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Strengthening Madhya Pradesh State Preparedness for Disaster Risk Management

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Abstract: ***This paper provides a holistic picture of the status of preparedness of Madhya Pradesh for disasters. State has a varied hazard profile and various instruments like plans and policies, community, institutions, take action to manage the disaster risk. The brief also highlights the financial provisions for the State as stated in the XV finance commission and explores best practices from across the States. The paper concludes way forward through recommendations to further strengthen the state preparedness for disasters.***
Keywords: Disaster Management, preparedness, risk and resilience, disaster management plans JEL code- Q54

I. INTRODUCTION

Few catastrophic events in the history of India led to the evolution of Disaster Management in India. The worst industrial disaster that happened in the history of India was the Bhopal Gas Tragedy 1984. The leakage of toxic methyl isocyanate from a chemical plant led to killing of thousands of people in the city and significant morbidity. Following this event, the Environment Protection Act was passed in 1986 with the aim to protect and improve human environment and the prevention of hazards to human beings, other living creatures, plants and property. In the aftermath of this disaster, the Disaster Management Institute (DMI) was set up in 1987 by the Government of Madhya Pradesh as an autonomous organization to ensure that such events never recur in the future.

The super-cyclone of 1999 made disaster management a concern for the nation followed by the establishment of the Orissa Disaster Management Authority. Soon again India was vehemently shaken to senses on the Republic day of 2001. The Gujarat earthquake led to a series of developments. Gujarat State Disaster Management Act, 2003 came into force followed by Bihar State Disaster Management Act, 2004. Gujarat is the first state in India to have enacted an Act to provide legal and regulatory framework for disaster management. On 23 December 2005, the Government of India enacted the Disaster Management Act, which envisaged the creation of National Disaster Management Authority (NDMA), headed by the Prime Minister, and State Disaster Management Authorities (SDMAs) headed by respective Chief Ministers, to spearhead and implement a holistic and integrated approach to disaster management in India.[1]

In 2009, the National Policy on Disaster Management was approved. In 2016, the National Disaster Management Plan was released which was revised in 2019. Hon'ble Prime Minister of India, Mr. Narendra Modi laid down the 10-point agenda for efforts towards disaster risk reduction, which was delivered at the Asian Ministerial Conference on Disaster Risk Reduction *(Annex 1)*. 2015 marks a year for important international development agendas which are Sustainable Development Goals (SDGs), Paris Agreement, and Sendai Framework for Disaster Risk Reduction (SFDRR). The Sendai Framework for Disaster Risk Reduction 2015-2030 is the global blueprint to prevent new and reduce existing disaster risk. India is signatory to SFDRR which puts forward 4 priority actions and 7 global targets *(Annex 2)*. The technical priorities of the SFDRR sit alongside the broader development approach of the Sustainable Development Goals (Linkages with SDG 1, 11 & 13). The National Disaster Management Plan (NDMP, 2016) is one of the first national level plans which is aligned to the SFDRR.

II. HAZARD PROFILE OF MADHYA PRADESH

The State of Madhya Pradesh is mainly prone to flood and drought hazard. The major flood prone rivers are Chambal, Ken, Betwa, Narmada, Tapti and Mahi. The state faced major floods in 2013 and 2019 causing loss of life and property. Many parts of the State are susceptible to recurring drought conditions. The Bundelkhand region of Madhya Pradesh has a history of droughts. In 2019, 36 districts faced acute drought situation and water scarcity. The spatial distribution of the rainfall remains highly skewed with some districts experiencing drought situation, while rest of the state reels under heavy rainfall and floods. *(Prajapati, 2020)*

[1] https://ndma.gov.in/about-us/introduction

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Madhya Pradesh is a forest rich State and has the area-wise largest forest cover in the country. According to the State Forest Report 2019, approx. 35% of the total forest cover is extremely to moderately fire prone. As per the Forest Survey Report 2020-21, Madhya Pradesh is the second State where maximum number of forest fires (47,795) were detected using SNPP-VIIRS sensors from Nov 2020 to Jun 2021. State has highest number of national parks and is the tiger reserve of India. Forests are the asset for the wildlife and incidents of forest fire impact the flora fauna greatly. In 2021, a forest fire raged out in the Bandhavgarh national park.

