

Managing Torrent Effectively through Strategic Factors of Flood Management

Dr. Aijaz Ali Khoso

Assistant Professor, University of Sofism and Modern Sciences, Bhitshah, Sindh.

Qamaruddin Mahar

Professor Department of Management Sciences, Isra University, Hyderabad, Sindh, Pakistan.

Email: qamaruddin.mahar@isra.edu.pk

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Abstract

The article identifies the strategic factors of torrent management, that help in controlling the flood. In many cases when a flood erupts it is hard to control it, besides flood management teams face difficulties in providing relief services so in the result communities or individual people suffer and the number of casualties reach at high level. This study provides the knowledge and guidelines that assist to manage flood situation effectively. The article is based upon supposition that flood casualties occur due to the three core factors such as; lack of human resource who handle flood situation, second; dearth of resources like, food, medicine, accommodation, transport, funds, lifesaving equipment like boats, and lifesaving jackets that help in swimming, and moving in water to reach out to safe place. third; lack of training of staff of flood rescue teams this is the reason that the number of casualties occur at large scale. In this study these three factors are considered Strategic Factors of Flood Management (SFFM) that significantly can reduce the casualties if all factors deployed properly. The data was collected from Jamshoro district of Pakistan and sample subject were the flood victims who displaced in "2010 flood" in Sindh province of Pakistan. So it is tested that at what level SFFM factors were in order and functioning properly during flood 2010. It is concluded that the main cause of occurrence of casualties at high rate were disorder of SFFM. Hence, it is recommended that flood management organizations prepare themselves in advance, separate human resource may be developed that manage flood, government create discrete fund for flood emergency situation, and required training may be provided to flood rescue teams.

Keywords: Flood Management Techniques, Level of Torrent Control Factors, Effective Flood Management, Flood Casualties, Post Flood Situation.

1. INTRODUCTION

The occurrences of floods are common in many countries includes Pakistan as the flood is defined as mounting water level in which water flows at high rate and enter in towns, villages, or other human communities (Yukiko et al, 2013) where people come across with heavy

Managing Torrent Effectively through Strategic Factors of Flood Management

economic and life losses and whole community suffer normal way of living for many days. By changing climate of the world the incidents of flood are increasing day by day (Tanoue2,016). The flood covers streets, bowls homes with heavy quantity of water, destroy or severely injure people, livestock, nature and, provide significant loss of economic goods. The flood occurs at different scales such as at low and high level hence the gage of inundation could be as high from about 62 to 1,560 cubic feet (Szewrański) that completely tarnish the normal way of living. In 2010 Pakistan has seen disastrous flood and only Sindh province met heavy loses, the flood water spread over thousands kilometers, millions of people displaced, and it claimed lives of many people. When in any area flood comes people face great misery they try to reach at safe place and desperately want to save their families, animals and precious assets. However, the situation some time became very critical hence people are even unable to protect their precious resources and just try to reach on safe place however in many cases they cannot even save themselves. As it is noted that there is very less literature available that guide about management of flood conditions especially in underdeveloped societies hence every time when flood condition occur people suffer heavy losses and hundreds of people die in each incident. Therefore, it is felt that this study may be conducted that reveals the ways of management of flood effectively, control flood conditions, and handle flood situation according to set protocol further that provide guidance for flood management department and staff to save lives of people, economic goods mainly livestock and provide laidback pace to reach out to safe places. This study defines to provide easy access to food, accommodation, management techniques, logistics and return to normal life. The study brings some viable ways for government, flood management teams, and public to cope up flood situation in a better way.

2. THE APPROACH OF STUDY IN MANAGNG FLOOD

The article is written in a context of three assumptions that flood casualties occur due to lack of human resource, lack of training of flood management department or staff, poor supply of food, medicine, accommodation, transport, and financial care and these assumptions were given name as SFFM, and it is believed that due to poor SFFM the number of casualties can occur at large scale. Besides, there is dire need that provide further guidelines about flood management because due to poor knowledge the heavy losses can transpire. The other need of conducting this study was the losses of flood 2010 in Sindh, Pakistan. The poor management were seen there hence public suffered at large so it is thought that there may be a study that may provide auxiliary guidelines to manage the flood situation effectively. As in flood 2010 in Sindh province more than Rs14 billion loss occurred only in term of damages and reconstruction (Pakistan Economic Survey 2011). So, in this study three main factors were tested that are; Factor-01: if flood victims received financial care, accommodation, transport to move on safe place, medicine; Factor 02: were there any trained staff available from government that assist flood victim to move to safe place, Factor -03: what kind of safety equipment were provided to the victims that save their lives such as lifesaving jackets, boats, were the flood rescue team trained on managing such situation. In this study all these three factors are given name (SFFM), if these factors function properly flood casualties will reduce significantly. So in this study proper deployment of these factors were tested and sample was taken from 2010 flood victims of Sindh. Because in management point of view if SFFM are

