mitigate almost all sort of man-made disasters created from their own selves. It also strongly shaped the response, facing, coping and fighting mentality as well as ability in strong and effective ways. This results as an immaculate and strong influence not only into their governance and authorities but also every steps of their lives. Which helps to make facing the disasters a whole lot easier, efficient as well as effective (**Wargo, 1990**). Granted that this is a huge task to achieve and it would take a long time to achieve this ethical state for Bangladesh but the least a country can do is to start practicing these ethical values as well and effectively as possible.

4.3 Impactful and Working Rules

There is no positive benefit for a country as a whole of having a set of rules that do not work. Japan realizes this fact and utilized every step of their way to the present situation. Japan built a set of rules regarding disaster management based on not on paper and theory but based on the real-life situation and on the effectiveness of the matters. Just looking into the rules of disaster management system of Japan is enough to understand this factor in an adequate fashion (**Ogata, 2016**). This working and effective rules extends to every aspects of Japan which benefits them in a large scale with controlling and limiting their crime rate making it as sustainable as possible (**Komiya, 1999**). Bangladesh, as a country has a lot to learn from Japan in this sector if it wants to progress at all.

4.4 Law Abiding Mentality

Japan as a nation and Japanese as citizens believe and own the word, ‘Makoto’ meaning ‘Sincerity’. This reflects on their works, beliefs and every step of their lives as a whole.

So, it is no surprise that they own the positive and strong mentality of abiding the law unlike most of the developing countries specially like Bangladesh. This is an extremely effective asset to have for any nation and Japan holds it for a thousand years now. It is closely observed and verified a host of times now that the citizens of Japan are very modest and law abiding. This makes all the tasks for government and authorities a whole lot easier to complete. The mentality alone helps the disaster management works to form into perfect places in a much more efficient way which affects the result in disaster impacts and damages quite direct and positive ways (**Port, 2002**). Building this mentality could benefit Bangladesh in a huge margin. It would need to work on a lot of aspects in the way of achieving such mentality but without any doubt it would be effective and worth of all the hard works.

4.5 Disaster to Creation

The extreme catastrophes generated and resulted from the atomic bomb attacks in Hiroshima and Nagasaki back in 1945 is a horror for the whole world. An estimated 140,000 people in Hiroshima and 74,000 people in Nagasaki were killed and countless were harmed and still to this date facing the consequences by this inhumane act of a disaster (**Survey, Office and Department, 1946**). This could be the very worst possible nightmare for any nation. But Japan rebuilds its nation from the scratch and made it better. Not a whole lot nation could say that about themselves. On top of that the natural disasters like tsunamis, earthquakes, cyclones, typhoons, floods, volcanic eruptions to name a few are frequent visiting. This impacts on the social life, economy as well as developments of any kind (**Kumasaki et al., 2016**). But still, Japan manages to overcome their damages and every time they create a new Japan by rebuilding themselves. This is a great lesson to learn from Japan, to never ever give up. There are not many nations if not any that have had to go through rebuilding themselves as much as Japan has. Bangladesh, as a country also had to rebuild itself several times but not quite as much. But if the never giving up mentality is adopted then the task of rebuilding or the task for creating something from the disaster damages could may well become a lot more practical and in terms a reality.

CHAPTER 5

RESULTS

5. Results

If all of the previous chapters could be properly observed the result portion or the results of this thesis paper becomes a standout point.

While figure 03 describes the national plan for disaster management of Bangladesh, from figure 04 to figure 10 provides clear and raw information disaster condition in Bangladesh. In fact, the whole chapter 2 paints the perfect picture of disasters of this country and problems caused by them.

Chapter 3 focuses on the clear feedback of the people following through from figure 11 to figure 14. After shedding light on the solution on chapter 3 through figure 15 and figure 16, this thesis moves on towards expanding on a role model for disaster management. Chapter 4 perfectly describes the key differences and also shows the lacking aspects. It provides the view of changes and dire need of them.