Madhya Pradesh is also biggest victim of lightning hazard. The State continues to be at the top with highest lighting strikes (count 655788) in 2021-22 and highest reported deaths (496) in 2021. The state has highest 20 years average of lightning deaths (2001-2020) which is 315.45 *(CROPC, 2022)*. Mostly the casualties are from rural areas mainly of farmers, cattle grazers, fishermen, tribal and labourers working in open.

Madhya Pradesh also faces the extreme heat hazard. The state lies in the heatwave zone of India. Average number of Severe Heat wave/Heat wave days reported during last 5 years (2018-2022) were 7, 13, 2, 1, 13 respectively. While the heatwaves are known as silent killer, the extreme heat events are increasing in intensity in recent years. There is a marked relationship between human mortality and thermal stress caused due to such events. Districts like Chhatarpur and Ratlam have experienced temperatures as high as 48- degrees (in 2022) and 45.5-degrees (in 2023) respectively, recorded as second highest temperature in the country after Rajasthan. During 2022, extreme temperature in Datia, Morena and Tikamgarh districts of Madhya Pradesh resulted in early maturity and lower grain weight of wheat and chickpea. Severe flower and fruit drop, reduction of fruit size was observed in mango in Tikamgarh district. *(Bal, Prasad, & Singh, 2022)*

Earthquake events in the state are uncommon. 36% of the state area lie in moderate risk earthquake zone III. Most of the seismic activity is confined to the Narmada-Son fault zone which runs across the state. Jabalpur earthquake of 1997 was the last notable earthquake that happened in the state. It was the first major earthquake to be centred near a densely populated urban area of the state. Given the unpredictable nature of earthquakes, seismic micro zonation of Jabalpur city has been done. Earthquake risks of urban areas can be assessed in a comprehensive manner through seismic micro-zonation studies in high resolution. This makes it possible to assess variations in seismic hazards within cities and develop appropriate land use and building regulations for earthquake resistance and safety. Micro zonation of Indore city is also ongoing.[2]

Apart from the above mentioned major hazards, state is also vulnerable to other hazards like cold waves, hailstorm, industrial, fire accidents, etc. The table below shows number of deaths due to hazards in the state.

	Loss of life due to			
Year	Floods	Lightning	Heat stroke	Cold exposure
2021	12	496	2	22
2020	11	429	7	19
2019	27	400	33	21
2018	8	381	15	18
2017	15	452	34	28

(Source: Accidental Deaths & Suicide in India, NCRB)

III. STATE ACTION IN DISASTER RISK MANAGEMENT

A. Community Involvement

Realizing the importance of community as immediate first responder in case of any disaster, before any government or outside support reaches, National Disaster Management Authority initiated Aapda Mitra Scheme to train volunteers at community level especially those residing in the most flood prone districts of the country. The scheme was launched in 2016 with a focus of training 6000 community volunteers (200 volunteers per district) in disaster response in selected 30 most flood prone districts of 25 States of India. From Madhya Pradesh, the district of Hoshangabad was selected wherein 150 community volunteers were trained. In the second phase of the scheme, called the 'Up-scaling of Aapda Mitra', 11 districts of Madhya Pradesh are selected namely: Barwani, Bhopal, Chhatarpur, Damoh, Guna, Khandwa, Raisen, Rajgarh, Singrauli, Ujjain, and Vidisha. 300 community volunteers have been trained in each district (total 3300 volunteers). These trained community volunteers can assist in saving lives using the basic techniques of disaster response, coordination and management. Each volunteer is provided with a personal protective equipment/emergency responder kit and group insurance covering life and medical facility.

