Ministry of Health and Family Welfare

Government of India

STATE ACTION PLAN FOR CLIMATE CHANGE & HUMAN HEALTH

Madhya Pradesh

(Revised Version- 21.10.2022)

National Programme on Climate Change & Human Health
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Executive Summary

Climate change is among the greatest health risks of the 21st century. It affects the social and environmental determinants of health like clean air, safe drinking water, sufficient food, and secure shelter. Climate change, together with other natural and human-made health stressors, influences human health and disease in numerous ways.

Extreme weather events induced by the change in climatic conditions are contributing to an increase in climate-sensitive illnesses, either directly (due to the changes in temperature and precipitation as well as the occurrence of heat waves, floods, droughts, and fires, among other things) or indirectly (ecological disruptions resulting in crop failures, shifting patterns of disease vectors, or displacement of populations, etc.). The Sustainable Development Goal 13 (SDG 13) emphasises to “take urgent action to combat climate change and its impacts”.

In this regard, the National Programme on Climate Change and Human Health (NPCCHH) was initiated in 2019 under the Health mission, identified as a part of the National Action Plan on Climate Change (NAPCC). Under the programme, the State Governments prioritized planning and integration of human health as a critical element for adaptation and mitigation of the climate-induced vagaries. Based on this, the State Action Plan on Climate Change and Human Health (SAPCCHH) was prepared by the Department of Public Health & Family Welfare (DPH&FW) in 2021. This has been revised as per the Project Implementation guidelines issued by the NCDC (nodal agency for implementation of NPCCHH). The SAPCCHH 2022-27, for Madhya Pradesh, identifies and enlists the priority areas for climate change adaptation to healthcare systems in the state.

The proposed "State Action Plan on Climate Change and Human Health (SAPCCHH)" employs a multifaceted strategy to combat the health-related effects of climate change. The SAPCCHH aims to improve the health outcomes amongst the population of the state, particularly among the most vulnerable groups, such as children, women, elderly population, and the underprivileged. The objective is to lower climatic variability and extreme weather events-related morbidity, death, injury rates, and health vulnerability. The goal is to strengthen the ability of medical services to withstand the harmful effects of climate change on human health. The action plan highlights the goals of the programme and the activities to be undertaken to strengthen the health systems and services in the state. The SAPCCHH also outlines the operational framework for execution, methodical organizational structures and the obligations of Task Forces, Environment Health Cells of State, District and local governing bodies.

Chapter 1

Introduction

Climate change is defined as, "*a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods*." It affects the social and environmental determinants of health like clean air, safe drinking water, sufficient food, and secure shelter.

India is a signatory to the major international initiatives that aim to both maintain and protect the natural environment while reducing the effects of climate change on the human population. The need to address climate change concerns is important given the recognised connections between the physical environment and the wellbeing of the human population. The two-pronged approach for reducing the GHG emissions to lessen the carbon footprint and adapting to climate change concerns (both present and future) is being adopted. Both of these categories heavily involve the health industry. It occupies the role of the frontline workers and is a crucial sector for both preventing and responding to impacts of climate change on the human population. The National Programme on Climate Change and Human Health was launched in 2019 by the Government of India as part of the Health Mission component of the National Action Plan on Climate Change (NAPCC) in order to take the initiative and fulfil its responsibility[1].

The *United Nations Framework Convention on Climate Change (UNFCCC)* came into force on 21st March 1994. Since then many steps have been initiated to reduce the effect of climate change at the global level including "Rio Convention 1992", "Kyoto protocol 1997", "Male' Declaration 1998", "Convention of Parties", "Cancun Agreement 2010", "Durban Platform 2011", and "Nationally Determined Contributions" (NDCs) at the Conference of Parties 21".

The "*Male' Declaration"* calls for the strengthening of the health sector and achieving climate resilience. According to the "Male' Declaration", it is desired that the health-care facilities should be prepared to address the human needs in face of climate change-induced vagaries and adopt climate-resilient practices, particularly to encourage that these are able to withstand any climatic event, and that the essential services such as water, sanitation, waste management, and electricity are functional during such events. Further, for achieving climate resilience, health department has to undertake measures to initiate the greening of the health sector by adopting environment-friendly technologies, and using energy-efficient services.

[1] Hathaway J, Maibach EW. Health Implications of Climate Change: a Review of the Literature About the Perception of the Public and Health Professionals. Curr Environ Health Rep. 2018;5(1):197-204. doi: 10.1007/s40572-018-0190-3.

In line with its global commitments as well as addressing the urgency of climate change, the Ministry of Health and Family Welfare (MoHFW), Government of India, initiated the National Programme on Climate Change and Human Health (NPCCHH) under the National Center for Disease Control (NCDC). The NCDC has established the Centre for Environmental and Occupational Health, Climate Change, and Health (CEOH&CCH) for programme implementation.

The Department of Public Health and Family Welfare (DoPH&FW), Government of Madhya Pradesh, has designed the State Action Plan on Climate Change and Human Health, 2022, to guide initiatives and efforts for better planning, integration, and dissemination[2] of climate change adaptation initiatives to the health concerns of the human population. State Climate Change and Human Health (CCHH) cell has been formed in Madhya Pradesh. CCHH's State Nodal Officer has been proposed. A multi-sectoral task force at the state level is constituted under the Mission Director NHM serving as its chairman. Program managers are employed by the State task force from various NHM programmes. The state task committee has also identified experts from other departments. Currently, the State CCHH relies on funding from the Integrated Disease Surveillance Programme Madhya Pradesh. Infrastructure and specialised human resources are now being established. In its efforts to adapt to and lessen the effects of threats brought on by climate change on public health, Madhya Pradesh is at the forefront.

SAPCCHH would assist the local government in taking steps to mitigate and lessen the effects of climate change and the events it causes on public health. The challenge is critical because of the increasing and varied implications of climate change. By doing so, the SAPCCHH would give the state Department of Health and the other associated Departments a direction to take collective action to address this important issue. Additionally, it will help the districts build and prepare their own action plans to deal with the crisis locally.

[2] Kokane AM, Pakhare AP, Gururaj G, Varghese M, Benegal V, Rao GN, Anniappan Arvind B, Prasad M K, Mitra A, Shukla M, Yadav K, Ray S, Ranjan A, Chatterji R, Mittal P. How Healthy Is State Mental Health System in Madhya Pradesh, India? An Assessment of Today to Plan for a Better Tomorrow. Psychiatry J. 2021;2021:6364321. doi: 10.1155/2021/6364321.

Figure 2: Impacts of climate change on human health

Chapter -2

Climate Vulnerability

Madhya Pradesh is India's second-largest state in terms of land area and sixth-largest in terms of population. The state features a complicated social structure, a largely agrarian economy, undulating terrain, dispersed communities over a vast region, and a sizeable population that lives below the poverty line3. The state is divided into ten administrative divisions, which consist of fifty-two districts. It is frequently referred to as the "Heart of India" due to its geographic centrality. Gujarat borders the state to the west, Rajasthan to the northwest, Uttar Pradesh to the north-east, Chhattisgarh to the east, and Maharashtra to the south. With vast plateaus, multiple mountain ranges, flowing rivers, and kilometres of woods, it boasts a diversified physiographic landscape that supports a wealth of species.

Presented below is Madhya Pradesh map. The state was split into Madhya Pradesh and Chhattisgarh in 2000.

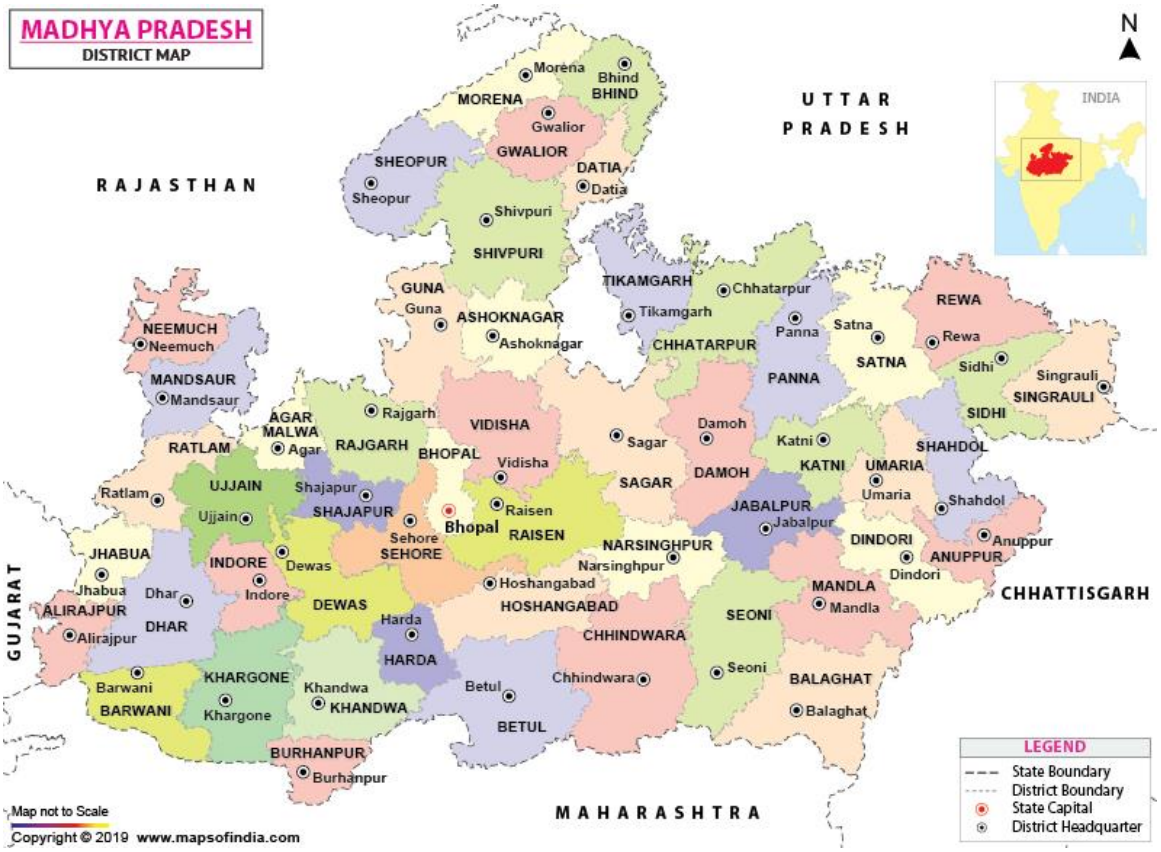


Figure 4: Administrative map of Madhya Pradesh

[3] https://mp.gov.in/

Madhya Pradesh's largest city is Indore and Bhopal is the state's capital. According to the 2011 census, Madhya Pradesh has a population of 72,567,565 people and area of 308,252 km2. There are 50 districts in the state, 21 of which are tribal districts. There are no hilly areas in the state. There are 72.37% of rural residents and 27.63% of urban residents, respectively. The state's tribal population is 21.09%. The state has a substantially lower population density than the national average, at 236 people per square kilometre.

Climate of Madhya Pradesh

The climate of Madhya Pradesh is subtropical. It experiences a hot, dry summer (April to June), followed by monsoon rains (July to September), and a cold, largely dry winter. This is similar to most of north India. On an average, 1,370 mm of rain fall is received on average. The western and north-western districts receive 1,000 mm (39.4 in) or less of precipitation whereas the south-eastern districts receive up to 2,150 mm (84.6 in) in some locations. Overall, the state experiences tropical weather that ranges from dry to semi-arid. Winters are generally mild, although summers can be hot and humid in some regions. During summer, the maximum temperature ranges from 33°C to 44°C, while the temperature during the winter season is minimum between 19°C and 30°C.

Temperature variability

The Indian Meteorological Department (IMD) provided a high resolution daily gridded rainfall data set for 438 precipitation grids for the Madhya Pradesh region for a period of 63 years (1951-2013) for precipitation, and daily gridded temperature datasets for 26 temperature grids for maximum and minimum temperature, spanning over 63 years (1951-2013) (Joshi and Rajeevan 2006), indicated in the figure below.

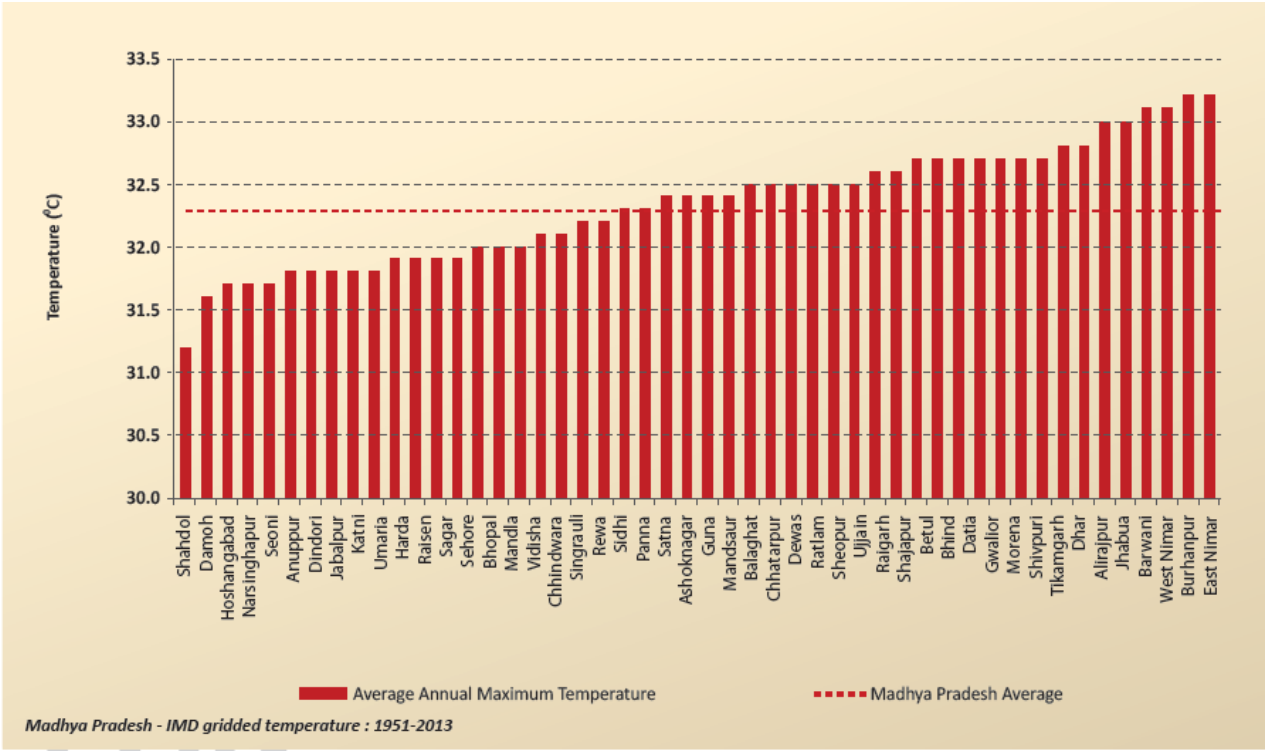
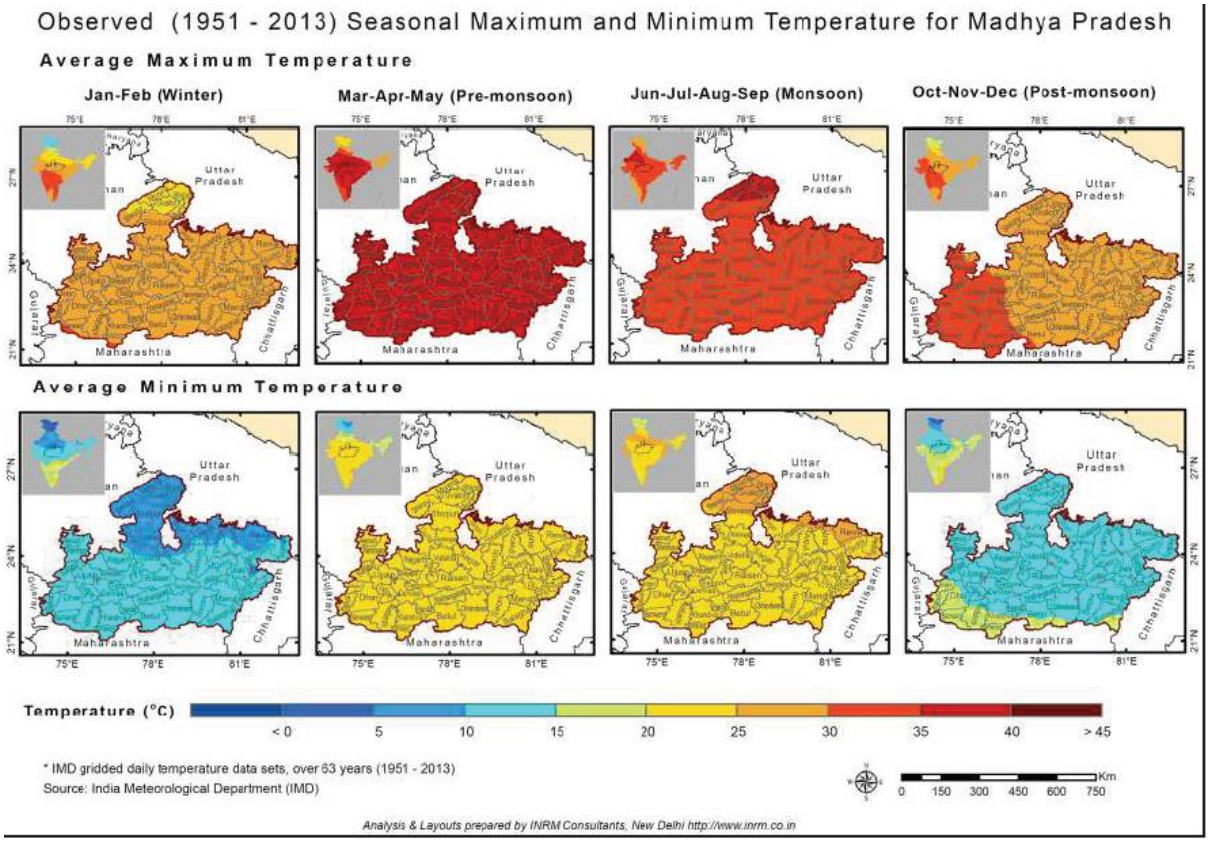


Figure 6: Temperature variability in the Madhya Pradesh

Figure demonstrates the regional fluctuation in seasonal temperature. Additionally, for the period 1951–2013, the district Balaghat had the greatest annual minimum temperature, while the district Shahdol recorded the lowest[4].

Additionally, the observed spatial variation in the temperature across the state between 1951-2013 is indicated in the picture below.

[4] Parmar, Shyam. *Folk Tales of Madhya Pradesh*. Folk tales of India series, 12". New Delhi: Sterling Publishers, 1973.



