



RESEARCH ARTICLE

AN ANALYSIS OF THE PUBLIC PERCEPTION ON FLOOD CONTROL ASSESSMENT OF
DASPUR-I BLOCK OF PASCHIM MEDINIPUR DISTRICT IN WEST BENGAL, INDIA

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ABSTRACT

Floods, being natural phenomena, represent a hazard only with respect to human society. Therefore the human response and attitude are no less important in flood risk assessment. In Daspur-I block, there is a great lack of data on social aspects and public response to flood mitigation measures and information management. The number of flood victims are still high in the area, mainly due to the lack of implementation of structural flood control measures. In this paper, studies of flood perception in the Daspur-I block are represented. This area was exposed to floods in every year, the most recent serious flood being in 2011 with loss of Rs. 4.12 crore Crops damaged. The aim of the study is to finding the general attitude toward the floods and flood control. The surveys revealed that floods present a serious threat in the eyes of the inhabitants, and that the perception of threat depends, to a certain degree, on the place of residence. More than 90% people of the area emphasis on the repair and strengthen of the embankments of the rivers to prevent flood. The surveys also highlighted, among the other measures, solidarity and the importance of insurance against floods.

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INTRODUCTION

Flooding presents a challenge to residents, policy makers and institutions tasked with environmental responsibilities. Flood means the influx of water beyond the normal drainage confinement. It is a recurrent phenomenon in West Bengal and causes huge losses of properties, lives of both animal and human, agricultural production, infrastructural systems and environmental damages. The actual amount of flood damage generated by a specific flood event is time and again a driving force that stimulates politicians to strengthen flood policy measures – usually soon after flood events. Flood damage refers to all varieties of harm caused by flooding. It encompasses a wide range of harmful effects on humans and the competitive strength of the affected economy. New technologies and modern managerial activities cannot able to minimize this phenomenon properly. The number of flood victims are still high, mainly due to the lack of implementation of structural flood control measures. Where structural measures of flood mitigation failed then emphasis should be given on non- structural measures.

When the focus is on flood control alternatives, particularly in the case of non-structural measures, public perception is very relevant. Actually non- structural measures usually require people's acceptance of living with floods and resistance in accepting this kind of solutions may emerge particularly when structural alternatives leading to a reduction on the probability of flooding are also under evaluation. An over confidence on the structural alternatives performance in reducing flood occurrences may bias the decision making process and eventually lead to an inadequate occupation of flood prone area, increase flooding potential impacts in case of structural failures. These outcomes point-out the need of people's

involvement from the beginning of the decision-making process rather than as only a way of validating choices already made by the experts. It is also always to keep in mind that gaps usually exist between expert knowledge and lay understanding of flood risks. Therefore, the assessment of people's perception of flood management can certainly play a positive role in narrowing these gaps. Harries (2008) noted that many people in flood-risk areas do not have domestic flood protection. Even when residents have experienced a flood, the majority do not purchase flood protection. This could be due to real cost barriers, as well as psychological factors.

First we need a clear understanding about the processes and magnitudes of the hydrological cycle and vulnerability related to the people who might be affected in the process. Flood management is a long term and sustainable action. For an integration that includes space, time and policy activities, it should be also include all actions: the inhabitants, local and divisional authorities, the government and other management authorities. In the flood emergency planning and implementation process, it is also important to take account existing public experience on living with floods or how local organizations usually working directly within floods. Actually flood emergency plans must be complementary rather than substitute to existing experience on flood management (Alexander, 2002). Land use restrictions based on flood risk zoning as the adaption of long term policies can change the land use in flood prone areas. Their adaption and sustenance in the long term require measures to reduce social disruption, public acceptance as well as permanent and sound political support. However, the numbers of flood victims are still high, mainly due to the lack of knowledge and inadequate behavior of the people involved in a flood event. Understanding how the general public view on flood risk and control is an important factor in the design and assessment of flood management and warning dissemination systems.

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This paper describes the results of flood related analysis about the perception of both the general public and governments of flood risk and their responses to it at Daspur –I Block.

Objectives

The objectives of this study is people's perception of flood risks in the Daspur I block and their attitudes and perceptions about flood prevention and flood management. The study is connected to 2011 concrete flood in the study area and appraises the general perception on floods and related events (e.g. Causes, warnings, mitigation measures).

Study area

Daspur-I is one of the most agriculturally prosperous block in Paschim Medinipur District, West Bengal. This block is surrounded by Chandrakona and Ghatal PS in the North, Keshpur PS in the West, Debra and Panskura PS in the South and Daspur-II block in the East. The astronomical location of the area is 22° 85'40" N to 22° 37'19" N and 87° 41'15" E to 87° 44'20" E. The geographical area is 166.58 sq.km and total population are 175331 (2001). The population density is 1053/km² which is very high rather other blocks. It is a chronic flood prone area situated within the inter confluence area of the river Silaboti in the West & North, Palaspai Khal (not canal) in the South and middle East, Kangsaboti in the East and South. Physiographically the area is just like a low lying basin. The run-off water from rainfall is quickly accumulated in this area from surroundings but cannot escape so rapidly.