If anything, the chapters discussed in this thesis paper indicates towards a common result, room to improve. There are a host of parts and sectors that are in dire need of improvements. Each chapter shows how significantly important those improvements are. If the comparison between Japan and Bangladesh in terms of disaster management are to be taken into consideration, then the importance becomes much more visible and distinct.

All of the chapters and figures before this part flows into the result and to be frank the result itself is quite clear. The result portion of this thesis mainly focused on three individual and extremely important parts. These would be, “Alarming need of improvements”, “Being properly worked on” and “Change is possible”.

When citizens of Bangladesh of diverse stages of society asked about their individual opinions about these three topics, they humbly provided. The result is overwhelming in both negative and positive sides. Nearly 700 people agreed to the fact that there is indeed alarming need of improvements while less than 30 people agreed to being properly worked on. This part of the result is without any doubt negative and even frightening. There is no avoiding the fact that when the majority portion of people point fingers at a problem then

it no longer stays as an optional problem to tackle. It requires major feedback and utmost attention towards solution from every responsible authority.

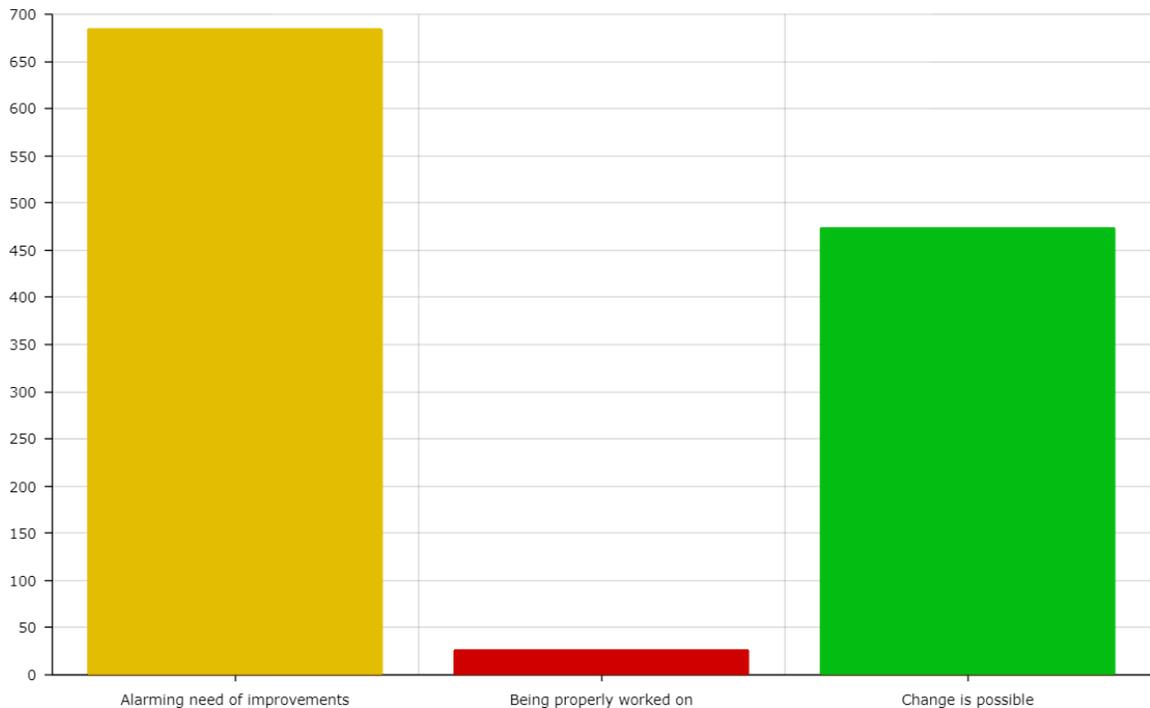


Figure 19: Results

Source: Social survey (Primary data)

The positive part of this result is not any action or agenda but rather pure hope. Nearly 500 people think that change is possible. Although it is just hope but hope is a powerful force, maybe one of the very best there exists and nothing that is good ever goes in vain. But it would be even better if the positive portion of this result becomes reality and change the current devastating situation of disaster management of Bangladesh. Hopefully this result will be a part of that change as well.

