स्वास्थ्य एवं
परिवार कल्याण मंत्रालय
MINISTRY OF
HEALTH AND
FAMILY WELFARE
सत्यमेव जयते

सत्यमेव जयते
Government of the National
Capital Territory of Delhi

DELHI

STATE ACTION PLAN ON CLIMATE CHANGE AND HUMAN HEALTH







National Centre for
Disease Control
Government of India

National Programme
on Climate Change
and Human Health

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2022-27

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PART I

Climate Change and its Health Impacts

CHAPTER 1
Introduction

Climate change and air pollution have been a matter of serious concern all over the world in the last few decades. As temperature and precipitation patterns change, the delicate balance of climate, weather events and life is disrupted. Although few people are aware of the impact climate change may have on their health, the health effects are serious and widespread.

In view of this, The Government of India issued the National action plan on climate change and human health (NAPCC) to address the challenges of climate change on June 30, 2008 and in the year 2009 the Prime Minister's Council on Climate Change called upon the Indian states to prepare SAPCCs consistent with the strategy outlined in the NAPCC.

The **NAPCCHH** objectives with their key actions are:

1. To create awareness on the impacts of climate change on human health among general population (vulnerable community), health-care providers and Policy makers.
    a. Development of IEC material
    b. Advocacy
2. To strengthen capacity of health system (infrastructure, training, development of resource material and HMIS) to respond to climate sensitive illness/ diseases.
    a. Enrich Indian Public Health Standards (infrastructure, development of resource material etc.) in context of climate change.
    b. Capacity building (training) of health care professionals) in context of climate change.
3. To perform situational analysis to strengthen preparedness and response at national/ state/ district/ below district levels to cope with adverse health impacts of climate change related disasters.
    a. To develop/ strengthen the monitoring and surveillance systems for climate sensitive diseases
    b. To establish an institutional mechanisms for policy and planning at national, state, district and local level.
    c. Develop mechanisms for EWS/alerts and responses at state, district and below district level
4. To assist states to assess their health vulnerabilities in the context of climate change and accordingly build capacities to adapt and mitigate the vulnerabilities.
    a. Establishment of an Environmental cell in the Health department at State and District Level
    b. Capacity building for vulnerability assessment at various levels and liaison with center

c. State specific implementation framework

d. States to work in collaboration with stakeholders to identify the gaps and to develop state specific action plans

5. To develop partnerships with stakeholders in the private sector, the civil society and other stakeholder government departments, and creating synchrony/ synergy with other missions on climate change and ensure that health is properly represented in the climate change agenda in the country.

   a. Identify and enlist departments/ institutions/ organizations (Govt. Non-Govt.) working in the area of climate change.

   b. To develop joint action plan with other depth/organizations in view of their capabilities and complementarities.

6. To strengthen health, and develop a mechanism to fill the gap in the evidence based health policy.

   a. Create database of professional, researchers and institutions engaged in studies of impact of weather and climate.

   b. Create mechanism for data capture, collation, analysis and interpretation

   c. Development of mathematical and other types of modelling for early warning and impact assessment of change in climate / extremes.

   d. To develop center of excellence on different aspect of climate change and health at state level.

   e. Identify best practices in implementation of measures to combat the effect of climate change.

Delhi is one of the fastest growing urban centers of the country. Factors that have caused the steady rise in pollution levels of Delhi are urbanization, population growth, increase in vehicle ownership, growing energy demand and proximity to industrial hubs. Malnutrition and diarrhea due to food and water system degradation and an increased incidence of vector-borne diseases are some examples of indirect effects of climate change on human health.

Peripheral Delhi has seen expansion in urban areas at annual rates of 38.6% with decline in agricultural area at rate of 2.1% during the 1973–2017. Local sources (like traffic, power plants, industries) account for ~70% of total PM2.5, but the non-local sources (agricultural crop burning in the neighboring states) contribute over 30% in Delhi.

Keeping in view the seriousness of pollution in NCT of Delhi, over the past few years, the Government of NCT of Delhi has adopted best practices in various sectors including Transport, Energy Conservation, Health, Education, Water Conservation, Greening, Waste Management, advocacy of solar system, electric vehicles, safe construction practices as per OSHA.

Delhi Government has taken number of initiatives for instance preparation of the green vision in line with the global Sustainable Development Goals and then the Green Budget to carefully plan the allocation of the financial resources for the development priorities with due consideration of the natural resources, environment and climate change. Some of the other initiatives include lowering the pollution levels in Delhi with help of Odd-Even Scheme, Car-Free-Day on October 22nd 2015, banning plastic bags of thickness less than 50 microns and implementing Plastic Waste Management Rules, strengthening the monitoring framework for vehicular pollutions, promotion and subsidy on electric vehicles and improvement in public transport system such as metro rail expansion and E-Electric buses.

State Action Plan for Delhi under the 'National Action Plan on Climate Change' by the Dept. of Health & Family Welfare proposes a multi-pronged approach to address the health-related aspects of climate change has been prepared.

It will focus on the activities which will strengthen health of citizens of India against climate sensitive illness, especially among the vulnerable populations like children, women and marginalized population. The goal is to reduce morbidity, mortality, and health vulnerability to climate related diseases and rising Pollution in Delhi.

Delhi has a semi-arid climate, with hot summers, average rainfall and moderate winters.

Health vulnerabilities due to climate change in Delhi

Health Concern	Vulnerability due to climate change
Temperature related morbidity	• Heat and cold related illness • Accidents due to heavy Fog • Cardio-vascular illness, Respiratory illnesses
Vector borne diseases	• Changed pattern of diseases • Malaria, Dengue, Filariasis, Japanese encephalitis, viral hepatitis caused by bacteria, viruses and other pathogens carried by mosquitoes, ticks and other vectors
Air Pollution (Air Quality Index is above 200 most of the times in Delhi & increases to 400 in months of October-November)	• Asthma, COPD, & other Lung Diseases. • Teratogenicity & Oncogenicity of various human system such as nervous, gastro, uro-genital etc.
Health effects of extreme weather & water borne diseases	• Diarrhea, cholera and poisoning caused by biological and chemical contaminants in the water. • Injuries and illness • Social and mental health stress due to disasters and displacement.
Reduction in soil organic carbon content/ Reduced Soil Quality	• Malnutrition and general long term impact on health
Increased used of plastic	• Long term health effects
No proper Waste disposal system	• Breeding of mosquitoes, flies etc. leading to diarrhea, contamination of food etc.

State Action Plan Under NPCCHH has been prepared to address the issues.

1. Awareness Campaign

- IEC in the form of pamphlets, posters, banners, will be created and printed at state level under NPCCHH and will be distributed to all the 11 districts and 11 sentinel hospitals in Delhi for further dissemination among general public.
- Intensive awareness campaigns will be undertaken for vulnerable population and general population on the impacts of climate change on human health among general population (vulnerable community), healthcare providers.
- Train school and college teachers on climate change, impacts, adaptation and mitigation.

