स्वास्थ्य एवं
परिवार कल्याण मंत्रालय
MINISTRY OF
HEALTH AND
FAMILY WELFARE

सत्यमेव जयते

ANDHRA PRADESH

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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Executive Summary

The impact of climate change is being experienced in the Indian continent as per the instances of increased heat waves, hazards, sea rise and likewise. Heat waves have been the most prominent climate change induced event in Andhra Pradesh, contributing to more deaths than any other natural disasters in the state and representing a significant risk to public health.

Andhra Pradesh state is located between 12°41' and 19.07°N latitudes and 77° and 84°40'E longitudes in the southern part of India. The state covers an area of 1,62,968 sq km which is 4.96% of the geographical area of the country. Physio-graphically, the state can be divided into coastal and the comparatively drier Rayalaseema region. The state is bordered by the states of Telangana, Chhattisgarh, and Odisha in the north, the Bay of Bengal in the East, Tamil Nadu in the south and Karnataka in the west. Andhra Pradesh has a coastline of around 974 km, the 2nd longest coastline in the nation after Gujarat. Two major rivers, the Godavari and the Krishna runs across the state.

The climate of Andhra Pradesh state is generally hot and humid. The summer season in this state generally extends from March to June. During these months the moisture level is quite high. The coastal areas have higher temperatures than the other parts of the state. The summer season is followed by the monsoon season, which starts during June and continues till September. This is the season of heavy tropical rains in Andhra Pradesh. The major role in determining the climate of the state is played by South-West (SW) Monsoons. About one third of the total rainfall in Andhra Pradesh is brought by the North-East Monsoons around the month of October. The winters in Andhra Pradesh are pleasant and usually fall between October to February. Since the state has quite a long coastline, the winters are comparatively mild.

The State Action Plan for Climate Change and Human Health proposes a multi-pronged approach to address the health-related aspects of climate change. It is envisioned to strengthen health of citizens of Andhra Pradesh against climate sensitive illness. The goal is to reduce morbidity, mortality, injuries and health vulnerability to climate variability and extreme weathers. Objective is to build capacity of health care services against adverse impact of climate change on human health.

Mission Director
National Health Mission
Andhra Pradesh

PART I

Climate Change and its Health Impacts

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 social and environmental determinants of health like – clean air, safe drinking water, sufficient food and secure shelter.

Climate change may negatively affect human health in a number of ways, but the most commonly experienced are increased frequency and intensity of heat waves leading to a rise in heat-related illnesses and deaths, increased precipitation, floods, droughts, and desertification costing lives directly. High temperature is known to increase the level of 'ground level ozone' and other 'climate altering pollutants' other than carbon dioxide, which further exacerbate cardio-respiratory and allergic diseases and certain cancers. Besides these, there is an increase in transmission and spread of infectious diseases, changes in the distribution of water-borne, food-borne and, vector-borne diseases, and effects on the risk of disasters and malnutrition.

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".

India is a signatory to the "*Male' Declaration*" which 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.

