

Disaster Resilient and Mitigation Activities

1. Disaster Preparedness

1.1. Risk, Mapping and Analysis, Harnessing New Technologies and Development of Risk Resilient Infrastructure –

Disaster Declarations and Relief Provision: The Relief Commissioner's Office has proactively managed 11 significant central declared disasters such as floods, earthquakes, droughts, cyclones, fog, cold waves, fires, insect attacks, avalanches, hailstorms, cloudbursts, and landslides.

Additionally, the state has declared 11 state specific disasters including untimely heavy rains, storms, lightning, heat waves, boat accidents, snakebites, sewer cleaning incidents and gas leaks, bore well falls, death due to attack by Nilgai and bull, man-wildlife conflicts, and drowning.

Provision of Relief Shelters: To enhance disaster management efficiency and effectiveness, Regional Disaster Response Centers are established in five strategic districts across Uttar Pradesh. These centers will be set up in Jhansi for the Bundelkhand region, Gorakhpur for the Eastern region, Gautam Buddha Nagar for the Western region, and Varanasi and Mirzapur for the Vindhya region. Each center will address specific regional disaster challenges—floods in Gorakhpur, earthquakes in Gautam Buddha Nagar, and lightning in Varanasi and Mirzapur.

The benefits of these centers include improved response times, better coordination among various disaster response agencies, localized expertise, enhanced resource efficiency, and increased community empowerment. By focusing on these areas, the centers will strengthen the state's disaster preparedness and response capabilities, ensuring more effective and timely relief efforts during emergencies.

Conference on Disaster Resilient Infrastructure: To minimize the impact of disasters in the state, it is very important for the assets to be disaster resilient. In this sequence, a one-day conference on the topic "Disaster Resilient Infrastructure" was organized in Lucknow on 14 March 2024 with the technical support of the Relief Commissioner's Office and Coalition for Disaster Resilient Infrastructure organization. In this, along with the chief engineers of related

departments like Public Works Department, Urban Development etc., engineers of all the Municipal Corporations of the state participated. Through the conference, training was provided regarding technological construction of assets to reduce the impact of disasters.



1.2. Innovations in Capacity Development for Preparedness, Response and Recovery –

State Disaster Relief Helpline and Control Room: Established in 2020, the 24x7-disaster control room and helpline (1070) serve as a critical coordination and communication hub. This integrated system ensures immediate relief and robust supervision of relief and rehabilitation activities. Equipped with modern communication tools like video conferencing, social media platforms, and toll-free numbers, it enhances real-time coordination and efficient disaster management.

Workshop organized on the topic "Technology for Drought": To deal with the drought situation in the state, a one-day state level conference was organized on 04 March 2024 at Indira Gandhi Pratishthan, Gomi Nagar Lucknow with the technical support of the Relief Commissioner's Office and IIT Kanpur on the topic 'Technology for Drought'. More than 300 participants including agricultural organizations/departments and agricultural experts participated in the conference.



Mock Drill: The State Disaster Management Authority organizes the largest mock drill in the country each year to enhance disaster preparedness and response capabilities.

Community Awareness Program: District, block, and village community awareness programs have been implemented, training more than 100,000 community members in disaster preparedness and response.

IEC Material: Eight types of disaster display boards, each measuring 2 feet by 3 feet, have been installed in all 57,702 Panchayat buildings across the State. 90% of this project has been completed.

1.3. Innovations in Forecast and Early Warning Systems –

AWS and ARG Installation: Automatic Weather Stations (AWS) and Automatic Rain Gauges (ARG) are state-of-the-art meteorological tools that significantly enhance weather monitoring and disaster preparedness. AWS, or meteorological stations, automatically record and transmit various weather parameters such as temperature, humidity, wind speed, and atmospheric pressure. These stations operate with advanced sensors and data loggers, providing real-time data that is crucial for accurate weather forecasting. Similarly, ARGs measure and record precipitation levels automatically, delivering precise rainfall data to central monitoring centers. This automation of weather observations ensures timely and accurate information, which is vital for issuing early warnings and alerts for potential disasters like floods and storms.

- **Early Warning and Alerts:** AWS and ARG provide timely and accurate data about weather conditions, enabling early warnings for potential disasters. For instance, by detecting changes in weather patterns and rainfall, these systems can alert people about impending floods, storms, or other extreme weather events. This early warning capability is crucial for minimizing damage and ensuring timely evacuations.