[2] Disaster Risk and Resilience in India, MHA and UNDP, 2019

COVID-19 was notified as a national disaster by the Ministry of Home Affairs. While all efforts were taken by the state government to protect its citizen from the virus, community engagement further supported and strengthened it. Community participation was ensured for effective implementation of state guidelines to manage Covid-19 through the crises management committees at the village, block and district levels. Campaigns like 'I am Corona Volunteer' were organised in which volunteers registered under various categories like vaccination volunteers, healthcare facility volunteers, mask awareness volunteers, mohallatoli group volunteer, yoga training service, etc. 1,13,000 volunteers were registered out of which 50,500 volunteers already provided yoga training services in various districts of Madhya Pradesh. *(AIGGPA, 2022)*

Madhya Pradesh has a strong establishment of Self Help Groups (SHGs) in which women are significantly involved. There are 4.42 lakh SHGs across the State involving more than 52 lakh members[3]. SHGs could be an effective launch-pad to encourage women's participation in disaster risk reduction activities. SHGs can form a strong channel of communication, taking the message of disaster preparedness to everyone in the community, leaving no one behind. In disaster management women are considered as vulnerable section of society but women are not naturally vulnerable, they have been socially vulnerable. The best example of SHG proactiveness and entrepreneurial zeal was seen during the COVID 19 disaster. The micro-enterprises supported by DAY-NRLM took up the production of hand sanitisers and hand wash products to ensure the availability in rural areas. Madhya Pradesh was in top three states to produce highest quantity of sanitisers[4]. SHG members helped Madhya Pradesh become one of the five states to successfully set-up hundreds and thousands of kitchens/Didi's cafes to serve needy people during the lockdown. This kitchen network in every Gram Panchayat, with the support of local authorities, provided meals to thousands of underprivileged individuals[5].

The state has a good strength of State Disaster Emergency Response Force (SDERF) and home guards, who play a major role in case a disaster has happened.

They are well trained and well equipped to effectively respond and carry out rescue operations. Along with this, volunteers from civil defence, NSS, NYKS also contribute in case of emergency or disaster. They can volunteer as first responders amongst the youth and develop capacity to meet emergencies and natural disasters. The table here shows the strength of these organisations in terms of number of volunteers in the state.

Organisation	Strength[6] (No. of volunteers)
SDERF	616
Home Guards	7957
Civil Defence	9738
NYKS	162250
NSS	159300

Building resilience of communities towards various hazards, like floods and forest fire, requires intense capacity building of the community members in terms of awareness, trainings and resources. Civil Society Organisations (CSOs) can play a major role in this aspect. An exemplary intervention by a CSO was seen during major disaster of Bhuj earthquake in 2001. The organisation worked closely with the local organizations to ensure that maximum lives are saved and the effect of the disaster is minimized. Kutch skill development project was initiated. By reviving and promoting the Kutchi handicrafts, a self-sustainable company of artisans was formed. Interventions from CSOs can lead to a long-term sustainable outcome. Madhya Pradesh also has a network of 7917 CSOs working in various sectors out of which 1002 CSOs are involved in Disaster Management[7].

[3] NRLM SHG data https://nrlm.gov.in/shgOuterReports.do?methodName=showShgreport
[4] Press Information Bureau, Ministry of Rural Development, 12 Apr 2020
[5] https://www.thestatesman.com/india/shgs-mp-towards-new-journey-1503045103.html
[6] SDERF- https://ndma.gov.in/Response/SDRF
Home Guards- https://dgfscdhg.gov.in/hgstrength-in-country-
Civil Defence- https://dgfscdhg.gov.in/cd-volunteers
NYKS- https://nyks.nic.in/NewInitiatives/CoronaVirus/CoronaVolunteer/Default.aspx
NSS- https://nss.gov.in/nss-volunteer
[7] https://ngodarpan.gov.in/index.php/search/

B. Institutional Structure

Bhopal gas tragedy is the major disaster associated with the state of Madhya Pradesh. But every disaster brings an opportunity to learn. In the aftermath of this disaster, DMI was set up as one of the first institute in the area of disaster management at national level with prime objective to conduct training and capacity building programmes in disaster management and related subject. It is recognized as Centre of Excellence in "Management of Chemical Accidents" and as one of the few third-party inspection agencies (TPIAS) for certification of Emergency Response and Disaster Management Plan (ERDMP) documents for midstream and downstream activities of oil and gas sector.

State Disaster Management Authority was notified in 2007 under the chairmanship of Hon' Chief Minister of the State. Likewise State Executive Agency under the chairmanship of Chief Secretary of the State, and all districts have District Disaster Management Authority under the chairmanship of District Collectors. Home Department of the Govt. of Madhya Pradesh is the nodal department for disaster management. All districts also have an Emergency Operation Centre (EoCs) where home guards and SDERF teams are stationed. Madhya Pradesh has a state-of-the-art situation room for monitoring disaster situations, located at Vallabh Bhawan, Bhopal (also called VBSR).