Additionally, the spatial variation of the precipitation levels across the state is indicated in the map below-

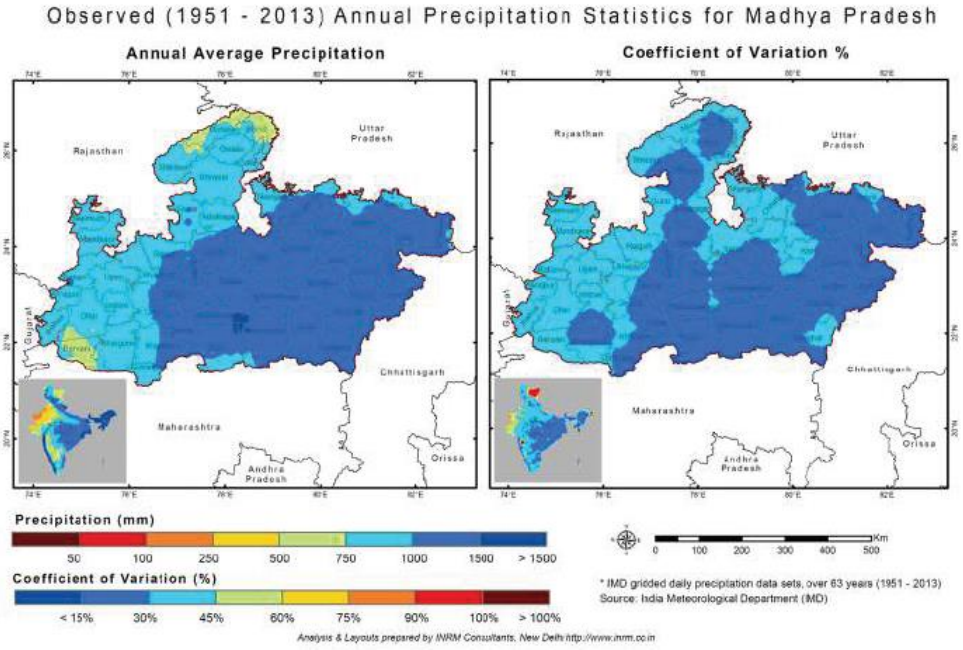


Figure : Projected heat stress in Madhya Pradesh in the month of May with green bars showing mid-century increase in extreme heat days

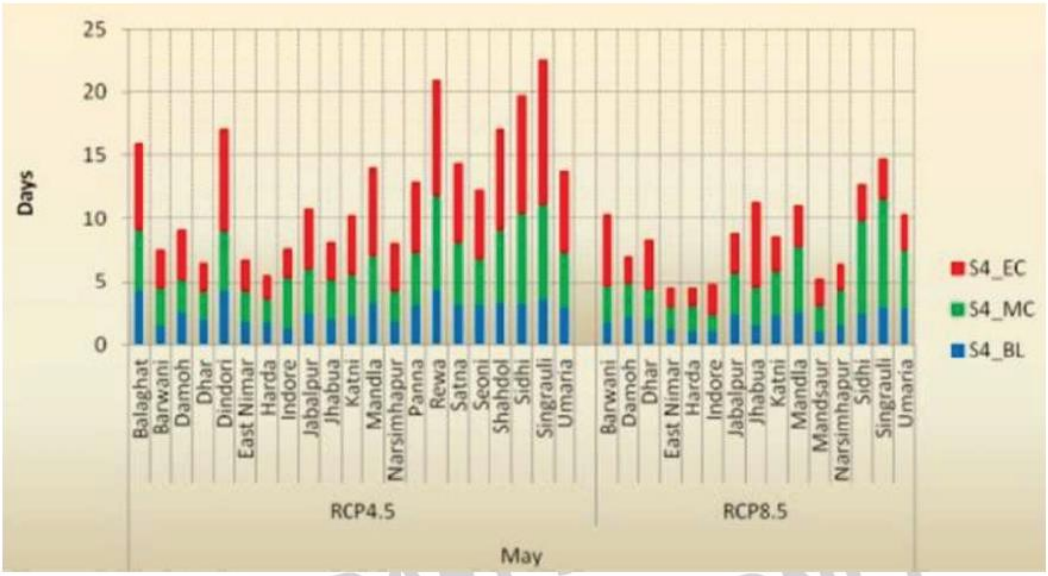


Figure : Humidex projections for Madhya Pradesh

Furthermore, the climatic vulnerability of the state is enhanced by the projected heat-stress levels estimated in the state during the month of May as indicated above.

Disaster Specific Vulnerability

Figure 9: Visuals of Natural disasters and calamities reported in the last one decade in Madhya Pradesh

Madhya Pradesh is prone to both natural and man-made disasters because of its distinctive geo-climatic characteristics and industrial facilities including earthquakes, floods, droughts,

fires, and other similar events. Currently, the state is divided into 313 community development blocks, 272 tehsils, 52 districts, and 10 divisions. Out of that, 22 districts fall under Earthquake Zone II and 28 districts fall under Earthquake Zone III. Similarly, 32 State districts have experienced flooding in the past 30 years, whereas 7 districts have seen severe drought. Additionally, Madhya Pradesh is particularly susceptible to lightning strikes.

Flood Hazard

Floods are the most common and destructive of all the natural dangers that afflict Madhya Pradesh. The state experienced severe floods in the years 1982, 1983, 1984, 1986, 1992, 1994, 1996, 1997, 2003, 2005, 2006, and 2012, according to data from the Revenue Department (recent year). Additionally, it was discovered that the yearly rainfall is condensed into a brief monsoon season lasting about three months. This causes significant siltation, flash floods, and inadequate flood water discharge; as a result, embankments can fail for the same reason[5].

Drought Hazard

Drought is the next major risk that the state is subject to after flooding. Based on the data available for the past 30 years, it has been determined that the pattern of drought in the state is variable, occasionally affecting the entire state, at other times affecting a small number of regions, and at others affecting a small number of districts. But seven areas that are connected have been identified as having a persistent drought problem. The districts have been divided into three categories: very drought prone, moderately drought prone, and less drought prone.

[5] Tripathi V, Akhtar R, Preetha GS. Perceptions Regarding Climate Change and its Health Impact: Reflections from a Community-Based Study in India. Indian J Community Med. 2021;46(2):206-209. doi: 10.4103/ijcm.IJCM_120_20.

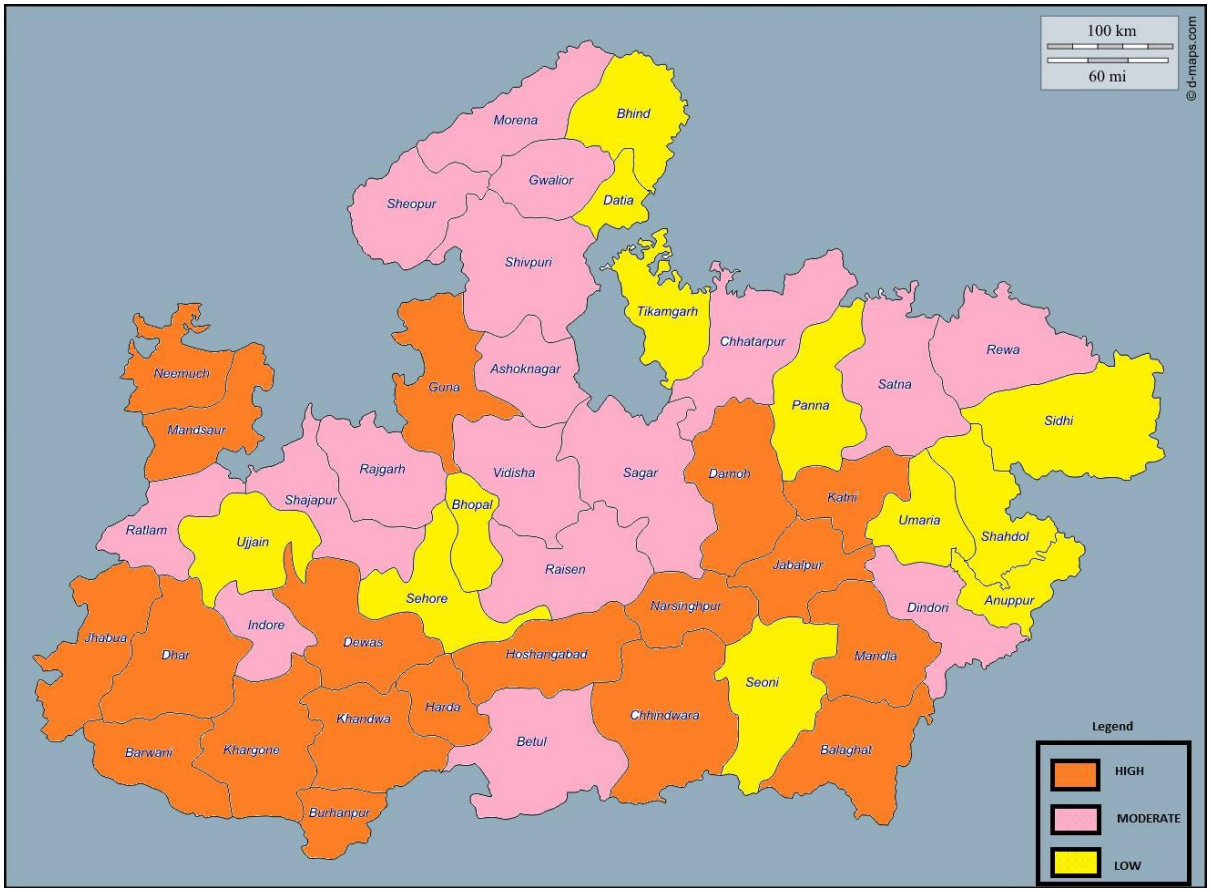


Figure 10: Drought hazard districts and intensity in the state of Madhya Pradesh.

Earthquake hazard

It is yet another significant risk that affects the state of Madhya Pradesh. Significant areas of the state experience moderately high seismicity. A few incidents, particularly in the recent past, set off the entire state (including the 1997 Jabalpur Earthquake). 28 districts fall under Zone III and 22 districts fall under Zone II of the earthquake, according to the 2007 Vulnerability Atlas of India. Further, Madhya Pradesh Earthquake Study has been carried out. The districts have been divided into Low and Medium hazard prone based on the

Vulnerability Atlas of India and the most current MP Earthquake Study[6].

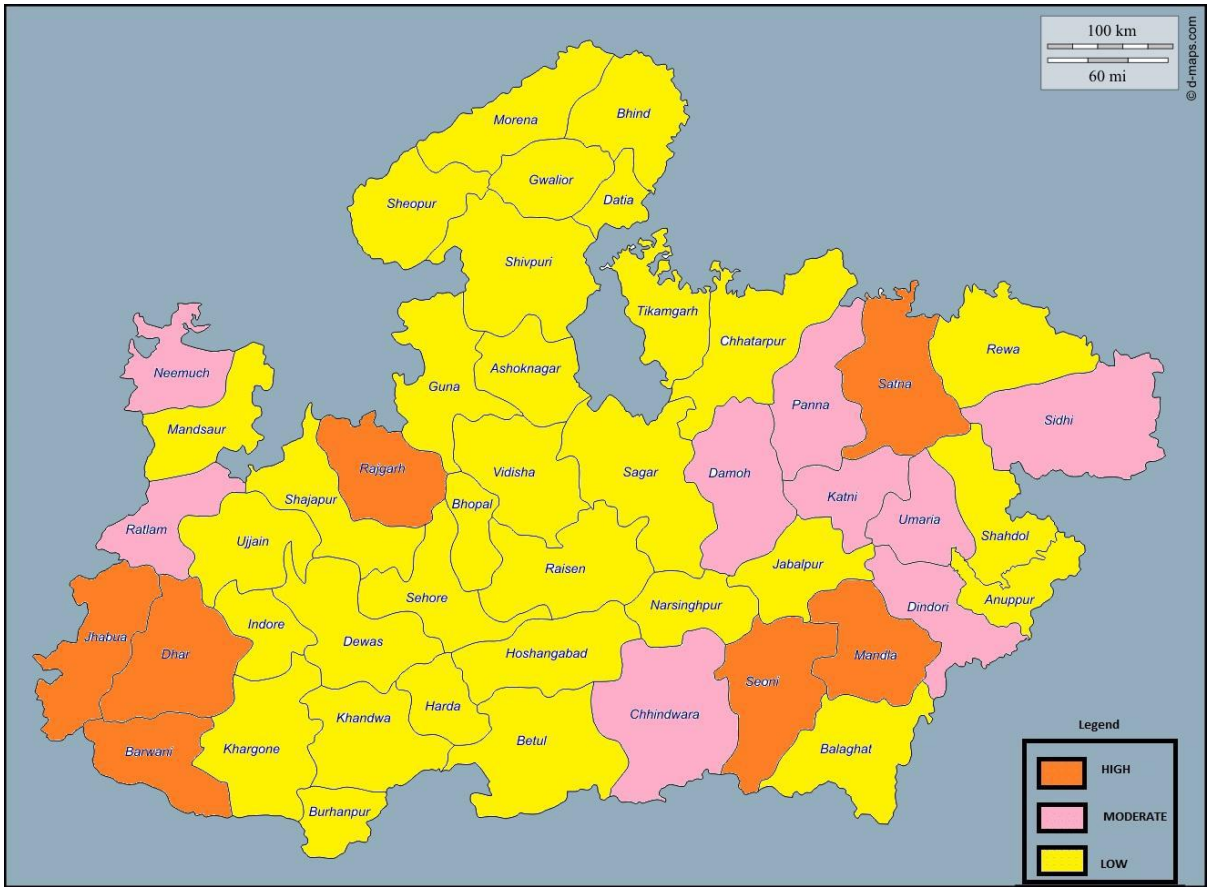


Figure 11: Earthquake hazard districts and intensity in the state of Madhya Pradesh.

Lightning

Lightning strikes have killed more than 100,000 people in the country between 1967 and 2019, according to official data. This is more than a third of fatalities caused by natural hazards during this period. Each year more than 3500 per year causalities reported in India due to lightening. Among these Madhya Pradesh remains major state for such natural disasters where an average more than 300 casualties reported per years[7]. Additionally, in the recent years more than 30% hike in lighting cases and causalities not only in Madhya Pradesh but across the nation.

[6] Coppola DP. Hazards. Introduction to International Disaster Management. 2015:40–149. doi: 10.1016/B978-0-12-801477-6.00002-2.

[7] Singh, O. and Singh, J. (2015), Lightning fatalities over India: 1979–2011. Met. Apps, 22: 770-778. https://doi.org/10.1002/met.1520

In lieu of these existing vulnerabilities, the current statistics revealing the health sector details in Madhya Pradesh is indicated below-

Health sector at a glance					
Birth Rate (%)	24.6 (2018, Vol 53 No 1)		27.3 (2010-11)		
Death Rate (%)	6.7 (2018, Vol 53 No 1)		8.3 (2010-11)		
IMR (per 1000 live births)	48 (2018, Vol 53 No 1)		62 (2010-11)		
Project Level of Life Expectancy at Birth	Male 66.5; Female 67.3 (National Health Profile, 2019)				
Total Neonatal Death	35 (2018, July)				
Total Fertility Rate (Birth/Woman)	2.7 (2018, SRS)	3.1 (2010-11)			
Health Infrastructures (31ST March 2020)	10189 Sub-Centres	1199 PHCs	330 CHCs	84 CH	52 DH

Chapter – 5

Climate sensitive issues in Madhya Pradesh

Vector-born diseases- In Madhya Pradesh, parasitic and viral vector-borne diseases (VBDs) are a major source of illness and mortality. Malaria, lymphatic filariasis, dengue, and chikungunya are these illnesses[8].

Food and Waterborne diseases; In Madhya Pradesh **a**pproximately 37.7 million Indians are thought to be affected by water borne diseases each year. 1.5 million children are thought to die from diarrhoea alone. Because of poor water supply management, particularly with regard to drinking water and sanitation, these diseases flare every year during the summer and rainy seasons[9].

The most recent national level nutrition survey reveals that Madhya Pradesh has the highest percentage of anaemic children under five years old as well as the highest percentage of thin adolescents, further putting the state under national scrutiny for its poor health and nutrition indices among children. Contrary to the national average of 10%, the survey revealed that 13% of children in Madhya Pradesh are pre-diabetic[10].

Air pollution: The most polluted cities in the state are Jabalpur, Bhopal, and Indore. According to the data published by the Central Pollution Control Board, Indore is currently the cleanest of the major cities, but its air quality is still categorised as bad. Gwalior and the surrounding areas have bad to extremely poor air quality. According to the officials, pollutant levels increase following rains.

Climate-sensitive illnesses in the state are as follows:

1. Water Borne Diseases i.e. ADD, Typhoid fever, Hepatitis

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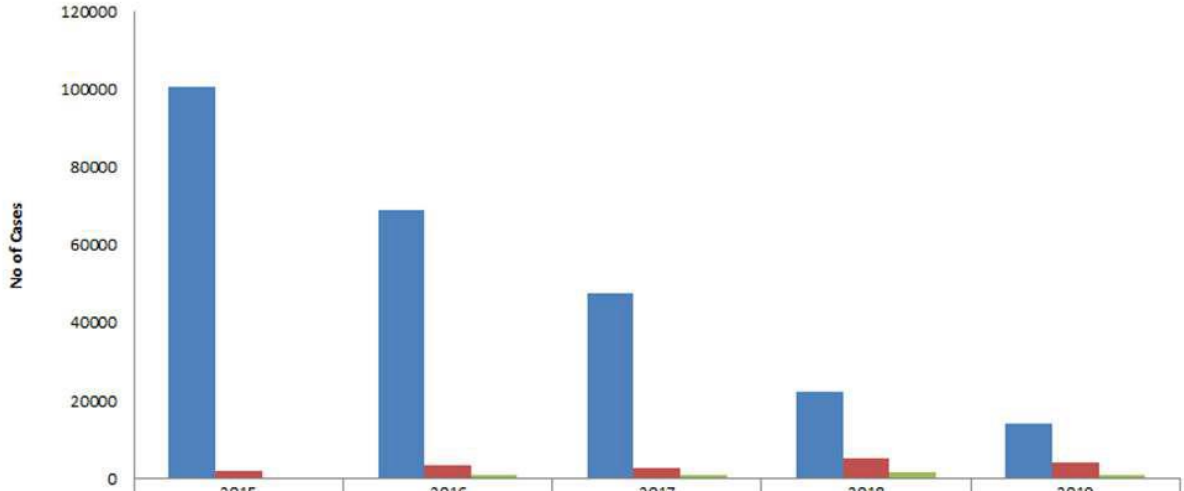
[8] Singh N, Shukla M, Chand G, Barde PV, Singh MP. Vector-borne diseases in central India, with reference to malaria, filaria, dengue and chikungunya. WHO South East Asia J Public Health. 2014;3(1):28-35. doi: 10.4103/2224-3151.206880.

[9] Kumar P, Srivastava S, Banerjee A, Banerjee S. Prevalence and predictors of water-borne diseases among elderly people in India: evidence from Longitudinal Ageing Study in India, 2017-18. BMC Public Health. 2022;22(1):993. doi: 10.1186/s12889-022-13376-6.