- **Enhanced Public Awareness:** Accurate weather and disaster information help the general public stay informed and prepared. By receiving real-time updates and warnings, individuals and communities can take proactive measures to protect themselves and their property. This increased awareness is instrumental in reducing the impact of disasters.

- **Agricultural Benefits:** For farmers, AWS and ARG provide valuable information that supports effective agricultural management. Knowing precise weather conditions allows farmers to optimize irrigation schedules, apply fertilizers and seeds at the right time, and make

informed decisions about crop management. This leads to better crop yields and reduced losses due to weather-related issues.

- **Improved Disaster Response:** By providing accurate and real-time data, AWS and ARG enhance the efficiency of disaster response efforts. Emergency services can use this data to coordinate rescue operations, manage resources, and implement necessary measures quickly. The ability to monitor weather conditions continuously also helps in assessing the severity of ongoing disasters and adjusting response strategies accordingly.

- **Scientific and Strategic Planning:** The data collected by AWS and ARG contributes to scientific research and strategic planning. It aids in understanding weather trends, modeling disaster scenarios, and developing long-term strategies for disaster risk reduction and climate adaptation.

In Uttar Pradesh, the deployment of Automatic Weather Stations (AWS) and Automatic Rain Gauges (ARG) is a key component of a comprehensive strategy to enhance weather forecasting and disaster preparedness. This initiative involves establishing 450 AWS and 2000 ARGs at the block level across all tehsils, along with 100 AWS and 400 ARGs in 18 major urban areas. By automating surface meteorological observations, the state aims to improve the accuracy of weather data and early warning systems. This setup will provide critical information to the Relief Commissioner's Office and the Meteorological Department, enabling timely and informed responses to extreme weather events. The collected data will support scientific analysis of disaster impacts, helping to bolster the state's resilience and preparedness against weather-related challenges.

Doppler Weather Radars: In collaboration with the Indian Meteorological Centre, five new Doppler weather radars are being installed across Uttar Pradesh in Azamgarh, Jhansi, Gorakhpur, and Varanasi, in addition to the existing radar in Lucknow. These advanced Doppler radars are crucial for enhancing the state's weather-related early warning system. By detecting and analyzing microscopic waves using the Khar effect, Doppler radars provide precise data on weather changes within a 400-kilometer radius. This technology helps identify the direction, size, and speed of microscopic water droplets in the atmosphere, offering detailed information on expected rainfall and storm conditions. This capability not only allows for timely alerts to the public but also provides farmers with accurate weather forecasts, aiding in better preparation and risk management. The deployment of these radars will significantly

bolster the state's ability to predict and respond to severe weather, thereby mitigating the impact of weather-related disasters.

Telemetric Weather Stations (TWS) are advanced meteorological systems designed to provide accurate and timely weather information. They consist of various instruments that collect data on weather conditions such as temperature, humidity, precipitation, and wind speed. This data is transmitted in real-time to central databases, allowing for continuous monitoring and analysis.

- **Early Detection and Monitoring:** TWS enables the timely detection of changing weather patterns and environmental conditions. By providing accurate data on rainfall and soil moisture, these stations help in early identification of drought conditions. Early detection allows for prompt action and resource allocation to mitigate the impact of drought.
- **Improved Preparedness:** Accurate weather information from TWS enhances pre-disaster preparedness. Farmers and local authorities can make informed decisions regarding water usage, crop management, and other critical aspects of drought response. This preparedness is essential for reducing the adverse effects of drought on agriculture and local communities.
- **Real-Time Data:** The real-time data provided by TWS is crucial for immediate response efforts. During periods of drought, this data helps in assessing the severity of the situation and coordinating relief efforts effectively. It also aids in tracking the progress of recovery measures and adjusting strategies as needed.
- **Comprehensive Management:** TWS offers benefits beyond drought management. It contributes to managing other extreme weather conditions such as floods, heatwaves, and cold waves. This comprehensive weather monitoring supports overall disaster management and resilience-building efforts.
- **Farmer Support:** For the agricultural sector, TWS provides vital weather-related information that helps farmers plan their activities better. Knowing accurate weather patterns and forecasts enables farmers to adjust planting and irrigation practices, reducing crop loss and improving yield.
- **Current Deployment:** Telemetric Weather Stations are being established in 100 tehsils across the state, including key areas in Bundelkhand, Sonbhadra, and Mirzapur. This strategic deployment ensures widespread coverage and enhances the ability to manage droughts and other weather-related challenges effectively. Additionally, automatic

weather stations and rain gauges are being installed to complement the TWS network, further improving weather data collection and analysis capabilities.