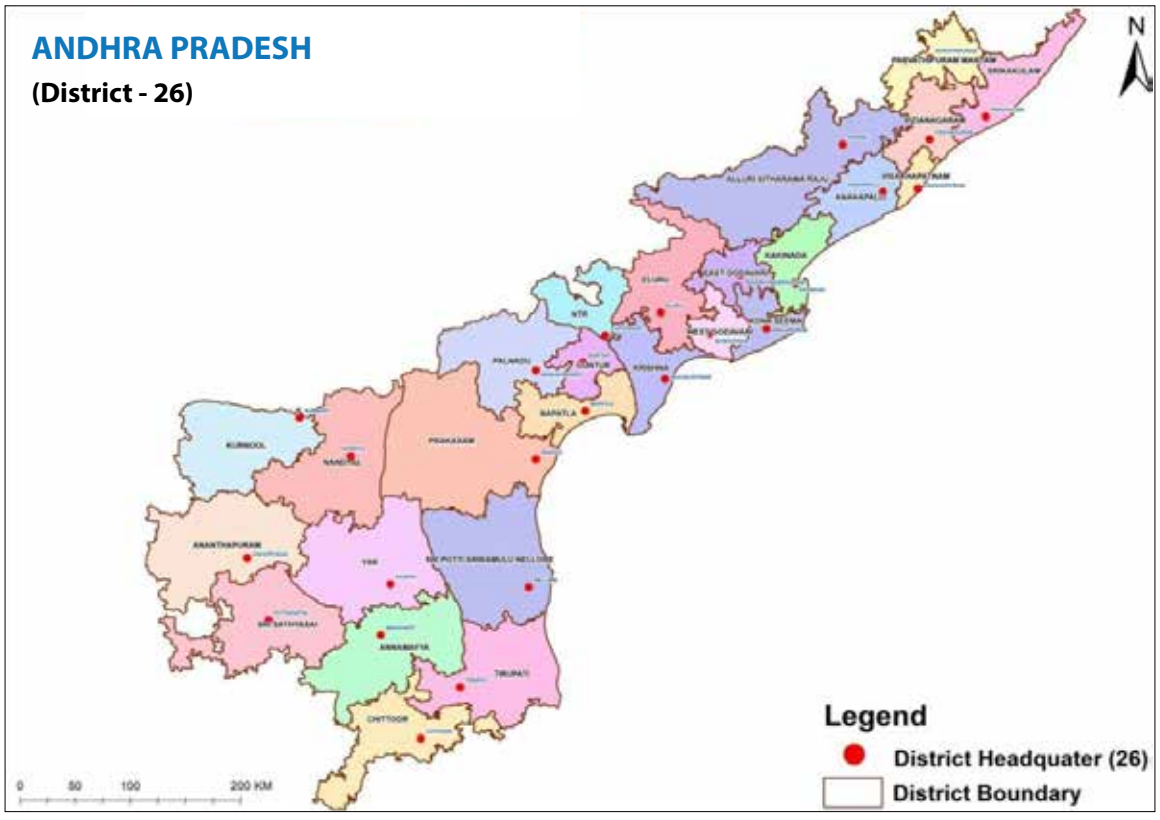
In this regard, initiatives undertaken by the Government of India include identification of Ministry of Environment, Forest & Climate Change (MoEF&CC) as the nodal ministry, formulation of the National Environmental Policy 2006, and formulation of the Prime Minister's Council on Climate Change for matters related to Climate Change. MoEF&CC has developed National Action Plan on Climate Change with eight missions. Later on four new missions (including Health Mission) were identified. The *Health Mission* aims to

reduce climate-sensitive illnesses through integration with other missions under National Action Plan for Climate Change (NAPCC) as well as through programmes run by various ministries. As a follow-up action, the Ministry of Health and Family Welfare (MoHFW) constituted a National Expert Group on Climate Change & Health (NEGCCH) to prepare National Action Plan on Climate Change and Human Health (NAPCCHH) and recommend strategies for indicators, mitigation, capacity building, etc. for the health sector to respond to the climate emergency.

National Centre for Diseases Control (NCDC) is identified as the 'technical nodal agency' by MoHFW for the proposed National Mission on Health. The Centre for Environmental and Occupational Health Climate Change & Health (CEOH&CCH), NCDC, is implementing the National Programme of Climate Change and Human Health (NPCCHH), as a part of which State Action Plan on Climate Change and Human Health (SAPCCHH) has been prepared for the state of Andhra Pradesh. SAPCCHH is a long-term vision and planning document prepared by the Department of Health & Family Welfare, Andhra Pradesh, applicable for up till year 2027. Based on this document, district specific action plans will also be prepared. Andhra Pradesh state action plan highlights the current and future vulnerabilities to climate change in the state, the disease burden and the initiatives to be undertaken by the state to reduce the same by addressing the climate-sensitive diseases and develop a climate responsive and sustainable health care ecosystem in the state.

Andhra Pradesh - Geography and Demographics

Andhra Pradesh is located in the south eastern coast of India and is the seventh-largest state by area covering an area of 1,62,975 km^2. The state shares its borders with Chhattisgarh in the north, Odisha in the northeast, Telangana and Karnataka in the west, Tamil Nadu in the south, and the Bay of Bengal in the east. Its 974 km coastline is the second longest in the country. In terms of population, Andhra Pradesh



is 10th most populous state in India. According to the Unique Identification Aadhar India, by mid of the year 2020 the projected population of the state was 53.9 million. In 2011, the state had a population of 49.58 million. There are 26 districts in the state.