CHAPTER 6

RECOMMENDATIONS

6.1 Awareness of People and Authorities

The basic element needed in a proper disaster management is indeed awareness. Awareness from both people and authorities. Because it does not matter how much effort an organization or authorities provide, if the people do not play their role in disaster management then it could not possible help any more than it does right now. Because people do have a vital role in disaster management. People in my survey seem to agree with this point too. As the following figure shows, people gave their opinions quite clearly with 76.71% of the people saying yes, 18.29% of the people being unsure and only 5.00% of the people saying no. This shows that the point is matched in reality as well. But people cannot play their role in disaster management if they are simply not even aware of them.

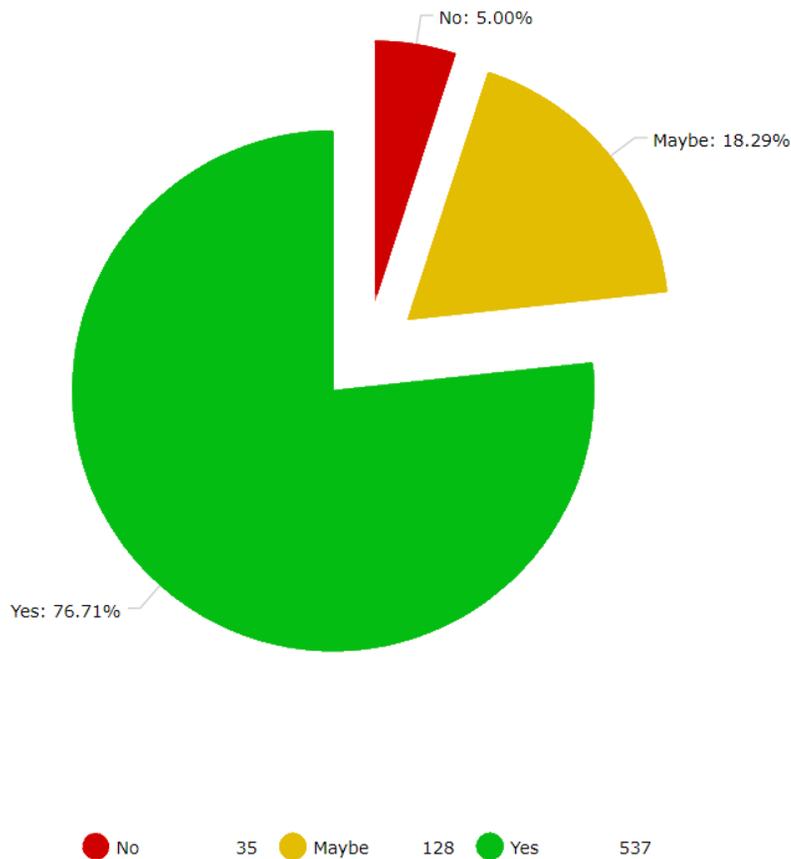


Figure 20: Contribution and effort of the people playing a vital role in disaster management

Source: Social survey (Primary data)

That is where awareness of the authorities come in the conversation. It is the authority's duty to provide enough information that is easily and widely accessible to the citizens. People gave their valuable opinions on this matter as well. As the following figure shows quite vividly, when people were asked about if they knew their own role in disaster management, 73.00% of the people said yes with 16.57% of the people being unsure and 10.43% of the people saying no. Now, the 10.43% of the people saying no may seem low but in reality, and especially in the time of necessity, it nearly is not. Some of the people not knowing own roles put the whole group of people in serious danger in facing disasters. It is the duty of authorities to make sure that such thing could not stand in the way of disaster management in the time of emergency as well as being aware of each and every step of the way.