- Training of ASHA Workers and ANMs to sensitize vulnerable groups like pregnant females etc. for climate sensitive diseases.
- Organize seminars, conferences and workshops on effects of Climate Change on Human Health and ways to prevent the severity of climate change related illness.
- IEC at National Parks, Sanctuaries, Zoos and other public places.
- IEC would be divided season wise. IEC regarding effect of climate on vector borne diseases, Heat wave, Cold wave& effect of reduced air quality on various systemic diseases and ways for prevention.
- Communication interventions in schools are effective approaches for which teachers would need materials and training to educate the children.
- Developing state specific communication strategies and plans based on a thorough needs assessment. The thrust of communication would be to make people and the leaders pro-active and let them understand how their acts may increase or reduce emission. They will also be educated on how to adapt to the health impacts of climate change, how to avoid injuries and the economic implications of climate change.
- Publicity through print, social and electronic media.
- Environmental education, Training and awareness programme under which celebration of World Environment day, International Bio Diversity day, International Ozone Layer Conservation day, Organization of Environmental Training programs and awareness programme.
- Communication programmes which are comprehensible and through medium which is locally popular will be conducted which will aim to enable and empower the people, in particular, the illiterate, poor and other vulnerable people such as women, children, the elderly, people suffering from debilitating medical problems and those living in urban slums.
- Awareness & implementation of Biomedical waste (Management& Handling) Rules for proper bio medical waste management in hospitals.
- Street plays, distribution of pamphlets etc.
- Identification of technical experts for creation of awareness for different target groups. Technical skill is also needed in the areas of case management (including of malnutrition); first aid; disaster management; risk communication; entomology; epidemiology; meteorology; monitoring and evaluation; and research. Training will also be conducted on climate models and risk assessment skills.
- Standard Operating Procedures for managing climate sensitive diseases will be developed in light of the future impacts of climate change with prevention in mind.

2. Monitoring, Surveillance and Research Capacity

- Formation of Environment Health Cell in all the hospitals which will act like a data source and keep a data of climate sensitive diseases and will report the number of patients reported with climate related diseases.
- Further compilation of data would be done at District and State cell of NPCCHH and a meteorological data base would be created.
- Constant monitoring of climate change signals/climate variability and related diseases would be done forecasting for decision support system in all the districts.

- Conduct Environmental Impact Assessment of development projects critical to climate change i.e. power, housing, and cement.
- Coordination with Transport department and Delhi Pollution Control Board another stakeholders for undertaking research into formation of strategies for reducing vehicular pollution.

3. Situational Analysis

- Analyzing the data compiled at state level using data from environment health cells of hospitals for analyzing the situation and how and till what level climate change is affecting health so that necessary precautions and policy level changes can be made.
- Map vulnerabilities for Heat stroke during summers, and air pollution during winters to ensure timely interventions.

4. Coordination with other Programmes

- Coordination with National Vector Borne Disease Control Programme, Non- Communicable Diseases, Integrated Disease Surveillance Programme, School Health Programme, Tobacco Cessation Programme, etc.

5. Intersectoral Coordination

- Coordination with Municipal Corporations, Transport Dept., Education Department, Delhi pollution control committee and environment department, Commission for Air Quality Management, etc. for policy level modifications or changes as per the data regarding effect of climate on human health.
- Coordination with Ministry of AYUSH for sensitizing people of Delhi to add consumption of jiggery/ honey in the daily diet and incorporate yoga/breathing exercises in the daily lifestyle regime as means of improving immunity, lung capacity and general wellbeing.

Futuristic Vision – Innovations/Technologies in the offing:

1. Cool roof Concept.
2. Flagging at schools for temp alerts.
3. Adoption of green resilient measures.
4. Reduction in carbon emission's.
5. Promotion of alternate technologies to reduce pollution.
6. Establishment of biomarker lab.
7. Reduction in overall morbidity and mortality.

CHAPTER 2

Climate Vulnerability

With the establishment of the Department for Climate Change in 2009, Delhi state has demonstrated its resolve to respond to climate change and its impact early on. Since then, there are many initiatives taken in various sectors to adapt and mitigate to impact of climate change including the implementation of South Asia's first heat-health action plan with an early warning system.

Socio-demographic and Health Profile

Delhi is the fifth-largest state by area, covering 1.96 lakh square km. It is the ninth-most populous state with a population of 60.4 million as per 2011 census. It largely (53.5%) consists of working age adults (20-49 years) with sex ratio of 965 females per 1,000 males.

About 77% of households in Delhi live in a pucca house and 97% have electricity as per National Family Health Survey-5 (2019-21). About 95% of households in Delhi have basic drinking water services, and 98% of households use an improved source of drinking water, but only 65% get piped water in/around their households (79% of urban and 54% of rural). A much higher accessibility in urban areas (97%) than in rural areas (71%). Majority of households (59%) in Delhi use a clean fuel for cooking. There were 94% institutional deliveries.

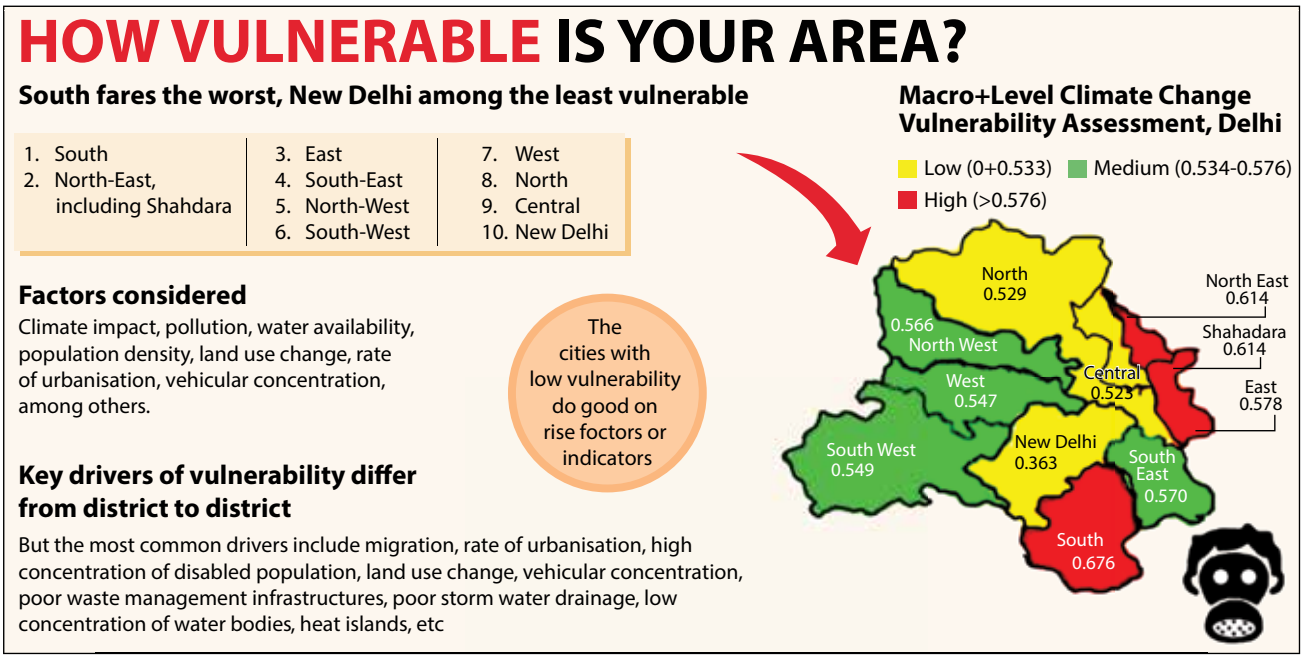
The state has reported higher burden of ischemic heart diseases than the national average. (GBD) ischemic heart disease and COPD were leading causes of Disease Adjusted Life Years (DALY). Highest DALY was attributable to risk factors like malnutrition, air pollution, dietary factors and high blood pressure. Climate change and air pollution may increase burden of such non-communicable disease.

Climate Change and Health

The state falls in the subtropical climate zone and has a sub-humid climate in northern India, Delhi temperature varies between 25°C and 45°C in summer, while the winter temperature ranges between 4°C and 30°C. The normal monsoon season runs from June to September, with a normal annual rainfall of 617 mm.

Delhi is one of the moderately vulnerable states to climate change impacts in India based on its socio-demographic, biophysical, and institutional-infrastructural aspects (Figure 1).