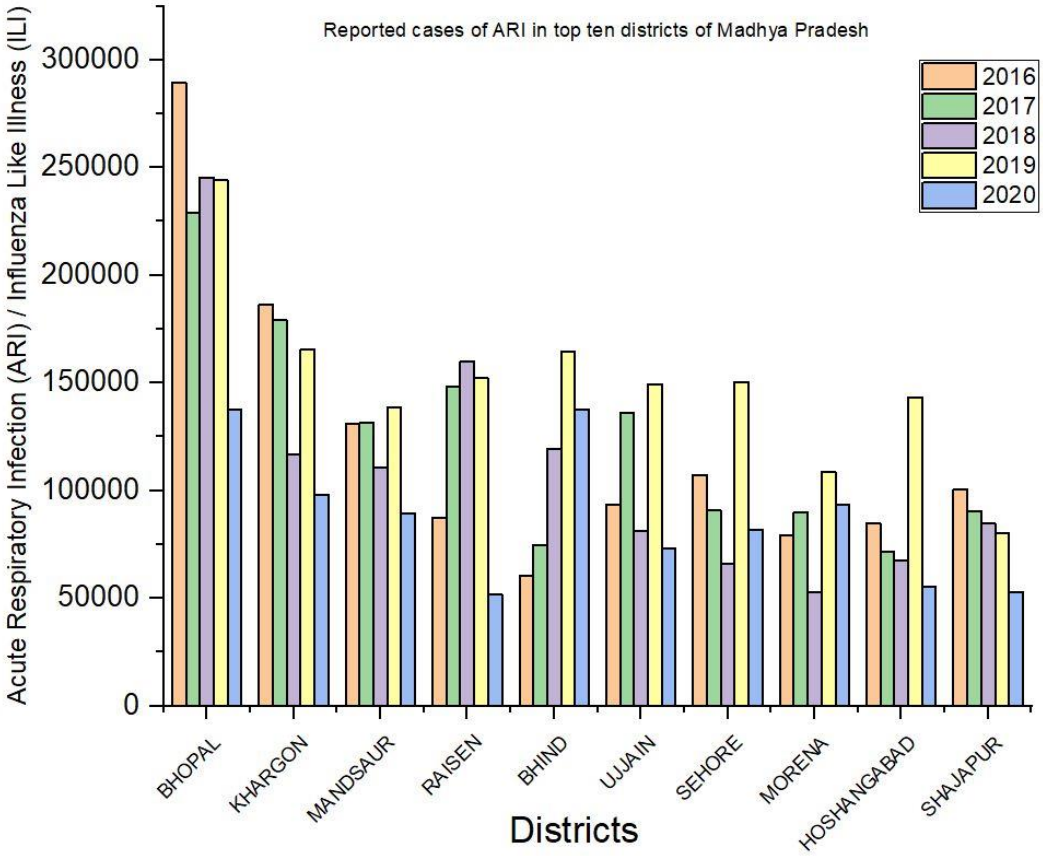
[10] Murarkar et al., Prevalence and determinants of undernutrition among under-five children residing in urban slums and rural area, Maharashtra, India: a community-based cross-sectional study. BMC Public Health. 2020;20(1):1559. doi: 10.1186/s12889-020-09642-0.

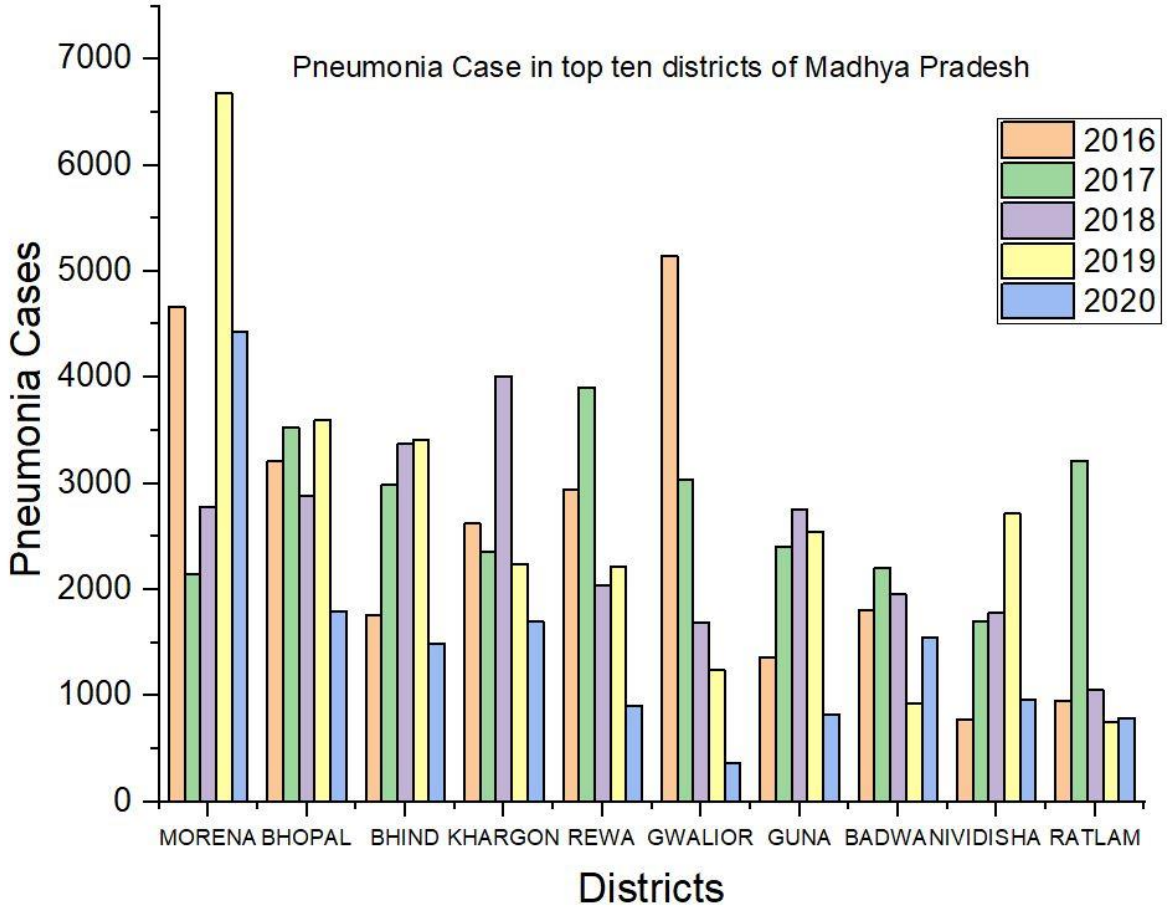
2. Vector borne Diseases i.e. Malaria, Dengue etc
3. Acute Respiratory Infections
4. Non Communicable diseases i.e. Hypertension, Heart Diseases, Bronchitis, Asthma, Emphysema, Mental disorders
5. Zoonotic diseases i.e. scrub typhus
6. Allergic Disorders

Details of cases recorded of climate-sensitive diseases-



	2015	2016	2017	2018	2019
Malaria	100597	69106	47541	22279	14147
Dengue	2108	3340	2656	4997	4120
Chikungunya	11	932	844	1616	802


Reported cases of ARI in top ten districts of Madhya Pradesh
2016
2017
2018
2019
2020
Acute Respiratory Infection (ARI) / Influenza Like Illness (ILI)
300000
250000
200000
150000
100000
50000
0
BHOPAL
KHARGON
MANDSAUR
RAISEN
BHIND
UJJAIN
SEHORE
MORENA
HOSHANGABAD
SHAJAPUR
Districts


Pneumonia Case in top ten districts of Madhya Pradesh
Pneumonia Cases
7000
6000
5000
4000
3000
2000
1000
0
2016
2017
2018
2019
2020
MORENA
BHOPAL
BHIND
KHARGON
REWA
GWALIOR
GUNA
BADWANI
VIDISHA
RATLAM
Districts

Chapter -3
NPCCHH: Vision, Goal, and Objectives

Vision: Strengthening of healthcare services for all the citizens of the state especially vulnerable groups like children, women, elderly, tribal, and marginalized population against climate-sensitive illnesses**.**

Goal: To reduce the morbidity, mortality, injuries, and health vulnerability due to climate variability and extreme weathers.

Objective: To strengthen health care services against the adverse impact of climate change on health.

Specific Objectives

Objective 1: To create awareness amongst the general population (vulnerable community), healthcare providers, and policy makers regarding impacts of climate change on human health.

Objective 2: To strengthen the capacity of healthcare system to reduce illnesses/ diseases due to variability in climate.

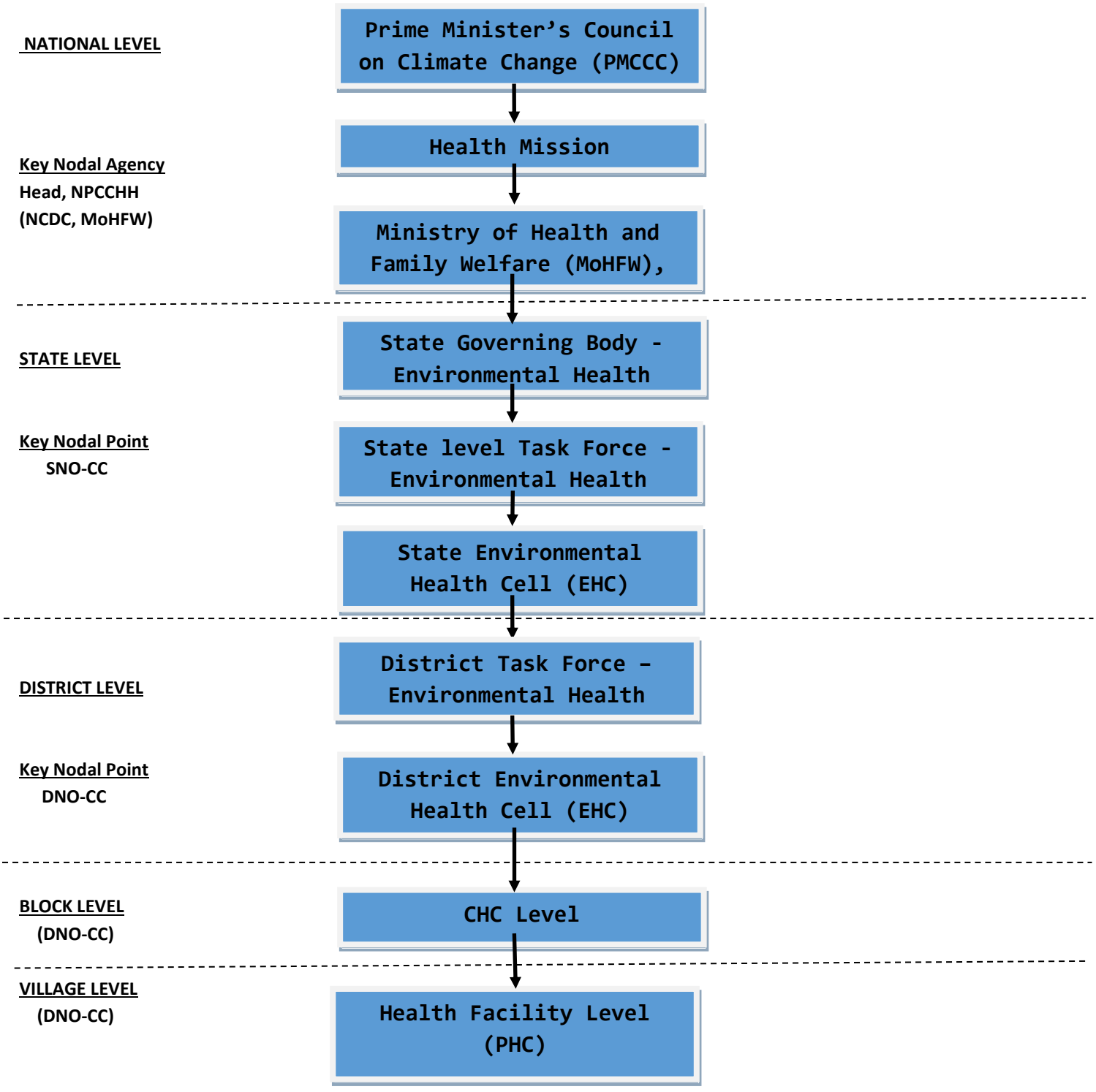
Objective 3: To strengthen health preparedness and response by performing situational analysis at state/ district/ below district levels.

Objective 4: To develop partnerships and create synchrony/ synergy with other missions and ensure that health is adequately represented in the climate change agenda in the state in coordination with the Ministry of Health & Family Welfare.

Objective 5: To strengthen the state research capacity to fill the evidence gap on climate change impact on human health.

Chapter -4

NPCCHH: Organisational Framework



4.1 State Level - Governing Body - Environmental Health

The state level governing body for policy level decision shall be working under Chairmanship of Honourable State Health Minister. The other members may be as follows:

Honourable State Health Minister	Chairman
Principal Secretary (Health*)*	*Vice Chairman*
Director Health Services/Head of Health System	Member Secretary
Mission Director-National Health Mission	Member
Principal Secretary, Ministry of Revenue (Disaster)	Member
Principal Secretary, Ministry of Agriculture	Member
Principal Secretary, Ministry of Water and Sanitation	Member
Principal Secretary, Ministry of Transport	Member
Principal Secretary, Ministry of Animal Husbandry	Member
Principal Secretary, Ministry of Environment and Forests	Member
Principal Secretary, Ministry of Women and Child Development / Social Justice	Member
Principal Secretary, Ministry of Science and Technology/ Earth Sciences	Member
Principal Secretary, Ministry of Education	Member
Principal Secretary, Ministry of Human Resource Development	Member
Principal Secretary, Ministry of Public Works Department	Member
Principal Secretary, Ministry of Power	Member
Principal Secretary, Ministry of Urban Development (Municipalities)	Member
Principal Secretary, Ministry of Finance	Member
Principal Secretary, Ministry of Law	Member
Principal Secretary, Ministry of Food and Civil Supplies	Member

Principal Secretary, Ministry of Panchayati Raj	Member
Regional Director -Health & Family Welfare (GoI)	Member
Director Medical Education and Research	Member
State Nodal Officer- Climate Change	Member
Head – NAPCCHH, CEOH&CCH Division, NCDC	Member

4.2 State Level Task Force - Environmental Health

This task force shall be working under the guidance of Principal Secretary (Health) of the state. It shall be directly overseeing the implementation of the State Action Plan for Climate Change and Human Health (SAPCCHH) in their state/UT. It shall be working through Directorate of Health Services (DHS) of the state, which will be the implementing agency for SAPCCHH. The State level Task Force shall have inter-ministerial members which are suggested as:

Principal Secretary (Health*)*	Chairperson
Mission Director-National Health Mission	Vice Chairman
Director Health Services/Head of Health System	Member Secretary
Director/ Chairman - Department of Revenue (Disaster)	Member
Director/ Chairman - Department of Agriculture	Member
Director/ Chairman - Department of Water and Sanitation	Member
Director/ Chairman - Department of Transport	Member
Director/ Chairman - Department of Animal Husbandry	Member
Director/ Chairman - Department of Environment and Forests	Member
Director/ Chairman - Department of Women and Child Development / Social Justice	Member
Director, Meteorological department of State/UT	Member
Director/ Chairman - Department of Public Works Department	Member
Director / Chairman – Department of Urban Development (Municipalities)	Member

Director/ Chairman - Department of Education	Member
Director/ Chairman - Department of Food and Civil Supplies	Member
Director/ Chairman - Department of Human Resource Development	Member
Director/ Chairman - Department of Power	Member
Director/ Chairman - Department of Finance	Member
Director/ Chairman - Department of Law	Member
Director/ Chairman - Department of Panchayati Raj	Member
Director/ Chairman - State Ground Water Board	Member
Head - State disaster Management Authority	Member
Environmental Engineer/ Scientist from Ministry of Environment	Member
Chairman, State Pollution Control Board	Member
Regional Director -Health & Family Welfare (GoI)	Member
Director Medical Education and Research	Member
State Nodal Officer- Climate Change	Member
Director, ICMR Institute/Centre (If any branch in the State/UT)	Member
State Surveillance Officer	Member
Head – NAPCCHH, CEOH&CCH Division, NCDC, MoHFW	Member
Head, NCDC Branch of the state	Member

The Task force of the State/ UT's Environmental Health Cell will coordinate with the Centre (MoHFW, NCDC) for the execution of Madhya Pradesh SAPCCHH.

DHS will create an ***Environmental Health Cell*** within State Health Department, and will identify a ***Nodal Officer*** from Health department which preferably should be a senior Public Health Expert of the state.

4.3 Roles and Responsibilities of the State/ UT Environmental Health Cell

- Preparation and implementation of the State Action Plan for Climate Change and Human Health
- Conduct Vulnerability assessment and risk mapping for commonly occurring climate-sensitive illnesses in the state/ UT.
- Assessment of needs for health care professionals (like training, capacity building) and organise training, workshop and meetings.
- Maintain state and district level data on physical, financial, and epidemiological profile for climate sensitive illnesses.
- Ensure convergence with NHM activities and other related programs in the state / district
- Monitor programme, review meetings, and field observations
- Timely issue of warning/ alerts to health professionals and related stakeholders as well as general public through campaign or using mass media (electronic or printed)
- Social mobilization against preventive measures through involvement of women's self-help groups, community leaders, NGOs, etc.
- Advocacy and public awareness through media (street plays, folk methods, wall paintings, hoardings, etc.)
- Conduct of operational research and evaluation studies for the climate change and its impact on human health

4.4 District Level:

The DHS will appoint the District Medical Officer/ Chief Medical Health Officer as the District Nodal Officer – Climate Change. A District Level Task Force will be constituted by the District Nodal Officer- Climate Change in consultation with the SNO-CC.

4.4.1 Structure of District Level Task Force- Environmental Health

District Collector	Chairman
Dean – Govt Medical College in the district/ Head- Department of Community Medicine of the Medical College	Vice Chairman
Chief Medical Officer/ District Medical Officer / District Nodal Officer – Climate Change.	*Member Secretary*
District Surveillance Officer	Member

District Programme Manager – NHM	Member
District Head, Department of Revenue (Disaster)	Member
District Head, Department of Agriculture	Member
District Head, Department of Water and Sanitation	Member
District Head, Department of Transport	Member
District Head, Department of Animal Husbandry	Member
District Head, Department of Environment and Forests	Member
District Head, Department of Women and Child Development / Social Justice	Member
District Head, Department of Science and Technology/ Earth Sciences	Member
District Head, Department of Education	Member
District Head, Department of Food	Member
District Head, Department of Human Resource Development	Member
District Head, Department of Public Works Department	Member
District Head, Department of Power	Member
District Head, Department of Finance	Member
District Head, Department of Law	Member
District Head, Department of Panchayati Raj	Member

The District Environmental Health Cell will be constituted by the District Nodal Officer- Climate Change in consultation with the SNO-CC. At the District level, a District Environmental Health Cell shall be constituted; which shall be comprise of the following:

4.4.2 Structure at District Environment Health Cell:

District Nodal Officer- Climate Change	Chairman
District Veterinary officer	Member

District Surveillance Officer/ District Epidemic Officer	Member
District RCH officer/FW Officer	Member
District Epidemiologist	Member
District Microbiologist	Member
District Immunisation Officer	Member
District Training Officer	Member
Data entry operator	Supporting staff

4.4.3 Roles and Responsibilities of the District Environmental Health Cell

- Preparation and implementation of District Action Plan for Climate Change and Human Health.
- Conduct Vulnerability assessment and risk mapping for commonly occurring climate-sensitive illnesses in the district.
- Maintain and update the district database of illnesses identified
- Assess needs for health care professionals and conduct sub-district/ CHC level training/ workshop and meetings for capacity building.
- Ensure appointment of contractual staff and engage them in the assigned task of data management under the NAPCCHH
- Maintain district level data on physical, financial, and epidemiological profile for these illnesses

4.5 Community Health Centre Level

The proposed CHC Level Structure is as under:

- Medical Superintendent (CHC Hospital) : Chairman
- Taluka Health Officer/ Talukas Health Officer : Member Secretary
- Health Education Officer/ Similar Post : Member
- Block Development Officer : Member
- Health Supervisor : Member

4.5.1 Health Facility Level (PHC):

At the health facility, the responsibility for programme implementation will lie with the Medical Officer (In-charge) of the facility. The existing machinery of NHM will be utilised for the related activities. The Rogi Kalyan Samiti (RKS) would be reviewing and monitoring implementation at the health facility level. The ANM, ASHA and Anganwadi worker will assist in activities related to implementation of action plan at local level.