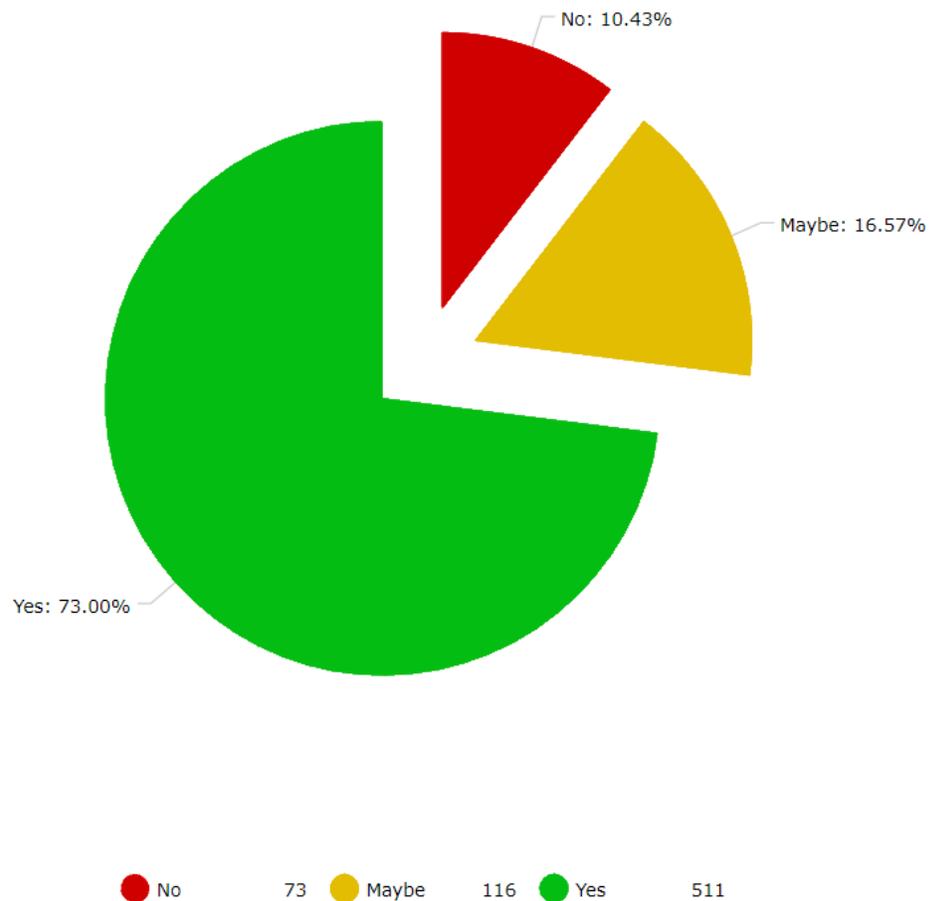


Figure 21: Knowing own role in disaster management as citizens

Source: Social survey (Primary data)

6.2 Proper Actions from Authorities

The governing bodies or the authorities hold the power of providing rules and actions. This makes authorities responsible for any failure regarding any kind of proper actions. It is to be kept in mind that Bangladesh is a developing country with a fairly large population in a relatively very small geographical area. This along with a host of other concerning factors makes the citizens of Bangladesh very hard to operate. The following figure of my survey shows this point quite clearly. When people were asked about them willingly playing their own roles 8.14% of the people said no while 27.29% were unsure and 64.57% said yes.. That is quite a lot of people being unsure and saying no even for a developing country like Bangladesh. A whole lot of proper actions are needed to change this situation and concerning authorities are to be the responsible one here.

