

Disaster Management : A Case Study On Uttarakhand Flood Disaster 2013

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Abstract

Life in mountains had been always difficult but disasters take away many things from people, including lives & property. A disaster can strike anywhere without any prior warning, so we must be well equipped at all times to combat the catastrophe that can be caused by a disaster. In light of the disaster that occurred in Uttarakhand, where a cloud burst caused flash floods that swept the state, resulting in massive destruction, loss of life and left thousands of tourists stranded it's imperative that the Nation has an efficient organisation to tackle such disasters in future.

Keywords: Disaster Management, Uttarakhand Flood.

Introduction

Twenty first century is witness to number of natural disasters in India. Bhuj Earthquake (2001), Tsunami (2004), Kashmir Earthquake (2005), Mumbai heavy rainfall (2006), Bihar Kosi River floods (2008), Leh Cloudburst (2010), Sikkim Earthquake (2011) and unprecedented floods and cloud burst in Uttarakhand in 2013, Himachal Pradesh and Nepal have been of alarming intensity and brought with them devastation, death and destruction. Each of these disasters has seen active involvement of Armed Forces in relief operations. Out of these, the most recent and devastating has been the one in Uttarakhand in July 2013, to which this researcher had the opportunity to play an active role in rescue and relief operations and witness the work of various agencies first-hand.

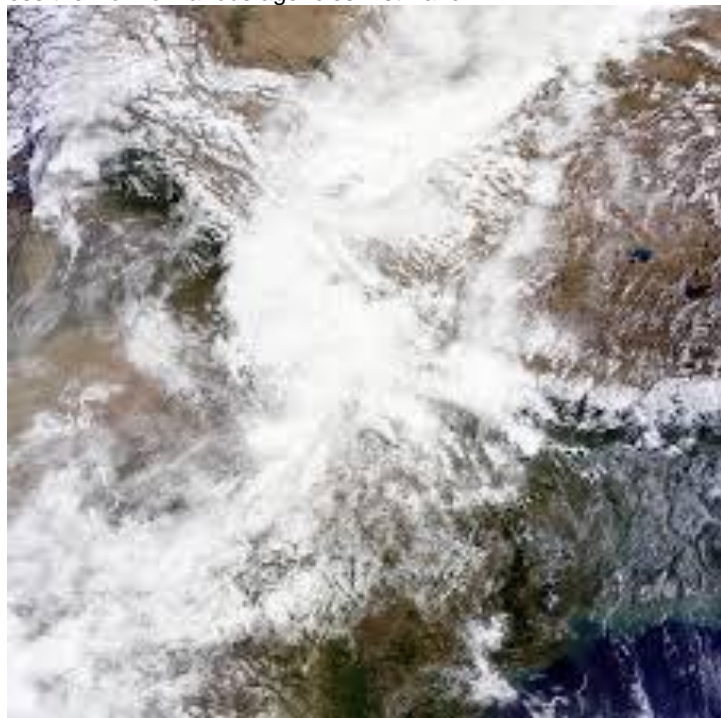


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Uttarakhand is India's hilly state in the North, with a geographical area of 53,483 sq. km out of which 46,025 sq. km. is hilly while only 7,448 sq. km is plain area. With Dehradun as its capital in the south, the state has international borders with Tibet in the North, Himachal Pradesh in the North-West, Nepal in the East and Uttar Pradesh in the South. The state is highly prone to natural calamities especially earthquakes, floods and landslides. Char Dham Yatra, the most sacred pilgrimage in the state includes paying obeisance at Badrinath, Kedarnath, Gangotri and

Yamnotri - the two temples at the origin of Ganga and Yamuna. Since the Char Dham Yatra was in full swing in June 2013, casualties of tourists and locals were enormous.

Objective of the Study

To study the Uttarakhand flood disaster of 2013.

The Disaster



In Uttarakhand, though the average annual rainfall is 1631 mm but in the period from 01 to 18 June 2013, the state received a total rainfall of 385.1 mm, which was the highest in the last 80 years. The normal rainfall during this period is 71.3 mm, indicating that rainfall was 440% above the normal.