S no.	Designation	Role and Responsibilities
1	**State Nodal Officer**	➢ Head the NPCCHH and state EHC at the state level ➢ Preparation and implementation of State Action Plan for Climate Change and Human Health ➢ Maintain state and district level data on physical, financial, and epidemiological profile climate-sensitive illnesses. ➢ Ensure convergence with NHM activities and other related programs in the state / district ➢ Monitor program, review meetings, and field observations. ➢ Timely issue of warning/ alerts to health professionals and related stakeholders as well as general public campaigns or using mass media (electronic or printed), ➢ Conduct operational research and evaluation studies on climate change and its impact on human health.
2	**District Nodal officer**	➢ Head NPCCHH and District EHC at the district level. ➢ Preparation and implementation of District Action Plan for Climate Change and Human Health. ➢ Maintain and update the district database of illnesses identified in the district. ➢ Assess needs for health care professionals and conduct sub-district/ CHC level training/workshops and meetings for capacity building. ➢ Maintain district level data on physical, financial, and epidemiological profile for these illnesses. ➢ Coordinate with the state team and EHC on NPCCHH ➢ Organizes and observe important events and days
3	**Block Medical Officer**	➢ Monitor the implementation of the SAPCCHH at the block level ➢ Conduct training and Workshops at block levels with

		ANM/MItanins/ Aganwadi Workers ➢ Orgnise and observe important days

PART –2

Health Adaptation Plan for Acute Respiratory Illnesses attributed to Air Pollution

A significant environmental health risk is air pollution. Numerous environmental conditions, such as temperature, humidity, wind, storms, droughts, and precipitation, as well as human activities known to produce numerous air pollutants, influence the creation, transportation, and dispersion of many air pollutants. So it makes sense to assume that air pollution dynamics will be impacted by climate change. States can lessen the burden of disease from stroke, heart disease, lung cancer, and both chronic and acute respiratory ailments, including asthma, by reducing air pollution levels.

Two major types of Air Pollution:

a. Ambient (Outdoor) Air Pollution
b. Household (Indoor) Air Pollution

Prominent causes of Ambient Air Pollution in the state:

a. Pollution by Automobiles
b. Industrial Emission
c. Open Waste Burning
d. Construction and Demolition Activities
e. Use of Wood as a fuel (Main Domestic Source)

Prominent causes of Household Air Pollution in the state:

a. Use of biomass and kerosene as fuel for cooking
b. Burning of waste, cow dung, coal
c. Paint/varnishes made on walls and furniture
d. Aerosols/ propellant in the form of spray of insecticides
e. Re-suspension of road dust due to traffic burden and poor maintenance in almost all the cities

Air Quality Index; The Air Quality Index is a mechanism for clearly explaining the status of the air quality to the general public. It simplifies complicated information about the air quality caused by different contaminants into a single number (index value), nomenclature, and colour.

Table 3: Air quality parameters

Air Quality Index (AQI) Category	
Good	0-50
Satisfactory	51-100
Moderately Poor	101-200
Poor	200-300
Very Poor	300- 400
Severe	401-500

Number of AQI monitoring stations within state:

a. By Central Pollution Control Board (CPCB) –2
b. BY State Pollution Control Board (SPCB)- 3
c. By System of Air Quality and Weather Forecasting and Research (SAFAR) – Not Known

Indore and Khargone are two cities identified under the National Clean Air Program (NCAP) in the state. For Bhopal, Jabalpur, and Gwalior, the Central Pollution Control Board has authorised preparation of Action Plans.

HEALTH ADAPTATION PLAN

I. AWARENESS GENERATION

Under the programme, awareness generation amongst all the relevant stakeholders including the common population, vulnerable communities, healthcare providers, and policymakers around the impacts of air pollution along with the ways to address the same is imperative. Thereby, under the programme, Madhya Pradesh state will conduct the following key activities-

A. Advertisement and promotion through IEC (Information, Education Communication) Activities

a. Hoardings
b. IEC Displays on Bus Que shelters
c. News paper publications
d. Promote a culture of risk prevention, mitigation, and better risk management
e. Promote attitude and behaviour change in the awareness campaigns linking air pollution and climate change.

Target population

a. **Urban areas** (primarily Bhopal, Indore, Gwalior and Sagar Municipal corporations**)**
b. **Industrial areas** (Pithampura Industrial area Indore and Mandideep and Govindpura Industrial Area Bhopal)
c. **Vulnerable groups** (primarily children, women, older adults, traffic police, outdoor workers)

Dissemination of IEC material

IEC type	Material	Timeline	Mechanism
Advisory	bit.ly/NPCCHHPrg	September	By email to DNO for further dissemination to health facilities
Early warning	AQI level with health risk category	September-March (Priority) Year around (Ideally)	• Digital display on public places and health facilities • Newspaper • Health department/other government website/application
Posters	• 12 posters on Air Pollution and health impacts (English) • 3 posters on Air Pollution and health impacts (Hindi) bit.ly/NPCCHHIEC • Posters on Air Pollution and health impacts (Hindi)	September-October	• Printing for state-level dissemination at health facilities, public places/buildings • By email to DNO for printing at district level and dissemination to health facilities, schools and other public/government buildings
Wall painting	• On Air Pollution and health impacts (English and Hindi)	Painted in August-September	In schools and selected colleges
Hoardings	• Posters in Hindi (above)	September	• To be planned with Indore, Bhopal and Gwalior Municipalities
Audio-Visual	• 3 Audio Jingles (Hindi) bit.ly/NPCCHHIEC • Audio Jingle (Hindi)	September	• Played during primetime/daytime between September to March
	• 2 Video messages (Hindi and English) bit.ly/NPCCHHIEC • Video message (Hindi)		• Played during primetime/daytime between September to March
Digital display	4 GIF bit.ly/NPCCHHIEC • Above mentioned video messages	August-September	Display in health facilities Public digital display boards in major cities
Social medial	All above material + Relevant activity updates	Throughout the year	• Facebook and Twitter handle of state NPCCHH, NHM • WhatsApp groups(State DNO, Health facility group)

Tentative Budget for Next 5 years 2022-2027

S.NO.	IEC CONTENT	DESCRIPTION	BUDGET (IN LAKHS) FOR 5 YEARS				
			22 to 23	***23 to 24***	***24 to 25***	***25 to 26***	***26 to 27***
1.	***Posters***	IEC on climate change sensitive disease at the state level - to spread awareness through communication channels to the target audience. Radio Sajeev phone- in program, radio jingles, posters, stickers, pamphlets, banner , social media posts, television adverts, audio spots for radio, leaflets, news paper advertisement. These IEC activities shall be done in coordination with state IEC team.	*216.0*	*230.0*	*240.0*	*245.0*	*250.0*
2.	***Audio***						
3.	***Videos***						
4.	***GIF's***						
5.	***Public Health Advisories***						

B. Public Health Advisories

Health advisories are issued to alert the population of the potentially harmful impacts of air pollution. Advisories are issued at the central level and will be forwarded to all the districts through the state for public dissemination. Districts are to ensure timely dissemination of health advisories.

Observance of important environment-health days

Day	Activities
International Day of Clean Air for Blue Skies (September 7) **Other days:** • **World Car Free Day (September 22)** • **World Environmental Health Day (September 26)** • **Green Consumer Day (September 28)**	IEC Campaigns • Health facility-based patient awareness sessions • Audio-video spots broadcasting • Targeted awareness sessions: traffic police, schools, women, children • Street plays and local cultural activities, Rallies • Sports events • Competition: poster, poem/essay, quiz

2. CAPACITY BUILDING

To strengthen the capacity of healthcare system to adapt/address illnesses/ diseases due to impacts of air pollution, the training plan of the state is as follows-

Training on air pollution and various health impacts of air pollution:

Training Programme	Trainer	Participants	Training Content
Medical Officers (3 Days)	DNO	MO (DH,CHC,PHC)	Air pollution related illness
Community Health Care Workers (HWC) (2 Days)	MO	Community Health Workers (MPHW, ASHA)	
Panchayati Raj Institutions (1 Day)	MO, MLHP	Panchayati Raj Institutions, communities	

TABLE 2: PLAN FOR TRAINING FOR 5 YEARS 22-27

S. No.	Training programme	Timeline	Target	Priority Districts	Budget (in lakhs) for 5 years 15 % increasing each year				
					22 to 23	23 to 24	24 to 25	25 to 26	26 to 27
01	DNO	August	100%	Entire Madhya Pradesh	7.8	8.0	8.5	9.0	9.5
02	MO	September-October	100%						
03	Community Health Workers	October-November	100%		93.6	100.0	105.0	110.0	115.0
04	Panchayati Raj Institutions	November	100%		13.0	14.0	15.0	16.0	17.0

a. **Sensitization/knowledge building workshops** will be planned for seeking updates on various air pollution related health issues between district officials, medical officers and academic institutions working on climate change impact.

SURVEILLANCE

The objective of ARI surveillance is to identify the trend of air pollution related illness in the context of outdoor air quality for an area and share the reported findings with all the

relevant authorities including public health authorities to minimise the impact of air pollution by undertaking timely intervention.

1. ARI Surveillance Activity at State Level
2. Reporting has been initiated in the state
3. Time Series for Air Quality is available at Madhya Pradesh Pollution Control Board http://www.mppcb.nic.in/

ARI Surveillance at State (Madhya Pradesh)- Data Flowchart

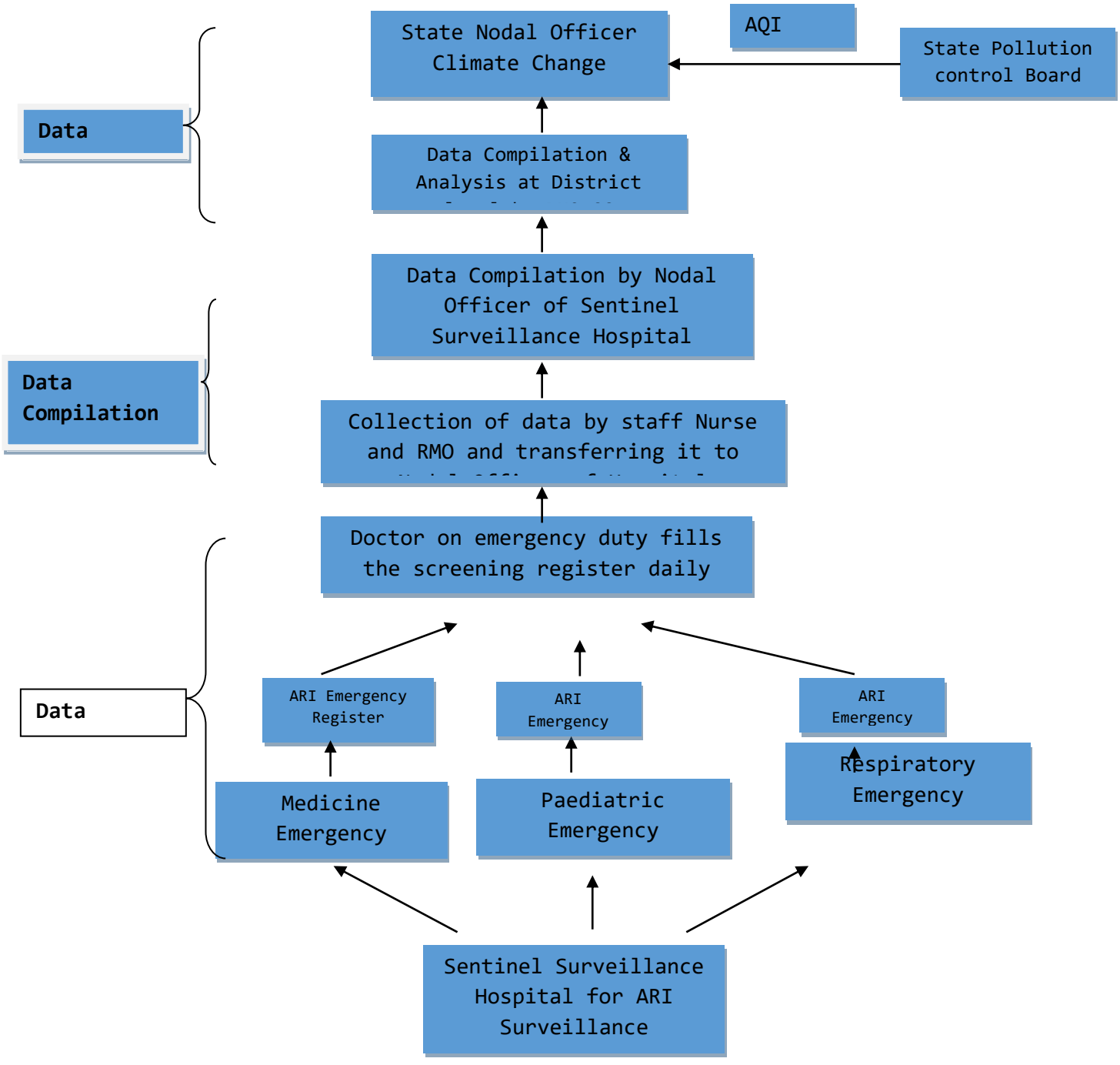


Table 6: City wise list of Sentinel hospitals selected for ARI surveillance activity

Name of City	Name of Hospital	Public or Private	Type Of Hospital
Bhopal	Gandhi Medical College	Public	Medical College
	AIIMS Bhopal	Public	Medical College
Gwalior	District Hospital	Public	District Hospital
Indore	District Hospital	Public	District Hospital
	Gandhi Medical College	Public	Medical Hospital
Jabalpur	District Hospital	Public	District Hospital

ROLES AND RESPONSIBILITIES

In accordance with the action plan on air pollution and its impact on human health, following roles and responsibilities have been identified to be implemented at the state, district, block as well as healthcare facility level-

	Responsibilities
SNO	• Finalization of IEC material and dissemination plan • Organize IEC campaigns at state level on observance of important environment-health days • Organize training sessions for district level and surveillance nodal officer • Facilitate training of medical officers in clinical aspects of air pollution's health impact • Real-time air quality data dashboard in proposed cities • Monitor AQI levels in states especially in hotspots and NCAP cities • Ensure reporting from sentinel hospitals and DNO • Ensure necessary health facility preparedness

	• Review surveillance reporting and monthly report submission by DNO • Submit report of activities • Review implementation of IEC and surveillance activities at all levels • Evaluate and update relevant section of SAPCCHH with support from the State Task Force • Liaison with State Pollution Control Board for AQI alerts and its dissemination • Liaison with Department of Environment for combined IEC campaigns and information sharing on health indicators for targeted air pollution reduction activities • Awareness and action plan input sharing with the local bodies of cities with high AQI • Create organization support and strengthen Environmental Health cell to implement NPCCHH vision, goal, and objectives • Organize sensitization workshops for other stakeholders and line departments • Organize seminars on Air Pollution and conferences to share knowledge and actions under NPCCHH. • Collaborate with academic institute/s for support in updating SAPCCHH • Surveillance activity monitoring, vulnerability assessment, and applied research • Advocate for the reduction in source of air pollution
DNO	• Ensure IEC dissemination to the community level • Facilitate community level IEC activities • Organize training for Block Health Officers, Medical Officer, and Sentinel hospital nodal officers with relevant training manuals • Organize training of vulnerable groups: police officers, outdoor works, women, and children • Organize IEC campaigns at the district level on observance of important environment-health days • Collect and monitor AQI levels in states especially in hotspots and NCAP cities • Ensure daily reporting from Sentinel hospitals and compile the data • Analyze daily health data with AQI level to monitor trends and hotspot in health impacts • Submit analysed monthly report to SNO, NPCCHH Headquarter, and other departments for necessary action • Submit report of activities • Update DAPCCHH with support from District Task Force • Advocate for reduction in source of air pollution
Surveillance Hospital Nodal	• Train hospital staff and clinician responsible for daily reporting in case indentation and reporting flow • Compile daily reports for the health facility and submit it to DNO and

Officer	NPCCHH, Headquarter
Block Health Officer	• Conduct community level IEC activities • Ensure training of medical officers • Organize PRI sensitization workshop and training for vulnerable groups
Medical Officer	• Conduct health facility-based IEC activities • Support community level IEC activities • Be aware of AQI levels and health impact of air pollution • Ensure necessary health facility preparedness in early diagnosis and management of cases
Panchayati Raj Institutions	• Conduct community level IEC activities

Chapter -7
Health Adaptation Plan for Heat-related illness

In India, a heat wave is considered if maximum temperature of a station reaches at least 40°C or more for plains, 37°C or more for coastal stations, and at least 30°C or more for hilly regions. Following criteria are used to declare a heat wave:

a. Based on the Departure from Normal

i. *Heat Wave:* Departure from the normal is 4.5°C to 6.4°C
ii. *Severe Heat Wave:* Departure from the normal is >6.4°C

b) Based on the Actual Maximum Temperature (for plains only)

i. *Heat Wave:* When the actual maximum temperature ≥ 45°C
ii. *Severe Heat Wave:* When the actual maximum temperature ≥47°C

To declare a heat wave, the above criteria should be met in at least at two stations in a Meteorological sub-division for at least two consecutive days. A heat wave will be declared on the second day. Different types of heat-related illness includes:

a. Minor heat-related Illnesses: Heat rash, heat cramps, heat syncope
b. Major heat-related Illnesses: Heat exhaustion and heat stroke

Types of heat-related illnesses

HEALTH ADAPTATION PLAN ON HEAT RELATED ILLNESS

I. Awareness Generation

Under the programme, awareness generation amongst all the relevant stakeholders including the common population, vulnerable communities, healthcare providers, and policymakers around the impacts of heat-related illnesses along with the ways to address the same is imperative. Thereby, under the programme, Madhya Pradesh state will conduct the following key activities-

a. IEC Campaign

The districts are aimed to create awareness through Information Education and Communication Activities (IEC) through the development of locally and culturally acceptable messages in posters, audio, video, organising public health events, and issuing advisories related to increasing heat.

The content for the IEC for the heat-related issues will be provided by the State NPCCHH division. The districts is to utilize these materials and disseminate at all levels.

IEC Dissemination Plan

S.	IEC Content	Priority Districts	Dissemination Plan	Timeline	Budget (in lakhs) for 5 years

No.					22 to 23	23 to 24	24 to 25	25 to 26	26 to 27
1.	Posters	Entire Madhya Pradesh	1 Poster for Heath care facilities in all districts	March to May	216.0	*230.0*	*240.0*	*245.0*	*250.0*
2.	Audio		Social Media (Facebook, Instagram etc.)	March to May					
3.	Videos								
4.	GIF's								
5.	Public Health Advisories		1 Health advisories to all the healthcare facilities	March to May					

*There is no separate IEC budget for Heat-related illness. In the PIP, cumulative IEC budget has been proposed.

b. Public Health Advisories

Health advisories are issued to alert population of the potential harmful impacts of increasing heat. Advisories are issued at the central level and forwarded to the districts through state for public dissemination. Districts should ensure timely dissemination of health advisories in locally acceptable language.

II. CAPACITY BUILDING

To strengthen the capacity of healthcare system to adapt/address illnesses/ diseases due to impacts of heat. State and District level meetings will be organized with the Task Force on Heat Action Plans before the summer season to ensure awareness and preparedness for responding to the heat wave scenario.

Training on various health impacts of heat is as follows

Training Programme	Trainer	Participants	Training Content
Medical Officers (3 days)	DNO	MO (DH,CHC,PHC)	Heat-related illness
Community Health Care Workers (HWC) (2 days)	MO	Community Health Workers (MPHW, ASHA)	
Panchayati Raj Institutions (1 day)	MO, MLHP	Panchayati Raj Institutions, communities	

TABLE 2: SCHEDULE PLAN FOR TRAINING FOR 2022-27

S. No.	Training programme	Timeline	Target	Priority Districts	Budget (in lakhs) for 5 years				
					22 to 23	23 to 24	24 to 25	25 to 26	26 to 27
01	DNO	August	100%	Entire Madhya Pradesh	7.8	8.0	8.5	9.0	9.5
02	MO	September-October	100%						
03	Community Health Workers	October-November	100%		93.6	100.0	105.0	110.0	115.0
04	Panchayati Raj Institutions	November	100%		13.0	14.0	15.0	16.0	17.0

*There is no separate Training budget for heat related illness. Cumulative budget for Capacity building and training has been proposed for all climate sensitive issues.

a. **Sensitization/knowledge building workshops** will be planned for seeking updates on various heat-related health issues between district officials, medical officers, and academic institutions working on climate change impact.