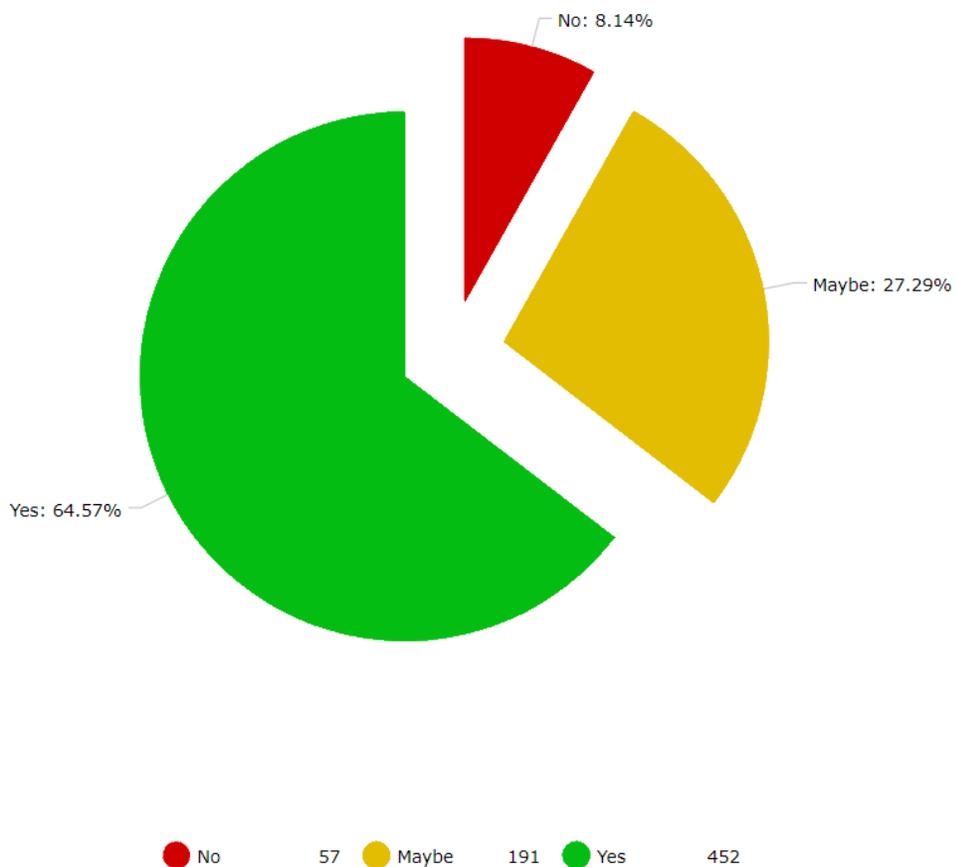


Figure 22: Citizens on willingly playing own roles

Source: Social survey (Primary data)

People also indicated the fact of lacking of knowledge regarding disaster management and concerning individual roles. Which is also an indication of failure of the authorities being unable to ensure and unable to provide the proper and enough knowledge regarding this matter to the people. People reflected on this matter as well. When they were asked about if they need to know more about their role in disaster management, they agreed to the fact in a huge margin with 86.14% of the people saying yes, 11.29% of the people being unsure and only 2.57% of the people saying no. That is a whole lot of people saying yes to the fact that people do need to know more about their role in disaster management. It is the sole responsibility of the authorities to ensure the knowledge of people's own roles easily and widely accessible to the people. Setting proper actions is the very first step towards achieving this task along with every other aspect of disaster management as well.