Climate vulnerability ranking of districts based on its socio-demographic, biophysical, and institutional-infrastructural aspects, Delhi, 2022



According to this assessment, south west district of Delhi has high relative vulnerability among districts. However, health impact specific vulnerability assessment should be considered for better understanding of burden of climate sensitive diseases and prioritization of action. Among climate sensitive health issues, air pollution, heat-related illnesses, extreme weather events, vector-borne, food and water-borne diseases, nutrition related impacts, coastal impacts, environmentally sustainable and climate-resilient health care facilities are relevant aspects for health sector strengthening in the state.

CHAPTER 3

Climate Change and its Health Impacts in Delhi

Air Pollution

Particulate air pollution is the single greatest threat to human health. Population in Delhi may be exposed to 40-59.9 µg/m^3 population-weighted mean ambient PM2.5 concentration and 60-69.9 ppm of Ozone concentration[5]. According to National Clean Air Programme, there are three attainment cities as per national ambient air quality standards of 2011 to 2015 in Delhi—Ghaziabad, Noida, Faridabad, Grogram. Current annual safe limits for PM2.5 and PM10 are 40 µg/m^3 and 60 µg/m^3.

Annual Pollutant Levels in NCAP cities, other industrial/metro cities, Delhi, 2016-22

City	Pollutant* (µg/m3)	2018	2019	2020	2021
Delhi	PM 2.5	121	105	114	107
	PM 10	225	199	194	207
	NO 2	74	57	60	42
	SO 2	6	4	0	10

Based on PM2.5 levels reported in 2020, potential average gain in life expectancy is estimated to be 3.1 years from reducing PM2.5 to the WHO Guideline (5 µg/m^3).

Extreme Heat

Exposure to extreme heat can lead to various heat-related illnesses (HRI), from mild (prickly heat) to fatal (heatstroke) manifestation. It also increases cardiovascular, respiratory, renal, and all-cause.

Mortality along with increases in ambulance calls and admissions. Increasing anthropogenic climate change is expected to intensify heat waves over India.

The two post monsoon months of October and November constitute a transition season from monsoon to winter conditions. The summers in Delhi are very hot and winters very cold. The temperature may rise up to about 45 degrees Celsius in summers, though the average temperature is around 39-42 degree Celsius.

According to National Heat-Related Illness Surveillance, in 2002 Delhi reported HRI cases 10929. Delhi and neighboring Uttar Pradesh reported 402,280, Rajasthan reported 121,809 and Heat-related mortality. (ED- Dat 2007). During 2015-2018 HRI cases show an increasing trend. In 2019, Delhi state reported 580 cases

and 8 HRI deaths. In 2020, 64 cases of HRI were reported. As of June 2022, total 315 suspected heatstroke cases were reported.

Delhi Data

Heat wave vulnerability index, an aggregate of demographic, socio-economic, population health, and land cover indicators ranked districts on a scale from very high to very low vulnerability[9,10]. (Table 2)

Ranking of heat vulnerable districts, Delhi, 2017

Sl. No.	Districts (in descending order of vulnerability)	Heat Vulnerability
1	East Delhi	Very High
2	North East Delhi	High
3	Shahdara	High
4	Central Delhi	High
5	New Delhi	High Normal
6	North Delhi	High Normal
7	North West Delhi	High Normal
8	South East Delhi	High Normal
9	South West Delhi	Low Normal
10	South Delhi	Low Normal
11	North Delhi	Low Normal

Temperature Change in Delhi

Vector-Borne Diseases

All the VBDs are climate sensitive as the pathogens have to complete a part of their development in particular species of the insect vector that transmit them. The temperature, rainfall and relative humidity (RH) affect the development of vectors.

Major mosquito-borne diseases reported through National Vector-Borne Disease Surveillance in Delhi, 2017-22

Year	Malaria		Dengue		Chikungunya	
	Cases	Death	Cases	Death	Cases	Death
2017	577	0	4726	10	559	0
2018	473	0	2798	4	165	0
2019	713	0	2036	9	293	0
2020	228	1	1072	1	111	0
2021	167	0	9613	23	89	0
2022	263	1	4469	9	48	0

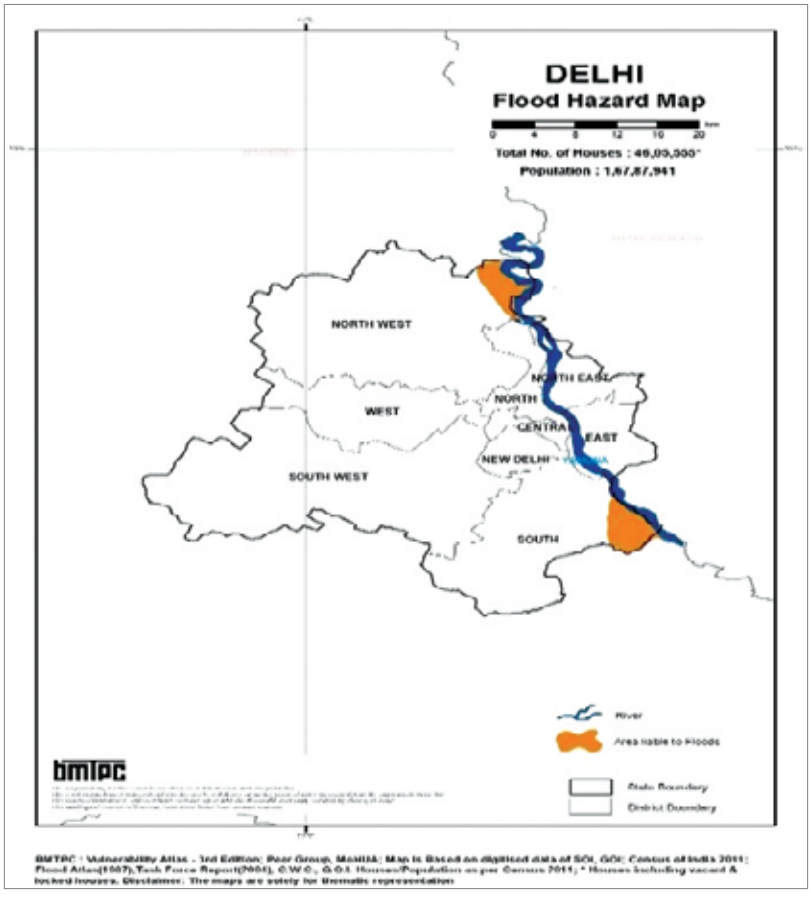
The Annual Parasite Incidence (API) for malaria is less than 1 in all districts of Delhi. With climate change impacts, a shift of malaria transmission to southwest and northern states is expected, with 10-12 months of transmission window in Delhi. Dengue and Chikungunya cases are increasing throughout the State year of 2019 onwards. In recent years, Delhi has reported outbreaks of Crimean Congo Hemorrhagic Fever (CCHF). Reemergence of Kala-afar cases began from 2007.

Extreme weather events (EWE)

Delhi, due to its geo-climatic, geological and physical features, is vulnerable to all major natural hazards, apart from heat wave, like drought, flood, cyclone, cold wave, earthquake, tsunami etc.

The two post monsoon months of October and November constitute a transition season from monsoon to winter conditions. The summers in Delhi are very hot and winters very cold. The temperature may rise up to about 45 degrees Celsius in summers, though the average temperature is around 39-40 degree Celsius.

Flood hazard risk zones, Delhi (GSDMA)



Floods

Since 1900, Delhi has experienced six major floods in the years 1924, 1947, 1976, 1978, 1988 and 1995 when peak level of Yamuna River was one meter or more above danger level of 204.49 m at old rail bridge (2.66 m above the danger level) occurred on sixth September 1978, however no major health incidents have ever reported during such event.

