A Study of Disaster Risk Factors in Rajasthan

*Dr. Mamta Choudhary

ABSTRACT

A disaster is a significant issue that lasts for a short while or for a long time and results in extensive loss of life, property, money, or the environment, more than the impacted community or society can reasonably handle on its own. Within the Ministry of Home Affairs (Government of India), the National Institute of Disaster Management (NIDM) serves as a hub for learning and excellence in the field of disaster management. It is a preeminent center for applied research, training, capacity building, human resource development, information and knowledge distribution, and implementation for comprehensive catastrophe management.

INTRODUCTION



Rajasthan earthquake risk zones

The government of Rajasthan's top-tier training facility for civil workers is the HCM Rajasthan State Institute of Public Administration (HCMRIPA).

Today, HCMRIPA stands as one of the top training facilities both in India and elsewhere. Situated on the Jawaharlal Nehru Marg, which connects the Jaipur Airport and the City Centre, HCMRIPA boasts a

A Study of Disaster Risk Factors in Rajasthan

sprawling green campus. This location is wonderful for pursuing excellence because it exudes the perfect picture of tranquility. Four regional training centers for HCMRIPA are situated in Udaipur, Bikaner, Jodhpur, and Kota. These facilities provide refresher courses, workshops, seminars, and foundation training for state and subordinate service officers.

Within vulnerable populations, disasters exacerbate social, economic, cultural, and political unrest. The loss of life, property, and money resulting from disaster events is a constant manifestation of the innate link between disasters and development. Given the current state of risk, it is essential to integrate disaster risk reduction efforts into the development process. With 377 million people living in urban areas, India is experiencing a rapid urbanization process. In the ensuing thirty years, an exponential increase in the urban population is anticipated. Urban vulnerability has increased and high-risk situations have resulted from the primarily haphazard and rapid urbanization. Planning and development of cities must be inclusive and participatory in order to ensure urban resilience. Urban flooding has become a significant and unsettling aspect of urban environments in recent years. Mainstreaming disaster risk reduction into development is discussed in the Hyogo Framework for activity (HFA) and Sendai Framework for Disaster Risk Reduction (SFDRR) as a priority activity that cannot be accomplished without tackling urban shifting disaster scenarios. In this regard, on October4-6,2021, the National Institute of Disaster Management, New Delhi, and HCMRIPA, Jaipur, Rajasthan, collaborated to host a three-day online training program on "Urban Risk Management."

The effects of natural disasters on society and the viability of development are getting worse and more intense. Given the complexity of ecological systems, one reason for the widespread concern about the identification of suitable ecological indicators is our incapacity to decipher early warning signs of a significant ecological shift.



Heavy rains caused flood in Rajasthan in 2021

Ancient ecological knowledge is the result of thousands of years of close human interaction with the natural world. Communities have changed over time in response to nature's resources, hazards, and destructive processes, which can sometimes behave as disasters. Food, culture, spirituality, ethics, and livelihood traditions have evolved against the backdrop of these man-made or natural challenges

A Study of Disaster Risk Factors in Rajasthan

in the interface between human development and the environment. As a result, communities have the experience and knowledge to anticipate, analyze, prepare for, and confront these challenges to survive with resilience.

While Rajasthan is subject to erratic rainfall patterns and other natural disasters, earthquakes are generally not a threat there. Rajasthan appears to be in zone II of the seismic zone, which is classified as the 1S low damage risk zone, according to the most recent seismic zone map made public by the urban planning ministry. Zone III denotes a considerable danger of damage and includes the districts of Barmer, Jaisalmer, and portions of Jodhpur and Alwar. However, since Zone II is a low-damage risk zone, other portions of the state are secure from earthquakes.

"The state of Rajasthan is located in an area that has historically experienced low ground motion," stated S S Mandal, the head of the IMD's seismology division. The amount of sand in the extensive desert cover, which acts as a cushion, is another factor contributing to the stability. The sand serves as a shock absorber in the state during earthquakes, according to S C Mathur, chairman of the geology department at Jai Narayan Vyas University.



High risk of famines in Rajasthan

Urban planners are highly optimistic about the technology interventions and believe that using digital maps will help with preventative measures.

They assert that it will be fully utilized by government and commercial developers that work on creating residential complexes in high-risk areas.