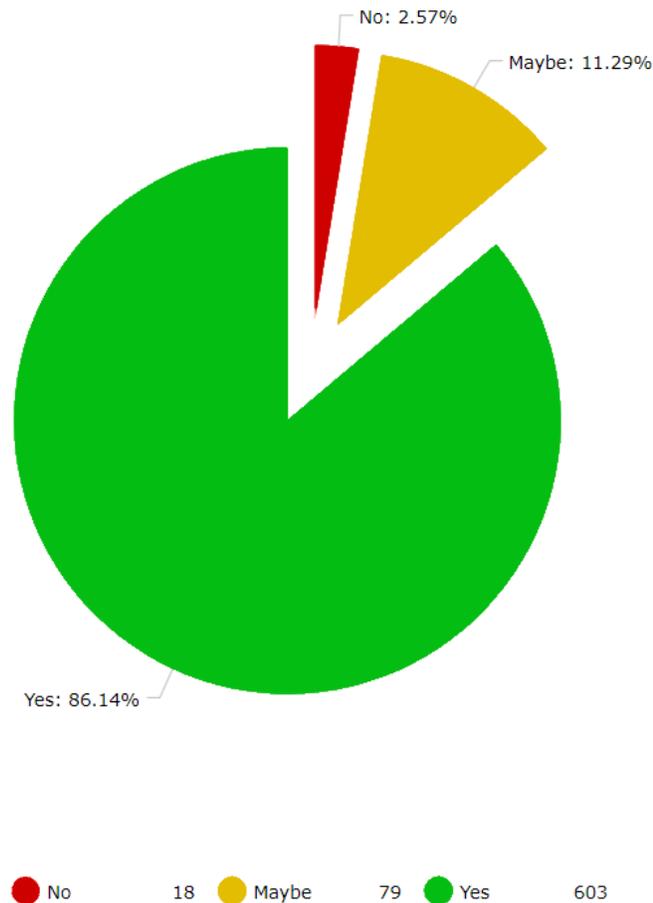


Figure 23: Citizens on needing to know more about their role in disaster management

Source: Social survey (Primary data)

6.3 Collaboration between Authorities and People

There is always a bridge between authorities and people when it comes to any kind of disaster management whatsoever. Specially in disaster management it is far more important than any other tasks. It does not matter how impactful the authorities are or how responsible the people are with only one aspect it is not possible to achieve a proper disaster management in anyway. Both authorities and people have to come together to form the disaster management system in proper and the most effective way possible. The best way to do that is to provide and ensure disaster management education. People seem to agree with this fact too. As the following figure shows, 98.43% of the people agreed to this fact with 1.57% of the people being unsure and none of them saying no. This shows how important disaster management education actually is.

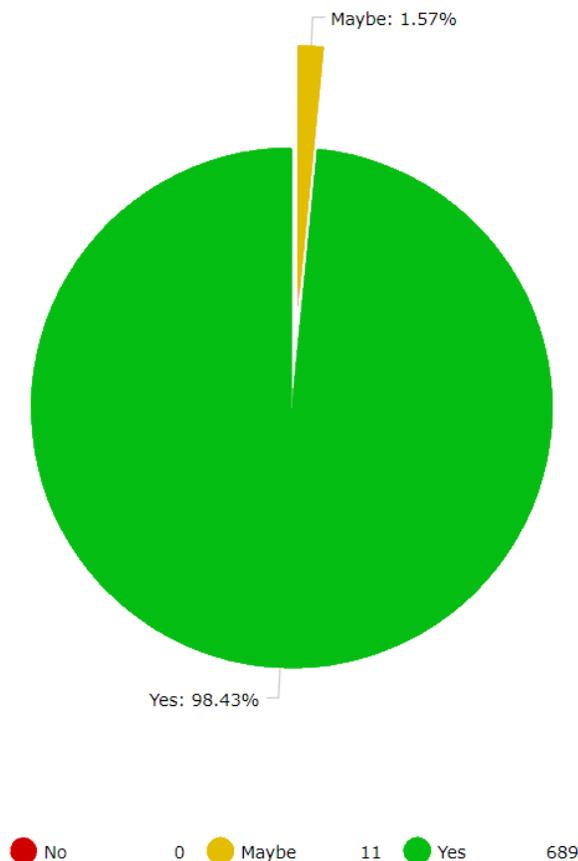


Figure 24: Citizens on whether disaster management education is important or not

Source: Social survey (Primary data)

Education regarding disaster management could also play a vital role in mitigating and even avoiding damages and losses caused from disasters. People agreed with this fact as well. When people were asked on if disaster management education could help to reduce the effects and damages, the majority of the people, 91.83% to be exact, said yes with 8.17% of the people being unsure and for another time none of the people said no. This does not only show the reality of the situation but also the fact that it is indeed needed to acknowledge the fact that current disaster management education is nowhere near enough for the people and proper, easily and widely available education is much needed to mitigate the current disaster management failures as well as to improve them by a big margin. Both authorities and people could use the knowledge acquired from the education in terms of collaborating with each other in the most impactful and effective way.