From this situation room, Hon' Chief Minister and other state officers can monitor any location in the State, traffic conditions, level of water in dams, crowing at religious places or events, etc. The VBSR receives live feeds from all the CCTVs installed in the State by different departments like traffic police, urban administration, etc. The Indian Meteorological Department that provides weather alerts is also connected with VBSR. The VBSR is connected with the Command and Control Centre in many districts. In case of events like flood, fire accident, etc. the District Collectors of affected districts can directly communicate with the concerned in VBSR.

C. Existing Plans & Policies

In 2002, the State Department of Revenue issued the Disaster Management Policy. Later there was a change in institutional structure and the Home Department of the Govt. of Madhya Pradesh was identified as the nodal department for disaster management. In view of the new arrangements, the State's Disaster Management Policy was revised *(year not clear).* State Disaster Management Plan was prepared in the year 2012.

There has been a growing trend of climate induced disasters like floods, droughts, cyclones, forest fires, etc. To combat the impact of climate change, India has launched the National Action Plan on Climate Change (NAPCC). Climate actions at the State level are based on the State Action Plans on Climate Change (SAPCC).

The state of Madhya Pradesh also has in place a SAPCC revised in line with the NDCs. Going at a deeper level, Climate Action Plans (CAPs) of all the 7 smart cities of MP are prepared.

IV. FINANCIAL PROVISIONS FOR DISASTER RISK MANAGEMENT

The fifteenth finance commission determines fund allocation for disaster management to the State Governments. The XV FC followed a departure from the expenditure-based approach to a new methodology, which is a combination of capacity, risk exposure (area and population) and hazard and vulnerability (disaster risk index) for determining State-wise allocation for disaster management. In this index, Madhya Pradesh has a reasonably high score of 60.

The mechanism of disaster risk financing in India reflects the distribution of responsibility in respect of disaster management. The State Governments respond immediately to disasters through rescue and relief activities. Post disaster event, the responsibility for recovery and reconstruction also lies primarily with the State Governments. The Union Government extends secondary support through deploying the National Disaster Response Force and the armed forces at the request of State Governments. The Union Government also provide financial and technical assistance whenever necessary.

Since the State Governments incur most of the expenditures on disaster management, they are provided with the State Disaster Risk Management Fund (SDRMF) which includes State Disaster Response Fund (SDRF) and State Disaster Mitigation Fund (SDMF) with a break-up of 80% and 20% respectively; covering full cycle of disaster management (both relief and mitigation process). When States exhaust these resources, they can request financial assistance through the National Disaster Risk Management Fund (NDRMF).

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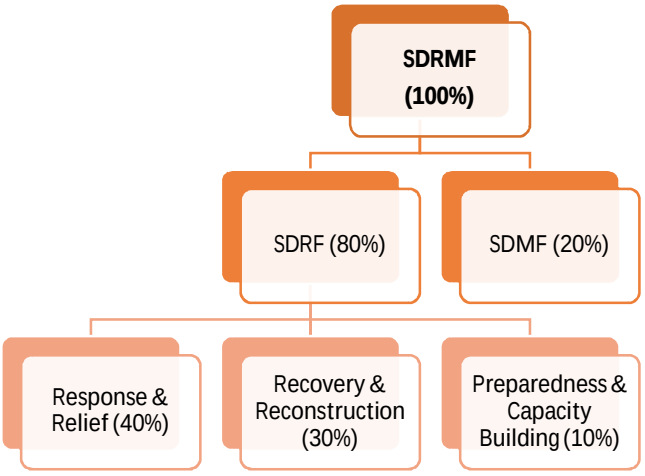

Figure. Percentage wise distribution of SDRMF

Madhya Pradesh has been allocated a total amount of Rs. 13411 Cr. for 5 year period as shown below. Total amount of SDRMF of all states and NDRMF is also shown in the table.