Cold wave

Delhi's has an extreme climate. It is very hot in summer (April - July) and cold in winter (December - January). The average temperature can vary from 25°C to 45°C during summer and 5°C to 20°C during winter.

This was due to a layer of dense fog that persisted over the Indo-Gang etic plains during the period and a large gap between two western disturbances, which meant frosty winds from the snow-clad mountains blew in for a longer-than-usual period, according to meteorologists.

The minimum temperature is likely to settle at 3 degrees Celsius. India weather update: The India Meteorological Department (IMD) has predicted a return of cold wave conditions in several states like Delhi, Rajasthan, Punjab, Haryana, Chandigarh, Himachal Pradesh, and Madhya Pradesh till January 19, 2023.

Acute Respiratory Illness (ARI) data by Districts December 2022 under NPCCHH

Date	Total ARI Cases – Districts										
	1	2	3	4	5	6	7	8	9	10	11
	East	West	South	South-East	South-West	Central District	North West	North	North East	Shahdara	New Delhi
1-7 Dec. 2022	82	2668	38	46	74		359	440			
8-14 Dec. 2022	125	1057	64	47	244		342	419			
15-21 Dec. 2022	85		67	51	318		441	432			
22-28 Dec. 2022	33		51	70	263		418	468			
29-31 Dec. 2022	16		18	28	155		158	223			
Total	**341**	**3725**	**238**	**242**	**1054**	**0**	**1718**	**1982**	**0**	**0**	

Weekly ARI Cases by Districts _National Programme on Climate Change and Human Health (NPCCHH)_2023											
Date	1	2	3	4	5	6	7	8	9	10	11
	East	West	South	South-East	South-West	North	North-East	North-West	New Delhi	Shahdara	Central District
1-7 Jan. 2023	26	0	33	82	325	545	0	308	0	461	0
8-14 Jan. 2023	74	0	26	87	248	344	0	229	0	401	0
15-21 Jan. 2023	91	0	35	78	371	426	0	270	0	367	0
22-28 Jan. 2023	62	0	15	60	218	161	0	184	0	349	0
29 Jan.-4 Feb. 2023	79	0	17	60	263	30	0	185	0	353	0
5-11 Feb. 2023	84	0	25	9	311	0	0	240	0	355	0

Weekly ARI Cases by Districts _National Programme on Climate Change and Human Health (NPCCHH)_2023											
Date	1	2	3	4	5	6	7	8	9	10	11
	East	West	South	South-East	South-West	North	North-East	North-West	New Delhi	Shahdara	Central District
12-18 Feb. 2023	17	0	18	0	36	0	0	275	0	413	0
19-25 Feb. 2023	0	0	23	0	0	0	0	213	0	409	0
26 Feb.-4 Mar. 2023	0	0	38	0	0	0	0	223	0	454	0
5-11 Mar. 2023	0	0	0	0	0	0	0	43	0	205	0

Monthly ARI Cases by Districts National Programme on Climate Change and Human Health (NPCCHH)_2023											
Date	1	2	3	4	5	6	7	8	9	10	11
	East	West	South	South-East	South-West	North	North-East	Norht-West	New Delhi	Shahdara	Central District
Jan. 23	297	0	117	333	1250	1506	0	1071	0	1739	0
Feb. 23	136	0	82	43	522	0	0	879	0	1563	0
Mar. 23	0	0	31	0	0	0	0	220	0	465	0

Delhi state Health infrastructure

Delhi has a network of public and private health care facilities. There have been efforts to expand and update public health infrastructure in recent years. Need for concentrated efforts in disaster vulnerability of health facilities and implementation of resilient measures is realized.

Public health infrastructure in Delhi

Sl. No.	Health Facility	Quantity
1	Super specialty hospital	10
2	Medical colleges	12
3	Tertiary Care Hospital	8
4	100 beded Hospital or more	30
5	Aam Admi Polyclinic	11
6	DGD Dispensaries	223
7	Primary Health Centers/Aam Aadmi Mohalla Clinics	519
8	Ayurvedic/Homeopathic Hospitals & Medical College	3

Roadmap of DELHI State for Health Sector Response to Climate Change

Current and Future Priorities of Delhi state in upcoming years (2022-2027)

1. Awareness Generation among the population especially vulnerable communities
2. Health-Care Providers & Policy Makers Regarding Impacts of Climate Change on Human Health.
3. Capacity Building Of Government And Private Healthcare System To Reduce Illnesses/ Diseases Due To Variability In Climate
4. Health Sector Preparedness And Response Including District Level
5. To Develop Partnerships And Create Synchrony/ Synergy With Other Missions, Departments And Programs To Steer Research On Climate Change And Health

The above objectives will be implemented through National Programme on Climate Change and Human Health (NPCCHH).

Delhi has placed considerable emphasis on the empowerment of district level institutions through extensive capacity building and proactive facilitation. The creation of Water and Sanitation Management Organization (WASMO) has successfully been able to bring effective citizens' engagement through its innovative governance model, for facilitating the community led water supply program mainly through Delhi Jal board and green resilient measures throughout the State of Delhi.

The vulnerabilities that climate variability and change create are key issues in the economic and social development of the State. Although, there are studies on climate trends and projections for the Indian region, few focused on the State. Available observational evidence indicates that regional changes in climate, particularly increases in temperature, have already affected a diverse set of physical and biological systems. There is a need to study systematically the inter-relationship between Climate Change impacts to derive effective adaptation and mitigation measures.

Identified 10 components provide a comprehensive approach to integrating climate resilience into existing health systems:

1. Leadership &governance
2. Capacity building on climate change and health
3. Vulnerability and adaptation (V&A) assessments
4. Integrated risk monitoring and early warning
5. Climate resilient and sustainable technologies and infrastructure
6. Research to reduce uncertainty on local conditions, gain insight into local solutions and capacities, and build evidence to strengthen decision-making
7. Management of environmental determinants of health
8. Departments and programs that can become climate-informed
9. Managing changing risks of climate extremes and disasters and lastly
10. Climate and Health financing.

CHAPTER 4
Vision, Goal and Objectives

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

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

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

Specific Objectives

Objective 1: To create awareness among general population (vulnerable community), health-care providers and Policy makers regarding impacts of climate change on human health.

Objective 2: To strengthen 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 national/ 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 country in coordination with the Ministry of Health & Family Welfare.

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

CHAPTER 5
Organisational Structure

ORGANISATIONAL STRUCTURE

NATIONAL LEVEL

Key Nodal Agency
Head, NPCCHH
(NCDC, MoHFW)

- Prime Minister's Council on Climate Change
- Health Mission
- Ministry of Health and Family Welfare (MoHFW), Govt of India

STATE LEVEL

Key Nodal Point
(SNO-NPCCHH)

- State Governing Body - Environmental Health
- State Level Task Force - Environmental Health
- State Environmental Health Cell

DISTRICT LEVEL

Key Nodal Point
(DNO-NPCCHH)

- District Task Force - Environmental Health
- District Environmental Health Cell

Delhi State Governing Body for NPCCHH (file is with the minister for approval)

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

It is proposed that a Governing body under NPCCHH be constituted to ensure the effective and stringent implementation of National Programme on Climate Change and Human Health (NPCCHH) programme in the NCT of Delhi so that diseases linked directly to the environmental changes can be reduced effectively.

