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KINNAUR DISASTER, 2013: IMPACT AND LESSONS LEARNT

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Abstract

'Developing countries like India are most vulnerable to natural and man-made disasters. Disaster risks in India are inevitable and are further compounded by increasing vulnerabilities. Relief operations are carried out in the aftermath of disasters with the objective of helping affected population. Such operations are carried out by multiple agencies under difficult conditions. Disaster Management as discipline can play a very significant role if disaster research is carried out in empirical manner. The long term planning for disaster preparedness is imperative and requires most disciplined response mechanism by enhancing the capacity and imparting training, not only to the Government officers but also to the community living in urban and rural areas, especially in the geographical areas prone to disasters. Kinnaur district in the Himachal Pradesh is the example of haphazard developmental activities like construction of large scale hydro-dams, tunnels, road construction, avoiding traditional wooden housing by constructing the RCC structures, open and 24x7 irrigation water flowing channel in the fragile Himalayan tribal district, which ultimately contributed insignificant disaster in 2013. The paper has been attempted to study the quantum of disaster took place in 2013 in District Kinnaur, to analyse the role of administration, preparedness and response system besides suggestions for such incidences in future. The gaps and shortcomings in the administrative system for prevention, preparedness and mitigation measures as well as during response and relief operation, the efficient and effective Incident Response System must be put in place for response, search and rescue evacuation, and immediate relief distribution in transparent manner, as well as setting up of District Emergency Operating Centre (DEOC) with appropriate disaster management plan and adopting Standard Operating Procedures.

Introduction

India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions and has been facing several natural

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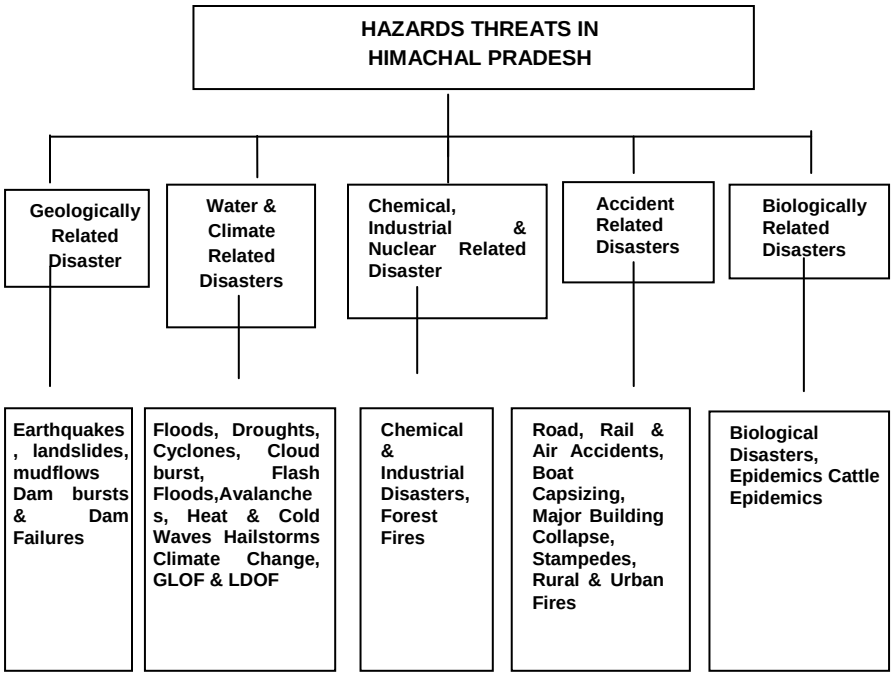
disasters. Natural disasters which are often sudden and intense result in considerable destruction, injuries and deaths, disrupting normal life as well as the process of development. The relationship between man and nature is existing from the birth of man to the earth. In past, the relationship of man and nature is friendly as man derives his needs from nature and the end process also easily digested by nature. When man started over exploitation of the natural resources, it resulted into the disturbances in natural cycle.