Table: Annual Allocation for Disaster Management- SDRMF (in Crores)

Year	2021-22	2022-23	2023-24	2024-25	2025-26	Total (2021-26)
Madhya Pradesh	2427	2548	2676	2810	2950	13411
- Union's share	1820	1911	2007	2108	2213	10059
- State's share	607	637	669	702	737	3352
All States	28983	30431	31957	33552	35230	160153
NDRMF	12390	13010	13660	14343	15060	68463

(Source: XV Finance Commission, Report for 2021-26, Vol. I, 2020)

The XV FC introduced the mitigation fund. While SDRF clearly indicates allocation for post disaster response activities, the mitigation fund is created to be used for those local level and community-based interventions which reduce risks and promote environment-friendly settlements and livelihood practices. SDMF provide small grants for community-based local initiatives, pursuing an approach which promotes adjustment with hazards through soft measures, rather than controlling them through hard measures. Six types of earmarked allocations have been done under NDRMF. Out of these six, two scheme allocations are applicable and can be utilized by the State of Madhya Pradesh. One under NDRF (Expansion and Modernisation of Fire Services) and one under NDMF (Catalytic Assistance to Twelve Most Drought-prone States).

A. Expansion and Modernisation of Fire Services

Scheme for Expansion and Modernization of Fire Services has been launched this year for strengthening fire services in the States for the period upto 2025-26, with a total outlay of Rs. 5,000 Crore. States need to apply for these funds, for which they shall contribute 10% of the amount sought. Broadly identified activities under the scheme include setting up of new fire stations, strengthening of State Training Centres and capacity building, provisions for modern fire-fighting equipment, strengthening of State Headquarters and Urban Fire Stations, technological upgradation and installation and augmentation of online system etc. *(MHA, 2023)*

B. Catalytic Assistance to Twelve Most Drought-prone States

A total allocation of Rs. 1,200 crore over the award period (2021-2026) has been done for 12 States that are most drought-prone and have suffered drought on recurrent basis. Madhya Pradesh is also one of the 12 states allocated with Rs. 100 crore that can be utilised to develop long-term drought mitigation plans which would include area-specific farming systems, improvements in surface and ground water management, promoting efficiency of water use, agro-forestry schemes and solar energy installations. The plans are to be developed at drought-affected district level. *(Finance Commission, 2020)*

C. Learnings from other States

1) *Integrating Disaster Management in Education Curriculum:* In 2021, the Odisha's Council of Ministers adopted a resolution to include disaster and pandemic management as part of the curriculum for every high school and college student. The resolution also mentioned that every government employee will be trained on the fundamental nature of different kinds of disaster and pandemic management. Also, the Government jobs and recruitment will have a mandatory syllabus on disaster management. From ward members to Chief Minister, everyone will be trained on disaster and pandemic management. The overall objective is to create a 'Yodha' in every house. The Kerala state disaster management policy has a unique techno-legal framework which states that disaster resistant design and construction practices and retrofitting techniques shall be made part of University Undergraduate Courses in Civil Engineering and Architecture. Transfer of disaster resistant construction technology by capacity building of construction fraternity (Town Planners, Engineers, Architects, Builders and Developers and Masons) shall also be promoted by the state government.
2) *Addressing Extreme heat Challenge Through Policy:* Like many other states, the state of Telangana is also vulnerable to heat waves. The state is on high growth trajectory with rapid urbanisation, increasing the energy demand for cooling indoor spaces. Extreme heat events combined with the heat island effect in cities not only cause public inconvenience but also endanger public health. To address this challenge, Telangana adopted cost-effective and climate friendly cooling solution to help prepare communities cope with extreme heat and improve thermal comfort while addressing the heat island effect. It introduced 'Telangana Cool Roof Policy 2023-2028' with a target-based approach to increase percentage of cool roofs in the state, achieving around 300 sq. kms of cool roof area by 2028.
3) *Efficient restoration of documents lost in Floods:* The state of Tamil Nadu was devastated by flash floods in 2015. Infrastructure and public amenities were severely damaged with huge loss of life. Flooding brings such damages with it but one damage which is not much talked about is the loss of important documents of flood affected people. In the flood affected districts of Tamil Nadu, people expressed their anxiety about important documents and certificates they lost in floods such as patta, educational certificates, Aadhaar Card, Voter ID Cards, Bank Pass Books, RC Books, Driving Licences, etc. To address this issue, the Hon'ble Chief Minister, announced for exemption from payment of fees for obtaining copies and duplicate of documents. Officials were directed to conduct special camps for two weeks to facilitate the process. All government departments, particularly eleven major departments - Revenue, Civil Supplies, Census, Banks, Registration, Corporation of Chennai, Oil Corporation, Transport, School Education, District Differently Abled Welfare Office (DDAWO) and Industrial Training Institutes (ITIs) of the Department of Technical Education – participated in this exercise. Single-window camps (All participating departments had put up stalls) were conducted for ease of filing and tending to all applications. No FIRs for the lost documents were required to be filed. A decentralised decision-making approach was adopted by nodal officers for taking on-the spot decisions. More than 50,000 applications for retrieval of lost documents were received in the special camps of Chennai alone. *(Thiruppugazh)*