Thousands of pilgrims and tourists on the Char Dham pilgrimage to Gangotri, Yamnotri, Kedarnath and Badrinath, Hemkunt and tourists to Valley of flowers and Roopkund were stuck without rations and transport for days to follow due to overflowing of rivers, washing of bridges and roads at more than 450 places including National Highway 58 at many locations, completely halting the transport, disrupting communication and electricity supply.

What led to the disaster?

A study by NDMA analysed the natural and anthropogenic influences on the climate anomalies using simulations, and found that:-

1. Northern India has experienced increasingly large rainfall in June since the late 1980s.
2. The increase in rainfall appears to be associated with a tendency in the upper troposphere towards amplified short waves.
3. The phasing of such amplified short waves is tied to increased loading of green-house gases and aerosols.

Role of Indian Armed Forces in Disaster Management and Its Response to Uttarakhand Disaster 2013

Army formations are always the first responder in disaster relief. The Armed forces are the 'country's Army, Navy and Air Force.' Joint means involving two or more people together. Respondent means a person who is answerable for any operation. Here it is taken as 'the one who is responsible' and joint respondents are taken as 'Army, Navy and Air Force who hold the joint responsibility. Given their regular deployment, army needs to develop core

competency in disaster management by carrying out specialized training, procuring specialist equipment and creating appointments for the new role.

Since Independence, the constitutional and the legal framework provided for the Armed forces to render assistance during calamities/disasters when the situation is beyond the capability of the local civil administration is enunciated under the subject "Aid to Civil Authorities by the Armed Forces" vide the Ministry of Defence Pamphlet dated 30 November, 1970 and also by the respective services. This enables organized and clearly defined support from the Armed forces as also provides necessary sanction (financial and otherwise) for deployment of defence resources. The Armed forces may also be called upon to render such assistance to another friendly country, on a specific request to the Government of India.



However, there is no amplification or mention of the role of the armed forces with a view to offer legal support and backup. The Act is surprisingly silent on the aspect of assigning well-defined role and responsibilities to the armed forces.

Considering the uncontrollable situation in June 2013, the civil authorities gave a call for military assistance in the Uttarakhand disaster. The Indian Army's Lucknow based Central Command, then commanded by Lt. Gen Anil Chait was made responsible for the Relief Operations named Operation 'Surya Hope'. Over 10,000 troops participated in this rescue and relief operation. It was at tandem with 'Operation Rahat' conducted by Indian Air Force, Border Roads Organization, National Disaster Response Force (NDRF), Indo-Tibetan Border Police (ITBP) and other para military forces under the Ministry of Home Affairs.

Summary

The Indian Army and the Indian Air Force and its leadership have very intimate knowledge of the terrain conditions in these areas. Almost every Army officer and soldier would have walked through most of these areas in the course of their duties. Army has its detachments in and around most of the affected areas. It has the manpower, transport, communication, medical facilities, some form of shelter and logistic arrangements and above all the leadership capabilities to handle the situation of this magnitude effectively.

Being a joint operation, as we analyse the operation in hindsight, the armed forces could have ordered a suitably composed tactical headquarters with Army and Air Force representatives to be established with a senior officer as overall in charge of the operations at an appropriate location. Based on the assessment of the commanders on ground, additional manpower and resources could have been requisitioned and moved to the required spots as per requirement.

Whether it's the revenge of the mountains, the rage of the sea or over-abundance of the monsoons, whenever common citizens are caught on the wrong side of the nature, the Indian military and the paramilitary are always the first resort for rescue and relief. Despite the creation of gigantic and resource-sucking National Disaster Management Authority by the Act of Parliament in 2005, the response of the statutory disaster management structures of the government has come in for close scrutiny for its inability to deliver when it mattered the most.

As various agencies have carried out a detailed analysis of the disaster, one thing is common- the existing disaster response model needs to be reviewed to make it more robust and insulate it from the critical paralysis that has been the hallmark in our response to various disasters. Also, there are numerous lessons for the armed forces to be learnt from the disaster in how to optimize their resources and implement jointmanship from the initial stages itself so as to have a coordinated, faster and integrated response to these situations.