"Timely updates will aid in monitoring the effects of earthquakes and improve planning."

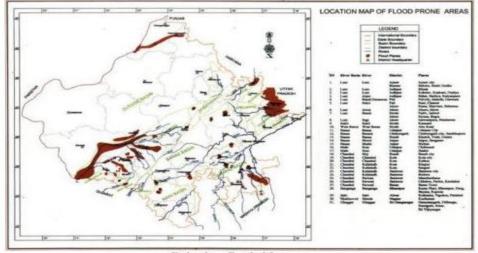
Earthquakes are more likely to occur in Barmer, Jaislamer, Alwar, Jalore, and Bharatpur. Residents in these areas will have more knowledge about adopting earthquake-resistant practices thanks to smartphone maps, according to a disaster management and relief department official.

A Study of Disaster Risk Factors in Rajasthan

DISCUSSIONS

On September 30, 2008, there was a mass stampede at the Chamunda Devi temple in Jodhpur, Rajasthan, India, resulting in 224 fatalities and over 425 injuries. Situated within the precincts of Mehrangarh Fort, the temple dates back to the 15th century and is devoted to the goddess Chamunda Devi. A little over 25,000 Hindu pilgrims were at the temple today to commemorate the start of Navratri, a nine-day celebration that is central to Hinduism and honors Goddess Durga. When the entrance opened, the followers rushed to it, tearing down the barriers in their wake. As they lost their footing on the incline leading up to the temple, many people suffered injuries.

The Times of India adds that local sources indicate the stampede was caused by pilgrim panic brought on by a bomb incident in neighboring Mehrangarh. But according to BBC News, the rush might have also been brought on by a wall that collapsed. According to some eyewitnesses who spoke with CNN-IBN, pilgrims became alarmed when they heard a rumor that a bomb was hidden in the temple. Others reported that there was a rush in the men's line; some followers stumbled and there was quickly a huge stampede as a result, turning what should have been a joyful day into a somber one.



Rajasthan flood risk zones

Another observation noted that there were no emergency escape routes and that the approach leading to the temple was quite narrow. Doctors from the Indian Army were summoned to help the local government with the relief effort. Rajnath Singh of the Bharatiya Janata Party promised the tragedy's victims prompt help. After visiting the scene, Chief Minister Vasundhara Raje issued an order to look into the event. Because there was a separate line for women, local officials discovered that the majority of the deceased were men.

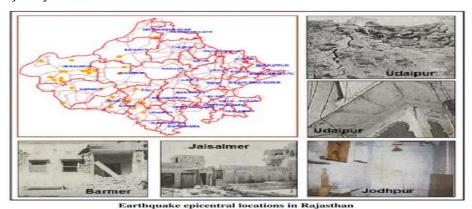
A Study of Disaster Risk Factors in Rajasthan



Both Governor B L Joshi and Chief Minister B C Khanduri of Uttarakhand expressed sorrow over the pilgrims' deaths at the Chamunda Devi shrine. According to a condolence letter released by Raj Bhavan, Joshi expressed his sincere condolences to the families of the deceased and promised to pray for the quick recovery of those hurt in the event. Khanduri also expressed her sorrow over the mishap in her own words. Additionally, he gave the District Magistrates of his state's thirteen districts' instructions to prepare extra accommodations at sites of worship because he anticipated that these locations would draw sizable crowds during the Navratra season. The Muslims of Jodhpur decided to have a low-key Eid celebration the following day. Muslim teenagers from the area gave blood, assisted rescue crews, and transported patients to hospitals.

On October 29, 2009, around 7:30 PM (IST), a massive tank at the Indian Oil Corporation (IOC) oil storage in Sitapura Industrial Area, on the outskirts of Jaipur, Rajasthan, storing 8,000 kilolitres (280,000 cu ft) of gasoline caught fire. The fire claimed the lives of 12 individuals and injured over 300 others. Half a million people were evacuated from the area as the fire burned uncontrollably for more than a week after it broke out. About 16.9 miles (9.9 kilometers) to the south of Jaipur is where the oil depot is located.