METHODOLOGY

In the present study, the methods employed constituted of interviewing people living in the chronic flood prone gram panchayets with structured questionnaires. There were 805 respondents (52.4% men, 47.6%; mean age = 41.8 years; SD = 9.5) with our survey contact. Secondary data were also collected from local B.D.O office. Special questionnaires with asking about demography, economy, social and cultural status of family, perceived frequency and characteristics of flood, concerns about it, probable measures of mitigation alternatives, options about counter measures and responsibilities and certain warning characteristics perception about the local environment perception of flood risks, with local linguistic format. This was a descriptive cross sectional study. Review of secondary data, questionnaires, focus group discussion and data collection methods were applied. A list of frequently flooded areas in the region was drawn with a view to accommodate risk level variability. The sampling design for each intense flood prone areas was based on causes socioeconomic data about the studied population comprised by inhabitants as well as shopkeepers, service holders of various economy classes, castes and religion in the study area. Stratified random sampling was adapted to compose the designed sample by using Statistica -7 Software. Mainly the questioning was carried out-during the flood period through three months.

RESULTS AND DISCUSSION

Data were collected include perception related to causes of flood and perception about flood management assessment. One geographical reality is seasonal flooding during the long (July- Aug) and short-rains (Sept. -Nov.) in a relatively bowl-like topographic setting. The people living there have been settled for many hundreds of years and share a uniform linguistic and cultural background, making it easier for deep local knowledge and coping strategies to develop and be transmitted from generation to generation. Table 1 represents the sample population of the study area.

According to the inhabitants of the locality the various causes of flood in this area are stated here very briefly –

- Relatively flat and basin shaped
- Topography.

- No such passage to drain away the accumulated excess water.
- Faulty land use practice.
- Huge sedimentation on river bed and reduction of water holding capacity.
- No such major flood control canals.
- Huge amount of water discharge from Kangsaboti, Mython & Chandil reservoirs.
- Breaking of weak ex-zamindar bandh at Jhalka, Harirampur, Dongamara on 14.08.2011.
- Damage and breaking of already repaired embankments on the Silaboti river & Kangsaboti river mainly at Beharichak Village.

Daspur –I Block of Paschim Medinipur District faces flood in every year but the magnitude of flooding is very severe in 2011. Table 2 represents the magnitude of flood effects of the study area. During the flood period, government and many non government organization took a vital role by managing the hazard condition and provided a lots of relief goods. Table 3 reveals the flood relief characteristics of the study area during 2011. The perception about the causes, external facilities, management alternatives is differing from severe flood prone areas and less affected areas. Table 4 shows the result. In both replications, the differences are statistically significant. The multiple regression analysis revealed that at least 44% of variability of the answer could be explained by the fear of floods. It should be noted that the perceived threat and concerns are not always accompanied, as they may be inconvenient and demand great adaptation efforts. Concerning about the flood is very lowly correlated with the preparedness to conduct preventive and other counter measures ($r = 0.14$). Two way analysis of variance revealed that the place of residence has a stronger influence on preparedness to take countermeasures than concerns about flood. Though natural calamities like flood cannot be avoided, its impact in terms of loss of lives and damage to properties can be minimized by undertaking appropriate management practices for preparedness, prevention and mitigation measures. Vulnerability assessment through flood prone area mapping, database, warning and forecast system, stock of essential materials are all the preparatory stages at management of flood. More than 90% people emphasis on the repair and strengthen the embankments of the river Silaboti and Kangsaboti.

They all accept that flood is their fate. They blame all the administrative authorities related to flood management for their every year hazardous life because the embankments are not properly repaired and maintained. There is no such natural passage to pass away the logged water and also there is no flood control canal. The low personal assessment of the flood danger, the faith in technological solutions and the reliance on government has important implications for decision makers and resource managers who will need to devise strategies to make the residents more aware not only of the risks of living in the flood prone block, but also of the wide range of non-technological alternatives that can offer some measure of protection. Even in the days of no rainfall in flood time they are inundated only due to the huge amount of water discharge from the dams. Table 5 represents the public perception of management alternatives according to the respondent's opinion. There is a lack of knowledge among the respondents about the importance of insurance against flood. Most probably this is because of the fact that there is no such insurance companies who are interested to insure the properties of such a chronic flood prone area or the premium value is so high that cannot be possible to pay by the villagers. Most surprisingly, they are all denied to evaluate this type of flood prone area of the cost of proper rehabilitation. This is most probably because of their sentiment against their native land and very fertile agricultural land and also the adjustment problem in the new area of rehabilitation. The flood defense measures should integrate also governmental support for the reinsurance and monitoring of social conditions for proper protection of the most vulnerable part of the population. The importance of warning is clearly highlighted.