III. Surveillance:

Surveillance of heat related illnesses has been initiated and the data is also regularly shared with National Centre for Disease Control under the National Program of Climate Change and Human Health**.** Further actions to be taken by the state to strengthen the healthcare system includes-

a) Creating Heat Stress Response Corners in the Hospital. These will be special section in the hospitals equipped with material, ORS, and water and drugs, along with the technical staff to create awareness and respond to heat-related emergencies.
b) Issuing Health advisories by the Directorate of Health and Family Welfare and District Collectors during extreme heat situations. These advisories will contain the Do's and Dont's for the general public.

Roles and responsibilities

The roles and responsibilities of the state staff to implement the action plan for heat related illnesses is defined below-

Particulars	*Responsibilities*

SNO	• *Disseminate early warnings to the district level* • *Finalization of IEC material and dissemination plan* • *Liaison with IMD for weather alerts and its dissemination* • *Liaison with other departments for combined IEC campaigns, coordinated response and information sharing of health indicators for targeted action* • *Organize IEC campaigns at the state level on observance of important environment-health days* • *Organize training sessions for the district level and the surveillance nodal officers* • *Facilitate training of medical officers in clinical aspects of heat-health impact* • *Ensure daily surveillance reporting from district level* • *Ensure submission and analysis of heat-related deaths at the state and district level* • *Monitor daily health data with temperature and humidity levels to monitor trends and hotspots in the state* • *Review health facility preparedness and ambulance services to manage HRI* • *Identify health facilities at different levels that can have heat illness wards with necessary treatment/cooling facilities* • *Keep existing Rapid Response Teams under IDSP prepared to manage HRI if needed for emergency response to extreme heat* • *Review implementation of the IEC and surveillance activities at all levels* • *Evaluate and update relevant section of SAPCCHH with support from State Task Force* • *Create organizational support and strengthen Environmental Health cell to implement NPCCHH vision, Goal and Objectives* • *Organize sensitization workshops for other stakeholders and line departments* • *Organize seminars and conference to share knowledge and action under NPCCHH.* • *Collaborate with academic institute/s for support in updating SAPCCHH, Surveillance activity monitoring, training of health care professionals, vulnerability assessment and applied research* • *Submit report of activities on heat-health under NPCCHH* • *Advocate for reduction in source of greenhouse gas emissions*
DNO	• *Disseminate early warning to block and health facility level* • *Ensure IEC dissemination to community level and facilitate community level IEC activities* • *Liaison with IMD to receive daily observed temperature and relative humidity information* • *Liaison with other departments for combined IEC campaigns, coordinated response and information sharing of health indicators for targeted action* • *Conduct training for block health officers and medical officers, with*

	relevant training manuals • *Conduct sensitization of vulnerable groups: police officers, outdoor works, women, children etc* • *Organize IEC campaigns at the district level on observance of important environment-health days* • *Ensure daily reporting from health facilities and compile the data* • *Analyze daily health data with temperature and humidity levels to monitor trends and hotspots in the district* • *Support timely suspected heatstroke death analysis and its reporting* • *Submit analyzed weekly report to SNO, NPCCHH, Hq and other departments for necessary action* • *Coordinate with other agencies for response* • *Update DAPCCHH with support from District Task Force* • *Submit report of activities on heat-health under NPCCHH* • *Advocate for reduction in source of greenhouse gas emissions*
Block Health Officer	• *Conduct community level IEC activities* • *Ensure training of medical officers* • *Organize PRI sensitization workshop and training for vulnerable groups* • *Implement heat mitigation efforts*
City Health Department	• *Support in development and implementation of city-specific heat-health action plan*
Medical Officer	• *Conduct health facility-based IEC activities* • *Support community level IEC activities* • *Be aware of AQI levels and health impact of air pollution* • *Ensure necessary health facility preparedness in early diagnosis and management of cases*
Panchayati Raj Institutions	• *Conduct community level IEC activities*

Chapter - 8

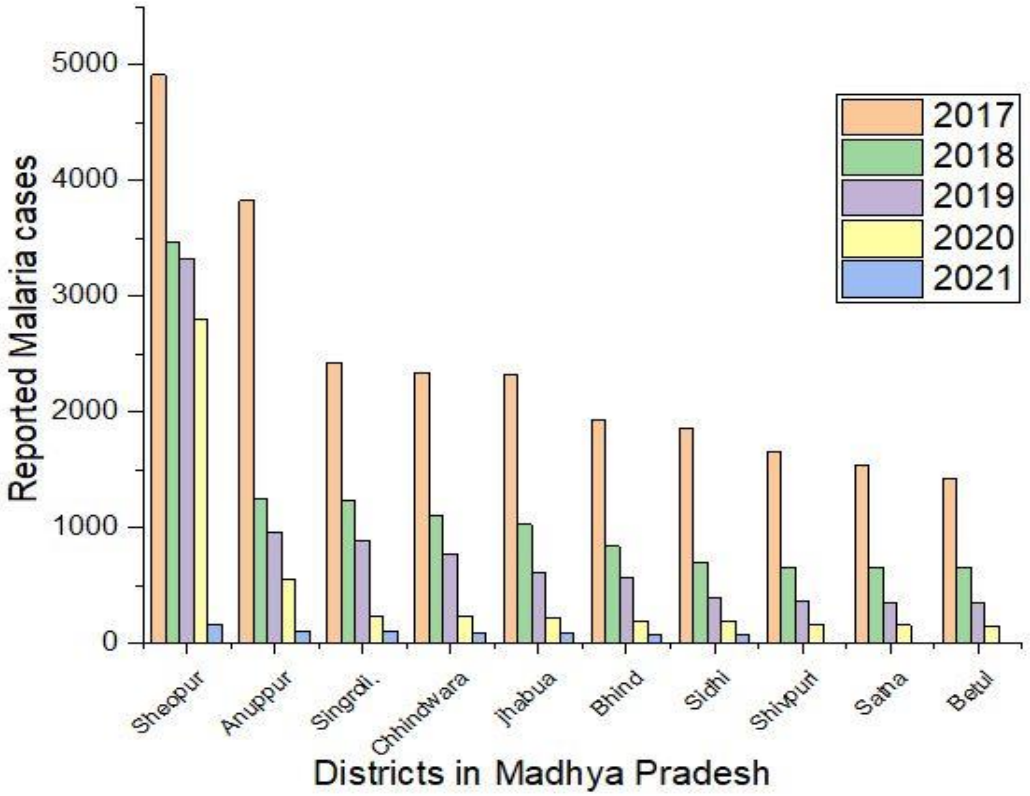
Vector Borne Diseases and Health adaptation plan

Vector-borne diseases in Madhya Pradesh

In Madhya Pradesh (MP), parasitic and viral vector-borne diseases (VBDs) are a major source of illness and mortality. Malaria, lymphatic filariasis, dengue, and chikungunya are amongst the common illnesses. Except for malaria, there is a lack of epidemiological data on the other VBDs that are frequently found in the rural and tribal parts of Madhya Pradesh.

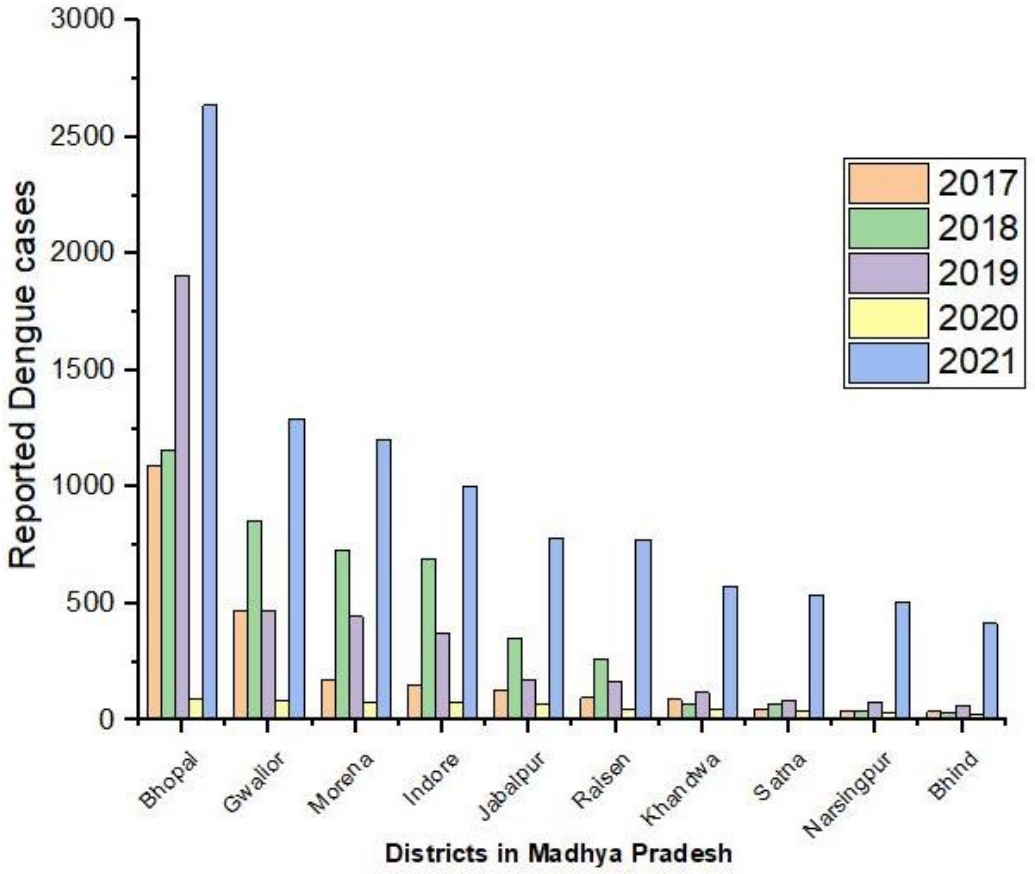
Malaria

In Madhya Pradesh during 2017-2021, malaria cases reported are depicted in the figure below. As per the data presented here, Sheohar and Anuppur districts reported higher number of malaria cases. Additionally, the data suggests that malaria cases are more prominent in the listed districts including Sheopur, Anuppur, Singroli, Chhindwara, Jhabua, Bhind, Sidhi, Shivpuri, Satna, and Betul in Madhya Pradesh. In the last five years there is a decline in the reported cases of malaria wherein the highest reported cases were in 2017 and the least number of cases were reported in 2021. The gradual decline in cases is witnessed in the all the districts of Madhya Pradesh.



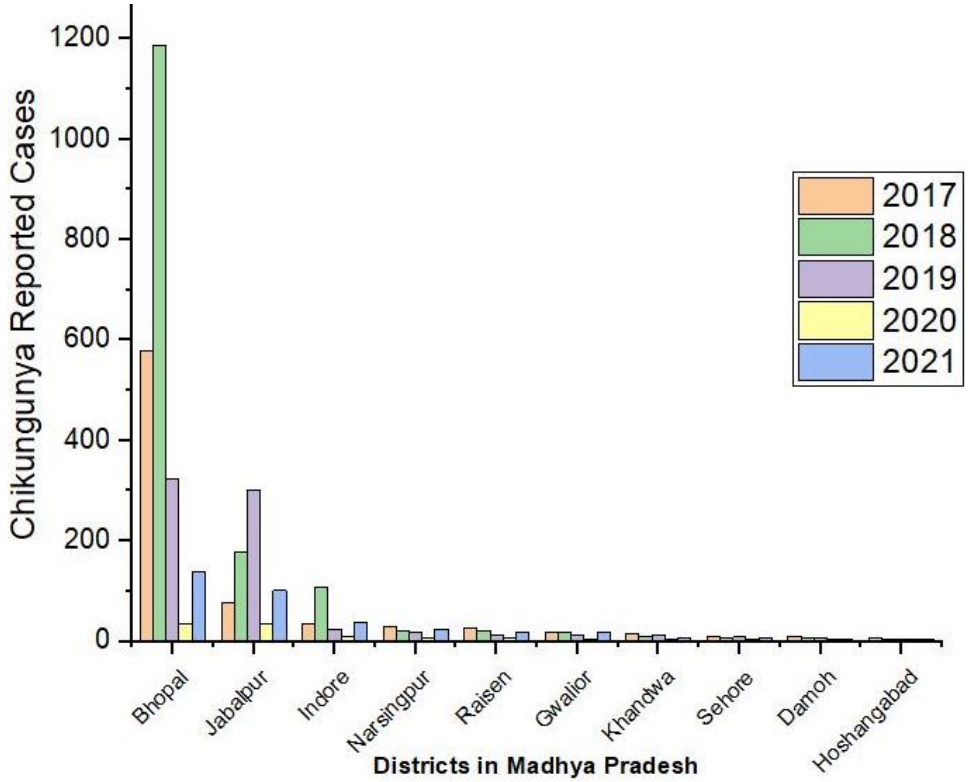
Dengue

Dengue is another disease predominant in Madhya Pradesh. Recently in 2021, the highest cases of dengue were reported and a large number of these cases were reported from urban areas such as Bhopal. As per the data presented in the figure below, top ten districts of Madhya Pradesh reported higher cases of dengue, indicated in blue. These include Bhopal, Gwalior, Morena, Indore, Jabalpur, Raisen, Khandwa, Satna, Narhingpur, and Bhind. Additionally, as per the figures, the district of Bhopal remains as a hot spot for reported dengue cases in the last five years.



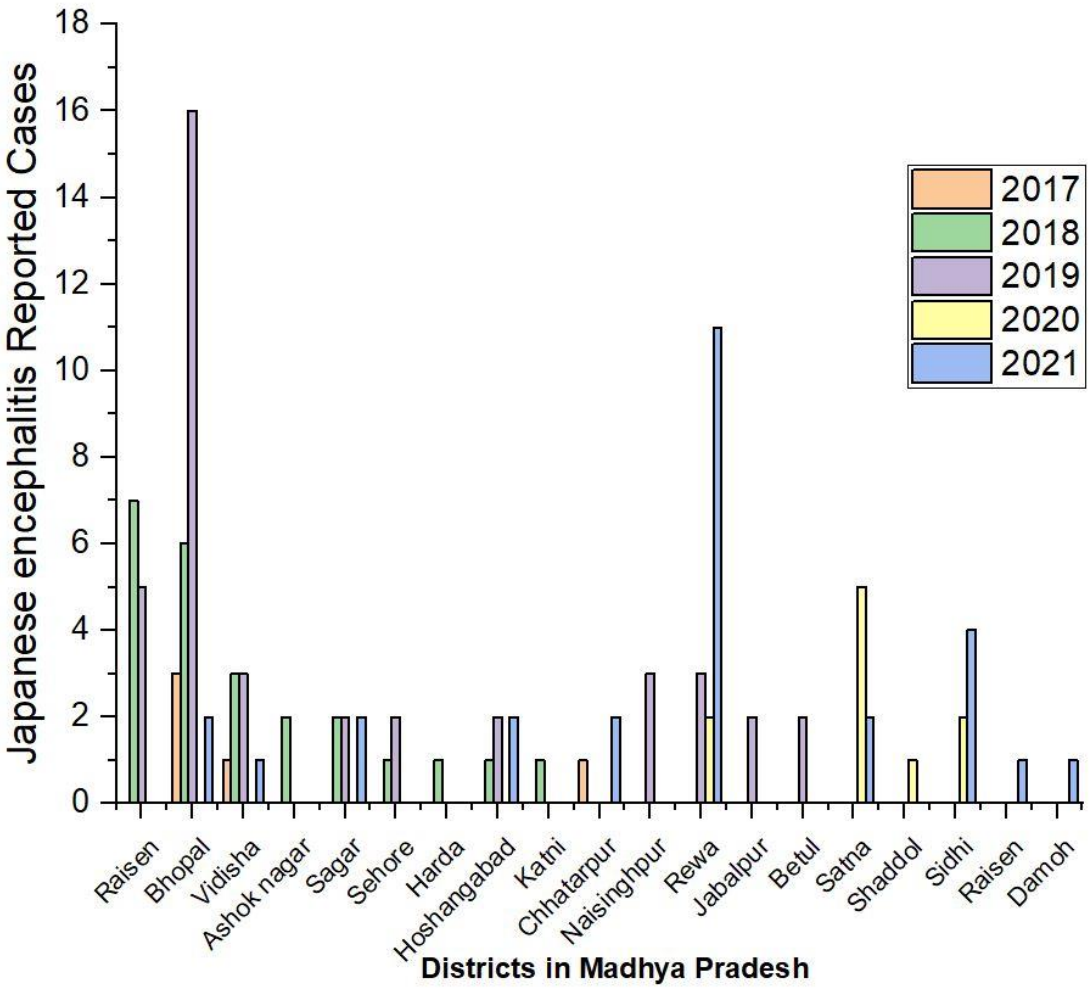
Chikungunya

The data of Chikungunya is presented in the figure below wherein Bhopal and Jabalpur are two hot spot districts with the highest reported chikungunya cases followed by Indore. As per the data, maximum number of Chikungunya cases were reported in 2018 followed by the year 2019. There is sharp decline in the reported chikungunya cases in the subsequent years in all major districts of Madhya Pradesh. Similar to dengue, highest number of chikungunya cases were reported in Bhopal in the last five years 2017-2021.



Japanese encephalitis

Japanese encephalitis (JE) is a disease frequently reported in many districts of Madhya Pradesh. The data presented below for the reported cases of Japanese encephalitis in the last five years in different districts of Madhya Pradesh. Again, Bhopal is a hub of the reported cases of Japanese encephalitis in Madhya Pradesh. Additionally, Rewa also reported high number of JE cases 2021 while other districts had minimal cases.



HEALTH ADAPTATION PLAN ON VECTOR-BORNE DISEASES

I.AWARENESS GENERATION

To increase the general awareness amongst all the relevant stakeholders including vulnerable communities, health-care providers, and policy makers regarding the impacts of vector-borne diseases and the ways to address them.

1. **IEC Campaign**

The districts are aimed to create awareness through Information Education and Communication Activities (IEC) by the development of locally and culturally acceptable messages by using posters, audio, video, organising public health events, and issuing advisories related to vector-borne diseases.

The content for the IEC for vector-borne diseases will be provided by the State NPCCHH division. The districts are to utilize these materials and disseminate at all levels.

II.CAPACITY BUILDING

To strengthen the capacity of healthcare system to adapt/address illnesses/ diseases

TABLE 1: NPCCHH TRAINING PLAN AT DISTRICT LEVEL

Training Programme	*Trainer*	*Participants*	*Training Content*
Medical Officers (3 Days)	*DNO*	*MO (DH,CHC,PHC)*	*Vector-borne related illness*
Community Health Care Workers (HWC) (2 Days)	*MO*	*Community Health Workers (MPHW, ASHA)*	
Panchayati Raj Institutions (1 Day)	*MO, MLHP*	*Panchayati Raj Institutions, communities*	

Sensitization/knowledge building workshops should be planned for seeking updates on various vector borne diseases amongst district officials, medical officers and academic institutions working on climate change impact.

Training material

Training modules: (available bit.ly/NPCCHHguidelines shortly)

- State-District level training modules
- Medical officer training
- Para medical officers & Health care workers
- Community level training: vulnerable population group such as women/ children/ elderly/ different type occupation

Other training resources: NPCCHHchannelhttps://bit.ly/NPCCHHyt

Training on climate change and its impact on VBD burden:

Training on Vector-borne diseases may be expanded to include other climate sensitive health issues specific all year extreme weather events.