Andhra Pradesh is located in the south-eastern part of India at 12°41′ and 19.07°N latitude and 77° and 84°40′E longitude. Although the economy is primarily agricultural, some mining activity and a significant amount of industry also exists in the state.

CHAPTER 2

Climate Vulnerability

Climate in Andhra Pradesh

The climate of Andhra Pradesh varies considerably, depending on the geographical region. Summer season lasts between March to June. In the coastal plain, the summer temperatures are generally higher than the rest of the state, with temperature ranging between 20°C and 41°C. The state is extremely humid due to the presence of Bay of Bengal towards its eastern border. July to September is the season for tropical rains. About one-third of the total rainfall is due to the southwest monsoon. October and November months witness low-pressure systems and tropical cyclones formed in the Bay of Bengal which, along with the northeast monsoon, bring rains to the southern and coastal regions of the state. The winter season is experienced between November-February. Since the state has a long coastal belt, extreme winters are not witnessed as per the current climate scenario. The temperature during these months is generally between 12°C-30°C. Lambasingi in Visakhapatnam district is also nicknamed as the "Kashmir of Andhra Pradesh" due to its relatively cool climate as compared to others and the temperature ranges from 0°C - 10°C.

In the state, summers are extraordinarily hot and humid, with maximum daily temperatures exceeding 35°C and even surpassing 40°C in the central portion. Winters are somewhat cooler, with maximum temperatures between 30°-35°C in all but the northeastern areas. Winter lows go below 15°C only in the extreme north-east. The annual precipitation, which derives largely from the south-west monsoon rains, generally decreases toward the south-western plateau area. Coastal areas receive about 1,000 to 1,200 mm of rainfall per year, while the western most part of the plateau may receive only half that much.

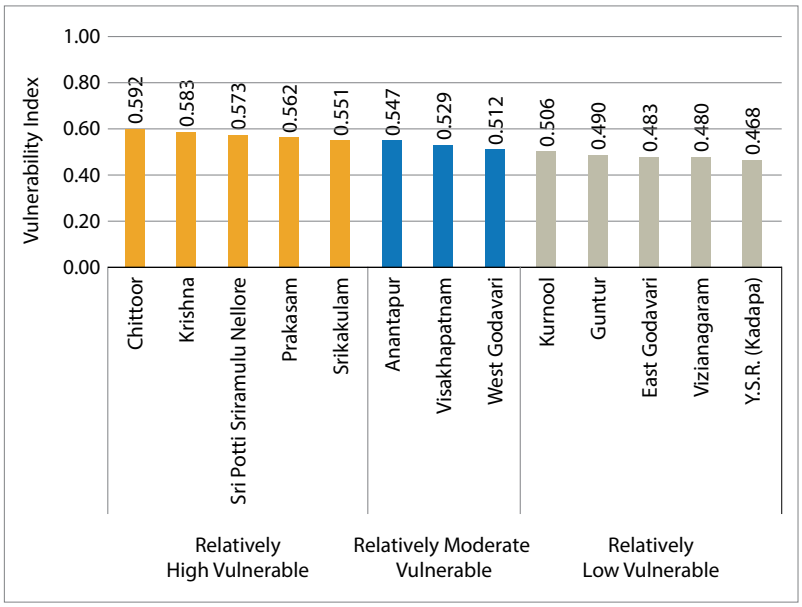
In accordance with the National Vulnerability Assessment Report 2021, by Department of Science & Technology,

The major drivers of vulnerability were found to be the large proportion of marginal and small farmers in the agricultural sector and the lack of forest area per 1000 population (in 7 districts), followed by a lack of implementation of centrally funded crop insurance policies (in 6 districts), low road density (in 5 districts) and a lack of health infrastructure (in 4 districts).

