Assessing Social Impacts of Flood on Communities: A Case of District Jaffarabad, Balochistan

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Abstract

Pakistan is facing a number of flood disasters and its number is rising frequently with the passage of time. The main objective of this study is to identify the social impacts of floods on farm households. Data was collected through questionnaire survey among 150 households by using simple random sampling. Results show that there are a number of impacts of flood on human life and the people are unable to cope with them without Government support but lack all those basic facilities from the state. The results further identified that lack of education, health and clean drinking water is in worse condition in the study area. The role of NGOs and welfare is much better than Government institutes in providing basic requirements to the people. It is necessary for the farmers to get education and health facilities including trainings to cope with floods when in future disaster strikes the area, it is impossible to stop disasters but training the farmers and giving them basic facilities can minimize the diseases, economic and human loss.

Keywords: Social impacts, Flood, Disaster, Balochistan

Introduction

Disasters related with natural hazards in the globe are on its maximum rate (Gaillard and Texier 2010) and increasing day by day, flattering to every region becoming dangerous and expensive, have a mass impact on the development of the world. (Masozera et al. 2007). It's a phenomenon that a hazard changes into disaster when the vulnerable population is affected by a hazard. (Uitto 1998). These disasters have a serious impact on today's development (Leon and Villagran 2006). Asia is to be considering as paradise

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of disasters (James 2008). In 2007 more than 37 % disasters which are reported, have stroked to Asia (CRED 2011). These are the impacts of high rate of poverty and urbanization. (Hossain 2002).

Pakistan has faced a number of disasters from its inception. Historically in the last 20 years from 1973 to 1993, just sixteen flood events hit Pakistan but coming forward to next 20 years 54 floods of different strength and pressure attacked Pakistan. It is on the 10th number in ranking in the Global Climate Risk Index in the duration of 1994 to 2013 [Kreft, *et al*. (2015)]. From the report of Federal Flood Commission (FFC) reported in 2013, floods of unstable strength causing the loss of 11,239 people, affected 180,234 villages and towns and smashed 599,459 square kilometers area from 1950 to 2012. Floods have a big impact on different kinds of diseases and the economic loss to the countries national economy.

Globally, river floods are a serious problem. If we go into history we will find that the rate and number of hydro-meteorological disasters are rising (Krausmann and Mushtaq 2008; Munich Re 2010). In the past years, many countries of the world including India, Bangladesh, China, Germany, Poland and Pakistan have been dangerously stroked by disastrous floods (Mirza 2003; Vuren et al. 2005; Dong et al. 2009). In provisions of financial loss and spatial extent, flood is noted to be the main dangerous hydro-metrological disasters. (White 1974; Changnon 2005; Ali 2007). Researchers are giving a concept that DRR (Disaster risk reduction) is a systematic approach of assessing, identifying and reducing the disastrous risks of a society. (Chowdhury 2003; Andrade and Scarpati 2007) Normally floods are happened by different factors (Alexander 1993; Burton et al. 1978; Jonkman and Kelman 2005; Fendler 2008; Zhang et al. 2008). Though, high rate of rainfall has been one of the main reason of various flood events (Hunter et al. 2005; Ali 2007). The abnormal movement of low pressure system, rain storms, heavy melting of glacier/snow hills, and breaking of dams are the other big reasons of floods (Ramos and Reis 2002; Gupta and Sah 2008). In the same way, human action also have numerous impacts on flood creation such as change in land use, deforestation and encroachments over the channel limits (Zoleta-Nantes 2002; Teng et al. 2006).

Hazards which than change into floods are the results of both socio-economic factors like unemployment, poverty, mitigation policies and also the impacts of climate change. [Barredo (2009)] Common floods are blessing GOD because they carry economic and environmental benefits (Blaikie et al., 1994; Smith, 1996; Handmer, Penning-Rowsell and Tapsell, 1999) where as high floods are viewed as disastrous (Paul, 1997). For example common flooding makes arable land fertile and leads to an expansion of agricultural production

(Brammer, 1990) while high-magnitude floods inundate large areas causing extensive scratch to crops, human beings, livestock and property as well as destruction to life and livelihoods (Paul, 1984, 1997; Rasid, 1993; Few, 2003).

Pakistan has suffered a lot of major floods (Atta-ur-Rahman et al. 2011). Every year flood prone countries suffer great losses . (Smith 1992; Ali 2007). In Pakistan, flood is one of the severe and recurrent extreme natural disasters (Khan and Atta-ur-Rahman 2002). The release of water in river Indus and its around areas is high in warm season due to snow melting, glacier water and summer monsoon rainfall and it becomes low in winter season. From many time Indus River and its sections overflow the natural levees, carry heavy burden on humans, destroy the development, agriculture land, standing crops, and infrastructure as well as the properties Rahman 2010). Each time, major flood disaster occured, it clashed away urban and rural settlements and have caused human losss and rendered hundreds of persons homeless.