Meaning and Concept of the Disaster

The word 'Disaster' has been derived from Middle French disaster and that from old Italian disaster which in turn come from the Greek pejorative prefix (dub) "bad"+(aster) "Star". The Disaster Management Act, 2005 defined disaster as "a Catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human sufferings or damage to, and destruction of property or damage to or degradation of environment and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area". The United Nations defined disaster as, "The occurrence of a sudden or major misfortune which disrupts the basis and moral functioning of a society or community.

Typology of Hazards in Himachal Pradesh

Himachal Pradesh **is** prone to various hazards both natural and manmade. The main hazards consist of earthquakes, landslides, floods, flash floods, snow storms and avalanches, droughts, dam failures, fire (domestic and wild) accidents, road accidents, stampedes, biological, industrial and chemical hazards etc. The hazard which however, poses biggest threat to the State is the earthquake hazards. The State has been shaken more than 80 times by earthquakes having a magnitude of 4 and above on the Richter scale as per the recorded history of earthquakes. As per the B.I.S. seismic zoning map of five districts of the state, namely Chamba (53.2%) Hamirpur (90.9%), Kangra, Kullu (53.1%) Mandi (97.4%), have 53 to 98.6 percent of their area liable to the severest design intensity of MSK IX or more, the remaining area of these Districts being liable to the next severe intensity VIII. Two districts, Bilaspur (25.3%) and Una (37.0%) also have substantial area in MSK-IX and rest in MSKI (VIII). The remaining districts also are liable to intensity VIII. The diagrammatic representation of hazards profile of Himachal Pradesh is as under:-



(Source: HP State Disaster Management Plan, 2012)

II. Research Problem

The District Kinnaur had experienced the major snowfall spells which occurred on 17th Feb and 22nd to 24th Feb, 2013 and average 3.00 meters snowfall took place in the entire district which caused very heavy losses to human and properties due to resultant avalanches, landslides and extreme cold waves all over the district. This unprecedented snowfall and avalanches completely paralyzed the normal life, severely damaged the all basic life line structures. Secondly due to this heavy snowfall, another disaster occurred on 15th to 17th June, 2013 as the incessant and heavy rains, cloudburst, flash floods lashed various parts of the district Kinnaur. This rain fall was on account of an early onset of monsoons and Kinnaur District was affected badly. Therefore, the human losses and damages to public as well as private properties were the major reasons in view for conducting empirical study of District Kinnaur.

III. Objectives of the Study

The specific objectives of this study are:

i. To study and analyse the impact of disasters in district Kinnaur.

ii. To analyse the role of District Administration during the trigger (Golden Hour) and post Disaster Response, Search & Rescue and Relief Management.
iii. To assess the gaps in the preparedness and response mechanism.
iv. To make suitable suggestion for disaster management in future.

IV. Methodology

It was basic descriptive research study with the main purpose to formulate a problem for more precise examination from an operational point of view. Emphasis in this study was on the discovery of ideas and insights, to provide opportunity for considering different aspects of the problem under study. The scope of the study extended to District Kinnaur in the state of Himachal Pradesh where two major disasters took place in 2013. The empirical study was undertaken following the experience survey i.e. the survey of people who had practical experience with the problem studied with an objective to obtain insight into the relationships between variables and new ideas relating to the research problem. People who were competent and contributed new ideas were carefully selected to ensure a representation of different types of experience, and then interviewed for the study. The respondents for experience survey included officers/officials of state/central government, non-officials, stakeholders and affected persons besides the oath or who was posted as PO(ITDP), Kinnaur at the time of referred disaster. The experience survey enabled to define the problem more concisely. Besides primary data, the study also took into account the secondary data including circulars/orders issued by central and state governments, official documents, practices documented, case studies, published practices, content analysis, recorded or published practices were collected and reviewed for analysis. In this case study the empirical method, secondary data, observation and interview were used. Keeping in view, the objectives of the study, the information was collected from the selected district.