Table 1: List of indicators used for the assessment of district-level vulnerability assessment for Andhra Pradesh

Indicators	Adaptive Capacity/ Sensitivity	Functional relationship with vulnerability
Percentage of marginal and small operational holders	Sensitivity	Positive
Forest area (in ha) per 1000 rural population	Adaptive Capacity	Negative
Percentage area covered under centrally funded crop insurance schemes	Adaptive Capacity	Negative
Proportion of rainfed agriculture	Sensitivity	Positive
Variability in food grain crop yield (ton/ha) for the past 10 years	Sensitivity	Positive
Women's participation in the workforce	Adaptive Capacity	Negative
Road density	Adaptive Capacity	Negative
Average person days per household employed under MGNREGA	Adaptive Capacity	Negative
Percentage households with access to electricity	Adaptive Capacity	Negative
Percentage households with improved drinking water source	Adaptive Capacity	Negative
Health infrastructure per 1000 population	Adaptive Capacity	Negative
Infant mortality rate (IMR)	Sensitivity	Positive

Figure 1 and 2: Vulnerability Indices (VIs) and ranking of districts in Andhra Pradesh and Categories of vulnerability of the districts in Andhra Pradesh As per the study, districts have relatively high vulnerability, districts have moderate and districts have low vulnerability



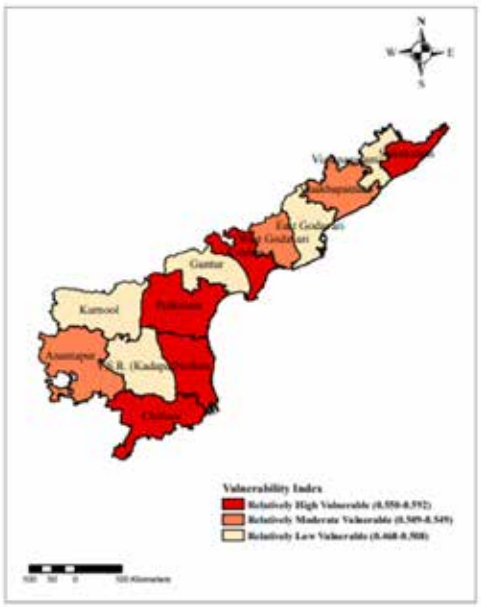
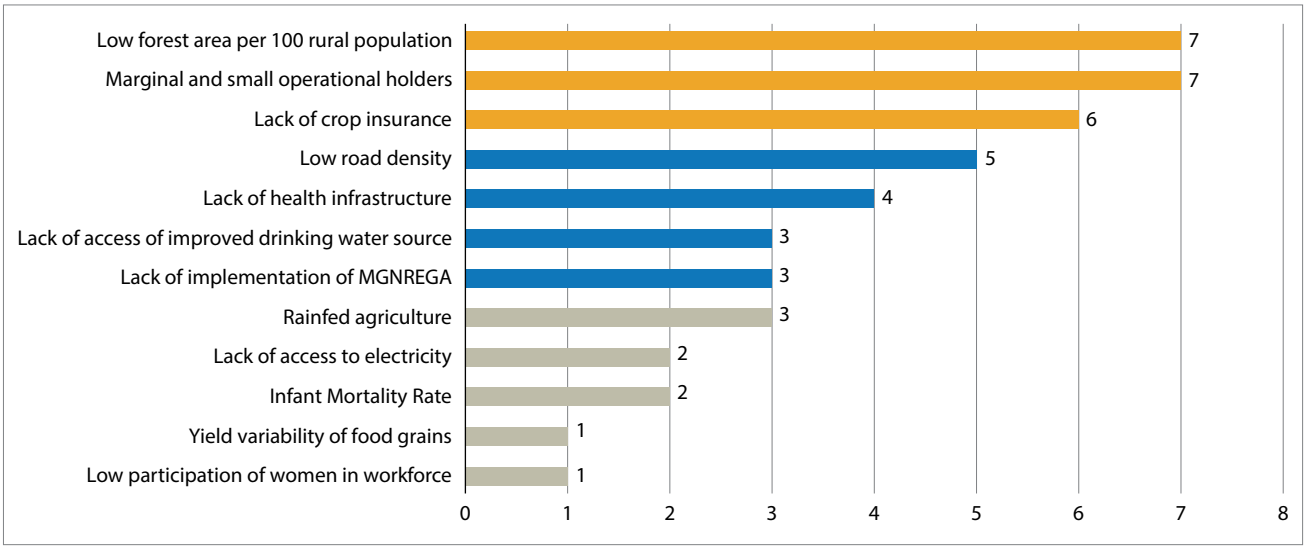