Flood Early Warning Systems: In a major initiative to safeguard flood-sensitive villages, 40 river sensors and 1450 Public Address (PA) systems are being installed in 1450 villages situated in the basins of the Dhagra/Satyu, Rapti, and Sharda rivers. These advanced PA systems, designed to operate through GSM and radio frequency technologies, will receive and broadcast real-time weather alerts directly from the State Level Emergency Operations Center (SEOC). This system will provide timely early warnings for potential flooding and other weather-related emergencies without human intervention. Additionally, the PA systems will be integrated with lightning sensors to issue warnings about lightning strikes, ensuring that residents receive crucial alerts well in advance.

Lightning Warning Systems: In response to the increasing frequency of rainfall and lightning incidents, particularly in the eastern, Vindhya, and Bundelkhand regions, the Relief Commissioner's office is also installing 30 lightning sensors and 1500 lightning warning systems across 37 districts. These sensors will enable automated broadcasting of lightning alerts 30 to 40 minutes before the event occurs, covering an area of approximately 4 square kilometers. This early warning system is crucial for mitigating the risks associated with lightning strikes and enhancing the safety of communities in these vulnerable regions.

1.4. Innovations in Mitigation for Climate Change –

Climate Resilient Observatory: The Climate Resilient Observatory (CRO) has been established at IIIT in CG City, capitalizing on advanced technology to bolster disaster management and early warning systems in Uttar Pradesh. This observatory provides a crucial platform for receiving and disseminating comprehensive weather-related alerts to key stakeholders, significantly enhancing the state's disaster preparedness. The CRO is instrumental in identifying vulnerable assets, mapping threats, and developing pre-emptive risk reduction strategies. It supports predictive analysis and institutional capacity enhancement, thereby reducing response times and minimizing potential losses. By investing in climate resilience and adaptation, the CRO not only mitigates disaster impacts but also fosters economic activity and development co-benefits.

- **Vulnerable Asset Identification:** The CRO identifies and maps assets that are particularly vulnerable to climate-related risks, enabling targeted interventions and protection measures.
- **Threats mapping:** It provides detailed mapping of threats related to climate change, such as flood zones, heatwave-prone areas, and regions at risk of drought.
- **Pre-emptive Disaster Risk Reduction:** The CRO implements strategies to reduce disaster risks before they manifest, including early warning systems and preparedness measures.
- **Predictive Analysis:** Utilizes advanced data analytics to forecast potential climate impacts and disaster scenarios, allowing for proactive response planning.
- **Enhancing Institutional Capacities:** Strengthens the ability of institutions to manage and respond to climate-related challenges through training, resources, and support systems.
- **Improving State's Disaster Preparedness:** Enhances the overall readiness of the state for disaster events by providing timely and accurate information, which helps in minimizing response times and reducing the impact of disasters.
- **Loss Minimization through Alerts:** Issues early warnings to reduce potential losses from climate-related disasters, ensuring that communities and stakeholders can take necessary precautions in advance.
- **Investment in Disaster Resilience:** Encourages investments in resilience and adaptation measures, which can prevent future losses, reduce disaster risks, and stimulate economic growth through improved disaster risk management.
- **Data Verification and Insurance:** Verifies data related to climate risks and supports insurance and financial mechanisms to manage and mitigate disaster-related impacts.

Training on "Climate Resilience and Disaster Management": Innovation in the field of disaster relief delivery has seen a remarkable transformation with the recent training initiatives aimed at enhancing the capabilities of officers. These training programs, covered a wide range of critical topics, including climate change vulnerability, disaster management, relief logistics, stakeholder management, digital initiatives, and design thinking. Through comprehensive training camps, officials were educated on policy, management, and implementation

mechanisms at the district level. As Professor S. Venkataramaiah from IIM Lucknow emphasized, these camps are instrumental in helping officials understand the challenges and risks associated with climate sensitivity and disaster management. Experts provided new information on advanced management techniques, cutting-edge technology, and emerging opportunities in climate change and disaster management. The training camps are meticulously designed to **address current climate change issues and disaster response strategies, aiming to reduce the increasing incidents of disasters in the state.** By raising awareness among the populace, this initiative strives to minimize loss of life and heralds a new era in climate change adaptation and disaster management for the state.

1.5. Initiative Approaches through Research and Development, in the Areas of DRR, Articles, Books and best Practices Published in Accredited Journals –

Flood Hazard Atlas: Developed in collaboration with the National Remote Sensing Centre, the Flood Hazard Atlas provides comprehensive data on flood-prone areas. This critical resource aids in strategic planning and implementation of flood management measures, reducing the risk and impact of floods.