The Delhi state level governing body for policy level decision shall be working under Chairpersonship of Honorable Health Minister. The other members may be as follows:

Honorable Health Minister	Chairperson
Principal Secretary(Health)	Vice Chairperson
Director Health Services/Head of Health System	Member Secretary
Mission Director–National Health Mission	Member
Principal Secretary, Ministry of Revenue (Disaster)	Member
Principal Secretary, DJB	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 Education	Member
Principal Secretary, Services	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, Finance	Member
Principal Secretary, Law	Member
Principal Secretary, Ministry of Food and Civil Supplies	Member
Director Medical Education and Research	Member
State Nodal Officer–Climate Change	Member
Head–NAPCCHH, CEOH&CCH Division, NCDC	Member

Also as per ambit of NPCCHH, it is proposed to constitute State/ Environment Health Cell: at DSHM

Nodal Officer (Public Health Expert - State Health Department)	1
Consultant-Capacity building/ Training/HR Management	1
Consultant-Environmental Health	1
Data Manager & Analyst	1
Secretarial Assistants cum Data entry Operator	1

Roles and Responsibilities of the State/ UT Environmental Health Cell

- Preparation and Implementation of 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 organize training, workshop and meetings.
- Maintain State and District level data on physical, financial, 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.)
- Conduction of operational research and evaluation studies for the Climate change and its impact on human health.

It is informed that a file bearing no. **F1-3/GOVERNING BODY/NPCCHH/DSHM/2022** for the constitution of governing body was submitted to Competent– Authority on **25 Aug 2022** but the file has never been received back and despite the best possible efforts remain untraceable.

Hence, the new proposal at 'X' on page. For constitution of Governing body under NPCCHH is submitted for approval please.

Delhi State Task Force for NPCCHH

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.

Official orders of following are attached as Annexures

1. State Task force Notification of Delhi (Annexure 1)
2. State Environmental Health Cell, Task Force and Surveillance notification, Delhi (Annexure 2)
3. State Task Force Meeting in 2021 (Annexure 3)
4. District Task force Notification (Annexure 4)
5. Current DNO list Name with contact details (Annexure 5)

Roles and responsibilities of State Task Force

1. Establish organizational structure for implementation of programme activities at state
2. Preparation and Implementation of State Action Plan for Climate Change and Human Health (SAPCCHH)
3. Facilitate implementation of activities at district, sub-district and community level
4. Assessment of needs for health care professionals (like training, capacity building) and organise training, workshop and meetings.
5. Establish/coordinate surveillance of Acute Respiratory Illness in context of Air Pollution and Heat-related illness surveillance
6. Ensure Convergence with NHM activities and other related programs in the State and District
7. Maintain State and District level data on physical, financial, epidemiological profile for climate sensitive illnesses
8. 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)
9. Monitor programme, Review meetings, and Field observations.
10. Social mobilization against preventive measures through involvement of women's self-help groups, community leaders, NGOs etc.
11. Advocacy and public awareness through media (Street Plays, folk methods, wall paintings, hoardings etc.)
12. Encourage and implement Green/environmentally friendly and resilient measures and infrastructures in health care sector
13. Conduct Vulnerability assessment and risk mapping for commonly occurring climate sensitive illnesses in the state/ UT.

Delhi State Environment Health Cell (EHC)

Delhi state's EHC comprises of following member

Members of Environmental Health Cell, Delhi, 2022

Sl. No.		Name	Contact detail
1	State Nodal Officer		
2	State Surveillance Officer		
3	Medical Officer		
4	Consultant		
5	Data entry operator		

PART II

Health Action Plans on Priority Climate Sensitive Health Issues

CHAPTER 6

Health Action Plan on Air Pollution Related Diseases

Information, Education Communication (IEC) Activities

i. Target population

Urban areas (East, West, South, South-East, South-West, North, North-East, North-West, New Delhi, Shahdara, Central Districts**)**

Industrial areas (Industrial area of Delhi)

Vulnerable groups (Primarily Children, women, older adults, traffic police, and outdoor workers)

ii. Annual IEC dissemination plan for Air Pollution and Health under NPCCHH, Delhi

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 (Delhi) (Annexure 6)	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	• Using available material	Painted in August-September	• In schools and selected colleges • In health facilities
Hoardings	• Posters in Delhi (above)	September	• To be planned with Ahmedabad, Vadodara and Surat Municipalities

IEC type	Material	Timeline	Mechanism
Audio-Visual	• 3 Audio Jingles (Hindi) bit.ly/NPCCHHIEC • 1 Audio Jingle (Delhi) • 2 Video messages (Hindi and English) bit.ly/NPCCHHIEC • 1 Video message (Hindi)	September	• Played 3 times a day during between September to March • Played 3 times a day during between September to March
Bus painting	• Using available material	Painted in August-September	
Digital display	• 4 GIFbit.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)

iii. Preparatory work for IEC dissemination by EHC

	Nodal agency and person
• Hindi translation of existing print material Hindi/English material • Designing of new print material • Printing • Audio-video spot booking	• State Environment health cell/IEC department: SNO, DNO

iv. Observance of important environment-health days for air pollution and health related activities

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

Capacity Building Activities

i. Training material

Guidelines: (available bit.ly/NPCCHH guidelines)

- Health Adaptation Plan for Disease Due to Air Pollutions
- Health Sector Preparedness for Air Pollution
- Handbook for Health Professionals on Air Pollutions & Its Impact on Health

Training modules: (available bit.ly/NPCCHH guidelines)

- Women Training Manual (English, Hindi)
- Children Training Manual (English, Hindi)
- Traffic Police Training Manual (English, Hindi)
- Municipal Worker Training Manual (English/Hindi)

Other training resources: NPCCHH channel https://bit.ly/NPCCHHyt

ii. State-Level/ District-Level Supporting Training institutes

For State Institute of Health & Family Welfare SNO DELHI

Training on Air pollution related diseases may be expanded to include other climate sensitive diseases specifically cardio-pulmonary and allergic diseases.

iii. Annual training plan for Air Pollution and Health under NPCCHH, Delhi

Training Programme for	Trainer	Topics	Timeline
District level (DNO-CC, trainers)	State Level Trainers SNO-CC, Consultant	• Air pollution-health impact, prevention measures • Surveillance reporting and analysis with AQI • Health facility preparedness	August-September
Health facility level (MO of DH/CHC/PHC)	District Level Trainers DNO-CC	• Air pollution-health impact, prevention measures • Surveillance case identification and reporting • Health facility preparedness	August-September December-January (review/repeat)
Community Health care workers (MPH, ASHA, ANM etc)	State & District Trainers	• Surveillance case identification and reporting	August-September December-January (review/repeat)
Panchayati Raj Institutions	District Level Trainers, MO	Air pollution-health impact prevention	September-October
District level (DNO-CC, trainers)	District level trainers, MO, Health care workers	Air pollution-health impact prevention	September-February

Strengthening Health Sector Preparedness

National Outdoor Air and Disease Surveillance (NOADS)

i. Surveillance guidelines

Health Adaptation Plan for Disease Due to Air Pollutions https://bit.ly/NPCCHHNOADS

- All health facilities in a district (government dispensary and mohalla clinics and polycnics and above) especially in NCAP districts and adjoining cities (NCR) with high air pollution levels should

ensure implementation of this plan to prepare health facility to prevent and manage cases arising/ aggravating from high air pollution exposure.

ii. Surveillance training: included under capacity building section

iii. Surveillance activity monitoring:

- Review with DNO: Quarterly
- Review with Hospital nodal officer: Monthly

Revision of Health Action Plan on Air Pollution Related Diseases in State Action Plan on Climate Change and Human Health (SAPCCHH): The section should be revised every year after February based on targets achieved, surveillance data, climate change impacts and health indicators with support from multi-sectorial task force.