Figure 3: Drivers of vulnerability in the districts of Andhra Pradesh (the length of the bars representing the number of districts with the corresponding indicator as a driver of vulnerability)



Climate change impact on Health

- Major vector-borne diseases prevalent in the state are malaria, dengue, filariasis and chickungunya.
- High malaria numbers are attributed to the pollution of water bodies and water logging.
- Extremes of heat waves have been shown to result in excess morbidity and mortality.
- According to the Indian network for climate change assessment, Andhra Pradesh, is likely to experience severe heat stress by 2030.
- Climate change is already having a discernible influence on the burden of diseases, particularly on the health of the most impoverished sections.

CHAPTER 3

Climate Sensitive Diseases Prevalent in the State

Climate change attributes new challenges for the public health around the world. The phenomenon is linked with rising instances of diseases in the state, for instance through higher temperatures, water scarcity, air pollution, heat waves and flooding.

Following are the major climate sensitive diseases prevalent in Andhra Pradesh:

- Acute Respiratory Illnesses attributed to Air Pollution
- Heat related illnesses
- Vector Borne Diseases
- Water Borne Diseases
- Disaster management - Extreme weather events (Floods, cyclones, drought) affecting health

Chronic Respiratory Diseases

Andhra Pradesh witnessed a severe trend of respiratory diseases (COPD- Chronic Obstructive Pulmonary disorders). Around 29,000 deaths in the state due to COPD out of 8.48 lakh deaths across India in 2016. Similarly around 6,000 deaths in Andhra were reported due to Asthma in 2016 of the 1.83 lakh asthma death in the country. According to Lancet study stated that the situation is better in AP when compared nationally. Air pollution, tobacco consumption and occupation risks were blamed for the high COPD prevalence. Asthma is a genetic Diseases triggered by factors like humidity.

Heat Related Illnesses

Sun stroke cases and Deaths were reported decreasingly over last two years in Andhra Pradesh. The district wise data for 2019 is as shown below.

Heat Stroke

Sun Stroke Cases & Deaths 2016–19									
Sl. No.	Districts	2016		2017		2018		2019	
		Morbidity	Mortality	Morbidity	Mortality	Morbidity	Mortality	Morbidity	Mortality
1	Srikakulam	320	31	70	6	0	0	6	1
2	Vizianagaram	1277	3	352	1	229	2	21	4
3	Visakhapatnam	244	8	137	0	0	0	42	1
4	East Godavari	1195	93	166	4	1864	0	9	8
5	West Godavari	66	0	87	0	11	0	5	1
6	Krishna	3300	0	2122	4	2	0	3	0
7	Guntur	892	0	625	0	191	0	134	0
8	Prakasam	636	10	439	25	60	0	346	0
9	Nellore	592	0	1143	13	28	3	39	0
10	Chittoor	1324	96	2301	31	14	9	52	6
11	Kadapa	11102	9	3586	4	93	0	219	1
12	Anantapur	223	56	87	7	16	2	5	0
13	Kurnool	59	5	90	5	74	2	75	2
Total		**21230**	**311**	**11205**	**100**	**2582**	**18**	**956**	**24**

Vector Borne Diseases

Dengue

Andhra Pradesh recorded 4,011 dengue cases in 2018 and 5,286 in 2019. Consequently the state detected 925 cases in 2020. AP accumulated 4,754 dengue cases in 2021. Visakhapatnam district alone reported 1,211 cases accounting for more than 25% of the total cases that surfaced in the state last year. Anatapur, which added 178 dengue cases, recorded the lowest positivity of 1.24%. Guntur district recorded only 650 cases, it posted the highest case positivity rate of 15.2%. There have been no dengue related deaths in the state between 2017 to 2021.