1.6. Resources, Mobilization, Logistics Management during Emergency and Disaster –

End-to-End Computerizations of Beneficiary Management System: This newly implemented system has revolutionized the relief distribution process. By making the entire process paperless, from beneficiary selection to digital approval and fund transfer, it ensures transparency, efficiency, and timeliness in delivering relief to those in need.

Strengthening of SDRF: The State Disaster Response Force (SDRF) has been significantly reinforced to improve its readiness and response capabilities. The SDRF is now bolstered with additional permanent companies, with a substantial investment made in procuring advanced equipment and vehicles. This expansion ensures that the SDRF can handle a wider range of emergencies, including natural and man-made disasters, with greater efficiency and effectiveness. SDRF is comprised of 6 companies in total and is further divided into 9 teams. Each team has the manpower of 30 personnels. For swift and quick response, SDRF has 18 trucks, 6 buses, 12 travellers, 17 TUVs, 12 Bolero and 5 ambulances. For uninterrupted communication, the unit is comprised of 48 mobile/static handsets, 112 hand-held sets, 17 satellite phones and 4 BGAN Terminals.

Operational Efficiency of State EOC and DEOC: The State Emergency Operations Center (SEOC) and District Emergency Operations Centers (DEOCs) play a pivotal role in disaster management across Uttar Pradesh. The SEOC, located at the state level, coordinates large-scale disaster response efforts, manages resources, and provides strategic oversight. It operates as the central hub for gathering and disseminating information, coordinating with various agencies, and making critical decisions during emergencies.

At the district level, the DEOCs are crucial for localized disaster management. Each of the 75 districts in Uttar Pradesh has its own DEOC, which functions as the command center for managing disaster response at the district level. These centers are equipped with communication tools, logistical support, and resources to facilitate quick and efficient responses to disasters. The DEOCs coordinate with local authorities, ensure the timely distribution of relief materials, and manage on-ground response operations to mitigate the impact of disasters.

Distribution of Emergency essential resource reserve Kit (EERR)

EERR kits have been distributed to the headquarters of 73 districts in the state. These kits are strategically placed to ensure that essential supplies are readily available in case of emergencies. Each emergency response kit includes 30 essential items, such as inflatable rubber boats, tethers, life jackets, life buoys, ropes, and other necessary equipment. These items are crucial for conducting rescue operations and ensuring the safety of those affected by disasters.

2. Response during Disasters and Emergencies

2.1. Natural Disasters –

Flood Action Plan: Sensitive and hyper-sensitive districts in Uttar Pradesh have been identified. These districts have also prepared their respective District Flood Action Plans.

Strengthening Flood Response: Flooding remains a significant disaster challenge in Uttar Pradesh, particularly in the Terai and Eastern regions, where the Ghaghra and Rapti rivers frequently inundate vast areas. To enhance flood response capabilities and provide timely relief, the state has initiated a major procurement effort.

In the first phase of this initiative, an investment of Rs 40 crore has been approved for the acquisition of 400 inflatable boats. These boats will be strategically deployed across 400 villages along the banks of the Ghaghra and Rapti rivers, which extend approximately 900 km and 540 km, respectively. The aim is to ensure that flood-affected communities receive essential services such as medical aid and food supplies swiftly and effectively during flood events.

To ensure optimal use of these boats, local boat drivers will receive specialized training in boat operation and emergency response. This will enhance the capacity of rescue teams to conduct efficient and timely operations, thereby improving the overall effectiveness of flood management and response efforts in the state.

Flood Shelters: Recognizing the annual risk of floods, the Relief Commissioner's Office is constructing flood shelters in eight highly vulnerable districts as part of a strategic first-phase plan. In this phase, flood shelters with varying capacities are being established: 300-capacity shelters in four districts and 150-capacity shelters in the remaining four districts. These shelters provide safe havens for affected communities, ensuring their safety and well-being during flood events. These shelters are designed not only to provide immediate refuge during flood events but also to serve as community centers, venues for marriage ceremonies, and locations for various community-training activities once the floodwaters recede.

2.2. Man-Made Disasters –

Boat Safety and Sailor Welfare Policy: Implemented in 2020, this policy focuses on preventing boat accidents and ensuring the welfare of sailors. By providing safety kits and training to mariners and divers, it enhances their preparedness and response capabilities, significantly reducing the risk of accidents on water bodies. In the first phase of this initiative, safety kits have been distributed to enhance the safety of sailors and divers across the state. A total of 872 divers and 5,123 sailors from high-risk areas in all districts have received these essential kits.