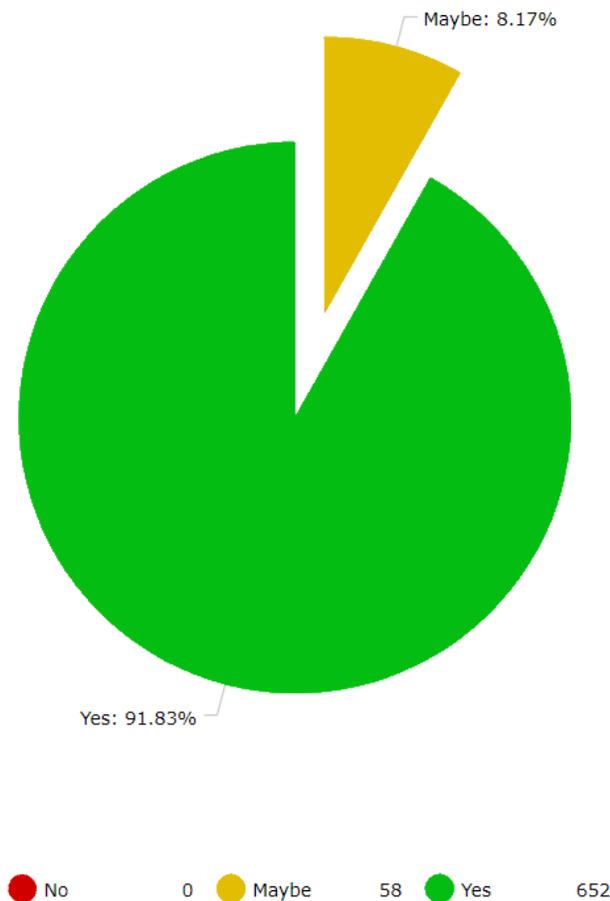


Figure 25: Disaster management education on helping to reduce the effects and damages

Source: Social survey (Primary data)

CONCLUSION

The task of building, functioning and continuing a proper disaster management is nothing short of a lifesaving miracle. With each proper steps and tasks toward this goal goods could be saved; assets could be kept safe even hopefully lives could be saved. That is exactly why it is so much important to focus and provide the utmost attention towards this matter. Specially in countries like Bangladesh being a land of disasters it is extremely impactful to follow on towards this goal. Only by correct orders, decisions and making those decisions reality it would seem achievable and a reality to rely on. The necessities are a must to consider as a vital priority. The lifestyle, social life, development as well as national economy of Bangladesh all of them are heavily influenced by the frequent occurring disasters. So, for Bangladesh it is a must solving issue to begin with. Ensuring each and every step properly that have discussed vividly throughout this paper, without any doubt it could possibly be achieved. To do that governance body and the authorities as well as the people of Bangladesh all of them have to come into a common ground of cooperating and collaborating in a perfect harmony. Proper and effective laws have to be passed and practiced in a proper way. Citizen have to contribute as well by doing their part adequately. Actions have to be taken by the authorities with respect to the demand of the situation as well as roper structures for the disaster management are to be built. Citizens have to respect the laws and abide with them accordingly. As it has been discussed quite importantly, people play a vital role in disaster management. So, without having their proper support and collaboration it is definitely not possible to do a better job of managing disaster effects properly. All of the elements must work together to achieve a common goal, to have a proper disaster management in Bangladesh. There are a host of points and parts to be learnt for Bangladesh from other similarly disaster affected developed countries. It is high time that Bangladesh took lessons from the developed countries like Japan in terms of finding own faults and building a proper disaster management according to own needs and benefits. By doing that Bangladesh could benefit in national economy as well as various sectors by mitigating the effects and damages caused by the disasters. It is a hope and a dream that could become a reality for Bangladesh. All it has to do is to learn, build, improve and most importantly never ever give up.

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