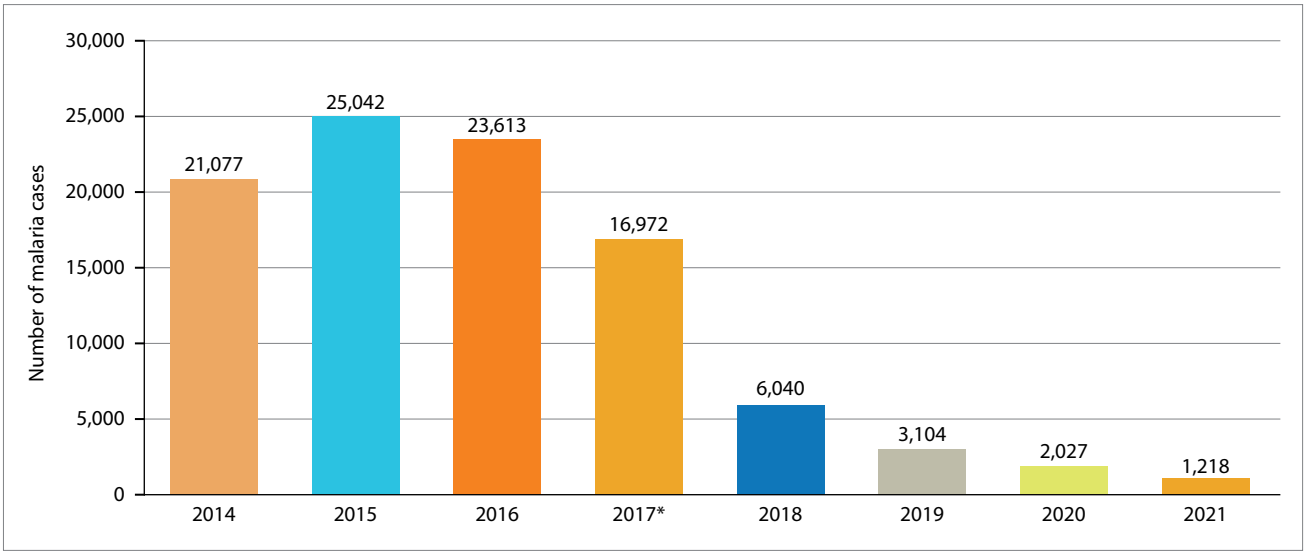
State	2015		2016		2017		2018		2019		2020		2021		2022	
Andhra Pradesh	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
	3159	2	3417	2	4925	0	4011	0	5286	0	925	0	4760	0	810	0

Source: https://nvbdcp.gov.in/images/body_light.png

Malaria

The number of malaria cases across Andhra Pradesh in 2021 amounted to approximately 1.2 thousand, down from just over 24.6 thousand malaria cases in 2016. The state recorded the highest malaria cases in 2015 with over 25 thousand cases of the disease.

Distribution of Number of malaria cases across Andhra Pradesh in India from 2014 to 2021



Chikungunya

Visakhapatnam district accounted for about 95% of chikungunya cases recorded in Andhra Pradesh. The state witnessed 17 chikungunya cases, as many as 16 people fell victim to the diseases in Visakhapatnam district. The increased construction activity in the suburbs, growing population densities and inadequate sanitation has been creating fertile ground for mosquito breeding. The Aedes Aegypti mosquito which spreads dengue, chikungunya, yellow fever and other diseases is a highly domesticated urban mosquito that prefers to live in the human habitat.

Epidemiology Profile of chikungunya fever in the AP since 2015

Sl. No.	Affected States/ UTs	2015		2016		2017		2018		2019		2020		2021		2022 (Prov. till 31th May)	
		No. Susp. Chik. cases	No. of conf. cases	No. Susp. Chik. cases	No. of conf. cases	No. Susp. Chik. cases	No. of conf. cases	No. Susp. Chik. cases	No. of conf. cases	No. Susp. Chik. cases	No. of conf. cases	No. Susp. Chik. cases	No. of conf. cases	No. Susp. Chik. cases	No. of conf. cases	No. Susp. Chik. cases	No. of conf. cases
1	Andhra Pradesh	817	83	960	147	1162	108	622	79	832	88	318	28	753	48	725	6

CHAPTER 4
Vision, Goal and Objectives

Under the framework of the national action plan on climate change and human health, the department of public health and family welfare (DoPH&FW), the government of Andhra Pradesh has adopted the vision, goal and objective for the state action plan on climate change and human health. The same as mentioned below:

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 weather.