It in analyzed that through different studies from 1980-2004 that disasters has caused $1 trillion economic losses. Disasters affect economic and human capital. It impacts the human psychologically and also damages the productive lands (Stromberg 2007). Natural disasters adversely impacts the economies which are totally dependent on agricultural, 1n 1974 Bangladesh was adversely and it caused $580 economic losses to the economy (Long 1978). Floods lead to economic losses and decrease the socio-economic welfare of society and also effect the production of agriculture products (Appleton, 2002).

Materials and Methods

Study area

 Jaffarabad is situated in South-East of Pakistan's largest province Balochistan. Its district headquarter is at Dera Allah Yar, previously named as Jhatpat subdivision. It was part of Jacobabad district until 1970 and part of Sibbi until 1975. Got its own name in 1987. It is subdivided into three Tehsils (Sub-district) named as Dera Allah Yar, Gandakha, and Usta Muhammad. Area of the district Jaffarabad is 2445 km2 (944 sq m). According to the 1998 census, its population is 433,000.

Geographical map of District Jaffarabad, Balochistan

Sampling Methods

The data will be collected through both primary and secondary sources. The research was a mixture of both qualitative and quantitative methods. Both methods are equally important for the research work, by missing of any method the research work may be incomplete. To do a research valid and reliable it needs to make the research complete from all aspects.

Sampling Techniques

Primary data was collected by using simple random sampling and snowball sampling techniques. Simple random sampling technique mainly used method for selection of sample. It is a procedure in which every element of population is given equal chance to be selected.

In snowballing a few individuals in a group or organization are selected any sampling to collect the necessary information from them and they are then asked to recognize other people in the group or organization from which required data could be collected.

Sample size

Selection of sample size was based on population of housing units of rural area of Dera Allah Yar tehsil, according to the 1998 censes the total population Tehsil Dera Allah Yar rural population is 34,056, calculation of sample size was based on Arkin and colton (1963) sample size formula is given bellow.

$$n = \frac{NZ^2 \times P(1-P)}{Ne^2 + Z^2 P(1-P)} \qquad \text{(Equation 1)}$$

A sample of size 150 was selected from a population of total households of 34,056 with 95% confidence level Z= 1.96, Degree of Variability (P) = (50%), and e = Level of precision or Sampling Error which is ±8%.

Secondary Data

Secondary data collection tolls from published and unpublished articles, journals, research reports, and books and from the data of relevant government departments as Agriculture, Metrological, Censes, Livestock etc. and nongovernment departments. All the data collected from the secondary and primary sources was edited in appropriate way and the entire necessary steps were taken to generate codes for the qualitative data. The edited data was manipulated directly through SPSS.

Respondents profile:

Throughout the survey majority of respondents were male (129) and female were only (21), In terms of age group all the respondents were of mature age between 20 and 60. Majority of respondents (94.7%) were married and 4.7% were single. Large numbers of respondents were Illiterate 39.3%, and 37.3% had primary level education, only 8% of respondents were bachelors. 98% of the respondents had their own houses and just 2% were residing in rent houses.118 out 150 respondents have faced great loss to their properties in this disaster.

Table 1: Summary statistics of respondents profile

Variables		Frequency	Percentage
Age	Below 30	15	10.3
	30 to 50	114	78.6
	Above 50	16	11.0
Gender	Male	21	14.0
	Female	129	86.0
Marital Status	Single	7	4.7
	Married	142	94.7
	Widowed	1	0.7
House Ownership	Owned	147	98.0
	Rented	3	2.0
Education Level	Illiterate	59	39.3
	Primary	56	37.3
	Secondary	10	6.7
	Intermediate	13	8.7

Bachelor	12	8.0

Results and discussions:

Flood impacts were severe in DERA ALLAH YAR and around area causing serious effects to human's social life. Almost no one was safe socially in the region. The study has tried to analyze the important social impacts faced by the people of the area in my survey which are as follow;

Flood impacts on Health sector

According to respondents view 95% the health centers of the area were destroyed by flood. After the flood attack, No any health facility was available for patients. People were in need of treatment but no access they found. Different diseases of stomach, fever, skin disease, allergy etc spread in the region. Children's were the most effectees of the epidemics. Almost everyone was facing some disease and no treatment arrangement facilities available to them by Government and rescue Department. When I asked the respondents about the facilities given by officials to the public, there answer was negative, 38% of the respondents were Disagreed by the Question of facilities given to them during the flood, 46% of the respondents had Neutral answer, 15% were agreed from the Health facilities given to them, Just 1 respondent out of 150 respondents was strongly agreed from the health facilities they got during the flood. Even they didn't receive any facility related to health after flood disaster. Majority of respondents disagreed about health facilities after the flood days.