Training Programme for	Trainer	Topics	Timeline
District level **(DNO-CC, trainers)**	State Level Trainers SNO-CC, Consultant	- Role of climate change impact in VBD burden, prevention measures - Tracking of VBD and Integrating rainfall, humidity and temperature parameters with VBD surveillance	July or after extreme weather events/natural disasters

		- Post-disaster VBD surveillance, prevention, management	
Health facility level **(MO of DH/CHC/PHC)**	District Level Trainers DNO-CC	- Role of climate change impact in VBD burden, prevention measures - Strengthen surveillance reporting - Post-disaster VBD surveillance, prevention, management in community and at relief camps	July-August or after extreme weather events/natural disasters
Community Health care workers **(MPH, ASHA, ANM etc)**	District Level Trainers, MO	- Role of climate change impact in VBD burden, prevention measures - Post-disaster VBD surveillance, prevention, management in community and at relief camps	
Panchayati Raj Institutions	District level trainers, MO, Health care workers	- Role of climate change impact in VBD burden, prevention measures	

ROLES AND RESPONSIBILITIES

In order to address the current as well as future exposure of the state to vector-borne diseases due to the changes in temperature and rainfall patterns, the following roles and responsibilities have been identified to be conducted by the departments at the state, district, block, and healthcare facility level-

NVBDCP, Madhya Pradesh	***Overall guidance and policy formulation***	• ***Guide the state governments in resurgence and containment of any VBD***
State Nodal Officer, Climate Change	*To support the state govt. in control of VBDs particularly in climate- sensitive states*	• *Oversee vector control measures* • *Oversee health sector preparedness* • *Oversee VBD surveillance, control in post-disaster situations in community and relief camps* • *Train DNO, DMO* • *Sensitization workshops to increase awareness on climate change and its impact on VBD*
India Meteorological Department	*To provide meteorological data as and when required*	• *To help the state govt. in building collaboration with any research institute, analysis of relationship between climatic factors and a particular VBD so*

		as to forewarn the impending outbreaks
NGO at state and district level for reach to community	*Heath education at community level*	• *Conduct workshops for IEC activities for different level of staff in the identified areas in consultation with the state govt.*
State Programme Officer	*Overall planning and execution of surveillance and intervention measures to control VBDs*	• *Supervise and guide the DMOs in control of VBDs*
State Entomologist	*To provide guidance in vector control*	• *Generate data on fortnightly fluctuations in the density of vector species so as to guide the state government in choosing appropriate time of IRS activities. To generate data on susceptibility status of disease vectors for using appropriate insecticide for IRS/larvicide for vector control*
Chief Medical Officer/District Malaria Officer/Disease Surveillance officer	*Execution of task assigned by the SPO*	• *Supervise and guide surveillance and intervention measures for control of VBDs in the district.*

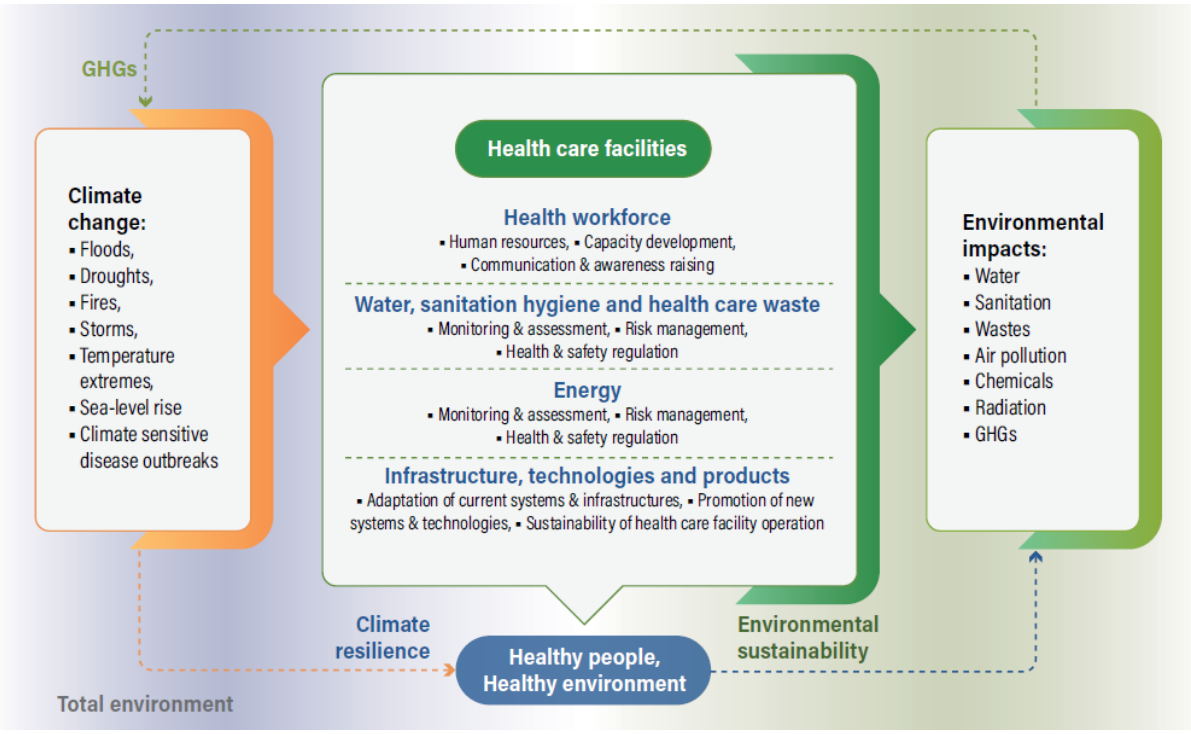
Chapter 9

Health Adaptation Plan for Green and Climate Resilient Healthcare Facilities

"Climate-resilient and environmentally sustainable health care facilities anticipate, respond to, cope with, recover from and adapt to climate-related shocks and stresses, while minimizing negative impacts on the environment and leveraging opportunities to restore and improve it, so as to bring ongoing and sustained health care to their target population and protect the health and well-being of future generations. (WHO)".

As the climate continues to change, risks to health systems and facilities – including hospitals, clinics, and community care centers – are increasing, reducing the ability of health professionals to protect people from a range of climate hazards. Health care facilities are the first and last line of defence against climate change impacts as they can be responsible for large emissions of greenhouse gases (GHGs), and because they provide the needed services and care to people harmed by extreme weather and other long-term climate hazards.

Figure 16; Framework for building climate-resilient and environmentally sustainable HCF.



Source: WHO Guidance for Climate-Resilient and Environmentally Sustainable Health Care Facilities

The first and last lines of defence against the causes of climate change's detrimental effects on human healthcare facilities (HCF). They must reduce their own emissions of the greenhouse gases (GHGs) that cause climate change in order to offer the required services and care to the people affected by extreme weather events and long-term climate dangers (adaptation) (mitigation). The ability of health actors, institutions, and populations to

anticipate crises, effectively respond to them, maintain key operations when a crisis arises, and, using the lessons learned, reorganize as necessary is referred to as healthcare system resilience. Building health facilities and systems that can endure climate change impacts is essential. Climate-smart health care should be used as an anchor approach to create more equal access to care, resulting in healthier, resilient communities.

Major factors in enhancing the HCF's ability to function with minimal detrimental effects on the environment and human health include resilience-building and supporting environmental sustainability. These elements have been set forth in line with the nation's international commitments to developing resilient infrastructure and healthcare facilities. To "significantly minimise catastrophic damage to essential infrastructure and interruption of fundamental services, among them health and educational facilities, particularly through increasing their resilience by 2030" is one of the seven worldwide aims of The Sendai Framework for Disaster Risk Reduction. SDG 9 (Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation) calls for the development of high-quality, dependable, sustainable, and resilient infrastructure as well as infrastructure upgrades and industry retrofitting to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and processes.

This includes the health care sector. The National Programme on Climate Change and Human Health (NPCCHH) focuses on five main goals, including the development of the health workforce's capacity and the adoption of environmentally friendly and climate-resilient infrastructure solutions, to address the health response to climate change. The following crucial elements have been recognised as part of the NPCCHH's Green & Resilient Infrastructure aim in order to be able to reduce the effects of climate change. Based on this, the state of Madhya Pradesh suggests an action plan to improve the current healthcare systems for the years 2022–2023. It is crucial to incorporate green design and concepts into the architecture of healthcare facilities because lighting, water heating, cooling, and ventilation account for 65% of the energy consumed in a healthcare institution.

The National Programme on Climate Change and Human Health (NPCCHH) is engaging critically with strengthening the healthcare services and facilities to adapt to as well as mitigate the impacts of climate change. The key components recognized under the programme include –

1. **Environmentally Sustainable (Green) Measures at Health Care Facilities**
   - Energy Auditing
   - Installation of LED lighting at Health Care Facilities
   - Installation of Solar panels
   - Water Conservation Measures – Rain water Harvesting

2. Climate Resilient Infrastructure at Health Care Facilities including Retro Fitting of Existing Health Care Facilities

1. Environmentally Sustainable (Green) Measures at Health Care Facilities

a. Energy auditing

As per the Energy Conservation Act, 2001, Energy Audit is defined as "the verification, monitoring and analysis of use of energy including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption", which can be further evaluated with subsequent, annual energy audits to reach a goal of net-zero emissions. More information is available at https://beeindia.gov.in/sites/default/files/1Ch3.pdf

An energy audit identifies all energy end-uses within the building, estimates how much energy is used in each department, and determines the amount of energy used in relation to the desired values.

The guiding principles in this respect include:

- The HCFs would develop a plan for the energy audit to assess the level of energy consumption.
- The responsibility for the energy audit would be of the IPC committee of the facility. If the healthcare facility lacks qualified staff, then the energy audit would be conducted by the state health department as well.
- The energy audit would also consider load management, poor maintenance aspects, and extreme temperature to avoid fire-related accidents. Audit would be conducted in the facility biannually.
- Installing sub-meters in the facility premises would be useful in understanding how much energy is used across the healthcare facility

The work would be carried out in Collaboration with Chhattisgarh Renewal Energy Development Agency for solarization, water harvesting, energy efficient equipment's and cool roof.

1. **Installing occupancy sensors**: Ooccupancy sensors light areas that are occupied by people, thereby reducing energy costs by reducing energy waste. The guiding principles in this respect include:
   1.1. The Occupancy sensor would be installed in those areas where people may not frequently be moving, such as doctor and administration offices, and non-patient floors and hallways, office areas, toilets and washroom facilities, and storerooms in the HCFs.
2. **Energy saving appliances:** ENERGY STAR- qualified office and imaging products consume 30 -75 percent less energy than standard equipment. The guiding principles in this respect include:
   2.1. The healthcare facility would have the policy to purchase BEE labelled/ISI marked office equipment and appliances.

It would aim to use above three-star rating equipment such as computers, monitors, printers, scanners, external power adaptors, copiers, fax machines, digital duplicators, mailing machines, water coolers, room air conditioners, refrigerators, and lighting equipment.

a. Replace existing (non-LED) lighting with LED

Replacing the incandescent bulbs with LEDs leads to 75% less energy consumption. Each LED light saves approximately INR 700-1400 over the course of a year.

The guiding principle in this respect would be:

- Healthcare facilities would have a policy on purchasing and using energy-efficient equipment and devices. The facilities would gradually phase out the incandescent bulbs with LEDs.

State and District Nodal Officers will coordinate with State/ District level Bureau of Energy Efficiency representatives to conduct energy audits and energy conservation

c. Installation of solar panels: Healthcare facilities both in urban and rural areas consume a lot of energy throughout the day as the electrical equipment used directly or indirectly to treat patients requires uninterrupted power.

The guiding principle in this area would be:

- The state would, in a phased manner, install PV solar panels in unused spaces like the roof of the facility. This would reduce grid-based electricity consumption and decrease the peak demand of a facility, which means the organization has lower operating costs, and hence these saved costs can be utilized for better patient care.

c. Water Conservation

In an HCF, sanitary fixtures consume 42 per cent of water while heating ventilation and air conditioning (HVAC) consumes 23 per cent of water, thus, major water-consuming area needs to be focused on reducing water consumption.

Rainwater harvesting for healthcare facilities has the potential to save thousands of litres of water every year. This in turn can result in substantial cost savings in addition to adopting climate-smart practices.

The guiding principles for water conservation in a HCF would be as follows:

- The healthcare facility would develop a strategy for the optimum usage of water.
- The HCFs would develop a plan for the conservation of water. e.g., water-efficient fixtures, dual flush mechanism, sensor-operated urinals, waterless urinals, rainwater harvesting
- The HCFs would have a plan for wastewater treatment. e.g., sewage treatment plant and effluent treatment plant at sites of generation of contaminated grey water, like pathology.
- The HCFs would develop a programme/plan for the conservation of water

- The HCFs would have a water management programme for the conservation of water by establishing a team, setting goals with timelines, conducting water audits, determining the cost of water, and preparing an action plan
- The HCFs would have an ongoing educational programme for the efficient usage and conservation of water for all the stakeholders (staff, patients and visitors)
- The HCFs would have a plan to train the staff on water savings techniques
- The HCFs would develop a wide variety of methods to communicate through IEC materials, new and/or revised operating guides and manuals

2. Climate Resilient Infrastructure at Health Care Facilities including Retro Fitting of Existing Health Care Facilities

It is essential that HCF planning and designing should be responsive to local climate and hazard profile[11] of the district. Strong focus should be given to designing all aspects of infrastructure and services as per relevant IS standards, building codes and local byelaws, and history of emergencies in the district to ensure patient safety and continuity of health service during emergencies. Few key interventions that would be undertaken to make the HCFs into green buildings would include:

New Buildings

a. Climate risk assessment at the time of planning and designing the building
b. Use of high-performance glass on windows, doors, and roofs to prevent the heat inside and allows sunlight and fresh air to enter the room
c. Use double glazing glass on windows; it provides thermal and optical properties to the building and reduce the noise level
d. Insulation of building from inside and outside in colder regions of the country
e. Ensure the plinth level is above the high flood level as known locally or storm surge level (in costal districts) and make the building accessible with ramps and railing to create a barrier free environment[12]
f. Installation of Rainwater Harvesting System
g. Installation of alternative energy systems
h. Installation of STP & ETP

Existing Infrastructure

a. Introduction of electronic patient records in the facility to reduce the use of paper
b. Availability of 10-30 per cent area for the herbal garden in the facility
c. Floor and wall finishes are conducive for infection prevention control practices
d. Including services for climate sensitive diseases

[11]For district hazard profile, please refer District Disaster Management Plan with the help of District Disaster Management Authority.

[12]http://disabilityaffairs.gov.in/content/page/accessible-india-campaign.php

e. Modifications in the critical care rooms to make them functional during disasters
f. Installation of Rainwater Harvesting System
g. Installation of alternative energy systems
h. Installation of STP & ETP

IMPLEMENTATION PLAN:

1. HEALTH SECTOR PREPAREDNESS FOR 2022-27

Objective	Activities	Priority districts	Identified Health facilities for 5 years for each	Timeline	Budget (in lakhs) for 5 years with 15% increasing each year					Target for 5 years 22 - 27				
					22 to 23	**23 to 24**	**24 to 25**	**25 to 26**	**26 to 27**	**22 to 23**	**23 to 24**	**24 to 25**	**25 to 26**	**26 to 27**
Strengthening Healthcare System	Energy Audit	Entire State of Madhya Pradesh	5PHC, 1CHC, 1DH	February-April	50.0	50.0	60.0	70.0	80.0	20%	35%	50%	75%	100 %
										10%	20%	50%	80%	100 %
	Led installation -		5PHC, 1DH	April-May						10%	20%	50%	80%	100 %
	Solar Panels installation		5 PHC, 1CHC	May-August						5%	10%	40%	70%	100 %
	Rain water Harvestin g		3 PHC	August-October						5%	10%	20%	50%	100 %
	Retrofitting of Health care facilities		1DH	October - December						10%	20%	50%	80%	100 %

2. AWARENESS GENERATION

- Awareness and sensitization on Climate Change events on Heat wave, flooding, air pollution events, waste management.

- Sensitization workshop on Sustainable Procurement
- Awareness on energy efficient measures and water conservation measures

3. CAPACITY BUILDING

- Training of ToTs, DNO-CC, and Medical officers on the guidelines and operational framework of Green and Climate resilient measures in Health Care Facilities.

Roles and Responsibilities

The table below highlights the roles and responsibilities of the associated staff to help support green climate and resilience infrastructure development in order to strengthen healthcare infrastructure.

Particulars	***Responsibilities***
SNO	• *Finalization of IEC material and dissemination plan* • *Organize training sessions for the district-level officers and trainers* • *Identify health facilities for priority implementation based on disaster and health facility vulnerability* • *Identify relevant state level nodal agencies and collaborate with them for assessment of health facilities for implementation of measures* • *Facilitate and monitor necessary assessments at the health facility level* • *Facilitate implementation of structural and functional measures at the health facility level* • *Monitor the implementation of the activities* • *Support districts to identify sources of funding* • *Advocate for reduction in source of greenhouse gas emissions*
DNO	• *Conduct training for block health officers, medical officers, with relevant training manuals* • *Support conduction for the following assessment at the health facility level* - *Energy audit* - *Water audit* - *Disaster-vulnerability assessment* • *Support the following functional measures at the health facility level* - *Water committee* - *Sustainable procurement committee* - *Operational measures to make health facilities function during the disasters or power cut* • *Coordinate with other agencies for assessment and implementation of identified structural and functional measures* • *Update DAPCCHH with support from District Task Force*

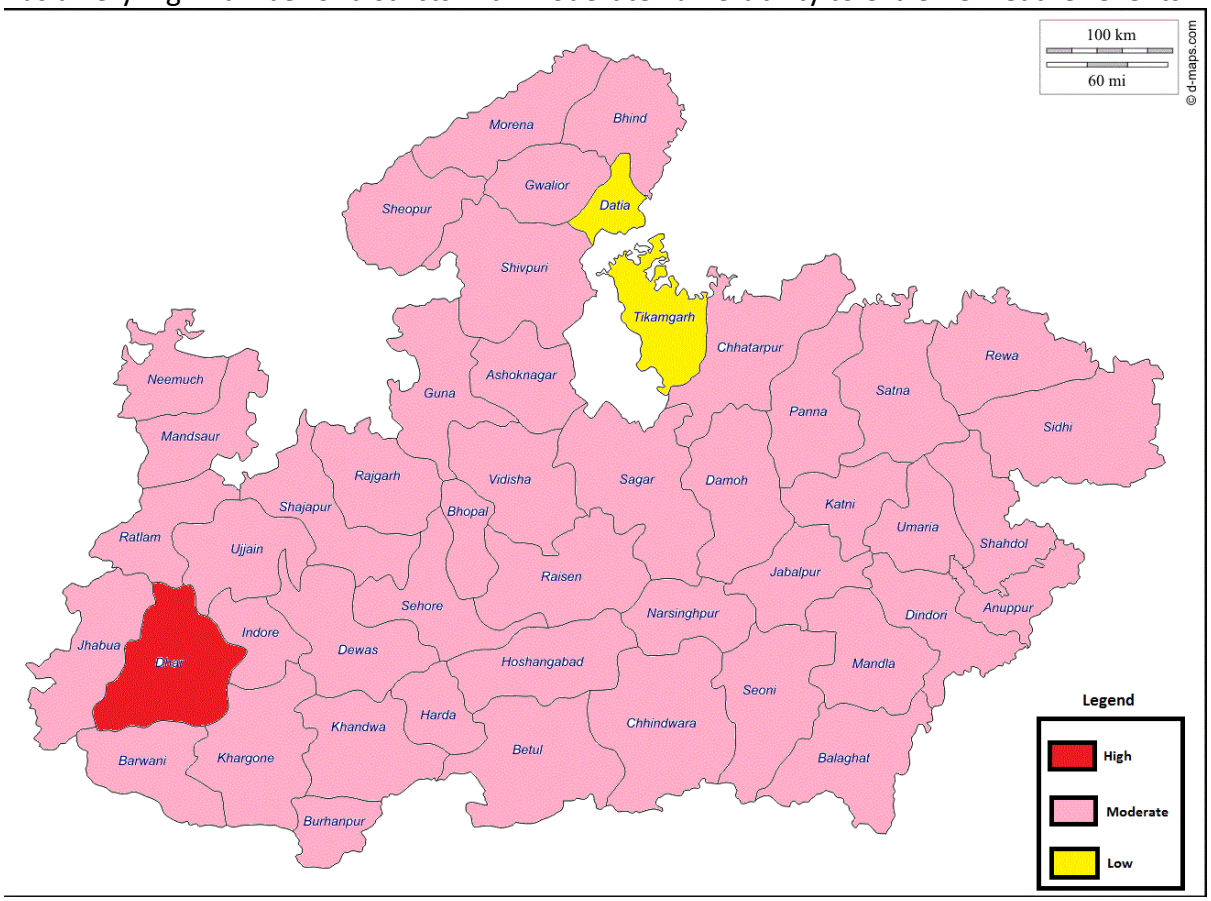
Block Health Officer	• *Ensure training of medical officers* • *Organize PRI sensitization workshop* • *Coordinate with other agencies for assessment and implementation of identified structural and functional measures*
Medical Officer	• *Conduct health facility assessment* - *Energy audit* - *Water audit* - *Disaster-vulnerability assessment* • *Lead following functional measures* - *Water committee* - *Sustainable procurement committee* - *Operational measures to make health facility functioning during disasters or power cut* • *Support community level IEC activities* • *Identify local funding opportunities: e.g. CSR initiative, NGO funding*
Panchayati Raj Institution	• *Support retrofitting and new health facilities with local funding source and community involvement*

Chapter 10

Health Adaptation Plan for Extreme Weather Events and Disaster Management

Extreme weather events and Human Health

States and UTs may have seen increased morbidity and mortality as a result of frequent and severe heat wave episodes, floods, droughts, and fires as a direct result of climate variability and affecting the general population. Injury, hypothermia, hyperthermia, drowning, population displacement, overcrowding, substandard housing, faecal-oral transmission of gastro-intestinal bacteria producing water, food related illnesses, respiratory illness, and other infectious diseases all have a direct impact on health (e.g., leptospirosis, vector-borne disease, cholera and also mental illnesses). Water pollution and sewage disposal are also main contributors to the list of climate-sensitive illnesses. For the state of Madhya Pradesh, the district wise hazard vulnerability profile is indicated in the figure below. As per the State Disaster Management Plan, the districts have been categorized into low, medium, and high vulnerability zones to extreme weather events. As its visible, the state of Madhya Pradesh has a very high number of districts with moderate vulnerability to extreme weather events..