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

Specific Objectives

Objective 1: To create awareness among the 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's 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

PART II

Health Action Plans on Priority Climate Sensitive Health Issues

CHAPTER 6

Health Action Plan on Air Pollution Related Diseases

Air pollution is a major environmental risk to health. The formation, transport, and dispersion of many air pollutants is determined partly by climate and weather factors such as temperature, humidity, wind, storms, droughts, and precipitation and by human activities like industrialization, construction and demolition activities, vehicular pollution, episodic crop residue burning etc. known to produce various air pollutants. Air pollution is also associated with acid rain, and eutrophication due to nitrogen oxide emission in air from power plants, cars, trucks, and other sources, haze, toxic effects on wildlife, ozone depletion in the atmosphere, crop and forest damage, etc.

The health risks due to air pollution are associated with exposure to high levels of particulate matter (PM), ozone (O_3), nitrogen dioxide (NO_2) and sulphur dioxide (SO_2) etc. and the air quality levels in an area are collectively communicated to the public as Air Quality Index (AQI). The particulate matters of less than 10 and 2.5 microns India meter (PM10 and PM2.5) are capable of penetrating deep into the airway passages, entering the bloodstream, causing illnesses from acute and chronic respiratory systems, increase in malfunction of the other organs affecting the health of cardio-cerebrovascular renal diseases, and among pregnant females due to trans-placental crossing of pollutants affect foetus resulting in low birth congenital problems and associated complications.

Causes of air pollution in the state

Ambient Air Pollution

1. Brick Manufacturing Unit
2. Pollution by Automobiles
3. Industrial Emission

Indoor Air Pollution

1. Use of Biomass, Kerosene as Fuel for Cooking
2. Burning of waste, Cow Dung, Coal in Villages
3. Tobacco Smoke
4. Mosquito Coils
5. Candles and Incense

Ambient (outdoor) air pollution in both cities and rural areas was estimated to cause approximately 7 million deaths worldwide, and 90% of these deaths have occurred in low and middle-income countries. In India, nearly 12.5% of deaths have been attributed to air pollution. Thus, it is logical to assume that a reduction in air pollution levels can help reduce the burden of diseases like acute and chronic respiratory diseases, heart diseases, strokes and other allergic problems.

The quality of air is expressed as Air Quality Index (AQI) which is broadly categorized into six levels as Good, Satisfactory, Moderately Polluted, Poor, Very Poor, and Severe to communicate and help understand and the associated health problems with the public and officials.

Health Impacts of Air Pollution

Air Pollution is recognized as the greatest environmental risk to human health and is a preventable risk factor. It can affect every part of the body particularly the skin and eyes, respiratory tracts, cardiovascular and cerebro-vascular functions etc. and may be associated with health problems like asthma, chronic respiratory problems like COPD, cardiovascular problems like ischaemic coronary heart diseases, cerebrovascular like strokes, cancers, diabetes, hypertension, etc. According to the report of Steering Committee on Air Pollution from the MoHFW(2015) and WHO reports on Air Pollution and Health, certain short term and long term health effects due to air pollution are shown as in the Table 1.

Table 2: Health Effects attributed to short-term and long-term exposures to Air Pollution

Sl. No.	Health Effects attributed to short-term exposure to air pollution	Health Effects attributed to long-term exposure to air pollution
1	Respiratory & cardiovascular emergency department visits	Acute symptoms (Wheezing, coughing, phlegm production, respiratory infections)
2	Respiratory & cardiovascular primary care visits	Chronic respiratory diseases incidence&prevalence (asthma, COPD, chronic pathological changes)
3	Use of respiratory & cardiovascular medications	Physiological changes (e.g. lung function)
4	Respiratory & cardiovascular hospital admissions	Chronic changes in physiologic functions
5	Days of restricted activity	Chronic cardiovascular diseases
6	Work absenteeism	Intrauterine growth restrictions (low birth weight at term, intrauterine growth retardation, small for gestational age)
7	School absenteeism	Mortality due to cardiovascular &respiratory diseases
8	Daily mortality/deaths	Lung cancers

As air pollution is recognized to impact health of a large population living in both urban and rural areas in India, there is an urgent need to develop state specific health adaptation plan related to air pollution. So, this will help develop state specific objectives and targets to prioritize resources to address health related issues in context of air pollution.

