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ORIGINAL ARTICLE

DISASTER MANAGEMENT :CLOUDBURST AT LEH,INDIA

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Abstract:

Cloudburst struck Leh in Ladakh region in Aug 2010, causing flash flood. 14 inches of rainfall was recorded within two hours, causing extensive damage to men and material. Indian Army pioneered search, rescue and relief operations along with state and central government agencies. The economic and psycho-social impacts on the victims have relevance to community health.

KEY WORDS

Management, Development

OBJECTIVES:

The study is to explore and document the extent of the damage caused and to assess socio-economic and psychological impacts of the cloudburst with relevance to community and social health.
Materials and Methods:
Observations, structured and informal interview methods were utilized. The primary sources of data were the administrative and health officials of the offices of Deputy Commissioner, Ladakh Autonomous Hill Development Council(LAHDC), victims and government publications. A sample respondent for the study was selected by non-probability purposive sampling method from the victims.

RESULT:

The cloudburst resulted in extensive damage to men and material including critical health and public facilities. 272 persons died besides many reported missing and grievously injured. 1447 families lost their homes. Losses from properties as well as kith and kin impacted the victims socio-economically and psychologically. Psycho-care and community buildings aspects having relevance to community health were obviated in post disaster operations. Approximately 55%-60% respondents displayed psycho-somatic symptoms.

CONCLUSION:

Emotional and psychological impacts of disaster on victims continue and affect the community health. An effective and comprehensive disaster management strategy; psycho-care activities from a social and community health perspective must be included in post disaster activities.

INTRODUCTION:

A cloud burst of unprecedented magnitude hit Leh, on the night of 05 Aug 2010. Within two hours, 14 inches of rainfall was recorded which led to flash floods and mudslides which affected an area of 687 hectares. Yet, it claimed 272 lives, several reported missing and grievously injuring 195 persons. Extensive damaged was caused to infrastructures, facilities, public and private properties. 1447 houses were damaged.1 Men, women, and children were buried under the debris and the survivors were rendered

homeless. The tele-communication networks, surface and air transport facilities, water and power supply system were severely affected. The district health and medical facilities were rendered non-operational with sole responsibility on the Army Hospital Leh. During the immediate post-disaster period, the disaster management mechanisms were paralyzed.

The impact of the cloud burst at Leh was accentuated by the geo-topographical, ecological uniqueness of Leh and its remoteness. Indian Army, State Government, Central Police Forces along with social and non govt organizations were quick to accede and acknowledge the physical damages caused by the cloud burst. Relief in terms of materials and money were provided promptly. The post disaster activities were confined to rescue, relief, rehabilitation, restoration and reconstruction. The process of community building from the perspective of social and community health was distinctly absent.

The study was undertaken to explore the economic and psycho-social impacts of the disaster with an aim to identify the psycho-social aspects related to a comprehensive disaster management strategy and recommend the importance of psycho-care as well as the role of social workers at individual and community level in a disaster situation.

This study is exploratory in nature with respect to the impacts of the cloud burst at Leh, Ladakh. The concept of psycho-social impacts in a disaster and subsequent psycho-care activities had not been factored in the post disaster operations. The importance of assessing the psycho-social impacts of a disaster, the need for psycho-care and the role of social worker in capitalizing on the community competence supported by all stake holders for an effective as well as a comprehensive disaster strategy were highlighted during course of the study amongst the victims, officials and the natives. The suggestions and the recommendations are inferred from the shortcomings observed from the post disaster activities. Recorded formal study on the impacts of the cloudburst form a social work perspective is unavailable.

The results and the discussions include the disaster management approach adopted to deal with the impacts which were primarily rescue and relief, rehabilitation; restoration and reconstruction activities. The economic, social and psychological impacts have been highlighted the silent aspects to accentuate areas for elucidating the suggestions and recommendations for formulating a practical and comprehensive disaster management strategy a district/ provincial level.

MATERIALS AND METHODS:

The present study is based on the author's experience of the post disaster activities. The study was conducted at Leh over a period of 18 months for observation and data collection. The source of data included government publications, the administrative and health officials of the office of the Deputy Commissioner, Ladakh as well as Leh Autonomous Hill Development Council (LAHDC), social leaders and a sample of 100 rehabilitated victims from a relief camp selected on non-probability purposive sampling method. Observation, structured and unstructured interview method were utilized. The paper documents the author's post disaster experiences based on the data collected and analyzed. A councilor of LAHDC accompanied the author in the field trips to the disaster affected villages to facilitate consent, seamless rapport, interpret and for adherence to local culture and traditions.

Results and Discussions:

DISASTER MANAGEMENT APPROACH:

A discernable disaster management strategy was absent in dealing with the impacts of the cloudburst due to the overwhelming outcome the disaster and various constraints. The disaster management strategy was dictated by the imperatives of ground situations and the extent of the physical damage. Table [1] gives the extent of the damage. The approach of the disaster management included i) Response, rescue and relief operations, ii) Rehabilitation, and iii) Restoration and Reconstruction.