V. WAY FORWARD

This section presents recommendations to further strengthen the state preparedness for disasters.

A. *Strengthening Policies*

1) While the State has a State Disaster Management Plan, it was prepared in 2012. Given the changing hazard profile and linkage with climate change, the plan needs to be updated with proper hazard, vulnerability and risk assessment. The Sendai Framework for Disaster Risk Reduction was introduced in 2015 that aims to guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors. Taking cue from the National Disaster Management Plan, which adheres to the Sendai framework and has hints and flavours of SDGs, the State DM Plan can be revised and updated accordingly. Likewise, District Disaster Management Plans of all the districts should be reviewed and updated on a yearly basis by the district authority. To regularise this annual activity, a joint certificate of plan updation can be taken from the district collector and SP.
2) Out of the many hazards affecting the state, lightning is the one causing maximum number of deaths. Given the severity of this hazard, lightning can be considered to be declared as state specific disaster. This will enable the state government to use up to 10% fund of the annual allocation of the SDRF for providing immediate relief to the victims. Intensive amount of awareness is also required at community level to avoid deaths due to lightning.

   This can be done with the support of panchayats. IMD forecast and apps like 'Damini' & 'Meghdoot' can be useful in mitigating lightning risk. Damini lightning alert application gives warning to the user about the lightning based on user location.

Similarly, Meghdoot is mobile application to assist farmers for weather-based farm management. Awareness and popularisation of such apps is required for the vulnerable population in the state.

3) References to disaster management might be integrated across the disciplines in schools or higher education. But disaster management can be included as a separate subject in academic curriculum of schools and colleges. This will help creating a generation which is more aware towards disasters especially in post Covid times and climate change challenges. Time to time trainings/mock exercise should be provided at schools and government offices to train people on evacuation routes during incidents like fire, basic first aid skills, saving people from drowning, etc.
4) Considering loss of important documents during floods especially in rural areas, fast retrieval camps can be setup which reduces the legwork of already distressed people affected by flood. Also, digital platform like 'DigiLocker' can be promoted in the hazard prone community as a safe space for storing documents digitally.

B. Leveraging Funds for Better Preparedness and Resilience

1) As highlighted in the MPSDR, 2022, the state lacks the implementation of a Fire Act as mandated by the GoI. The fire services need to be appropriately organized with adequate infrastructure and equipment for keeping pace with the advancement of technology and economic growth. The provisions made under the modernisation of fire services can be leveraged to revamp the fire services in the state for ensuring the safety of life and property.
2) The catalytic assistance provided to the state for development of long-term drought mitigation plans can be prepared with the community participation so that it addresses the needs of the community in drought-prone districts and utilise their knowledge and practices for building drought resilience.
3) There is a concept of flexi-fund in development programmes, which allows State Governments to spend 25 per cent of programme resources on implementing mitigation measures. Such funds can be utilised for mainstreaming DRR in development programmes. As disaster and development are two sides of the same coin, mainstreaming disaster risk reduction in development activities is the key to achieve resilience.

C. Upgrading Resources

1) To develop a robust disaster monitoring infrastructure, the Command and Control Centre at each district need to be strengthened by renovation, equipment and human resource.
2) The organizational setup of MPSDMA consist of seven divisions namely, administrative, operation and coordination, IEC and media, training and capacity building, research and policy development, finance planning and coordination, and international cooperation cum new technology. These divisions cover all the dimensions of an institute concerned for disaster management, but as per the disaster risk and resilience index of India, the total number of professionals working with SDMA are only three. The capacity of MPSDMA in terms of human resource and infrastructure can be further strengthened.