Roles and Responsibilities

	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 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 Ahmedabad Municipal corporation, Vadodara Municipal corporation and Surat Municipal corporation • 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 Conference to share knowledge and action under NPCCHH. • Collaborate with academic institute/s for support in updating SAPCCHH, Surveillance activity monitoring, vulnerability assessment and applied research • Advocate for reduction in source of air pollution

	Responsibilities
DNO	• Ensure IEC dissemination to community level • Facilitate community level IEC activities • Conduct training for Block health officers, Medical officer, Sentinel hospital nodal officers with relevant training manuals • Conduct training of vulnerable groups: police officers, outdoor works, women, children • Organize IEC campaigns at 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 analyzed monthly report to SNO, NPCCHH, He 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 officer	• 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 NPCCHH, Hq
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 • Community mobilization for reduction in greenhouse gas emissions, and local pollution
ANM	• Conduct community level IEC activities • Community mobilization for reduction in greenhouse gas emissions, and local pollution

CHAPTER 7

Health Action Plan on Heat Related Illnesses

Delhi is one of the 23 heat-vulnerable states which requires comprehensive actions to adapt and mitigate impact of extreme heat. Special attention to be given to urban areas due to urban heat island effect and vulnerable districts listed on page during implementation of IEC and health facility preparedness.

Information, Education Communication (IEC) Activities

i. Target population:

Urban areas

- **Vulnerable groups** (Primarily Children, women, older adults, traffic police, outdoor workers/vendors)

ii. Annual IEC dissemination plan on Heat and Health under NPCCHH, Delhi

IEC type	Material	Timeline	Mechanism
Advisory	bit.ly/NPCCHH advisory	March	By E-mail to DNO for further dissemination to health facilities
Early warning	Daily heat bulleting from IMD with health impact information	March-July	• Digital display of temperatures on public places and health facilities • Newspaper • Health department/other government website/application
Posters	• 6 posters on heat and health impacts (English, Hindi) bit.ly/NPCCHHIEC • Posters on heat and health impacts (HINDI) (Annexure 6)	February-March	• Printing for state-level dissemination at health facilities, public places/buildings • Electronically to DNO for printing at district level and dissemination to health facilities, schools and other public/government buildings
Wall painting	• In AMC, VMC, SMC with collaborative effort with ART school and Colleges city	Painted in February-March	• In schools and selected colleges • In health facilities
Hoardings	• Posters in HINDI ENGLISH (above)	March	• To be planned with Municipalities of Delhi

IEC type	Material	Timeline	Mechanism
Audio-Visual	• 3 Audio Jingles bit.ly/NPCCHHIEC • Audio Jingle (Delhi)	March	• Played 3 times a day during between March-July
	• 2 Video messages (Hindi, English) bit.ly/NPCCHHIEC • Video message (Hindi, English)	March	• Played 3 times a day during between March-July
Bus painting	Using available material	March-April	With GSRTC and Corporation city Bus service
Digital display	• Available GIF • Above mentioned video messages	March-July	Display in health facilities Public digital display boards
Social medial	All above material + Relevant activity updates	February-July	Facebook and Twitter handle of state NPCCHH, NHM WhatsApp groups (State DNO, Health facility group)

Observance of important environment-health days

Although there is no specific day on heat-health, observance of following days may be recommended for awareness on health impact of extreme heat (outdoor-indoor).

Day	Activities on Heat-Health
• World forest Day (March 21) • World Water Day (March 22) • World Health Day (April 7) • Earth Day (April 22) • World Environment Day (June 5) • World Day to Combat Desertification and Drought (June 17)	**IEC Campaigns** • 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 **Community level heat mitigation measures** • Plantation drive • Cool-roofing drive • Energy conservation **Health facility level activities** • Health facility-based patient awareness sessions • Energy audit and conservation measures • Review of preparedness for heat-related illness

Capacity Building Activities

i. Training material

Guidelines

- National Action Plan on Heat Related Illnesses (https://bit.ly/NAPHRI)

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 occupations

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

- Clinical Aspects of Heat-Related Illnesses
- Webinars on heatwave and its health impact
- HRI surveillance training

ii. State-Level/ District-Level Supporting Training institutes

- NCDC
- VMMC & Safdarjang Hospital
- MAMC& associated Hospitals
- UCMS&GTB Hospital
- LHMC& associated Hospital
- National institute of Disaster Management

Training on Heat-related illnesses diseases may be expanded to include other climate sensitive health issues specifically extreme weather events.

iii. Annual training plan for Heat and Health under NPCCHH, Delhi

Training Programme for	Trainer	Topics	Timeline
District level (DNO-CC, trainers)	State Level Trainers SNO-CC, Consultant	• Heat-health impact, prevention measures • Surveillance reporting and analysis with weather parameters • Health facility preparedness	February
Health facility level (MO of DH/CHC/PHC)	District Level Trainers DNO-CC	• Heat-health impact, prevention measures • Surveillance case identification and reporting • Health facility preparedness • Clinical management of HRI	February
Community Health care workers (MPH, ASHA, ANMetc)	District Level Trainers, MO	• Heat-health impact prevention • Indoor and outdoor mitigation measures	February-March

Strengthening Health Sector Preparedness

National Heat-Related Illness Surveillance (NHRIS), NPCCHH

i. Surveillance guidelines and reporting formats:

National Action Plan on Heat Related Illnesses (https://bit.ly/NAPHRI)

- Case definitions
- HRI reporting formats: health facility to state level (forms 1 to 4)
- Death investigation form for suspected heatstroke deaths

ii. Reporting units: All health facilities in a district (100 bedded and above) should submit daily reports from March 1-July 31 regardless of observed temperatures and rainfall.

iii. Surveillance training: included under capacity building section

iv. Surveillance activity monitoring:

- Review of surveillance activity with DNO: every month (March-July)

v. Health Sector Preparedness

- **Guidelines** National Action Plan on Heat Related Illnesses (https://bit.ly/NAPHRI)

Revision of Health Action Plan on Heat Related Illnesses in State Action Plan on Climate Change and Human Health (SAPCCHH): The section should be revised every year after July based on targets achieved, surveillance data, climate change impacts and health indicators with support from multi-sectorial task force.

Heat Action Plan for Specific Cities/Rural Districts

Urban areas often become hotspots of heat impact due to altered land use, reduced land cover, reduced natural shade and use of built material that trap heat during day and night time. Urban heat island effect poses greater threat to larger swath of population by impeding night natural cooling leading to continuous heat stress compared to that in rural area. As such health-centric multispectral coordinated adaptation and mitigation efforts at city level are a necessity and an opportunity not only for reducing heat impact but also for reduction of greenhouse gas emission.

City-Specific Heat-Health Action Plans are encouraged and supported by State EHC.

City-Specific Heat-Health Action Plans should include:

1. Early warning system and inter-agency emergency response plan:
    a. Analysis of historic city level all-cause mortality with observed temperatures to establish health impact-based warning and response trigger (IMD, SDMA)
    b. Daily dissemination of forecast and observed temperature during summer to public and government agencies(IMD)
    c. Identification of roles and responsibilities of coordinating agencies with activity matrix and action checklists (Refer: Delhi Heat Action Plan)

2. Public awareness
    a. Communicating risk to vulnerable population groups
3. Capacity building of medical professionals
    a. On identification, management and reporting of HRI cases and deaths
4. Promoting short and long-term adaptation and mitigation measures
    a. Access to potable water, shaded area, cooling spaces
    b. Plantation, cool-roof

Roles and Responsibilities

	Responsibilities
SNO	• Disseminate early warnings to 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 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 heat-health impact • Ensure daily surveillance reporting from district level • Ensure submission and analysis of heat related death at 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 IEC and surveillance activities at all levels • Evaluate and update relevant section of SAPCCHH with support from State Task Force • 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 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 get 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, medical officers, with relevant training manuals • Conduct sensitization of vulnerable groups: police officers, outdoor works, women, children etc.