Table2: Satisfaction from health facilities during flood

Satisfaction Level	Frequency	Percent
Strongly dissatisfied	25	16.7
Dissatisfied	32	21.3
Neutral	69	46.0
Satisfied	23	15.3
Strongly satisfied	1	0.7
Total	150	100.0

Diseases faced in flood

When the flood hits any population it carries many diseases in the area. Flood in the DERA ALLAH YAR Tehsil opened many diseases of fever, stomach, Hepatitis, skin disease, allergy, cholera, diarrhea, typhoid, and many others. The health workers were warned by the rescuers that many deadly diseases are spreading in the area. Majority of the People of area is uneducated that's why

unaware of how to face the biological disaster. It is responsibility of the health workers to aware and train the people in combating with these diseases.

Disease treatments

It was horrible to hear that three-fifth of the respondents used private Clinics on Self base in treating their patients and injured people. 13% of the respondents had used local medicine or homemade medicines for treatment of their people. 15% were treated by NGOs, and Just 10% of the respondents were given health treatment by Government Basic Health Units and other Health Department.

Table3: Treatment of disease by different means/sources

Source	Frequency	Valid Percent
Private Doctor	89	60.5
Homemade medicine	19	12.9
NGOs	23	15.6
Government BHU others	10	6.8
	6	4.1
Total	147	100.0

Satisfaction from treatment

Health facility is a basic requirement and right of every country man. When there is a hazard alert then all rescue and Health departments are responsible to give facility to the citizens. But the situation in DERA ALLAH YAR was quite miserable where two-fifth of the respondents were not satisfied from the treatments of Government Health department. Little less than half of the students had a neutral answer and just 14% showed satisfaction by the facilities they received from the health department.

Table4: Satisfaction from treatment by health department

Satisfaction Level	Frequency	Percent
Strongly Dissatisfied	6	4.0
Dissatisfied	55	36.7
Neutral	68	45.3
Satisfied	20	13.3
Strongly satisfied	1	0.7
Total	150	100.0

Flood impacts on education sector

Education is the key to success of any nation. Without education it is impossible for anyone to compete and survive in the globe. It was worse

condition of education in the area of DERA ALLAH YAR and around in flood situation. All the schools were destroyed in the disaster and teachers were shifted to main cities till three months no any school were opened by education department. Thousands of children's education was disturbed and many of them left their schools forever. 35% of the children had no schooling in the disaster time, 32% of the children went to schools on self-support base, 16% of them get schooling from national and international NGOs while 15% children of the area got their school from Government. It was shocking to have the Governments weak facilitation role of education sector.

Table 5: Children education Status during flood

Education Status	Frequency	Percentage
No schooling	51	35.4
Self-support	47	32.6
NGOs support	24	16.7
Government support	22	15.3
Total	144	100.0

Availability of clean drinking water

Water scarcity is a big problem of today's world and clean drinking water is an issue of no solution in many Metropolitan cities of the world especially in developing countries of Asia and Africa. People of DERA ALLAH YAR rural area are suffering from dirty water since many decades that's why a high number of deaths occur in the area from Hepatitis due to unavailability of clean drinking water. 98% people of the area complained for unavailability of clean drinking water. People used the dirty flood and river water for drinking in the disaster days. Filtered   water pumps are built on political bases and are available to only political persons, tribe chiefs and relatives of Ministers. At many areas it was noted that filtered water pumps were built in front of political person's homes and guest houses. Poor people and farmers are not allowed to pick water for their usage. In rural areas it seems to have no Government rule, all authority was kept by landlords and tribe chiefs of the area.

Conclusions

This study was an attempt to identify the social impacts of flood on displaced households. In finding out the main factors which had serious impacts on people when the flood stroke the area and did they have facilities to face the flood events and their satisfaction level from those facilities, the responses were unsatisfactory. The condition of all social indicators were worse including health, education sector and access to clean drinking water as 98%

people complained about unavailability of clean drinking water. It is the responsibility of state to facilitate people for their basic needs, provide health, education, and clean drinking water. Farmers must be trained to cope with floods; their children should continue education in flood days. Not only health staff must be present but they should have medicines for patients to control diseases in disaster time. Clean drinking water should be supplied to affected people to prevent them from diseases.

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