VI. CONCLUSION

The disaster risk landscape of the state might not be very strong as in the case of States like Gujarat, Odisha or Bihar. But given the nature of disasters and impact of climate change, the frequency and intensity of hazards has been increasing. Hazards like flooding, extreme weather events, fire incidents have increased in number unlike their occurrence and impact in the past. Covid-19 is another example when compounding events were witnessed. Even the locust incursion in 2020 was unforeseen that led to crop-loss affecting livelihood of farmers. This gives a strong reason to strengthen the preparedness of the state, from community level to institutional level, to effectively deal with any disaster in the future.

A. Annex 1

Hon'ble Prime Minister of India, Mr. Narendra Modi laid down the 10-point agenda for efforts towards disaster risk reduction, which was delivered at the Asian Ministerial Conference on Disaster Risk Reduction held in New Delhi, in 2016. These points are:

1) All development sectors must imbibe the principles of disaster risk management.
2) Work towards risk coverage for all - starting from poor households to SMEs to multi-national corporations to nation states.
3) Encourage greater involvement and leadership of women in disaster risk management.
4) Invest in risk mapping globally.
5) Leverage technology to enhance the efficiency of disaster risk management efforts.
6) Develop a network of universities to work on disaster issues as they have social responsibilities too.

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7) Utilise the opportunities provided by social media and mobile technologies and recognise the potential of social media and develop applications for all aspects of disaster risk management.
8) Build on local capacity and initiative.
9) Ensure that the opportunity to learn from a disaster must not be wasted.
10) Bring about greater cohesion in international response to disasters.

B. *Annex 2*

Sendai Framework for Disaster Risk Reduction (SFDRR)

1) *Targets*

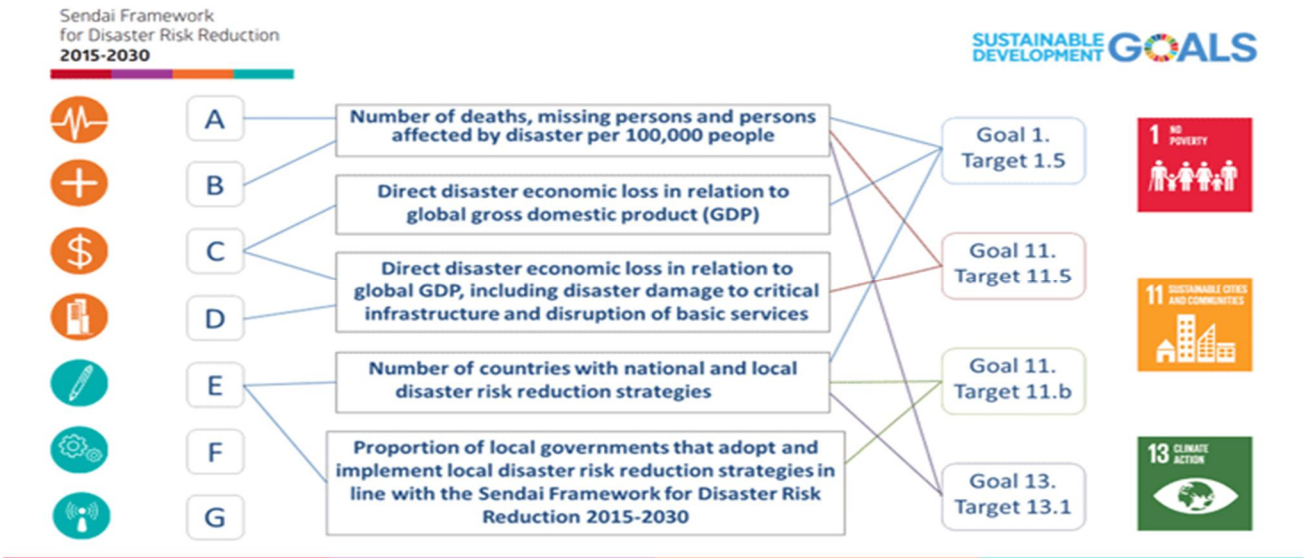
a) Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015
b) Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015
c) Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030
d) Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030
e) Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020
f) Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030
g) Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030