V. Profile of District Kinnaur

Kinnaur district of the Himachal Pradesh has a special status of Tribal District as per Schedule-V- Area under the constitution of India. The district is scheduled, ragged and mountainous to an extraordinary degree and it lies on the both side of the river Sutlej. It is situated between 31-05-55" and 32-05-20" North latitude and between 77-45-0 and 79-00-50 East longitude. It is about 50 miles in length and about 40 miles in breadth. it is bounded on the east by the Nagari region of eastern Tibet. The district is separated from the Tibet (China) by the Zanskar Mountain. There are parallel mountain

ranges like Zanskar Mountain, the great Himalaya and the Dhauladhar. The crest of the Zanskar mountain forms the eastern Tibet. The district is separated from the Tibet (China) by the Zanskar Mountain. There are parallel mountain ranges like Zanskar Mountain, the great Himalayas and the mountain forms the eastern international boundary of Kinnaur with Tibet, the great Himalaya extends from the North-West to the south and the crest of the Dhauladhar constitutes the southern boundary of Kinnaur with the south-eastern corner, where the last two ranges merge. The general elevation of the peaks on these mountains varies between 5,180 and 6,770 meters and these are covered with snow all the year round. The high mountain ranges and higher reaches of District Kinnaur remains snow covered for most part of the year as it receives heavy snowfall during the winters. The intermittent snowfall in the district forms many layers of snow/ice on the ground, which remains frozen during the winters.

TABLE-I

Damage due to natural calamities/snowfall/Avalanches in District Kinnaur

Sr.No.	Item	Unit	Details
1	Number of district	No.	1
2	District affected	Name	Kinnaur
3	Number of villages affected	Nos.	315
4	Population affected	Persons	84298
5	Total land area affected	Hect.	13,070
6	Cropped area affected	hect.	9816
	(i) Total cropped area affected	Hect.	9816
	(ii) Estimated loss to crops (Rs. In lakh)	Rs. In Crore	35.09
	(iii) Area where cropped damages was more than 50%	Hect.	1750
7	Percentage of area held by SMF:		
	(i)In the District	%	100%
	(ii) in the affect districts	%	73%
8	Houses damages:-		
	(a) No. Of houses damaged:-	Nos.	2387
	(i) Fully damaged pucca house	Nos.	159
	(ii) Fully damaged kutcha houses	Nos.	263
	(iii) Severely damaged Pucca houses	Nos.	287
	(iv) Severely damaged kutcha houses		217
	(v) Partly damaged houses (Pucca+Kutcha)	Nos.	1089

	(vi) No. of huts damaged	Nos.	372
	(b) Estimated value of damaged to houses	Rs. In Crore	4.46
9	Human lives lost	Nos.	17
10	Persons with grievous injuries	Nos.	13
11	Person with minor injuries	Nos.	8
12	Animal lost:-		199
	(a) Big Animal lost	Nos.	103
	(b) Small Animal lost	Nos.	96
13.	Estimated value of the Damage to public properties	Rs. in Crore	74.90
14	Estimated total damage to Houses, Crops and public properties.	Rs. in Crore	114.45

Source: Memorandum of Damages on Heavy Snow fall and Resultant Avalanches, Landslides and Cold Wage occurred in District Kinnaur, 2013, Govt. of H.P.

The losses and damages due to natural calamities/snowfall followed by avalanches and landslides in District Kinnaur have been described in above table. It was found that huge loss of lives and 315 villages were badly affected during 2013. The entire district was covered by unprecedented snow, avalanches, and completely struck the normal life, severely damaged the basic services like water, electricity, telecommunication and took a month period for restoration of after repair and maintenance. The entire population, i.e. 84,298 persons and other tourists, Army, ITBP officers and officials posted there, were badly affected and public got massive and irreparable losses of housing, agricultural & horticultural crops, 17 persons lost their lives in extreme cold wave, avalanches and landslides. Therefore, loss in terms of money was Rs. 4.4 crore, 21 person got injuries, 199 domestic animals lost their lives and other public properties like road network in the entire district struck down and some portions were washed away. The drinking water was struck off for a period of month or more time and there was no drinking water available except people had to melt the snow over kerosene stove to prepare their meal/tea etc. for their survival.