Managing Torrent Effectively through Strategic Factors of Flood Management

properly functioning and deployed means people receive food, medicine, accommodation, financial support, trained staff, and lifesaving equipment, the occurrence of losses significantly will be low. However, if SFFM are in disorder then people suffer huge losses means in this case people do not receive food, safe mobility to harmless place, transport, availability of human resource and trained flood rescue teams, financial support and availability of equipment like boats, and lifesaving jackets. So it was tested that were; SFFM functioning properly in flood 2010. In this context, the data was collected from the victims of flood 2010 of Sindh from district Jamshoro; if they have received such facilities the investigation was carried out that how much flood victims suffered in tem of

losing lives, livestock assets, other financial assets, faced difficulty in getting food, medicine, financial help, accommodation, moving to safe place, how they were rescued during flood, were the rescue staff enough trained.

3. PROBLEM DEFINITION

The flood management teams lack basic resources like funds, trained human resource, and logistics support. Hence the magnitude of losses occurs in huge quantity. During the occurrence of flood often the situation is not managed in a proper way, there is deficiency of knowledge that provide guidelines to manage flood situation and reduce casualties in an effective and systematic way.

4. RESEARCH METHODOLOGY

4.1. DATA COLLECTION

In this research primary data was collected from the victims of flood of 2010 and identified that whether they received relief in a systematic way; also certain parameters will be tested whether they applied during the flood casualties in an organized way;

4.2. SAMPLE SIZE

The 200 flood victims were selected from district Jamshoro.

4.3. RESEARCH INSTRUMENT

Questionnaire, focus group discussion and observational method.

4.4. RESULTS AND DISCUSSIONS

The data was collected from flood victims, and flood support workers. After collection of data it was organized in tabulation form and missing responses were omitted. The table #01 is showing the responses of flood victims who were asked questions about the facilities they received during flood occurrences the key questions are here; were the arrangements of flood relief organizations fully organized, whether the flood relief activities were systematic means SFFM functioning accordingly, the diverse types of support that are needed during the flood support was provided or not such as timely transport to move to victims.

Managing Torrent Effectively through Strategic Factors of Flood Management

TABLE #01. ANALYSIS OF SFFM FACTOR- 01.

S#.	*FD	*TR	*AC	*FA
1.	2	2	2	2
2.	2	1	1	1
3.	3	1	2	1
4.	2	1	1	2
5.	2	2	2	2
6.	1	1	2	1
7.	1	2	1	2
8.	3	2	2	1
Mean	2.6	2	1.6	1.5
St. Dev	.75	.53	.51	.53
Sig.	.000	.000	.000	.000

Source:

Survey conducted in this research

*FD= Food, TR= Transport, AC= Accommodation, FA= Financial Assistance

Hence, the Table # 01, 02, and 03 shows flood factor management analysis. The flood factor are those facilities that should be provided during flood to victims. The study helps in developing concrete factors that may use flood rescue department to reduce the casualties. The table# 02 highlights the rescue factors and support that is essentially to be provided to flood victims like Food, Transport, Accommodation, Financial Assistance Training in Transporting Victims to Safe Place. The table# 03 is illustrating the competency level of flood rescue staff and department hence it measures that flood rescue teams were trained enough in diverse segments of flood management like. Training in providing Financial Assistance to Flood Victims, Training in Providing Medicine to Victims, settling them back into their houses again. When flood outbreaks do victim get support in term of transport facility that help flood victims to move from dangerous to safe place, does they get logistics in case they need life jackets, life guard, boat, first aid, necessary financial support and transport. So in this study all these factors were tested on the supposition that flood victims of 2010 did not received all mentioned facilities hence they suffered heavy losses.

S#.	TLG	LS	LSE	BTs
1.	1	1	1	1
2.	1	2	2	2
3.	1	1	1	1
4.	2	2	1	1
5.	2	2	2	1
6.	1	2	1	2
7.	2	1	1	1
8.	2	1	2	1
9.	1	2	3	2

Managing Torrent Effectively through Strategic Factors of Flood Management

10.	1	1	1	1
Mean	1.4	1.5	1.3	1.4
St. Dev	.5	.5	.7	1.4
Sig.	.000	.000	.000	.000

TABLE#02. ANALYSIS OF SFFM FACTOR- 02.

Source: Data Analyzed in this research 2022. Training in Life Guards (TLG), Logistic Support (LS), Lifesaving Equipment(LSE), Boats (BTs).

For instances, do they have provision of accommodation if they move from flood area to safe place where they going to stay. These all are considered as flood management factors. This study

was conducted in the light that at what level flood victim were able to seek support effectively. So. Fundamental factors of flood management were devised if all flood managers or flood management department consider those fundamental factors accordingly proper implementation of these factors can reduce flood casualties at significant level. Most of loses occur due to mismanagement of Flood Management Factors (FMF) that are mentioned in Table# 1, 2, and 3.

government should carefully take responsibility of flood victims and deploy all SFFM in flood area. The sever losses occur due to mismanagement the Table #01, 02, 03 shows flood victims did not get satisfactory support of Flood Management Factors apart from some medicine victims

TABLE#03: ANALYSIS OF SFFM FACTOR- 03.