When gasoline was being moved from the Indian Oil Corporation's oil depot to a pipeline, an event happened. When the terminal, which is next to Jaipur International Airport, caught fire and exploded, at least forty IOC employees were present. Around 7:36 p.m., when the initial explosion occurred, the Met Department detected a 2.3-magnitude earthquake that caused glass windows to break almost 3 km (1.9 mi) away from the accident scene.



A Study of Disaster Risk Factors in Rajasthan

In terms of fatalities, injuries, lost revenue, destroyed property, lost man-days, forced evictions, and environmental damage, the fire in Jaipur, the capital and most visited city of the Indian state of Rajasthan, was a significant catastrophe. Witnesses who lived close to Indian Oil's Sitapura (Jaipur) Oil Terminal and worked in companies and hotels reported smelling gasoline vapor in the air at 4:00 p.m. on October 29, 2009. Breathing became difficult as the concentration of gasoline vapour increased over the course of the following few hours.

To prevent a tragedy, the Ayush Hotel near the terminal requested that all of its guests leave. The Morani Motors (P) Limited workshop was located next to the terminal wall, yet according to eyewitnesses, 35 brand-new Hyundai vehicles were totally wrecked and cars parked on the roof were flung up to a height of around ten feet. The crisis that was unfolding at the Indian Oil Terminal was unknown to the police, the civil administration, and the fire emergency services.

The terminal employees who had stopped the gasoline leak and flow were alarmed at around half past six and called the neighboring Sanganer Sadar Police Station. The general manager of the terminal, the chief of police in the area, and the District Collector arrived on the scene within the following thirty minutes, but they had no idea how to handle the problem. There was a warning to the adjacent industries, who were operating second shifts, to leave the area.

The leaky gas tank and other surrounding gas tanks were engulfed in a massive ball of fire with a thunderous explosion at 7:35 p.m. The flames rose 30-35 m (98-115 ft) in the air and were visible for 30 km (19 mi) in all directions. There was a 20-kilometer (12-mile) traffic bottleneck as a result of the nearby National Highway No. 12 being closed to traffic. The accident site is around 5 km (3.1 mi) from the Jaipur International Airport.

On October 30, 2009, the army and Mumbai specialists were called in to control the fire in the Sitapura Industrial Area. To minimize the damage, the district administration turned off the electricity and evacuated neighboring areas. On October 31, the fire was still raging. At that point, the incident had left over 150 individuals with critical injuries and eleven fatalities. To handle a crisis of this nature, the District Administration and Indian Oil Corporation lacked a disaster management plan. This kind of fire mishap was beyond the capabilities of the local fire officers. They stayed back and did not try to break through the terminal wall to gain a better sight of the kerosene and diesel tanks so that water jets could be used to cool them. The fire was attributed to a failure to follow standard safety protocols. Eleven persons lost their lives in the 11-day-long storage fire, which also caused damages of Rs 2.80 billion.

Every revenue district is required to have a disaster management plan, according to the Disaster Management Act of 2005. Jaipur District lacked a disaster management plan, even though 31 revenue districts in Rajasthan have posted their plans on the state's website. On November 17, 2009, or 20 days after the disaster on October 29, 2009, the Jaipur District Disaster Management Plan was posted online. Jaipur had two further tragedies in the interim: the derailment of a train named Mandore Express, which resulted in the deaths of six people and the injuries of over fifty, and several schoolchildren contracting the swine flu that led to the government ordering the closure of schools.

A Study of Disaster Risk Factors in Rajasthan



Results

Indian Oil Corporation has been served a legal notice for violating the Environment (Protection) Act of 1986, the Air (Prevention and Control of Pollution) Act of 1981, and the Water (Prevention and Control of Pollution) Act of 1974. When the Indian Oil Corporation (IOC) depot on the outskirts of the city caught fire, the amount of air pollution in Jaipur was far higher than what was allowed. As per the Central Pollution Control Board (CPCB) assessment, it has a noteworthy impact on the air quality in Delhi or Agra. On October 29, the evening of October 29, 11 storage tanks containing over 60,000 kiloliters (2,100,000 cu ft) of oil caught fire. The fire continued to burn until November 6.

Officers at the depots and terminals may be subject to disciplinary action and explanation if there is an unusual variance in stock loss that exceeds the allowed limit. The Executive Director (Supplies) and the Director (Marketing) are the competent authorities for charging depot-level officers for such lapses. However, they prefer to punish defaulting officials only a subset of them to protect their favorites.