Table 1. Cross Section of Sample Size of Daspur-I Block

Severely affected Gram Panchayats			Less affected Gram Panchayats		
G. P. Name	Total population (2001)	Sample population	G. P. Name	Total population (2001)	Sample population
Nij-Narajole	6521	112	Panchberia	2320	52
Rajnagar	8882	100	Basudevapur	2500	68
Nandanpur-I	2774	86	Daspur-I	8950	85
Nandanpur-II	3284	82	Daspur-II	8850	80
Sarberia-I	3617	75			
Sarberia-II	2620	65			
Total sample population - 805					

Table 2. Flood Affected Characteristics of Daspur –I Block During 2011

S. No	Flood affected Characteristics		
1	Severely affected areas	Gram Panchayets Nij-Narajole Rajnagar Nandanpur-I Nandanpur-II Sarberia-I Sarberia-II	Name of the villages with Location Code Number (LCN) Baramara (02855300), Simana (02854400), Supa-Pursuri (02854500), Danikola (02855500), Singaghai (02854900), Dubrajpur (02855000), Ramdaspur (02856000), Balipota (02856100), Kismat-Narajole (028, 55700), Kantadarja (02854500), Metyasore (02855600), Nij-Narajole (02855800) Samat (02856400), Rajnagar (02856600), Ramdevpur (02856700), Gurli (02858000) Rambati (02862500), Balitora (02863700), Mirjapur (02863100), Basantapur (02861800), Maheshpur (02863400). Beharichak (02862500), Paikan (02862600), Parbotipur (02862100), Ganganagar (02862200) Sulan (02863900), Ratanpur (02864000), Gangaprasad (02864100) Manikpur(02867000), Dharmasagar (02867200), Patla (02867100), Anantapur (02866800), Godaipur (02866600) 45000 (approx.) 9858 (approx.) Fully – 1360; Partly – 4620 10787(approx) Rs. 4.12 crore 5 Morrum-road –235 km; Kuchha Road – 255 km 12 feet (approx.)
2	No. of population affected		
3	No. of families affected		
4	No. of house damaged		
5	Total crop land affected (in hectre)		
6	Crops damaged in Rupees		
7	No. of loss of human lives		
8	Road damaged		
9	Water level rises due to flood above the agricultural field		

Table 3. Flood Reliefs Characteristics of Daspur –I Block During 2011

S. No	Flood relief Characteristics		
1	Polysheets distributed	Gram Panchayets Nij-Narajole Rajnagar Nandanpur-I Nandanpur-II Sarberia-I Sarberia-II Panchberia Basudevapur Daspur-I Daspur-II	No 1300 950 1175 450 625 920 67 88 86 66
2	Drinking water supply		8900 Lt. (In 6 G.P.)
3	Dry food supply (approx amount in kg)		Chira – 4872.5 kg Gur – 1958.5 kg Muri – 65 kg. Biscuits – 3845 boxes Rice – 3733.90 qtls.)
4	No. of boats engaged for transportation		15
5	No of NGOs involved		4

Table 4. Public Perception about the Causes of Flood of Daspur –I Block During 2011

Areas	Options	Percentage of respondents	
		Yes	No
Severely flood affected areas	Natural	25	75
	Artificial	75	25
Less affected areas	Natural	40	60
	Artificial	60	40

Table 5. Public Perception about the Flood Management Alternatives of Daspur I Block During 2011

Flood Management alternatives	Percentage of respondents	
	Yes	No
Strengthen the embankments	95	5
Creation of new embankments	100	0
Creation of flood control canals	90	10
Channel improvement	75	25
Update of forecasting	80	20
Importance of insurance against flood	70	30
Evacuate the severe flooding areas and proper rehabilitation	20	80

CONCLUSION

The study revealed a number of important factors about the interactions between people and floods. In depth interviews is the most effective data collection tool because it focused on psycho-social factors and drew out in depth responses from respondents about what they think and how they feel about the flood hazard. Experience with floods influences the perceived threat and concern related to them. Absolute safety against flooding cannot be achieved, but people prefer to feel safe. They like to pay the lowest cost, while asking for satisfactory solutions. The best answer to flood management lies in a integrated approach and joint actions of both government and public sides. As Daspur I block is a flood-prone area, the great awareness of threat and its localisation (as revealed in the cognitive maps) are understandable. It appears that people are more willing to take personally relevant countermeasures rather than costly ones. Local resources available for flood risk reduction should be more utilized with less reliance on external aid to ensure sustainability. The use of existing administrative authorities and community primary health workers should be enhanced to promote food security, water and 12 sanitation and health services. Additional training and incentives could extend their services concerning flood control and proper understanding of early warning systems. Community links with government agencies and NGOs should be strengthened in order to ensure continuity of efforts at flood risk reduction. Flood risk management needs to be considered within development strategies and planning at all levels. However, an integrated approach to flood protection and rapid technical development requires the additional education of experts and improved public knowledge about flood.

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