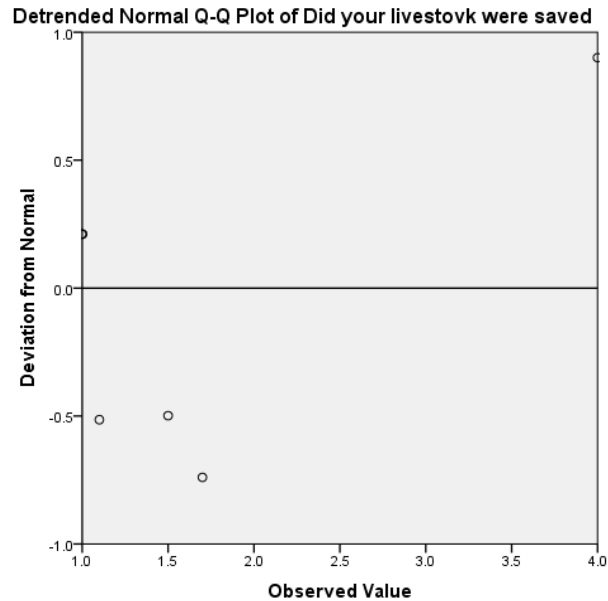
S#	THR	THRM	TRT	TRFC
1.	1	2	1	2
2.	2	2	2	1
3.	1	1	1	2
4.	1	1	1	1
5.	1	2	2	1
6.	1	2	1	1
7.	1	1	1	2
8.	2	1	2	1
9.	2	2	1	1
10.	1	1	1	1
Mean	1.3	1.5	1.3	1.4
St. Dev	.4	.4	.5	.4
Sig.	.000	.000	.000	.000

Managing Torrent Effectively through Strategic Factors of Flood Management

Source: Survey Conducted.

Trained Human Rescue = THR = Trained Human Resource in Medicine, TR, Medicine Available = Trained Human Rescue of Transport, Trained Human Resource Financial Care did not get satisfactory help in transportation. Logistic supply of necessary items such as medicine, moving of their economic goods to safe place, accommodation in safe areas hence

FIGURE#01: ANALYSIS OF FACTOR 01, 2 and 3.



thousands people were displaced, and most of livestock were missing, the victims did not get any financial support on weekly or monthly basis hence they were highly desperate and most were bagged as they were unable to buy necessary things like accommodation rent, bills, food, clothes and so on.

The Table #01,02, and 03 shows that victims 2010 did not get support the SFFM were not applied properly there were severe lack of food, medicine, accommodation, transportation of livestock and supply of flood for the victims and facility to move them to safe place, availability of trained flood rescue staff, lack of human resource. Hence a lot of riots outbreak and ratio of casualties occurred at high level. The Chart #01 also shows the behavior of management that highlights that support was not in an organized way the concentration of data is on scale 02 that highlight discouragement of victims and negative response regarding providing them overall services. So in the light of miserable conditions of mega flood victim of 2010 it is recommended that the core factors that are mentioned in SFFM in Table#01, 2 and 3 may considered as flood management factors and they may be applied, and all resources may available to flood managers. This will reduce casualties and provide high relief to victims such as if victims get food, accommodation, financial support, medicine, transport facility and there is enough trained rescue staff is available that means SFFM are applied properly if there is lack of such resources means SFFM is not applied or functioning accordingly, means managers get poor resources, training, and shortage of staff to save

Managing Torrent Effectively through Strategic Factors of Flood Management

people and their assets.

5. CONCLUSIONS

It is discovered that through application of proper management of Flood Management Factors (SFFM) many precious lives can be saved, people can be moved safely from dangerous place to safe area, victims will get food, medicine, accommodation, regular assistance, and financial support and their economic loss will be reduced at significant level. It is observed that the most of losses occur during flood are due to ignorance of SFFM means unpreparedness of relevant authorities. It is revealed that typically flood victims do not get logistics, transport, food, accommodation and financial assistance. It is discovered that there is no any flood management tool that provide guidance how to rescue flood victims. At the most of the times support, flood victims need Logistic (LS), Accommodation (AC), Medicine (MD). The most of casualties during flood occur when SFFM are not deployed properly. So, flood casualties can be reduced at significant level if SFFM functions in a proper way.

6. SUGGESTIONS

The SFFM applied before and after occurrence of flood. The government, flood management teams or other relevant organizations may study in depth about the factors that are comprises of SFFM. The regular trainings of flood rescue staff and flood management department may be carried out at micro and macro level. A suitable number of human resource may have appointed in municipalities; and government administrative units. Besides emergency funds may be reserved that help in the time of torrent. A small booklet may be published that define a full management process of pre and post flood conditions.

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Managing Torrent Effectively through Strategic Factors of Flood Management

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