Table-2: Expenditure from Disaster Response Fund (DRF)

S.N.	Items	Amount (Rs. in Crore)
I.	Receipts	
	Opening balance in SDRF account for 2012-13 (a) SDRF	6.10

	(b) NDRF	0.75
	(c) Total	6.85
II.	Expenditure	6.85
	Expenditure incurred on natural calamities as per the Schemes of SDRF/ NDRF Ex-Gratia (NDRF)	0.50
	R & R (NDRF)	0.25
	Ex-Gratia(SDRF) Cash dole	0.70
	R & R Govt. Offices	2.14
	R & R Govt. Residential	1.13
	Ex-Gratia (SDRF)	1.00
	R & R Houses (SDRF)	1.13
	Total	6.85
III.	Expenditure incurred on training to specialized Teams of the state/District personnel	0.0011
	Expenditure incurred on procurement of search and rescue equipment etc. (as per extent approved items).	-
IV.	Total expenditure incurred(1+2+3)	6.8511
V.	Balance available in the SDRF account of the instant financial year:- (a)SDRF (b)NDRF (c)Total	- - NIL

Source: Field Data, District-Kinnaur

The above table described that the budget availability with the district and allocation seemed to reasonable due to Single Line Administration in the District Kinnaur. The Revenue Department allocated Rs 6.10 Crore under the SDRF, 0.75 crore under the NDRF with total 6.85 crore was available with the DDMA/District Administration to meet the actual expenditure incurred against the various heads. Therefore, total expenditure under various heads incurred to the tune of Rs. 6.8511 crore. As per extent items and norms of assistance from SDRF/NDRF, expenditure on these items (collectively) is permissible upto 10% of the annual allocation.

The second spell of disaster struck in District Kinnaur from 15th June to 17th June, 2013. Due to heavy rains/snowfall on the higher reaches, it

became catastrophic which resulted into flash floods/avalanches and landslides, beyond the coping capacity of District Administration. 23 people lost their lives, hundred people injured and 22,983 domestic animals had perished due to excessive rainfall/ snowfall in the fragile district. More than 2,564 houses fully and partially damaged in the various parts of the district. The overall loss of private properties assessed to the tune of Rs. 80.00 crores. The entire road network in the district suffered extensive damages, bridges washed away and subsequent losses assessed to the tune of Rs. 400 crore. The irrigation and drinking water supply schemes viz. 145 water supply schemes, 81 irrigation schemes, 2 sewerage schemes and 17 flood protection works were damaged, hence, the loss to the district economy was assessed to the tune of Rs. 47.89 crore. The agricultural loss included 2200 Hect. under Rajmah, cereals crop for Rs. 42.22 crores, besides 8000 huts/horticultural crop destroyed/damaged assessed for Rs. 69 crore. The hydel power projects and infrastructure/small dams etc. were severely damaged and the total loss on account of power sector was Rs. 408.35 crore. The community assets like buildings of primary schools, PHCs, Panchayats Ghars, Mahila Mandal/Yuvak Mandal Bhawans, Village Paths etc. had damaged resulting to loss of Rs. 35.00 crore. The cumulative losses were assessed to the tune of Rs. 1,136.51 crore for the 2nd spell of disaster in District Kinnaur.

VI. Impact of Disaster

The Kinnaur disasters of January-March, 2013 and second spell in June, 2013, were among the worst natural disasters in the history of Himalayan State. Because of its severity and the geographically far flung area spread over 6401 sq. kms. in 65 Panchayats, the disaster posed enormous challenges for District Administration, D.D.M.A. and Single Line Administration. The large scale loss of humans and properties occurred in the District Kinnaur, but the preparedness in Golden Hour response could not gain momentum. The unprecedented snowfall and avalanches/landslides completely paralyzed the normal life, severely damaged the communication network, roads, water supply and electricity. In first spell 17, persons lost their lives and in second spell 29 people (total 46 persons) lost their lives. District Kinnaur adjoining Uttrakhand State also faced IInd spell of disaster from 15th to 17th June, 2013 in which heavy rains followed by flashfloods/cloud bursts destroyed the normal life and huge damages were occurred like domestic animal lost, houses, roads, bridges, culverts damages. Due to excessive rains, most of the culverts got blocked and even got washed away due to sudden, huge mud flow with flash floods carrying slush and boulders. The damages and losses in both spells of disasters, the impact was irreparable to the State economy. The