Several First Information Reports (FIRs) were ordered to be filed against Indian Oil Corporation Limited executives and the Civil Administration for negligence and failure to fulfill statutory obligations by Chief Judicial Magistrate Mr. Mahaveer Swami of Jaipur City, Jaipur. The Director General of Police, Rajasthan, is tasked with conducting an investigation into the alleged commission of offenses under sections 120B, 166, 167, 201, 202, 203, 204, 217, 218, and 221 IPC against Mr. B. L. Soni, Inspector General of Police, Jaipur Range I; Mr. Kuldeep Ranka, Jaipur District Collector; and Mr. Biju George Joseph, Superintendent of Police, Jaipur (East). A month after the fire was put out, on December 10, 2009, the order was passed.

- (1) Whoever is a party to a criminal conspiracy to commit an offence punishable with death, 2 [imprisonment for life] or rigorous imprisonment for a term of two years or upwards shall, where no express provision is made in this Code for the punishment of such a conspiracy, be punished in the same abetted such offense.
- (2) Whoever is a party to a criminal conspiracy other than a criminal conspiracy to commit an offence punishable as aforesaid shall be punished with imprisonment of either description for a term not exceeding six months, or with a fine or with both. Whoever, being a public servant, knowingly disobeys any direction of the law as to the way in which he is to conduct himself as such public servant, intending to cause, or knowing it to be likely that he will, by such disobedience, cause injury to any person, shall be punished with simple imprisonment for a term which may extend to one year, or with fine, or with both.

Section 304A: Causing death by negligence- Whoever causes the death of any person by doing any rash or negligent act not amounting to culpable homicide, shall be punished with imprisonment of either description for a term which may extend to two years, or with a fine, or with both.

Section 511: Punishment for attempting to commit offences punishable with imprisonment for life or other imprisonments- Whoever attempts to commit an offence punishable by this Code with 1

A Study of Disaster Risk Factors in Rajasthan

[imprisonment for life] or imprisonment, or to cause such an offence to be committed, and in such attempts does any act towards the commission of the offence, shall, where no express provision is made by this Code for the punishment of such attempt, be punished with 2[imprisonment of any description provided for the offence, for a term which may extend to one-half of the imprisonment for life or, as the case may be, one-half of the longest term of imprisonment provided for that offence, or with such fine as is provided for the offence, or with both.

The Jaipur bombings were a string of nine coordinated bomb explosions that happened on May 13, 2008, over the course of fifteen minutes, at various locations in Jaipur, the tourist attraction and capital of the Indian state of Rajasthan. Official records confirm at least 216 injuries and 63 deaths. Most of India was stunned by the attacks, which also prompted politicians from all around the world to denounce them widely and show support for India in its fight against terrorism. Terrorists had never before attacked Jaipur, the tenth-largest city in India and a well-liked travel destination. During one of the busiest periods of the day, the bombs went off close to famous landmarks. Near Jaipur's most well-known site, the ancient Hawa Mahal (palace of winds), one of the bombs went off. A previously unidentified Islamic terrorist organization called Indian Mujahideen sent an email to Indian media two days after the explosions, claiming responsibility for the bombings and threatening to "demolish the faith (Hinduism)" of the "infidels of India." The Indian authorities acknowledged that the email was authentic, but they also mentioned that there were some inconsistencies and that the main intention of the email might have been to deceive the investigating authorities.

According to sources close to the Indian Home Ministry, the incident was likely carried out by the Bangladesh-based group Harkat-ul-[ihad-al-Islami (Hu]), also known as the "Islamic Holy War Movement." When the authorities discovered solid proof connecting the alleged bombers to Bangladeshi extremists, there was a backlash in Rajasthan against the country's illegal immigrants from Bangladesh. In Rajasthan, India intends to deport around 50,000 migrants from Bangladesh. On December 20, 2019, four individuals received death sentences.