Each safety kit includes crucial items such as life jackets, life buoys, ropes, flashlights, first aid kits, oars, and long bamboo poles. These tools are designed to improve safety and preparedness during water-related activities, reducing the risk of casualties and ensuring swift response in emergency situations.

Waterlogging in urban areas: Significant projects and allocations are underway to improve drainage infrastructure and manage floodwaters more effectively:

Lucknow District: A major project worth ₹71.2365 crore is being implemented for the construction of underground RCC Hume pipe drains to remodel the Kila Mohammadi drain. Additionally, an allocation of ₹3.91 crore has been approved for constructing a Hume pipe drain in the third ward of Jankipuram to enhance local drainage capacity.

Gorakhpur District: An initial investment of ₹20 crore has been allocated for the repair and upgrading of both small and large pumping stations to address issues caused by urban flooding. This initiative aims to improve the efficiency of floodwater removal and reduce the impact of urban floods.

Jhansi District: A budget of ₹16.625 crore has been set aside for acquiring machinery and undertaking construction and cleaning of drains, ensuring better management of drainage systems and prevention of waterlogging.

Ghaziabad District: An extensive revitalization and remodeling project for drains in 24 wards has been approved with a substantial allocation of ₹119.32 crore. This project will address drainage challenges and enhance the city's resilience to waterlogging.

These targeted investments and projects reflect a concerted effort to tackle urban waterlogging through infrastructure improvements, equipment upgrades, and effective flood management strategies.

Chain Link Fencing Work for Human-Wildlife Conflict Prevention

Human-wildlife conflict has been declared a state disaster due to its increasing impact on both wildlife and local communities. To address this issue, the Relief Commissioner's Office has approved a comprehensive disaster mitigation proposal from the Forest Department. The plan involves extensive chain link fencing work across various wildlife reserves to prevent conflicts and safeguard both humans and animals.

Significant investments have been allocated to this initiative, including:

- **Duthwa Tiger Reserve Division, Lakhimpur Kheri:** ₹457.27 lakh allocated for channeling fencing work in South Senaripur, Belrayan, and Sathiyana areas.
- **Katarniaghat, Motipur, Sujauli, Kakarha, Nishangada:** ₹775.675 lakh designated for fencing work in these regions.
- **Wildlife Division, Bahraich:** ₹2,327.315 lakh for fencing to enhance protection in critical wildlife zones.
- **Pilibhit Tiger Reserve:** ₹775.675 lakh for 25 km of channeling fencing.

In total, ₹40.26 crore has been approved for this extensive fencing project. This investment aims to mitigate human-wildlife conflicts by creating physical barriers that prevent wildlife from encroaching on human settlements and agricultural areas. By addressing this state disaster proactively, the initiative seeks to protect local communities, reduce property damage, and conserve wildlife in their natural habitats.

Phased action is being implemented to ensure effective and timely completion of the fencing work, reflecting the state's commitment to addressing one of its pressing environmental and safety challenges.

Madurai train accident affected persons brought back from the state: Information was received that a total of 64 persons from the state were affected in the train accident that took place at Madurai Railway Station on 26 August 2023. In this sequence, action was initiated through the state level emergency operation centre. 09 persons who were badly burnt in the train accident could not be saved but 55 persons were brought back safely from Tamil Nadu to Uttar Pradesh and sent to their home district.

Workers trapped in Uttarakhand's Silkyara Tunnel Accident: On November 12, 2023, information was received that 06 workers from Shravasti, Uttar Pradesh, 01 worker each from Lakhimpur Kheri and Mirzapur were trapped in the Silkyara Tunnel accident in Uttarakhand. In order to this, disaster expert of Shravasti was sent to the incident site on 13 November 2023 as the State Coordinator of Uttar Pradesh. The voices of all the workers were recorded by the State Coordinator and sent to their families, which brought relief to the families. The state government provided the desired support in the entire process of safely evacuating all the 08 workers of the state trapped in the said incident from the tunnel. On November 29, 2023, work was done to transport all the workers to their home districts by building a green corridor from Uttarakhand to the respective district.

Students brought back during violence in Manipur: On May 03, 2023, information was received that 158 students from Uttar Pradesh studying in institutions there were stranded due to the violence in Manipur. In such a situation, coordination was done with the administrative officials in Manipur to bring everyone back to Uttar Pradesh safely. Out of 158 students, 11 students returned on their own and 05 students were not willing to come back from Manipur. The remaining 142 students were safely transported to their homes by the Relief Commissioner's office.