	Responsibilities
	• Organize IEC campaigns at 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 district • Support timely suspected heatstroke death analysis and its reporting • Submit analyzed weekly report to SNO, NPCCHH, He 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
ANM	• Conduct community level IEC activities

CHAPTER 8

Health Action Plan on Extreme Weather Event-Related Health Issues

Hotspot and Vulnerability to Extreme Weather Events (EWE)

Delhi state is vulnerable to extreme weather events like Heat waves, Cold waves, Mist, Fog and Dust storms etc. Following hotspot districts are identified each event:

Information, Education Communication (IEC) Activities

i. Target Population

- **Vulnerable districts/hotspots:** listed above
- **Vulnerable groups** (Primarily Children, women, older adults, traffic police, outdoor workers/vendors)

ii. Annual IEC dissemination plan for extreme weather events and their health impact under NPCCHH in Delhi

IEC type	Material	Timeline	Mechanism
Advisory	bit.ly/NPCCHH Prg	Seasonal	By email to DNO for further dissemination to health facilities
Early warning	Bulletins/ advisory by IMD (storm, cyclone), CWC (flood) sent by NPCCHH	Seasonal	• Health department/other government website/application • Digital display of temperatures on public places and health facilities
Posters	• 6 posters on various EWE and health impacts (English, Hindi) bit.ly/NPCCHHIEC • Posters on heat and health impacts (Delhi)	Seasonal, as needed	• Printing of ..... copies for state- level dissemination at health facilities, public places/buildings • By E-mail to DNO for printing at district level and dissemination to health facilities, schools and other public/government buildings
Wall painting	• Using available material	Painted in July-September	• In schools and selected colleges • In health facilities
Hoardings	• Posters in Delhi (above)	Seasonal, as needed	• To be planned with Municipalities

IEC type	Material	Timeline	Mechanism
Audio-Visual	• Audio Jingle (Delhi) • 5 Video messages (Hindi, English) bit.ly/NPCCHHIEC • Video message (Gujarti)	Seasonal, as needed	• Played seasonally and around relevant extreme weather events
Bus painting	Using available material	Painted in June-July, Seasonally as needed	With DTC and Corporation city Bus service
Digital display	• 5 GIF • Above mentioned video messages	Seasonal, As needed	Display in health facilities Public digital display boards in major cities
Social medial	All above material + Relevant activity updates	Seasonal, As needed	• Facebook and Twitter handle of state NPCCHH, NHM • WhatsApp groups (State DNO, Health facility group)

iii. 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 Activities

i. Training Material

Guidelines:

- National Action Plan on Disaster related Health Issues

Training modules:

- 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 occupations

Other training resources: NPCCHH channel https://bit.ly/NPCCHHyt

ii. State-Level/ District-Level Supporting Training institutes

State Institute of Health & Family Welfare

Training on Heat-related illnesses diseases may be expanded to include other climate sensitive health issues specifically extreme weather events.

iii. Annual training plan for Extreme Weather Events and Health under NPCCHH, Delhi

Training Programme for	Trainer	Topics	Timeline
District level (DNO- CC, trainers)	State Level Trainers SNO-CC, Consultant	• Climate change and impact of extreme weather events in India • Formation of disaster management committees and plans • Health facility vulnerability, resilient measures and disaster preparedness • Disaster response in coordination with state/ district disaster management authority • Post-disaster health impact assessment and response	February
Health facility level (MO of DH/CHC/PHC)	District Level Trainers DNO-CC	• Health facility disaster vulnerability assessment • Disaster management committee and plan • Climate resiliency measures (structural/functional) • Health facility preparedness for EWE/disaster response • Post-disaster surveillance and damage assessment	February
Community Health care workers (MPH, ASHA, ANM etc.)	District Level Trainers, MO	• Climate change and health impact of extreme weather events • Disaster planning and response	February-March

Strengthening Health Sector Preparedness

i. Early warning: Dissemination of early warnings for Coldwave, Flood, Cyclone etc to health facility **level** and community level

ii. Surveillance

- Post-disaster health impact assessment:
- Support post-disaster surveillance of communicable disease, health facility affected conducted by SDMA, IDSP or other agencies

iii. Health Facility Preparedness

- Vulnerability assessment of health facility in 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 & 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

Revision of Health Action Plan on Disaster-Related Health Issues in State Action Plan on Climate Change and Human Health (SAPCCHH):

The section should be revised every year after December with support from coordinating agencies based on updated surveillance data, its analysis with weather parameters, targets achieved, and predicted climate variability with support from multi-sectoral task force.

Roles and Responsibilities

	Responsibilities
SNO	• Disseminate early warnings to 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 implement 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 block and health facility level • 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 &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

	Responsibilities
Block health officer	• Conduct community level IEC activities • Ensure training of medical officers • 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 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

CHAPTER 9

Health Action Plan on Vector-borne Illnesses in Context of Climate Change

Situational analysis of VBD in DELHI

i. District and City with high Malaria prevalence, Delhi, 2021-22

Year	Malaria	
	Cases	Death
2017	577	0
2018	473	0
2019	713	0
2020	228	1
2021	167	0
2022	263	1

ii. District and City with high Dengue prevalence, DELHI, 2021-22

Year	Dengue	
	Cases	Death
2017	4726	10
2018	2798	4
2019	2036	9
2020	1072	1
2021	9613	23
2022	4469	9

iii. District and City with high Chikungunya prevalence, Delhi, 2021-22

Year	Chikungunya	
	Cases	Death
2017	559	0
2018	165	0
2019	293	0
2020	111	0
2021	89	0
2022	48	0

Information, Education Communication (IEC) Activities

i. Target Population

- **Areas identified** in under section a (above)
- **Vulnerable groups** (Primarily children, pregnant women, older adults, immuno compromised, outdoor workers/vendors)

ii. Annual IEC dissemination plan for Vector-borne diseases in context of climate change under NPCCHH, Delhi

IEC type	Material	Timeline	Mechanism
Posters	• Posters on VBD and climate change (English/Hindi) bit.ly/NPCCHHIEC • May update posters made by state NVBDC • Posters on VBD and climate change • (Delhi)(Annexure 6)	• After extreme weather events i.e. floods, cyclone, and other natural disaster i.e. earthquake/ tsunami • Collaborate with NVBDCP	• Collaborate with NVBDCP
Wall painting	Using available material	Painted in June-July, Seasonally as needed	• In schools and selected colleges • In health facilities
Hoardings	• Posters in Delhi (above)	June-July, Seasonally as needed	• To be planned with hotspot Municipalities and District
Audio- Visual	• 3 Audio Jingles • Audio Jingle (Delhi) • 2 Video messages (Hindi, English) • Video message (Delhi)	June-July, Seasonally, as needed in case of extreme weather events	• Plan according to PIP guidelines and in coordination with NVBDCP
Bus painting	Using available material	Painted in June-July, Seasonally as needed	• With DTC and Corporation city Bus service

IEC type	Material	Timeline	Mechanism
Digital display	• Available GIF • Above mentioned video messages	June-July, Seasonally as needed	• Display in health facilities • Public digital display boards in major cities
Social medial	All above material + Relevant activity update	June-July, Seasonally, as needed in case of extreme weather events	• Facebook and Twitter handle of state NPCCHH, NHM • WhatsApp groups (State DNO, Health facility group)

Observance of important environment-health days

Observance of following days may be recommended for awareness on climate change and vector-borne diseases.