preparedness prevention and mitigation measures required special campaign to train the principal Responders /Nodal Officers of the different departments. But, at the spot or onset, it was found that the immediate action could not be initiated even though the State Administration had provided enough budget provision for preparedness and mitigation measures.

The training component was not touched and no preparedness drills were conducted ever. The District Administration could not call the meeting of District Disaster Management Authority, even though, there was Single Line Administration. The powers of sanctioning of ex-gratia relief to disaster survivors, victims was centralized with Deputy Commissioner which affected the post disaster Relief and Rehabilitation management badly. The social and economic impact of both spells disaster destroyed the cohesive tribal societies, culture and tradition besides their faith on their local deities/devatas. Now, they realized that the social cooperation and coordination was imperative to the rural life. The economic impact described in the previous paragraphs presented the facts and figures about the irreparable loss of human and material in both the spells of disaster. The large scale damages to life line structures, life, public health centers, schools, community assets, road network, IPH schemes, BRO roads, bridges, private houses, huts, cow sheds etc. had taken place in the entire district Kinnaur, consequently, the economy went back to decades.

1. Early Warning Mechanism: The AIR Shimla as well as Doordarshan Shimla had given the alert to public about such catastrophe, but administration did not bother to set up its emergency operation centre, activate the SDM, Tehsildars, BDO's, Pardhans of Gram Panchayats. In both spells of disaster in District Kinnaur, during the year 2013, shattered the life and economy of the State.

2. Non-constitution of I.R.T.: It was also observed and found that the Incident Response Teams were not constituted in the D.H.Q/ Sub Division level IRT and even at Tehsil/Block level. Hence, there was no effective and efficient response mechanism.

3. Non-convening of DDMAs meetings: The Chairman of DDMA did not bother to convene the meeting of DDMA, activation of EOC and deployment of IRT/QRTs in the affected areas.

4. Lack of coordination: It was also observed that there was no appropriate coordination between the principal responders, officers, NDRF/state Police, State Home Guards/ NYKS etc. resultantly the IRS mechanism could not be introduced.

5. Lack of effective communication: In both spells of disaster, there was no effective and efficient communication network and even the provided satellite phones could not be harnessed fruitfully due to lack of training and skills.

6. Double strategy: The responsible officer at the District headquarter was helpless, who communicated upward and downward transmission without facts.

7. Gaps in search and rescue: The non-constitution of IRT or Search and Rescue Teams in the District Kinnaur, no preparedness and mitigation measures works were taken. There was no such coordination of IRS mechanism.

The flash floods and cloud burst in 2nd spell of disaster destroyed the public and private properties badly and major part of the District Kinnaur suffered extensive damages and their rehabilitation and restoration took considerable time. During that period, relief and rehabilitation measures, essential helicopter service for supply of material and evacuation of emergencies, arrangements for transportation of peas crop and other related issues regarding supply of inputs, supply of packaging material for apple transportation and supply of essential commodities were required to be administered and monitored till the time normalcy return. In order to administer these activities effectively, a Relief and Rehabilitation Committee for District Kinnaur was constituted. To undertake Rescue and Evacuation operation by Helicopter, the State Government had provided 16 flights to evacuate the people. In view of the emergency services, there was huge gap in the disaster preparedness and response mechanism. The role of District Administration Kinnaur at Reckong Peo, during the trigger mechanism (Golden Hour) period was not up to the mark.