2.3. CBRN (Chemical, Biological, Radiological, Nuclear) –

State Disaster Response Force (SDRF): The SDRF has significantly strengthened with the establishment of six permanent companies. With an investment of Rs 80.75 crore for equipment and Rs 9.99 crore for vehicles, the SDRF is better equipped to respond to CBRN incidents, ensuring public safety and minimizing risks.

Conference organized on "Conference on CBRNI: To educate the general public of the state about dealing with chemical, biological, radiological, nuclear and industrial disasters, a one-day conference was organized in Lucknow on 07 March 2024 on the topic "Conference on CBRN with Special focus on Industrial Disaster Risk Management". About 150 persons including the Chief Executive Officer, Safety Officer of Major Hazard Units of the state as well as key officials of the Industrial Department participated in it.

2.4. Public Health Emergencies and Disaster Management –

Snakebite Reduction Program: Snakebite was declared a state disaster in the state in the year 2018. 'Snakebite Reduction Programme' was run to provide information on what to do and what not to do in case of snakebite and better medical management. Initiated as a pilot project in Sonbhadra, Barabanki, and Ghazipur. Under the 'Snakebite Reduction Program', snakebite prevention, awareness programs, training of trainers, doctors of the District Hospital, Community Medical Center and Asha workers were trained. A total of 180 medical staff participated in 06 training camps. After the implementation of the program, the death rate due to snakebite in the said districts has decreased by 38.46 percent. In view of the success of the pilot project of this programme, the Chief Secretary has given consent to conduct the snakebite reduction program in the remaining 72 districts in the next 02 years. It focuses on public awareness and training to prevent snakebites, thus reducing the incidence and improving the overall health and safety of communities.

Empowering Communities: First Aid and Basic Life Support Training- These training programs equip individuals with essential skills to respond effectively to emergencies, providing immediate care until professional help arrives. The first hour during disasters is known as the 'Golden Hour.' During this critical period, the life of a victim can be saved by administering timely first aid. Recognizing this, primary teachers of Lucknow were given first aid training by leading doctors from Mendata Hospital on 11 March 2024. The training included skills of Basic Life Support (BLS), which the teachers can pass on to students in schools, thereby preventing crucial situations and fostering a culture of preparedness from a young age. By learning these skills, community members can stabilize injured individuals, prevent further harm, and potentially save lives in critical situations.

Basic life support training extends these capabilities, teaching participants how to assess emergency situations, perform life-saving techniques, and coordinate with emergency services. This training is particularly valuable in areas prone to natural disasters, where immediate professional medical assistance might be delayed.

In addition to individual empowerment, first aid and BLS training foster a sense of community preparedness and cohesion. Trained individuals can serve as first responders within their neighborhoods, creating a network of support that enhances overall community resilience. These programs also raise awareness about common risks and preventive measures, contributing to a culture of safety and proactive disaster management.

Overall, first aid and basic life support training are vital components of community-based disaster risk reduction. They not only provide practical skills but also empower individuals to take an active role in safeguarding their communities, ultimately building a more resilient and prepared society.

3. Post-Disaster Recovery and Risk Management

3.1. Modelling and Innovations for Climate Change Adaptation –

Integrated Early Warning System: This system provides real-time warnings to over 2 crore people, with over 5 crore warning messages and 3 crore voice calls sent so far. It ensures timely alerts and enables communities to take proactive measures, reducing the impact of disasters.

3.2. Approaches for Community-Based Disaster Risk Reduction (DRR) –

Rahat Chaupal: For the first time, 'Rahat Chaupal' was organized at the rural level with the aim of making the general public aware about prevention from various disasters as well as enhancing their capacity. Through relief chaupals, the District Magistrate as well as district officials sensitised the Village Head, ASHAs, Panchayat Secretary, Aapda Mitras etc. about disaster prevention, preparation and 'what to do and what not to do' during the disaster. About 4500 relief chaupals were organized in all the districts of the state. 2,25,000 people participated in it. These sessions educate villagers on disaster prevention and preparedness, fostering a culture of resilience at the grassroots level.

Rahatvani Center: The Rahatvani Center offers crucial benefits for disaster management by enhancing the state's early warning and forecasting capabilities. It provides timely disaster early warnings and forecasting information, enabling the prompt delivery of relief items and streamlining compensation processes. The center alerts the general public about potential natural disasters 30 minutes to an hour before their impact, using SMS alerts, mobile notifications, and other communication methods to disseminate information at the community level. By establishing a robust system for real-time weather information and alerts, the Rahatvani Center significantly strengthens the state's ability to respond swiftly and effectively to disasters.