Day	Activities on VBD in context of climate change
• World malaria day (April 25) • World mosquito day (August 20) • World Environmental Health Day (September 26)	IEC Campaigns • Audio-video spots broadcasting • Targeted awareness sessions: urban slums, schools, women, children • Street plays and local cultural activities, Rallies • Sports events • Competition: poster, poem/essay, quiz Collaborate with NVBDCP

Capacity Building Activities

i. 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 occupations

Other training resources: NPCCHH channel https://bit.ly/NPCCHHyt

- Training on climate change and its impact on VBD burden

ii. State-Level/ District-Level Supporting Training institutes

State Institute of Health & Family Welfare: Contact person designation: SNO DELHI

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

iii. Annual training plan for vector-borne diseases in context of climate change under NPCCHH, Delhi

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 • Post-disaster VBD surveillance, prevention, management	July or after extreme weather events/natural disasters
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	

Strengthening Health Sector Preparedness

Integrate weather parameters with VBD surveillance under NVBDC at District level

- Monitor VBD with weather paramerts
- Initiate surveillance based on predicted expansion of vectors to pick up emerging foci with support form State Programme Officers (SPO) and District malaria Officers (DMO) should

i. Surveillance training: included under capacity building section

ii. VBD prevention and control measures

- Planning of indoor residual spray a month before peak of malaria cases based on historical data.
- Management of new foci of transmission in the same way as other endemic areas.
- Epidemic preparedness especially after extreme weather events or natural disasters

Roles and Responsibilities (Govt & non-Govt) in implementation of VBD activities in context of climate change under NPCCHH, Delhi

Department/Agency	Area of Collaboration	Specifics
NVBDCP, Delhi	Overall guidance and policy formulation	• Guide and 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 collaboration with any research institute, in 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 govts
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 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 forusing appropriate insecticide forIRS/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.
Media	To be vigilant for report of any upsurge/ outbreak of any VBD.	Impart health education to masses through print and audiovisuals means

Revision of Health Action Plan on VBD in State Action Plan on Climate Change and Human Health (SAPCCHH)

The section should be revised every year after December in collaboration with NVBDCP based on updated surveillance data, its analysis with weather parameter, prevention and control activities, targets achieved, and predicted climate variability with support from multi-sectoral task force.

CHAPTER 10

Action Plan for Green and Climate Resilient Health Care Facilities

Capacity Building

i. Training Material

Para medical officers & Health care **Guidelines:**

- National Action Plan on Green and Climate-Resilient Health Care Facilities

Training modules: (available bit.ly/NPCCHH guidelines shortly)

- State-District level training modules
- Medical officer training
- Workers
- Community level training: vulnerable population group

Other training resources: NPCCHH channel https://bit.ly/NPCCHHyt

- Clinical Aspects of Heat-Related Illnesses
- Webinars on heat wave and its health impact
- HRI surveillance training

ii. State-Level/ District-Level Supporting Training institutes:

For State Institute of Health & Family Welfare SNO Delhi

Training on green and climate-resilient health care facilities (GCRHCF) may be expanded to include other climate sensitive health issues specifically extreme weather events.

iii. Annual training plan for Extreme Weather Events and Health under NPCCHH, Delhi

Training Programme for	Trainer	Topics	Timeline
District level (DNO-CC, trainers)	State Level Trainers SNO-CC, Consultant	• Assessments required for implementation • Coordination with supporting agencies	August-September
Health facility level (MO of DH/CHC/PHC)	District Level Trainers DNO-CC	• Assessments required for implementation • Coordination with supporting agencies	September
Community Health care workers (MPH, ASHA, ANM etc.)	District Level Trainers, MO		September-October

Strengthening Health Sector Preparedness

i. Implementation of Climate Resilient measures at health facilities

a. New HCF should be built in compliance with Green & Climate Resilient Infrastructural features as of updated IPHS

b. Existing HCF are recommended to undergo retrofitting to implement structural climate-resilient (i.e.to withstand disasters and provide continuous, quality care to the affected population post- disaster) measures as per IPHS guidelines. Health facilities' vulnerability to prevalent climate change impact should be assessed to determine retrofitting the measures. For the retrofitting locally sourced and sustainable building designs and construction technologies should be considered to reduce energy requirements, carbon footprint, and cost-effectiveness.

c. Extreme weather event specific measures(Refer: Guidelines on Green (Environmentally Sustainable) and Climate Resilient Health Care Facilities, https://bit.ly/NPCCHHPIP)

- Flood resilient measures
- Cooling measures

ii. Implementation of Green (Environmentally-friendly and sustainable) considered in FY 2023- 24 are as following

a. Energy Auditing of the Healthcare Facilities for Energy Efficiency level in the HCFs

b. Replacement of existing (non-LED) lighting with LED in Healthcare Facilities

c. Installation of Solar Panels in Healthcare Facilities

d. Install Rainwater Harvesting System in Healthcare Facilities

iii. Implementation plan for Green Measures in Healthcare facilities activity plan for 2022-23

Measure	Unit	Justification	Pre-requisite
Replacing Non-LED with LED lighting in			
CHC	8	Selected 8 CHC in 4 Districts	
PHC	12	Selected 8 PHC in 4 Districts	
Total	**20**		
Installing Solar panels			Following assessments should be done at health facility level with support from DNO, MO and nodal technical agency identified by state. • Energy audit • Water audit • Disaster vulnerability
HC	8	Selected 8 CHC in 4 Districts	
PHC	12	Selected 8 PHC in 4 Districts	
Total	**20**		
Installing Rainwater harvesting System			
CHC	8	Selected 8 CHC in 4 Districts	
PHC	12	Selected 8 PHC in 4 Districts	
Total	**20**		

iv. Monitoring and evaluation of activities should be done in-line with targets set in PIP.

Refer PIP Guidelines: https://bit.ly/NPCCHHPIP

Roles and Responsibilities

	Responsibilities
SNO	• Disseminate early warnings to district level • Finalization of IEC material and dissemination Plan • Organize training sessions for district level officers and trainers • Identify health facilities for priority implementation based on disaster and health facility vulnerability • Identify relevant state and district level nodal agencies and collaborate with them for assessment of health facilities for implementation of measures • Facilitate and monitor necessary assessments at health facility level • Facilitate implementation of structural and functional measures at health facility level • Submit report of activities on heat-health under NPCCHH • 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 following assessment at health facility level ▪ Energy audit ▪ Water audit ▪ Disaster-vulnerability assessment

	Responsibilities

	• Support following functional measures at health facility level
	  ▪ Water committee
	  ▪ Sustainable procurement committee
	  ▪ Operational measures to make health facility functioning during 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
	• Submit report of activities on heat-health under NPCCHH

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

PART III

Budget

CHAPTER 11
Budget

Proposed budget for implementation of NPCCHH activities during 2022-24, Delhi

Sl. No.	Activities		Year 1	Year 2
1	Infrastructure - Civil works (I&C)	Old/ongoing work		
		New Work	25.25	0
2	Capacity building incl. training		8.00	8.00
3	Others including operating costs (OOC)		101.00	101.00
4	IEC & Printing		20.00	20.00
5	Planning & M&E		8.20	6.00
6	Surveillance, Research, Review, Evaluation (SRRE)		5.00	5.00
	Total		**167.45**	**140.00**

Note: Year 1 = FY 2022-23; Year 2 = FY 2023-24.

Tentative NPCCHH Budget for next three years upto FY 2026-27

Sl. No.	Activities		Year 1	Year 2	Year 3
			(At least 15% increment)		
1	Infrastructure-Civil works (I&C)	Old/ongoing work New Work	0	0	0
2	Capacity building incl. training		9.2	10.58	12.17
3	Others including operating costs (OOC)		116.15	133.57	153.61
4	IEC & Printing		23	26.45	30.42
5	Planning & M&E		6.9	7.94	9.12
6	Surveillance, Research, Review, Evaluation (SRRE)		5.75	6.61	7.60
	Total		**161.00**	**185.15**	**212.92**

Note: Year 1 = FY 2022-23; Year 2 = FY 2023-24; Year 3 = FY 2024-25.