Adaptation Plan

AWARENESS GENERATION:

IEC on emerging climate-sensitive health impacts and diseases

a) Under the programme, awareness generation amongst all the relevant stakeholders including the common population, vulnerable communities, healthcare providers, and policymakers around the impacts of disaster events.

b) The districts are aimed to create awareness through Information, Education, and Communication Activities (IEC) through the development of locally and culturally more acceptable messages in posters, audio, video, organising public health events, and issuing advisories related to disaster management. The content for the IEC for disaster management will be provided by the State NPCCHH division. The role of the districts is to utilize these materials, translation of the required material and dissemination at all levels.

c) Sensitization of the health professionals/ communities on emerging climate-sensitive health impacts and diseases.

Observance of important environment-health days

Day	Activities on Heat-Health
• **International Day for Disaster Risk Reduction**	IEC Campaigns • Audio-video spots broadcasting • Targeted awareness sessions: women, children, occupational groups • Mock drill, disaster response exercise • Sports events • Competition: poster, poem/essay, quiz Health facility level activities • Health facility-based patient awareness sessions • Conduct assessment of disaster vulnerability/energy/ water conservation measures • Review of implementation of climate-resilient measures

Capacity Building

a) Refreshers training of the health professionals on diagnosis and treatment of Scrub Typhus/ Snake Bites

b) Meeting the compensation process for the family for the death of the person due to lightening

c) Training on disaster management is as follows:

TABLE 10.1: NPCCHH TRAINING PLAN AT DISTRICT LEVEL

Training Programme	Trainer	Participants	Training Content
Medical Officers (3 days)	DNO	MO (DH,CHC,PHC)	Disaster Management
Community Health Care Workers (HWC) (2 days)	MO	Community Health Workers (MPHW, ASHA)	
Panchayati Raj Institutions (1 day)	MO, MLHP	Panchayati Raj Institutions, communities	

Strengthening Health Sector Preparedness

i. **Early warning**: Dissemination of early warnings for heat wave, cold wave, flood, cyclone, etc. to the health facility **level** and community level

ii. Surveillance

a) Monitoring of the cases in collaborative efforts with IDSP/ Zoonotic Disease Department and State Disaster Management Authority
b) Post-disaster health impact assessment

iii. Health Facility Preparedness

- Vulnerability assessment of health facility in the context of climate change-extreme weather events
- Identify structural changes/retrofitting measures at the facility level to equip the healthcare facility
- Formalize disaster management plan and committee
- Emergency procurement arrangements and functioning of essential health services (safe water, immunization, maternal-child care, etc.)
- Post-disaster damage assessment and referral plan in case of health facility damage
- Ensure routine monitoring and maintenance of support functions (water quality, waste management)
- Establish Sustainable Procurement Committee

Roles and Responsibilities

Particulars	Responsibilities
SNO	• Disseminate early warnings to the district level • Finalization of IEC material and dissemination Plan • Formalize intersectoral coordination for disaster planning, management, and response with SDMA/IMD and other response departments • Organize training of district level officers • Facilitate assessment and implementation of climate-resilient measures in health facilities • Review implementation of IEC, training, and surveillance activities at all levels • Evaluate and update relevant section of SAPCCHH with support from State Task Force • Create organizational support and strengthen Environmental Health cell to implement NPCCHH vision, goal, and objectives • Organize sensitization workshops for other stakeholders and line departments • Collaborate with academic institute/s for support in updating SAPCCHH, Surveillance activity monitoring, training of health care professionals, vulnerability assessment and applied research • Submit reports of activities on EWE and health under NPCCHH
DNO	• Disseminate early warning to the block and health facility levels • Ensure IEC dissemination to community level and facilitate community level IEC activities • Organize training for block health officers and MO • Formalize intersectoral coordination for disaster planning, management, and response with SDMA/IMD and other response departments • Liaison with other departments for combined IEC campaigns, coordinated response and information sharing of health indicators for targeted action • Identification and communication of evacuation routes and relief camps • Support planning and management of health care services in relief camps • Provide necessary IEC on health and sanitation in relief camps • training for block health officers, medical officers, with relevant training manuals • Conduct sensitization of vulnerable groups, police officers, outdoor works, women, children etc. • Organize IEC campaigns at district level on observance of important environment-health days • Facilitate disaster vulnerability assessments in health facilities and maintain records of such assessment and health facility damage due to EWE • Update DAPCCHH with support from District Task Force • Submit reports of activities on EWE and health under NPCCHH
Block Health	• Conduct community level IEC activities • Ensure training of medical officers

Officer	• Organize PRI sensitization workshop and training for vulnerable groups • Facilitate disaster vulnerability assessments in health facilities and maintain records of such assessment and health facility damage due to EWE
Medical Officer	• Conduct health facility-based IEC activities • Support community level IEC activities • Preparation of Disaster Management Plans and hospital safety plan • Assessment of health facility in the context of climate change-extreme weather events • Identifying structural changes/retrofitting measures at the facility level to equip the healthcare facility • Ensuring routine monitoring and maintenance of support functions (Water quality, waste management) • Health facility preparedness for seasonal events
Panchayati Raj Institutions	• Conduct community level IEC activities • Community involvement in planning and demonstration of measures taken before, during, and after an EWE

Part III

Chapter 11 - Budget

BUDGET

The table below presents an overview of the proposed activities and the respective budget to be implemented under the climate change and human health programme between 2022-2027 in Chhattisgarh. The detailed activities and the corresponding budgetary amount are enlisted in the table below-

S. NO.	ACTIVITIES	INDICATOR	BUDGET (in lakhs) for 5 years					TARGET for five years 22-27				
			22 to 23	23 to 24	24 to 25	25 to 26	26 to 27	22 to 23	23 to 24	24 to 25	25 to 26	26 to 27
PROGRAMME MANAGEMENT												
	Taskforce meeting to draft health sector plan for heat and air pollution	• % State Task Force Quarterly Meetings conducted in a year • % Districts conducted quarterly District Task Force Meetings in a year	4.12	4.3	4.5	4.75	5.0	50%	100%	100%	100%	100%
	Sensitization workshop/meeting of the state programme Officers and District level Health Officers.		20.8	22.0	23.0	24.0	25.0	100%	100%	100%	100%	100%
GENERAL AWARENESS												
03.	Development of IEC material, campaigns, Innovative IEC/ BCC Strategies	• % of implemented IEC on all climate sensitive	216.0	230.0	240.0	245.0	250.0	100%	100%	100%	100%	100%

		issues										
CAPACITY BUILDING												
04.	Orientation/ Training /capacity Building of healthcare staffs	• % of Medical Officers/DNO/SN trained in Districts	106.14	113.8	115.0	118.0	120.0	100%	100%	100%	100%	100%
		• % of targeted sensitization trainings planned for vulnerable population in district (PRI Training)						50% of district having trained 10% of pop	80% of district having trained 30% of pop	80% of district having trained 50% of pop	100% of district having trained 80% of pop	100% of district having trained 100% of pop
STRENGTHENING OF THE HEALTH SYSTEM												
05.	Adoption of Green/ Environment Friendly Measures in Health facilities	*Energy Audit*: • % of healthcare facilities per district per year that have conducted energy audit.	50.0	50.0	60.0	70.0	80.0	20% of district covering 20 % of healthcare facilities	35% of district covering 35 % of healthcare facilities	50% of district covering 50 % of healthcare facilities	75% of district covering 75 % of healthcare facilities	100% of district covering 100 % of healthcare facilities
		LED lighting: • % of healthcare facilities per year that installed solar panel						Most of the Health facilities in state have LED lighting installed under kayakalp scheme.				

		Solar Panel: • % of healthcare facilities per district per year that installed solar panel										
		Rain water harvesting: • % of healthcare facilities per district per year that installed rain water harvesting system.							20% of CHC and 10 % of PHC to be covered for rain water harvesting	20% of CHC and 10 % of PHC of remaining facilities to be covered for rain water harvesting	20% of CHC and 10 % of PHC of remaining facilities to be covered for rain water harvesting	20% of CHC and 10 % of PHC of remaining facilities to be covered for rain water harvesting

Table 11.2 : The table summarizes budget for NPCCHH-PIP for FY 2022-23 and for FY 2023-24

NPCCHH-PIP (Year 2022-2023 &2023-2024)															
S.No.	**FMR**	**Particulars**	**Programme Division**	**Physical Target**	**Achievement**	**Budget**	**Achievement**	**Unit of Measure**	**Unit Cost**	**Unit Cost**	**Quantity/ Target**	**Budget 2022-23**	**Budget 2023-24**	**State Remark**	**Type of Activity**
				2021-22		2021-22			(Rs)	(Rs. Lakhs)		(Rs. Lakhs)	(Rs. Lakhs)		
1	9.5.29.8 Capacity Building)	Governing Body Meeting	NPCCHH	1	0	30000	0	No of Batch	50000	0.5	1	0.5	0.55	Governing Body Meeting - No of Batches - 01 Budget proposed - Rs 0.50 Lakh per Batch	On going
2		State Task Force Meeting	NPCCHH	2	0	40000	0	No of Batch	50000	0.5	1	0.5	0.6	State Task Forse Meeting to be conducted under the chairman ship of ACS/ PS Health - Batches proposed 1 Budget proposed 50000/-	On going
3		One day Training of Program Officers & Medical Officers	NPCCHH	14	8	7E+06	2.6	No of Batch	5000	0.05	156	7.8	8	One day Online Training of Program Officers & Medical officers- Batches proposed -3 Batches per district (30 participants per batch) - Total Batches proposed -156 (52 district * 3 batches) Costing per batch -Rs 5000/- (Honorarium for Trainers & other expences) Budget for 156 batches Rs Rs 7.80	On going Activity

4		2 Days training of Health Workers (ANM, MPW, CHOs, ETC)	NPCCHH	28	15	16.8	4.6	No of Batch	60000	0.6	156	93.6	100	2 Days training of Health Workers (ANM, MPW, CHOs, ETC) on Impact of Climate Change on human Health No of batches. Proposed - 156 (3 batches per Distinct Budget per batch - Rs.60000 Proposed Budget for 156 Batech- 9360000	on going
5		One day Training of Multidepartment/Multisectorial Workers (Traffic Police, Municipality , Panchayat, PWD, Industries)	NPCCHH	New Activity				No of Batch	25000	0.25	52	13	14	One day Training of Multidepartment/Multisectorial Workers (Traffic Police, Municipality, Panchayat, PWD, Industries) Total no of batches. proposed - 52 -(1 batch per District with 30 Participants) - Budget for one Batch-Rs. 25000/- Proposed Budget for 52 District - Rs 13.00 Lakhs	New Activity
6		Meeting of - District Task Force	NPCCHH	28	11	0.84	0.14	No of Batch	3000	0.03	104	3.12	3.15	Meeting of District Task Force - Total Batches Proposed- 104 (2 Batch per district with 30 Participants). - Budgeter batch - Rs 3000 /- -Total Budget Proposed - Rs 312000 -	Ongoing Activity
7	11..24. 4.4	IEC on Climate sensitive disease at District & Block level - heat waves, cold waves, Air Pollution, climate sensitive	NPCCHH	1	1	60	32	No of Batch	7000000	70	1	70	80	IEC on Climate Change Sensitive Disease at State level - to spread awareness through communication channels to a target audience Radio Sajeev Phone in Program, Radio Jingles Posters, Stickers, Pamphlets, Banner .social media posts television adverts. audio spots for radio. Leaflets, NewsPaper advertisement while special campaign These IEC activities shall be done in coordination with state IEC Beuro Budget proposed for one year Rs 70 Lakhs.	On Going Activity

8		disease.	NPCCHH	52	52	26	23.2	No of district /Block	40000	0.4	365	146	150	In order to Spread Mass Awareness at micro level, IEC on Climate Change Sensitive Disease is proposed to be conducted at at block level & District Head Quarter. These IEC included 1. Wall Painting & display of posters at All Gram Arogya Kendra 2 Wall painting (in local language) on highways 3. Banner/Posters to be displayed at village level Fairs 4. Poster display at traffic signals on Air Pollution 5 School level Drawing/Quiz completion on impact of Climate Change on Human Health and Air Pollution. These IEC is proposed to be conducted in al seasons - Summer, Rainy, Winter & Spring on Heat wave, Air Pollution, Cold Wave, Diseases due to climate change. Budget Proposed Per block per year is 40000 (Rs 10000 per Quarter) Total budget proposed Rs.96.00 lakhs	On Going Activity
9	12.17.3	Printing activities under NPCCHH	NPCCHH	2	Module Printing in process	4	0	No of Modules	Rs.980	0.01	362	3.54	3.8	Printing of Training Modules - Total Number of Modules 412 - 312 Module for district (6 Module per district + 10 0 Modules for state level -Total as Rs 980 per module (Cost as per IEC Beuro) Total budget proposed for 362 Modules = 412*980=Rs354760	On Going

10	16.1.2.1.23 (Program Management)	Training cum Review Meeting of DSOs (at state)	NPCCHH	New Activity				No of Batch	50000	0.5	2	1	1	One Day Training cum Review Meeting of all 52 DSOs at state. Batches Proposed - - 02 (26 participants per batch Budget for one batch Rs 50000 /- Total Budget proposed for 2 Batches - Rs 1 lakh	New Activity
11	16.1.5.3.1.6 (Any other) New Activity	Exposure Visit of District surveillanc e Officer	NPCCHH	New Activity				No of Participant s	30000	0.3	10	3	4	Exposure visit of DSOs _ State Officials (01 DSO per division doing well in program + 3 officials from state Cell) Exposure Visit is proposed to understand government & departments schemes in the state doing well in the Program such as Kerala Budget Proposed - Rs 3 Lakhs . (Rs 30000 per participant) Total 10 Participants (07 DSO+3 State level officer	New Activity
12	0.2.7.	Surveillanc e, vulnerabili ty, assessmen t related to climate change Air pollution, Heat related/flo od related illness	NPCCHH	5		5		No of Participant s	500000	5	1	5	5	The health impact of air pollution exposure depends on the duration and concentrations, and the health status of the affected populations. Studies are needed to increase knowledge of the exposure duration and the possible cumulative increase in risk. Studies may help in investigating associations between short-term changes in pollution levels with short-term changes in acute health outcomes, and it has been applied widely to investigate the health effects associated with exposure to airborne particulate matter and other pollutants. Hence, a Study has been proposed on affects of Air Pollution on human health in State of Madhya Pradesh with technical coordination with aims/any suitable Development Partner.	On Going

13	Infrastructure	Climate resilient Health care Facility Infrastructure	NPCCHH	New Activity				No of Participants	500000	5	10	50	50	The healthcare Facilities is one of the major contributors to energy consumption and greenhouse gases emissions. The aim of energy management is to produce goods and provide services with the least cost and least environmental effect.10 PHCs are proposed to be conducting the energy auditing budget proposed RS 50 lacks (5 lacks per PHC)	New Activity
	Total											**397.06**	**420.1**		

ANNEXURE A:

Table (i) : Summarizes key actions and activities on IEC

S. No	Key Actions	Detailed Activities		
		2022-23	2023-24	2024-27
To create awareness among general population (vulnerable community),health-care providers and Policy makers regarding impacts of climate change on human health				
1.	Development of IEC material, campaigns, Innovative IEC/ BCC Strategies	-Identification of topics of IEC as per the PIP - Development of a Communication plan for every programme component - Development of activities plan for special days - Identification of IEC dissemination strategies at the state, district, block and panchayat level - Preparation of IEC calendar	Explore inter-sectoral/inter-ministerial / civil society / NGOs for collaboration - Design community outreach activities on climate change to increase awareness of the general population - Conduct outreach assessments ofcommunicationactivitiesandmonitordisseminationandutilizationof IEC material -Explore additional sources of funding	- Design and dissemination of campaigns pertaining to all the critical programme areas - Monitoring and review of IEC dissemination, outreach and impacts

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ANNEXURE B : OFFICE ORDERS

संचालनालय स्वास्थ्य सेवायें, मध्यप्रदेश

छठवीं मंजिल, सतपुड़ा भवन, भोपाल
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क्रमांक / व्ही.बी.डी. / डी–4 / 2022 / 735 भोपाल, दिनांक 22/08/2022

प्रति,

डॉ. निधि शर्मा,
स्टेट नोडल ऑफीसर,
एन.पी.सी.सी.एच.एच
मध्यप्रदेश।

विषयः– राष्ट्रीय जलवायु परिवर्तन अंतर्गत वैक्टर जनित रोग से संबंधित जानकारी उपलब्ध कराये जाने के संबंध में ।

संदर्भ :– आपका कार्यालयीन पत्र क्र./ एन.पी.सी.सी.एच.एम/ एन.एच.एम/ 2022/ 23 भोपाल, दिनांक 29.07.2022।

—00—

उपरोक्त संदर्भित विषयान्तर्गत लेख है कि वैक्टर जनित रोग – मलेरिया, डेंगू, चिकुनगुनिया, जापानीज़, एन्सेफेलाइटिस से संबंधित जानकारी 05 वर्षो की माहवार सबसे अधिक केस वाले 10 जिलों की जानकारी तैयार की गई है। जिसे पत्र के साथ संलग्न कर आपकी ओर प्रेषित है। स्क्रब टायफस की जानकारी व्ही.बी.डी.सी.पी शाखा से संबंधित नही है।