Response, Rescue and Relief Operations:

The immediate response was initiated by Government of India with the Indian Army leading the rescue and relief operations along with the state government and the Central Police Forces (CPF). The disaster preparedness of the Indian Army facilitated a prompt response. The extent of physical damage, isolation caused by the disruption of communication and road network imposed a near complete paralysis of the disaster management mechanism. However, with the prompt restoration of infrastructure initiated by the Indian Army, the disaster management mechanism commenced. The prompt restoration of the Leh Airfield facilitated ferrying in of essential materials and evacuation of casualties. Army communication network played primary role in coordinating the post disaster operations. The Army Hospital at Leh played the key role in providing the only available medical facilities and managing all the casualties. Immediate relief camps were established by the Indian Army at Leh at various villages. A sum of Rs 410.96 Lakhs was

provided from the State Disaster Relief Fund (SRDF) for relief to the victims in the form of ex-gratia payments; compensation for properties lost/damage and rescue operation. Table [2] gives the breakdown of the SDRF.

REHABILITATION:

The homeless and the displaced families were rehabilitated in relief camps established by the government and non-government organizations(NGOs). Providing permanent shelters became critical in view of the limited time available for construction with the winter setting in within three months and constraints of resources. Army provided the essential items initially and the responsibility was taken over by the government and non- government organizations on restoration of road network. The disruption of the water supply scheme and the sewage system seriously threatened the public health. The National Disaster Relief Force arranged for clean water. Even there was a threat of food shortage. However with the improved restoration of lines of communication the facilities improved considerably.

RESTORATION AND RECONSTRUCTION:

A sum of Rs 1976.78 lakhs was released for temporary restoration of infrastructure from the National Calamity Relief Fund (NCRF). Table [3] gives the details. A sum of Rs 2946.26 Lakhs was released from PMNRF for rehabilitation, restoration and relief. Table No [4] gives the details.

Economic Impact:

The estimated value of the public property damaged is Rs 133.00 Crores. Infrastructures, commercial assets, tourism, agriculture, livestock rearing and household industry had all been adversely affected along with the opportunity income of the victims. The economic impact is thus long term considering the secondary impact 2. Reduced income adversely affects the health at individual and community level.

Social Impact:

Loss of properties, relatives, sources of income and disability to lead a normal life have a social impact at individual, family and community level. Family and social structure disruption were the result of 1447 houses damaged, 272 lives lost, 195 persons grievously injured and many reported missing. Relocation and rehabilitation of the victims to relief camps were the contributing factors. Disruption of family and social structures along with reduced social capacity resulted into psychological and emotional impacts. A realistic social impact assessment is an important tool for disaster management to contribute to community health3.

Psychological Impacts:

Natural disaster constitutes catastrophic life events which produce adverse psychological reactions among victims which are seen as problematic both immediately post-impact and for a long period of several years or the victim's remaining life span4. The psychological impact which is critical for community health rarely receives the desired attention in disaster management5. Except for a rudimentary study conducted by the District Mental Health Officer of Leh, no formal study has been undertaken in this aspect of community mental health as a result of the disaster. The findings of the author on psycho-social impact from the sample respondents are given in Table [5].

PSYCHO-CARE AT COMMUNITY LEVEL:

The disaster had resulted in disruption of normal routine of the people and the entire fabric of the society. As a natural response to the disaster, instances of psycho-care were evident which were not planned and also training not imparted for it. Table No [6] gives the details.

Community Level Workers (CLWs):

Interaction with government officials revealed that the concept of CLWs had not been formulated and institutionalized. The CLWs has a critical role for in disaster management for elevating the community health.6

CONCLUSIONS:

Occurrence of natural calamities cannot be prevented. However, its impacts becoming a disaster can be reduced and to a certain extent prevented which can be accomplished through a comprehensive strategy. In the absence of a disaster management plan at the district level, the cloudburst at Leh on 06 Aug 2010 surprised the entire population. The consequent response was reactive in concept and 'fait accompli' in execution. A comprehensive disaster management strategy with the stakeholders empowered with knowledge, information , resources and a formal process could have reduced the intensity of the disaster as well as enhance the recovery process with minimum physical, social, economic and psychological impacts on the victims which are critical for community health. The disaster management strategy has to be

appropriately evaluated and evolved for regions like Ladakh characterized by unique topography, climate, cultural and socio- economic attributes.

Lessons learnt and recommendations:

· Disaster preparedness 7 is a critical factor in reducing the impact. The civil administration at the state and district levels need to formulate and formalize disaster management plans and the mechanisms in readiness with material and designated rescue officers and workers under the provisions of the National Disaster Management Act 20058 .

· The disaster impact assessment be undertaken by experts and is crucial from the perspective of understanding the exact nature of the impact to appropriately evolve a dynamic and an effective disaster management strategy encompassing critical aspects including community health.