Training Initiatives: Extensive training programs have been implemented for teachers, home guards, and community representatives. This initiative aims to create a network of master trainers who can disseminate disaster management knowledge and practices across the state, fostering a resilient community.

Community Volunteer Programs: The **Aapda Mitra Project** trains community volunteers from local communities to act as first responders during disasters. The trained Aapda Mitras are equipped with essential skills and knowledge to assist in disaster relief operations, enhancing local capacity for immediate response and recovery. A total of 10,701 volunteers and 2,601 home guards from 63 districts have been trained as AAPDA MITRA. They have been equipped with emergency responder kits to assist in disaster response and relief operations effectively. On the lines of **Aapda Mitra Project** of NDMA, the State has launched State Aapda Mitra Programme which covers 48 remaining districts of the State. 100 volunteers from each of the above 48 remaining districts of the state are being trained to mitigate the effects of flood.

The **Bal Taranveer Program** pilot project, initiated in Varanasi, Prayagraj, and Gorakhpur, aims to prevent drowning incidents.

Public Awareness Campaigns: Awareness campaigns on disaster preparedness and risk reduction are conducted through various media channels, including radio jingles, posters, and community meetings. These campaigns aim to educate the public on protective measures and encourage proactive behaviour.

3.3. Innovations for Rapid Assessment Post-Disaster –

Drone Surveys for Collapsed Structures: Drones are employed to quickly assess structural damage after disasters, providing real-time data on collapse sites. This technology allows for safer and more efficient evaluation of affected areas, ensuring timely and accurate information for rescue and relief operations.

Satellite Imaging for Disaster: Utilization of satellite imagery offers comprehensive overviews of disaster-hit regions. This technology aids in identifying the extent of damage, mapping affected areas, and planning effective response strategies. Satellite imaging is crucial for large-scale disasters where ground access is limited.

Mobile Emergency Operation Centre: The Office of the Relief Commissioner is setting up one Mobile Emergency Operations Center (MEOC) at each regional disaster center to enhance emergency communication, disaster management, and coordination at various levels during disasters. A MEOC is a specialist vehicle or trailer equipped with the necessary technology and equipment to serve as a command centre during emergencies. The deployment of MEOCs ensures that command and control functions can be established swiftly in disaster zones. These mobile units are equipped with communication tools and resources necessary for coordinating response efforts, even in remote or heavily impacted areas. These centers are crucial for rapid deployment, acting as a dialogue hub for real-time command and control, and facilitating real-time data analysis. They also play a vital role in public information dissemination and awareness, as well as in the coordination of resources. By establishing MEOCs, the Office of the Relief Commissioner aims to ensure efficient and effective disaster management across the state.

Multi-Disaster Response Vehicle: The Relief Commissioner's Office has decided to arrange one Multi-Disaster Response Vehicle at each Divisional Headquarters to ensure quick response, relief, and rescue operations during disasters. These vehicles are equipped to handle a variety of emergency scenarios, including natural and man-made disasters. Each Multi-

Disaster Response Vehicle includes advanced rescue tools, medical supplies, and communication systems, enabling first responders to address multiple types of emergencies efficiently. By purchasing these vehicles for all 18 divisions, the Office aims to enhance the state's capability to respond promptly and effectively to any disaster situation.

3.4. Good Practices for Rescue and Rehabilitation –

Chief Minister Bal Taranveer Program: This pilot initiative, implemented in Varanasi, Prayagraj, and Gorakhpur, focuses on training to prevent drowning. The program has trained 20 master trainers each from the State Disaster Response Force and PAC, equipping them with advanced swimming skills. These master trainers, in turn, are training skilled swimmers, Aapda Mitras, divers, sailors, and retired personnel as first responder volunteers. Additionally, the program includes workshops in schools to raise awareness among children about drowning prevention. Through these comprehensive efforts, the initiative aims to significantly reduce drowning incidents and enhance community preparedness and response. The program equips local disaster friends with essential skills to act as first responders, thereby reducing drowning incidents.

Online Relief Distribution through DBT: The affected families of the state will get timely, hassle-free, and transparent relief assistance through Direct beneficiary Transfer, directly in their bank accounts. Along with the real time MIS and digital database of the beneficiaries is also being prepared by the state government.

3.5. System Strengthening and Resilience –

District Disaster Management Authorities: The state has empowered District Disaster Management Authorities with disaster experts and significant funding, enhancing their capacity to manage and respond to disasters effectively. The Aapda Mitra Project, which trains community volunteers, further strengthens the state's disaster response network.