Rescue Operations

Joint Rescue operations were under taken by the Indian Armed forces. Search, rescue and relief operations during Uttarakhand disaster was the most difficult operation carried out in the India's recent history of disaster management. Various Central and State level government and even non-government agencies played significant role in making this operation successful despite of remarkable, odd situations like difficult terrain, adverse weather conditions, disrupted road and other connectivity. Various ministries/agencies of Central Government., departments/agencies of State Government., government of other states, NGOs, and corporate sectors, all helped in carrying out the operation.

The Indian Army

The Indian Army undertook rescue operations as soon as the orders were received. The Indian Army has a sizeable deployment in the State of Uttarakhand. Consequent upon the disaster in the State, the Army responded with speed and promptness. Troops located in the affected area were deployed without awaiting formal requisition. The footprint was gradually increased to cope up with the unprecedented humanitarian crisis. The proactive deployment of Army was instrumental in saving several precious lives, especially during the initial stages of the catastrophe. Probing patrols were launched immediately on the information of the cloudburst

to ascertain the damage, besides simultaneously undertaking interaction with lower level officials in the State administration. The disaster response mechanism at the Army HQ was immediately activated as per the Standard Operating Procedures to continuously monitor the situation.

As the extent of the damage was revealed in the days to follow, additional troops were built up to supplement the Army presence in Uttarakhand.



Indian Air Force

The unprecedented magnitude of destruction caused by the flash floods in Uttarakhand called for an immediate and large scale relief and rescue effort. IAF responded to this enormous challenge with characteristic speed, resolve and fortitude in the biggest ever Humanitarian Assistance and Disaster Relief Operation. The sheer scale of a rescue effort to save lives was compressed into a very tight timeframe whilst operating in difficult mountainous terrain and that too under some very hostile weather conditions. Both human and machine operated to their limits within the safety margins to execute all missions in record time.



The entire team, be it the courageous men and women who flew the helicopters in a difficult

environment marred by frequent spells of bad weather or the transport crew, pitched in with all their resolve. The C130 Hercules Transport Aircraft provided innovative solutions and was used as mobile weather platform as well as acted as an Airborne Command Post. The Hercules was also used as an 'air bridge' to ferry fuel and rescued people between Dharasu and Delhi. Bridging equipment from distant locations was airlifted by An-32 aircraft to Jolly Grant to support the Border Road Organization (BRO) efforts.

Indo-Tibetan Border Police (ITBP)

ITBP was also pressed into rescue operations



Recommendations

The Disaster should be taken as the stepping stone for future reforms. There is sheer knowledge gap and lack of understanding on various mountain and climate linked issues, while no adequate shared understanding and action plan are in place for the regional problems as a whole, and no map of potential risks is available. A set of factors can be identified that make efforts to systematically manage current disaster risks more successfully.

Conclusion

The people living in high Himalayas would need to learn to live with natural hazards, which are likely to increase in frequency and intensity in a warming world. They not only need access to modern tools and facilities to deal with disasters, but also employment in disaster management. How to win the confidence of tourists after the June tragedy is a great challenge, and calls for taking a series of measures, including extending religious tourism to winters when mountain life is almost free from landslides and road disruptions. There is a need to develop the science of ecological restoration of landslide damaged sites, as many times landslides result in lands with less steep slopes.

The State of Uttarakhand witnessed a severe disaster due to heavy rainfall, cloudbursts and landslides on 16-17 June, 2013. The Uttarakhand Disaster 2013 caused irreparable losses of precious lives and damage of private properties, public properties, infrastructures, and many others. To be

brief, more than nine million people were affected by the flash floods. The five districts namely Bageshwar, Chamoli, Pithoragarh, Rudraprayag and Uttarkashi of Uttarakhand were worst affected by the natural disaster. A heavy loss of lives and properties and the deluge had washed away many roads, bridge and buildings as well as other infrastructure. In the Himalayan region during the monsoon happening of heavy rainfall and rise of water level in the river and this type of incident continue in the Himalaya range. In Uttarakhand during this current monsoon happened heavy rainfall came before the time and created large scale disasters. All rivers created floods and damages the whole state. A lot of houses collapsed and flooded near to the river bank and many people lost their business, crops land, Government infrastructures, etc. New land use development including road construction in Himalayan mountains should mandatorily consider the geological and geotechnical slope stability conditions and landslide susceptibility zones.