· The destruction of the BSNL complex, SNM hospital and critical bridges caused complete paralysis to telecommunication network, health care and isolation of Leh reducing disaster response capacity. Alternate critical services and facilities need to be created.

· The most important outcome of a disaster is the emotional and psychological impacts which are crucial to the community health. Relief, rehabilitation and reconstruction efforts must acknowledge the psychological needs as an essential aspect of overall care.

· Information, education and communication are critical to a disaster preparedness and response. The potential of the latest technology must be exploited for community capacity building in the areas of mass education on disaster preparedness, forewarning impending calamity and coordinating disaster management operations.

· The stakeholders have important roles in empowering the community to build its capacity to deal with a disaster situation. Community itself is the best agents for disaster management supported by other stakeholder viz. govt, social workers and social/ cultural/ religious NGOs.

· CLWs are members of the community having detail knowledge about the community and its members enabling them to work in a sustained and intense manner within the community forming a vital link between the victims and the several helping agencies from outside the community. They need to receive skills for essential psycho-care.

· In a disaster situation; building community, fostering social cohesion and mobilizing mutual help to provide dignified living for victims are critical for community health. There is a need at the grass root level to instill a sense of ownership to ideas and agreed schedule of recovery amongst the victims. At macro level there is a need to adopt a community organization approach in mobilizing mutual help and mutual care amongst the victims which must be included in the disaster management strategy.

· Training on essentials of mental health is imperative for the all the medical personnel caring for the victims for appropriate treatment and intervention.

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• Table [1]: Extent of Damage

Description	Quantity
Sub Division affected	3
Villages affected	64
Houses destroyed	1447
Lives lost	272
Grievously injured	195 persons
Live stock lost	402
Road damaged	688.80kms
Bridges damaged	29
Total land area affected	687 Hectares
Cultivable land affected	660 Hectares

Table [2]: Sub- Allotment SDRF

Relief	Amount (Rs. Lakhs)
Ex-Gratia grant	204.00
Injured persons	10.55
Residential houses damaged	91.71
Live stock lost	6.34
Crop damaged	9.81
Rescue work	88.55
Total	**410.96**

The analysis of the data revealed that despite a negligible area of Leh district spread over the three sub-divisions of Leh which are geographically separated, was affected by the cloudburst yet, the damages were disproportionately high. This is attributed to disaster preparedness (lack of it) and concentration of development in the low lying areas astride flood prone river valley

The fund was released for providing immediate relief to the victims and conduct rescue works. Financial assistance can compensate loss of property but not the lives lost and emotional as well as psychological impacts completely.

Table [3]: Sub Allotment NCRF

Sector	Amount (Rs. Lakh)
Water supply scheme	127.35
SNM Hospital	30.35
Power	211.56
Irrigation	160.50
Mechanical Division	91.39
Flood control	224.50
Canal	14.00
Restorations of Roads	15.00
PWD (Rural roads & flood victims rehabilitation)	700.96
Civil electric works	30
Command Area Development	15.17
Animal & Sheep Husbandry, Leh	20.00
Tourism	3.00
Total	1976.78

The restoration is a long term activity which cannot address the immediate needs of the victims. A sum of Rs 700.96 lakhs was allotted for PWD including rehabilitation. The adequacy of the fund for undertaking the desired activities towards community health remains a question.

Table [4]: Sub Allotment PMNRF

Sector	Amount (Rs. Lakh)
Water supply scheme, Leh	707.30
SNM Hospital	1011.00
Power	800
Rehabilitation	327.83
Total	2946.28

An amount of Rs 327.83 was allotted for rehabilitation. In the absence of a structured approach towards community building, the rehabilitation emphasis on creating physical assets rather than addressing social and community needs.

Table 5: Psycho-Social Impact

Item	Respondent Percentage (%)
Earning member dead	21%
Family structure disrupted	35%
Somatization symptoms	57%
Depressive symptoms	60%
Post Traumatic Stress Disorder (PTSD)	29%

The analysis of the data shows that 21% of the respondents lost earning member and 35% suffered family structure disruption. 57% and 60% respondents displayed positive symptoms of somatization and depression. 29% respondents displayed PTSD symptoms. The psycho-somatic symptoms were more prevalent among women and aged who were adversely impacted socially and economically.

Table 6: Community Level Psycho-Care

Participation in community activities	Respondent Percentage (%)
Mourning, condolence and prayers	55%
Resource sharing	65%
Rescue & relief work	60%
Sharing community responsibilities	55%
Support for disable & aged	36%
Opinion on need for psycho-care training	85%

The analysis of the data reveals that as natural response 55% to 65% respondents participated in community psycho-care activities which were not pre-meditated. 36% respondents participated in support for the disabled and the aged. 85% respondents opined that training be provided in psycho-care. A strong social capital with respect to psycho-care at community level exists which need to be formally accepted and institutionalized.

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