Jaipur serial bomb blasts (manmade disaster)

A Study of Disaster Risk Factors in Rajasthan

IMPLICATIONS

In addition to the two cases mentioned above, Police Station Sanganer Sadar has filed two more complaints against Indian Oil: FIR 241/09, dated November 2, 2009, from Mr. Prit Pal Singh of Genus Overseas, an industrial unit in Sitapura, and FIR 242/09, dated November 3, 2009, from Mr. B. L. Meharada of BLM Institute. A Sanganer city court has mandated that an FIR be filed in response to the Ayush Hotel Sitapura's complaint. Eight months after the tragic incident at an Indian Oil Corp (IOC) fuel store that claimed the lives of eleven people, on July 2, 2010, police detained nine highranking business officials, including the general manager, on suspicion of criminal negligence. Section 304-II (culpable homicide not amounting to murder) is one of the sections of the Indian Penal Code (IPC) under which Mr. Gautam Bose, the general manager of the IOC for Rajasthan, and eight other officers were taken into custody. The maximum prison sentence under Section 304-II of the IPC is ten years. Mr. Rajesh Sayal, the chief of operations at the IOC office in Jaipur, was among those detained about the fire that started as a result of gasoline leaking during the transfer from the storage tank. Mr. Ashok Gupta, Operation Officer; Mr. Kailash Nath Agarwal, Chargeman; Mr. S S Gupta, DGM Pipeline, who is currently posted in Ghaziabad; Mr. Shashank Shekhar, Manager of Operations; Mr. K S Kanojia, Senior Terminal Manager; Mr. Arun Poddar, Manager Terminal; Mr. Kapil Goyal, Deputy Manager Terminal. To receive just and reasonable compensation, Ms. Savita Saroha and Ms. Alka Kumar, whose husbands, Mr. S. K. Saroha and Mr. Ravindra Kumar, perished in the fire on October 29, 2009, have filed a case with the Rajasthan High Court. The two claim they were not paid the Rs. 1,000,000 (one million rupees) in compensation that the Indian government's Minister of Petroleum and Natural Gas, Mr. Murli Deora, had promised them. The widows are also angry that their husbands have been unfairly blamed by Indian Oil and the detained police. They are currently fighting the accused cops in the High Court to prevent the First Information Report from being quashed and to be granted bail.

In order to receive just and reasonable compensation, Ms. Savita Saroha and Ms. Alka Kumar, whose husbands, Mr. S. K. Saroha and Mr. Ravindra Kumar, perished in the fire on October 29, 2009, have filed a case with the Rajasthan High Court. The two claim they were not paid the Rs. 1,000,000 (one million rupees) in compensation that the Indian government's Minister of Petroleum and Natural Gas, Mr. Murli Deora, had promised them. The widows are also angry that their husbands have been unfairly blamed by Indian Oil and the detained police. They are currently fighting the accused cops in the High Court to prevent the First Information Report from being quashed and to be granted bail. The identical serial number was found on the bicycle used in the Choti Choupad bomb, according to police officials. Chief Minister of Rajasthan Vasundhara Raje did, however, also imply that the email's secondary goal might have been to deceive the authorities conducting the investigation. The group threatened to "open war against India" unless it stopped assisting the US and the UK with "international issues" in the email. Moreover, it threatened to "demolish the faith (Hinduism)" of the "Indians who are unbelievers."

A Study of Disaster Risk Factors in Rajasthan



With promptness, the State Government declared that the deceased would receive a cash compensation of Rs. 2,000,000.00. Additionally, Indian Oil Corporation paid Rs. 10,000,000.00 to the deceased's next of kin and various amounts of compensation ranging from Rs. 1,000,000.00 to Rs. 2,000,000.00 to the injured. The location of all oil terminals in India will be reviewed, and within the next 12 to 18 months, these terminals will be moved outside of cities. The Sitapura Industries Association comprises 1383 units with investments above 750 billion, including 325 garments, 115 jewelers, 110 handicrafts, and other units in the chemical, cable, manufacturing, IT, BPO, auto parts, educational institutes, and hospitals sectors. The Sitapura Industries Association has had a significant impact on the development of the State of Rajasthan's economy and the creation of jobs, employing almost 1,000,000 people directly and indirectly. The Sitapura Industries Association has been crucial to the creation of foreign exchange and exports. On October 29, 2009, at around 4:00 p.m., there was a gasoline leak at the Indian Oil Corporation terminal. By 6:00 p.m., the odors had spread across the Indian Oil Corporation terminal. At 7:35 p.m., a massive explosion and flames broke out, and the surrounding industries thought there had been an earthquake due to the loud boom and strong shock waves.