Training Initiatives: Extensive training programs have been implemented for teachers, home guards, and community representatives. This initiative aims to create a network of master trainers who can disseminate disaster management knowledge and practices across the state, fostering a resilient community.

One teacher from every govt. school and degree college in each district has been trained as a master trainer. These teachers are responsible for spreading awareness about disaster

preparedness and response. They also play a key role in educating students and the community about disaster relief measures and safety protocols.

4. Extraordinary Contributions in DRR

- **Heatwave Management:** Comprehensive action plans have been developed for all 75 districts. For the very first time, City Level Heatwave Action Plans have been developed for several districts, in collaboration with IIPH Gandhinagar. Public awareness campaigns, facilitated through various media channels, educate communities on protective measures, thereby reducing the health impacts of heatwaves.
- **Lightning Protection Programs:** Early warning systems and public awareness campaigns have been implemented in lightning-prone districts, significantly reducing incidents and casualties.
- **School Safety Programs:** Over 7500 teachers and 2 lakh students have been trained in disaster management. Phase-2 expands these training programs to additional schools, ensuring widespread awareness and preparedness.
- **Women in Disaster Management:** Training programs for women in self-help groups have been conducted, empowering them to participate actively in disaster risk management and promoting **gender-inclusive disaster preparedness**, which is the major point in Prime Minister's 10 Point Agenda for the Disaster Risk Reduction.
- **Incident Response System (IRS):** State and district level IRS have been established and officials trained, enhancing coordinated disaster response efforts.
- **Fire Incident Management:** Significant investments in fire-fighting equipment and vehicles enhance the state's capability to manage and respond to fire incidents effectively. To prevent fire incidents in the state and for better disaster management in case of fire, an amount of Rs 96 crore was approved for the purchase of various equipment and vehicles etc. to the fire department. Fire Fighting Drone, Fire Quick Response Vehicle, RT Collecting Water Tower, Emergency Fire Engine Motor Bike and Rescue Tool Kit Set are being purchased by the Fire Department.
- **River Sensors and Public Address Systems:** In flood-sensitive villages, these systems provide timely warnings and information, enabling communities to take proactive measures.
- **Rahat Gurukulam:** Rahat Gurukulam, established as a state-of-the-art training center at the Divisional Revenue Training Centre, is a significant initiative for enhancing

disaster management capabilities. The facility includes a conference room, two training rooms, an auditorium, and seating for eight officers, along with modern computer labs. These comprehensive arrangements support a range of training activities focused on disaster preparedness, prevention, and awareness. By providing advanced training for officials and volunteers, Rahat Gurukulam plays a crucial role in equipping them with the skills necessary for effective disaster response and mitigation, thus contributing significantly to disaster reduction efforts.

- **Drowning Prevention in Ayodhya:** Ayodhya, a major religious hub, witnesses a constant influx of devotees, which has unfortunately led to drowning incidents in the Saryu River. To address this issue, the District Disaster Management Authority/District Magistrate of Ayodhya proposed a comprehensive plan to the Relief Commissioner's office. A substantial allocation of Rs. 61.40 lakh has been approved to purchase essential safety equipment, including floating barriers, sirens, rescue bags, rescue desks, lifebuoys, life jackets, and rescue ropes. These measures aim to significantly reduce drowning incidents and ensure the safety of devotees. The strategic installation of these devices along the right bank of the Saryu River will enhance safety protocols and contribute to a safer environment for all visitors.
- **T.W.S. Establishment:** To monitor drought conditions, the establishment of T.W.S. in all tehsils of Bundelkhand region and in one tehsil of each district is underway. This will enable better management and mitigation of drought impacts.
- **Public Awareness and Training in Schools and Gram Panchayats:** Training programs are being conducted in all schools, colleges, and Gram Panchayats to prepare master trainers for disaster prevention and public awareness. Disaster manual books, posters, and video film CDs are provided to master trainers to disseminate knowledge effectively.
- **Basic Training of Police and State Employees:** Disaster management subjects have been included in the curriculum of schools and various training institutes to ensure that all state employees are well prepared for disaster response.
- **Promotion through Radio Jingles:** Awareness campaigns on heatwave and lightning protection have been broadcasted through major radio channels, reaching a wide audience and promoting public safety.

By implementing these comprehensive measures, the Relief Commissioner's Office is significantly enhancing the state's disaster preparedness, response, and recovery capabilities, ensuring the safety and well-being of its residents.