Relief Distribution & Preparedness

To mitigate such miseries to the sufferers at such critical time, people do look forward to the Government for some sort of help. In Kinnaur District, a concrete jungle has been created by avoiding the wooden structures walls and roofing. The preparedness was totally neglected in the entire district and people were not made aware and sensitized to such catastrophe. No doubt, in Himachal Pradesh, a State Disaster Response Force for search and rescue operation could not be created, but could get help from the NDRF, who were requisitioned for District Kinnaur. But, the NDRF personnel were not trained to SAR in such difficult area like Pangi village, near to Reckong Peo. As such, in Kinnaur the administration was waiting the call from Shimla, the State Government to launch response mechanism.

The motivational level and courage to do the humanitarian relief, response and evacuation work needed more dedication, loyalty and discipline but the preparedness, lack of coordination, non-delegation of financial powers, non-appointment of Incident Commanders and non-existence of Incident Response system in the district created a chaos in the system. The Fire, Home Guards, NGOs, Civil Defence forces could not be streamlined and put in place the IRTs at all Sub-Divisions, Tehsils, Police Stations and P.R.I. level. The officers and officials posted in tribal areas were getting less salary than their counterparts posted in Shimla like NDRF personnel felt deprived when they compared the risks undertaken by them and the risks undertaken by their counterparts deputed to forces like the NSG,SPG and Assam rifles.

VII. Suggestions

The following suggestions, in letter and spirit, are proposed to set implementation on the basis of this empirical study:-

(i) Training and capacity building measures may be enhanced.
(ii) Information, Education and Communication measures be introduced at every level.
(iii) Early warning mechanism should be strengthened and developed.
(iv) Updating and conducting the mock drills quarterly be made compulsory.
(v) The Incident Response System should be introduced in the curriculum of the IAS/HAS Officers.
(vi) All IAS/HAS/IPS Officers should be well conversant with the Disaster management processes /phases and crisis management.
(vii) The Emergency Operation Centre should be built and operated & be activated as and when the warning or alert is announced by D.D. News/AIR/CWC any other warning.
(viii) 15 days compulsory training on Disaster Management must be imparted to all IAS/HAS/IPS/HPS/HG/Fire Officers.
(ix) The standard operating procedures should be framed and be put on the SDMA web\site as well as in all DEOC/SEOC.
(x) The essential search and rescue equipment's should be procured from the government approved firms only.
(xi) The adequate relief material like blankets, turpline / tents etc. should be readily available/or in stock of the sub-divisions or tehsil level.
(xii) The Community Based Disaster Management training must be imparted to all public representatives like MP,MLAs Pardhans, Vice-Pardhans, Ward Members /immediate response and relief.

Conclusions

In the Himalayan States, the Geo- hazards are specific. It cannot be stopped or even predicted, but through capacity development, mitigation and preparedness, the communities can be trained for resilience self sufficiency and be mentally prepared for natural calamites to minimize the losses and damages for human being and properties with IEC, prevention preparedness and mitigation measures. In long term perspective, the land use planning, implementation of Town and Country Planning Act, & Rules, Building Codes etc. in letter and spirit as well as constructions of Roads, Hydro projects and tunnels should be avoided in future, otherwise fragile Himalayan States would be in danger or at risk, due to the reasons that the haphazard construction, wide spread developmental activities without following the engineering code (BIS) for zone –IV & V, in which the Himachal Pradesh falls, open irrigation facilities certainly increase the potential geo hazards. The haphazard constructions, blasting work and tunneling must be avoided in the District Kinnaur for sake of save the Young Himalaya. The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted at the Third United Nations World Conference on DRR, held from 14 to 18 March, 2015 in Sendai Miyagi, Japan adopted a concise, focused forward-looking and action-oriented part-2015 frame work for disaster risk reduction may be followed. Keeping in view the facts and figures of losses and damages, the action oriented long term preparedness and mitigation measures are imperative to curb the vulnerabilities, miseries, extreme poverty in the Himalayan States in General and particular in the Tribal Scheduled Areas.

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