On October 29, 2009, the Sitapura Industries Association claimed to have lost inventory, machinery, and property valued at Rs. 4000 million in an instant. The loss of output, dispatch, and ensuing goodwill is then estimated to be worth Rs. 2000 million a day. Since November 5, 2009, the industries have been granted unrestricted access to their facilities. The expected loss in its entirety is \$18,000,000,000. Being a component of the Sitapura Industrial Area, an EPZ is home to several units focused on exports. For the export-oriented units, handshake was the busiest time of year.

A nearly 100% failure rate in strict quality tests would result in finished garments being dumped at throwaway rates on the domestic market due to the fire, the ensuing pollution, and the dispersion of carbon soot particles in the atmosphere. Rebuilding goodwill will take years because the industries are likely to renege on their export commitment. On December 10, 2009, Indian Minister of State for

A Study of Disaster Risk Factors in Rajasthan



Petroleum and Natural Gas Jitin Prasad announced to the Lok Sabha and Indian press that the government had ruled out a CBI/probe into the November fires and blamed both "corporate neglect" and "severe radiant heat" from the October fires. He denied any connection with a similar, but smaller blast that month in Kashmir.

They have attempted, but will not be successful, to destroy the state's community cohesion. Such a horrific occurrence has never occurred in Rajasthan's history, and it is not an attack on the state but rather on the country. She additionally stated that "there are some slender leads on which the state agencies are working and it's difficult to name any terror outfit at present". The Chief Minister also emphasized the need for new anti-terror laws that are either like POTA or like the laws in Gujarat, a neighboring state. She also criticized the Indian President for failing to sign a 2006 anti-terror law that was approved by the Rajasthan Legislative Assembly. The Chief Minister also said that Rajasthan will have its anti-terror force and also proposed a joint task force between Indian states.

Reiterating calls for POTA, the Bharatiya Janata Party (BJP), India's largest opposition party, accused the United Progressive Alliance (UPA)-led government of failing to take sufficient action against terrorism in the country. The Inter-Services Intelligence of Pakistan should be placed on an international terror watch list, according to a proposal made by the BJP. L. K. Advani, the leader of the opposition in India, stated that "the blasts are reflective of the state's inability to pre-empt these strikes." Gujarat's chief minister, Narendra Modi, declared, "The UPA-led government at the Centre should make the people realize that it is committed to curbing the spreading of terrorism in our country." He also accused the UPA administration of treating terrorists unfairly and utilizing selective criteria.

*Associate Professor Department of Geography Government College Jaipur, (Raj.)

References -

- 1. "Fire at Indian Oil depot in Jaipur still on, 5 dead". Archived from the original on 2 November 2009. Retrieved 27 January 2017.
- 2. Sharma, Abha (31 October 2009). "Oil depot fire dies down in 4 tankers, more bodies found". Deccan Herald. Retrieved 5 November 2009.
- 3. "Jaipur fire rages on". IBNLive. Archived from the original on 3 November 2009. Retrieved 5 November 2009.
 - https://www.google.com/hostednews/ap/article/ALeqMSgwLvd_gUuEGs2ga_LPORs2S5CjxYwD9BLEQM80{dead link}
- 4. "Oil Fire in India: Natural Hazards". 30 October 2009. Retrieved 27 January 2017.

A Study of Disaster Risk Factors in Rajasthan



- 5. "At least 5 killed, 150 hurt in IOC depot fire". 29 October 2009. Retrieved 27 January 2017.
- 6. "12 killed as oil depot catches fire in Jaipur. Free Online Library". Retrieved 27 January 2017.
- 7. Parihar, Rohit (29 October 2009). "12 dead, over 200 injured in Indian Oil depot fire in Jaipur". India Today. Retrieved 5 November 2009.
- 8. "12 killed in Jaipur IOC depot fire, Army called". Times of India. 30 October 2009. Retrieved 5 November 2009.
- 9. "Jaipur fire rages on". Archived from the original on 3 November 2009. Retrieved 27 January 2017.

A Study of Disaster Risk Factors in Rajasthan