Excavation or slope modification and protection measures for modified slopes should go hand in hand for ensuring slope stability.

References

1. NDMA, 2008, 'National disaster management guidelines: Management of floods', Delhi, India: National Disaster Management Authority, Government of India.
2. MHA Report, 2013. A note on the recent devastation in Uttarakhand and Government measures to tackle this natural disaster in Uttarakhand. October, 2013
3. Operation Sahayata - Final Report, 2013. Indian Army Headquarter.
4. Operation Surya Hope- Final Report, 2013. Indian Air Headquarter.
5. Parkash Surya, 2013: Brief Report on Uttarakhand Disaster, submitted to National Institute of Disaster Management, June 2013
6. National Disaster Response Force (NDRF), 2013. "Uttarakhand Disaster – 2013, Response of ITBP"
7. Sinha, Amit, DIG, Garhwal Division, Uttarakhand, 2013. "Uttarakhand disaster – Coordination and Administrative issues", presented in the National workshop on "Uttarakhand Disaster 2013: Lessons Learnt", 19 August 2013
8. Mishra, DK 2008, 'Trapped between the devil and deep waters: The story of Bihar's Kosi River. New Delhi, India: Peoples' Science Institute, Dehradun and South Asia Network on Dams, Rivers and People
9. Tse-ring, K, Sharma, E, Chettri, N, & Shrestha, A 2010, 'Climate change vulnerability of mountain ecosystems in the Eastern Himalayas: Climate change impact and vulnerability in the Eastern Himalayas' – Synthesis report.
10. Bhagat, RM; Kalia, V; Sood, C; Mool, PK; Bajracharya, S (2004) Inventory of glaciers and glacial lakes and the identification of potential glacial lake outburst floods (GLOFs) affected by global warming in the mountains of the Himalayan region

11. Dash, SK, Kulkarni, MA, Mohanty, UC, and Prasad, K. 2009. Changes in the characteristics of rain events in India. *Journal of Geophysical Research*
12. Negi, PS. 2012. *Climate Change, Alpine treeline dynamics and associated terminology: focus on northwestern Indian Himalaya. Tropical Ecology*
13. *The Indian National Satellite System, ISRO 2013*
14. Uttarakhand State Government. 2013. *Press notes/statements released by Uttarakhand State Government Media Centre, Dehra Dun (India) between 17th June and 10th July.*
15. *Uttarakhand Tragedy Pictures. 2013. Available from: <http://www.rediff.com/news/slide-show/slide-show-1uttarakhand-tragedy-20130620.htm>*
16. *Wadia Institute of Himalayan Geology. 2013. Meteorological Record of Centre For Glaciology (Chorabari Glacier Snout Observatory), Dehra Dun, India.*
17. Dobhal, D. P; Gupta, A. K.; Mehta, Manish; and Khandelwal, D. D., 2013. *Kedarnath disaster: facts and plausible causes, Scientific Correspondence, Current Science, Vol. 105, No. 2, 25 July 2013.*
18. *Government of Uttarakhand, 2013. Uttarakhand Disaster Recovery Project (P146653) (The World Bank Assisted), Environment and Social Management Framework. Draft Report, September 2013.*
19. *Govt. of Uttarakhand, 2013. "Disaster Relief Memorandum for Central Assistance, Department of Disaster Management", Govt. of Uttarakhand*
20. *IMD, 2013. A preliminary report on heavy rainfall over Uttarakhand during 16-18 June 2013.*
21. *JRDNA Report, 2013. India - Uttarakhand Disaster, June 2013 (82643). Joint Rapid Damage and Needs Assessment Report.*