संलग्न – वर्ष 2017 से 2021 तक वैक्टर जनित रोगों की जानकारी।

(डॉ. हिमांशु जायसवार)
राज्य कार्यक्रम अधिकारी, (व्ही.बी.डी.सी.पी)
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भोपाल, दिनांक

क्रमांक / व्ही.बी.डी. / डी–4 / 2022 /

प्रतिलिपि :– सूचनार्थ एवं आवश्यक कार्यवाही हेतु।

1. मिशन संचालक, राष्ट्रीय स्वास्थ्य मिशन, म.प्र।

राज्य कार्यक्रम अधिकारी, (व्ही.बी.डी.सी.पी)
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क्रमांक / व्ही.बी.डी. / डी–4 / 2022 / भोपाल, दिनांक

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डॉ. निधि शर्मा,
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मध्यप्रदेश।

विषयः– राष्ट्रीय जलवायु परिवर्तन अंतर्गत वैक्टर जनित रोग से संबंधित जानकारी उपलब्ध कराये जाने के संबंध में ।

संदर्भ :– आपका कार्यालयीन पत्र क्र./ एन.पी.सी.सी.एच.एम/ एन.एच.एम/ 2022/ 23 भोपाल, दिनांक 29.07.2022।

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उपरोक्त संदर्भित विषयान्तर्गत लेख है कि वैक्टर जनित रोग – मलेरिया, डेंगू, चिकुनगुनिया, जापानीज़, एन्सेफेलाइटिस से संबंधित जानकारी 05 वर्षो की माहवार सबसे अधिक केस वाले 10 जिलों की जानकारी तैयार की गई है। जिसे पत्र के साथ संलग्न कर आपकी ओर प्रेषित है। स्क्रब टायफस की जानकारी व्ही.बी.डी.सी.पी शाखा से संबंधित नही है।

संलग्न – वर्ष 2017 से 2021 तक वैक्टर जनित रोगों की जानकारी।

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क्रमांक / व्ही.बी.डी. / डी–4 / 2022 / 736. भोपाल, दिनांक 22/08/2022

प्रतिलिपि :– सूचनार्थ एवं आवश्यक कार्यवाही हेतु।

1. मिशन संचालक, राष्ट्रीय स्वास्थ्य मिशन, म.प्र।

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ANNEXURE C: Tables related to Heat

TABLE (i) : Illnesses due to heat exposure

Clinical Entity	Age Range	Setting	Cardinal Symptoms	Cardinal / Important Signs	Pertinent Negative findings
Heat rash/ prickly heat/ Miliaria	All, but frequently children	Hot environment; +/- insulating clothing or swaddling (wrap in tight clothes)	**ITCHY RASH** with **SMALL RED BUMPS** at pores in the skin. Seen in setting of heat exposure; bumps can sometimes be filled with clear or white fluid	**DIFFUSED RED COLOUR SKIN OR VESICULAR RASH**, itching of the skin without visible eruption	**NOT FOCALLY DISTRIBUTED** like a contact dermatitis
Heat cramps	All	Hot environment, **TYPICALLY WITH EXERTION**, +/- insulating clothing	**PAINFUL SPASMS** of large and frequently used muscle groups	Uncomfortable appearance, may have **DIFFICULTY FULLY EXTENDING AFFECTED LIMBS/JOINTS**	No contaminated wounds/tetanus exposure; no seizure activity
Heat exhaustion	All	Hot environment; +/- exertion; +/- insulating clothing or swaddling (wrap in a tight clothes)	Feeling overheated, light headedness, **EXHAUSTED AND WEAK**, unsteady, feeling of **VOMITING, SWEATY AND THIRSTY**, inability to continue activities	**SWEATY**/diaphoretic; flushed skin; hot skin; **NORMAL CORE TEMPERATURE**; +/- dazed, +/- generalized weakness, slight disorientation	No coincidental signs and symptoms of infection; no focal weakness; no difficulty in swallowing food or speech; no overdose history
Heat syncope	Typically adults	Hot environment; +/- exertion; +/- insulating clothing or swaddling (wrap in a tight clothes)	Feeling hot and weak; light headedness followed by a **BRIEF LOSS OF CONSCIOUSNESS**	Brief, generalized loss of consciousness in hot setting, short period of disorientation, if any	**NO SEIZURE ACTIVITY**, no loss of bowel or bladder continence, no focal weakness, no difficulties in food swallowing

					or speech
Heat Stroke	All	Hot environment; +/- exertion; +/- insulating clothing or swaddling (wrap in a tight clothes)	Severe overheating; profound weakness; **DISORIENTATION, NOT FULLY ALERT, CONVULSION, OR OTHER ALTERED MENTAL STATUS**	Flushed, **DRY SKIN** (not always), **CORE TEMP ≥40°C OR 104°F**; altered mental status with disorientation, incoherent behaviour, **COMA, CONVULSION**; tachycardia; +/- hypotension	No coincidental signs and symptoms of infection; no focal weakness; no difficulties in swallowing food or speech, no overdose history

Table (ii): Role and responsibilities

S.No	Department	Season	Roles and responsibilities
1	Health department	During **Pre-Heat** Season (Annually from January through March)	• Create list of high risk areas (heat-wise) of districts/block/cities • Update surveillance protocols and programs, including to track daily heat-related data • Develop/revise and translate IEC in local language • Make a communication plan for dissemination of heat related alerts or education materials • Check inventories of medical supplies in health centres • Identify cooling centers and barriers to access cooling enters • Capacity building of health care personnel to detect and treat heat related illnesses • Community involvement for workers and trainers' education • Issue health advisory to healthcare personnel based on IMD seasonal prediction or warning • Reassess 'Occupational Health Standards' for

			various types of Occupation. • Ensure Inter-sectoral convergence and coordination for improving architecture, design, energy efficient cooling and heating facility, increase in plantation i.e. Climate Resilient Green Building Design.
		During **Heat** Season (Annually from March through July)	• Ensure real-time surveillance and monitoring system in case of extreme event. • Prepare rapid response team • Distribute "Dos and Don'ts" to community • Effectively send a "Don't Panic!" message to community • Ensure access to Medical Mobile Van in the Red Zone • Ensure additional medical vans available • Ensure strict implementation of legislative/regulatory actions as per Occupational Health Standards. • Coordination with meteorological department for analysing cases and death data with meteorological variables like maximum temperature and relative humidity
		During **Post-Heat** Season (Annually from July through September)	• Participate in annual evaluation of heat action plan • Review revised heat action plan
2	Medical College and Hospitals	During **Pre-Heat** Season (Annually from January through March)	• Adopt heat-focused examination materials • Get additional hospitals and ambulances ready • Update surveillance protocols and programs, including to track daily heat-related data • Establish more clinician education • Continue to train medical officers and paramedics
		During **Heat** Season (Annually from March	• Adopt heat-illness related treatment and prevention protocols

		through July)	• Equip hospitals with additional materials • Deploy all medical staff to be on duty • Keep emergency ward ready • Keep stock of small reusable ice packs to apply to PULSEareas • Report heat stroke patients to DSU daily • Expedite recording of cause of death due to heat related illnesses
		During **Post-Heat** Season (Annually from July through September)	• Participate in annual evaluation of heat action plan • Review revised heat action plan
3	For health centres and link workers	During **Pre-Heat** Season (Annually from January through March)	• Distribute pamphlet and other materials to community • Sensitize link workers and community leaders • Develop and execute school health program • Dissemination of materials in slum communities • Coordinate outreach efforts with other community groups, non-profits, and higher education
		During **Heat** Season (Annually from March through July)	• Recheck management stock • Modify worker hours to avoid heat of day • Visit at-risk populations for monitoring and prevention • Communicate information on tertiary care and 108 service
		During **Post-Heat** Season (Annually from July through September)	• Participate in annual evaluation of heat action plan • Review revised heat action plan

Table (iii): Role and responsibilities of different departments

S.No	Department	Season	Roles and responsibilities
1	Meteorological Department	**Pre-Heat**	Issue weather forecasts on Short/Medium/Long range duration
		Heat	• Issue Heat wave alerts • Coordination with health department for analysing cases and death data with meteorological variables like maximum temperature and relative humidity
		Post-Heat	• Participate in annual evaluation of heat action plan • Review revised heat action plan
2	Dept of Drinking water & Sanitation	**Pre-Heat**	Identify vulnerable places
		Heat	Provide drinking water points at identified places and worksites
		Post-Heat	• Participate in annual evaluation of heat action plan • Review revised heat action plan
3	Public Health & Engineering Dept	**Pre-Heat**	To construct cool shelters/sheds at public places, bus stands etc
		Heat	To maintain shelters/sheds, bus stands
		Post-Heat	• Participate in annual evaluation of heat action plan • Review revised heat action plan
4	Municipalities	**Pre-Heat**	Review the heat preparation measures.
		Heat	Ensure implementation of guidelines of heat action plan
		Post-Heat	Review the heat preparation measures and make a note of the lessons learnt for the next season
5	Dept of Education	**Pre-Heat**	Train and Sensitise teachers and students towards health impact of extreme events and disseminate health ministry approved prevention and first-aid measures
		Heat	• Rescheduling school timing during summer • During extreme events keep a check on outdoor activities • Close teaching institutes in case of issue of

			alert from Government
		Post-Heat	• Participate in annual evaluation of heat action plan • Review revised heat action plan
6	Dept of Labour & employment	**Pre-Heat**	• Reassess 'Occupational Health Standards' for various types of Occupation. • Utilize maps of construction sites to identify more high-risk outdoor workers • Heat illness orientation for factory medical officers and general practitioners • Communicate directly about heat season with non-factory workers
		Heat	• Encourage employers to shift outdoor workers' schedules away from peak afternoon hours (1pm-5pm) during a heat alert or consider extended afternoon break or alternate working hours for workers. • Provide water at work sites
		Post-Heat	• Participate in annual evaluation of heat action plan • Review revised heat action plan
7	Dept of Power supply	**Pre-Heat**	Maintenance of electrical lines
		Heat	Ensure uninterrupted supply of electricity
		Post-Heat	• Participate in annual evaluation of heat action plan • Review revised heat action plan Participate in annual evaluation of heat action plan • Review revised heat action plan
8	Dept of Forest & Climate change	**Pre-Heat**	Develop/encourage projects to decrease the 'Urban Heat Island effect'
		Heat	Ensure implementation of guidelines of heat action plan
		Post-Heat	Review the heat preparation measures and make a note of the lessons learnt for the next season
9	Dept of Transport	**Pre-Heat**	Review the road map for preparation for the heat season
		Heat	Ensure implementation of guidelines of heat action plan

		Post-Heat	• Participate in annual evaluation of heat action plan • Review revised heat action plan
10	Media or Press officer	**Pre-Heat**	• Secure commercial airtime slots for public service announcements • Identify areas to post warnings and information during heat season • Activate telephone heat hotline • Begin placing temperature forecasts in newspapers • Increase installed LED screens with scrolling temperature
		Heat	• Issue heat warnings in heat and electronic media • Contact local FM radio and TV stations for announcements • Use SMS, text and WhatsApp mobile messaging and centralized mobile databases to send warnings • Contact transport department to place warnings on buses
		Post-Heat	Evaluate reach of advertising to target groups and other means of communication; social media

Annexure C :Water Borne Diseases and Health adaptation plan

Water Borne Disease

Infections brought on by tainted water and food is typically observed after floods, droughts, religious or other large-scale gatherings. Some infectious diseases that are dependent on the climate include typhoid, hepatitis, dysentery, and others that are water-borne and caused by microbes like *Vibrio vulnificus, Vibrio cholera, E. coli, Campylobacter, Salmonella, Cryptosporidium, Giardia, Yersinia, and Legionella*. The survival and quantity of microorganisms are thought to increase when the temperature rises. Reduced precipitation and drought have an impact on the availability of potable water, wastewater reuse, contaminating water sources, and human-to-human or vertebrate-to-human transfer, among other things. Flooding contaminates water sources and disrupts sewage disposal systems. Other factors include population displacement, crowded living conditions, inadequate sanitation and hygiene, and the resultant spread of diseases and faecal contamination.

Causes of different water borne diseases in the state:

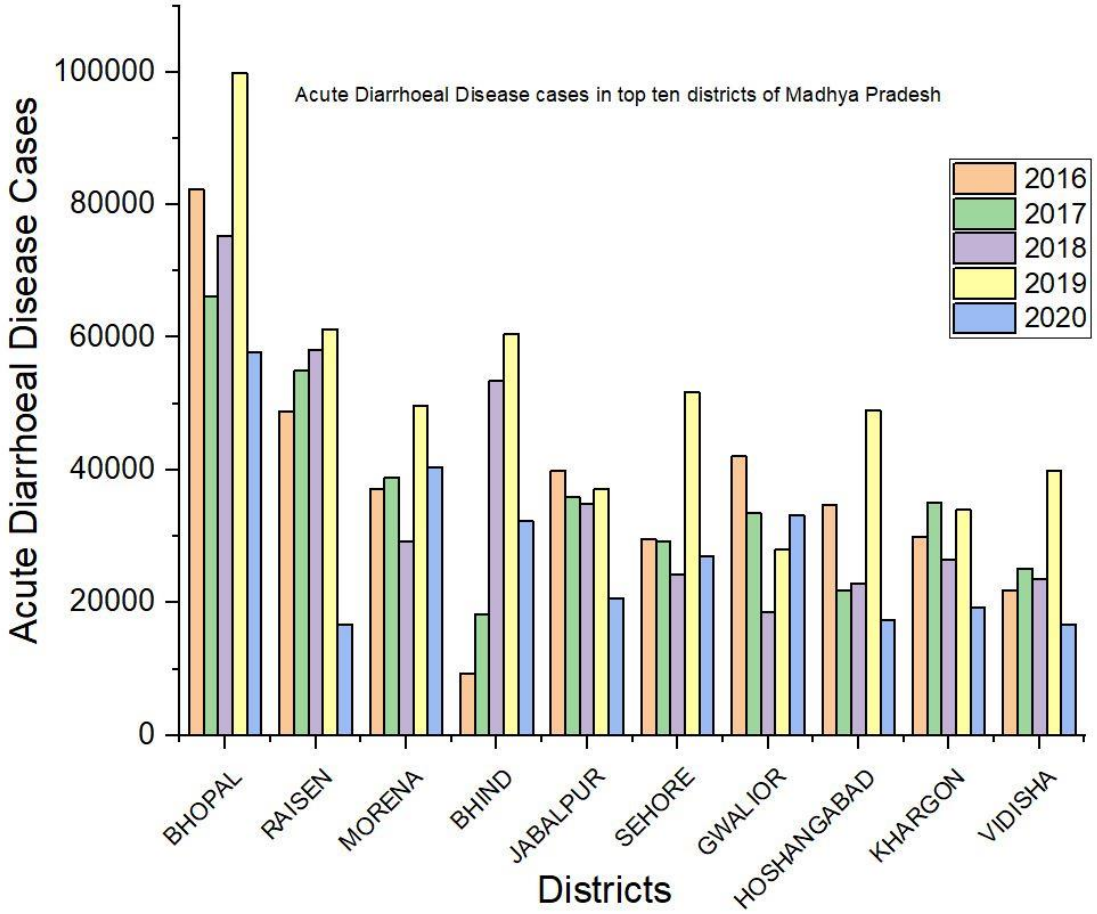
1. Contamination of water sources
2. Water storage practices
3. Use of water from open sources in hilly areas
4. Lack of awareness

Vulnerability Assessment

Availability of safe water supply to all, sanitation facilities in general and in urban slums and remote rural areas, personal hygiene, political willingness, Socio-economic status, cultural beliefs, natural disasters, demographic changes, accessibility to health care.

Water Born Disease in Madhya Pradesh

The data presented in the figure given below provide an estimation of reported cases of diarrhoeal diseases in different districts of Madhya Pradesh. As the figure showed and table summarizes Madhya Pradesh is hot spot of water born diarrhoeal diseases. Bhopal is main district where maximum diarrhoeal diseases were reported in the last five years 2016-2020. Additionally, in the year 2019 all the ten districts showed in figure reported maximum number of diarrhoeal cases. However, in the Bhopal every year maximum cases reported for water born disease.



Table; Table summarizes water born disease in the ten different districts of Madhya Pradesh.

BHOPAL	82336	66218	75366	99866	57757
RAISEN	48886	54944	58123	61298	16662
MORENA	37111	38780	29300	49670	40382
BHIND	9364	18228	53449	60488	32276
JABALPUR	39907	35878	34924	37131	20650
SEHORE	29556	29258	24293	51672	26987
GWALIOR	42051	33489	18578	28053	33146
HOSHANGABAD	34799	21833	22836	48964	17367
KHARGON	29843	34997	26504	33981	19286
VIDISHA	21903	25164	23489	39898	16652

List the stakeholders with defined roles and responsibilities (Govt. & non- Govt.)

Role of Health Sector **(State Nodal Officer and Task Force)**

1. Develop/ adapt health micro-plan for water borne illnesses (case management, resources required like logistics, drugs, vaccines, laboratories' role)
2. Map vulnerabilities: population at risk, geo-climatic conditions, recent trend of climate variability (flood, drought), change in population demography (migration),

available resources, healthcare infrastructure, laboratories, burden of chronic illnesses in the community etc

3. Build capacity of health care personnel to detect and treat water borne illnesses
4. Strengthen/ Develop real-time surveillance, evaluation and monitoring system for water borne illnesses, enhance this surveillance during high risk period
5. Issue advisory to healthcare personnel, laboratories and related stakeholders
6. Develop or translate IEC in local language, and make a communication plan for dissemination of health related alerts/ education materials.
7. Ensure adequate supplies (vaccines and medications) for cases management with other required logistic as identified to the affected region
8. Improve access to health care facilities by vulnerable population, especially those in remote areas.
9. Coordinate with related stakeholders like Municipalities to keep a check and strengthen surveillance of food handling units, local vendors, water supply etc.
10. Explore collaborative mechanisms (e.g. memoranda of understanding) with other departments, stakeholders for sharing of data and for coordinating efforts to manage health risks.

Coordination with other sectors in reducing water borne illnesses

Department of Water & Sanitation

- Ensure minimum household safe water supply
- Reuse treated waste-water for non-household use
- Encourage water saving technologies like low-flow toilets & Showers, rain water harvesting etc

Municipalities and other Local regulating bodies

- Ensure safe water supply and good sanitation to check transmission of infective agents
- Regulate street vendors, food handling units for quality food

Ministry of Agriculture

- Develop/ encourage programs for efficient use of irrigation water.
- Promotion of climate resilient crops among farmers

Mechanism of Generation of Alert system for the outbreak of water borne illness

1. Enhance data surveillance under IDSP
2. Indicator and event based surveillance
3. Media alerts and verification

Detailed action plan with checklist for the water borne illnesses:

- Logistics required at health care facilities
- Preparedness of health system and personnel
- List activities for prevention of illnesses (IEC, pamphlets, advisories, training, workshop etc).
- Operational communication channel
- Mechanism to ensure data maintenance, surveillance, timely sharing with concerned departments and stakeholders.

Actions undertaken and further proposed to reduce the burden of water borne illnesses in the State/UT

Activities conducted and planned for awareness generation on the health impacts of water borne illnesses

a. Advertisement and promotion through IEC:
    i. Street plays

ii. Hoards, billboards, as and other advertisement modes

b. Medical professional training:
    i. Expanded training of doctors and associate staff
    ii. Increased training of NGOs and Asha workers
c. Carry out mass media campaigns
d. Promote a culture of risk prevention, mitigation, and better risk management
e. Promote attitude and behaviour change in the awareness campaigns linking air pollution and climate change.
f. Engage local and regional media (community radio, TV)