2) *Priorities for Action*

a) Priority 1: Understanding disaster risk
b) Priority 2: Strengthening disaster risk governance to manage disaster risk
c) Priority 3: Investing in disaster risk reduction for resilience
d) Priority 4: Enhancing disaster preparedness for effective response, and to Build Back Better in recovery, rehabilitation and reconstruction

C. *Annex 3*

SFDRR linkages with SDGs



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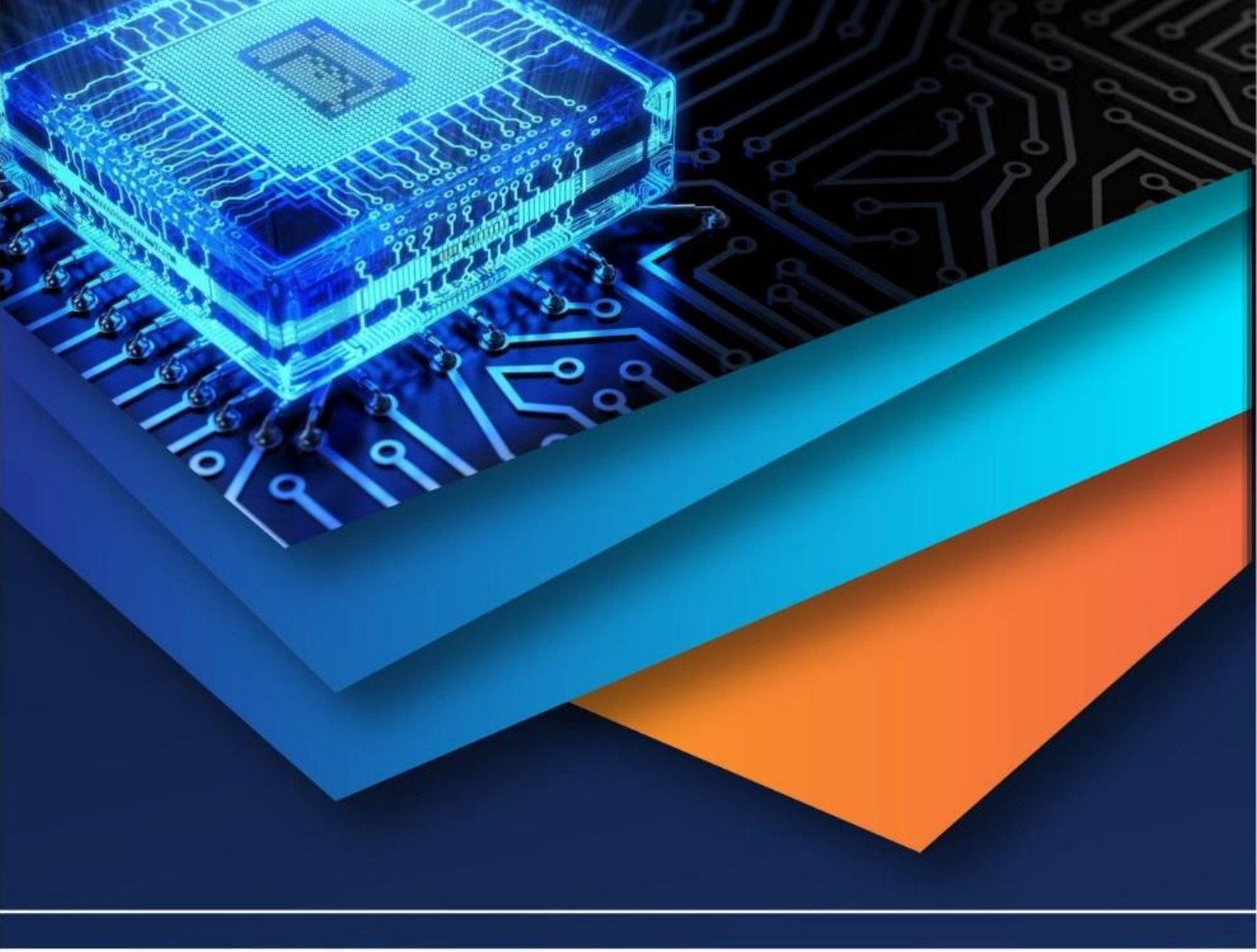

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