Activity Matrix

Health action plan on 'Air Pollution and Health' in Andhra Pradesh State has been developed to protect, prevent control health problems and reduce morbidity and mortality due to illnesses related to air pollution.

The major components of the health action plan on air pollution and health are mentioned below:

1. Awareness generation

To increase general awareness among all the relevant stakeholders including general population especially vulnerable communities, health care providers and policy makers regarding the impacts of air pollution on human health, the state has developed information, education and communication (IEC) materials communicating messages for preventable actions and seeking medical support using multiple communication materials such as posters, audios, videos, and organizing public health events.

a. IEC activities and dissemination plan at the state level

- Developed six types of posters on climate change and health impacts including messages of prevention and protection from air pollution for the general population, the vulnerable groups to air pollution and seeking medical support. These are being disseminated in all healthcare facilities and all government educational institutes, along with using mass media channels for reaching out to the general population. (**Annexure 1**)
- Currently, 7 audio-videos have been translated in regional language (Telugu) and will be disseminated (reference links attached). (**Annexure 2**)

Plan for IEC dissemination on air pollution for 5 years

Indicator Statement	Indicator	Unit	Target 2022-23	Target 2023-24	Target 2024-25	Target 2025-26	Target 2026-27
IEC campaigns (see list *)	% of Districts implemented IEC campaign on Air Pollution	%	50%	100%	100%	100%	100%
	% of Districts included climate sensitive issues in the VHSNCs	%	50%	100%	100%	100%	100%

Listed IEC activities for an IEC campaign for air Pollution

- 1 or 2 video clips of 1-2 min duration broadcasted 1-2 times a day throughout the year on the air pollution and its health impacts.
- At least 1-2 Large Wall Poster and/or 1-2 Foam board printed and disseminated in all healthcare facilities and all government educational institutes. One each at each facility/institute per year.
- Social Media – active circulation of audio-video clips and poster slide show in prominent social media handles.

Sl. No.	IEC Content	Priority Districts	Dissemination Plan for 5 years (2022-27)	Mechanism	Time line	Budget (in lakhs)				
						(2022-23)	2 years (2022-24)	(2024-25)	(2025-26)	(2026-27)
1.	Posters	26 districts	2 Posters for Healthcare facilities in all districts bit.ly/ NPCCHHIEC	• Printing of _____ copies for state-level dissemination at health facilities, public places/building • By email to DNO for printing at district level and dissemination to health facilities, schools and other public/government buildings	Sep to Nov	12 lakhs	12 lakhs	18 lakhs	27 lakhs	40 lakhs
2.	Audio	26 districts	3 audios bit.ly/ NPCCHHIEC	Radio	October					
3.	Videos	26 districts	7 videos bit.ly/ NPCCHHIEC	Social media/TV/public events	October					
4.	Social Media	26 districts	All above material + Relevant activity updates	TWITTER WhatsApp groups (State DNO, Health facility group)	Throughout the year					

b. Public Health Advisories

Health advisories (bit.ly/NPCCHHPrg) are issued to alert population of potential harmful impact of impending environmental phenomena like cold wave/frost, heat wave and elevated air pollution. Advisories are issued at central level and will be forwarded to the districts through State/UTs for public dissemination. District will be responsible to ensure timely dissemination of health advisories in locally acceptable language.

c. Observation of the 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

1. Capacity Building

To strengthen the capacity of the healthcare system to adapt/address illnesses/diseases due to impacts of air pollution, the following capacity building and training programme will be deployed by the state. Further, refresher trainings at regular intervals will be conducted to regularly help appraise the staff strengthen the health sector response to air pollution related illnesses.

a. Training calendar

Table 3: NPCCHH Training Plan at the State Level

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 4: Recommended schedule of training for 5 years (2022-2027)

Trainer	Priority Districts	Time of year	Content matter	Budget				
				2022-23	2022-24	2024-25	2025-26	2026-27
DNO-CC	26 Districts	July-September	Air pollution-related illnesses Cardio pulmonary diseases Allergic diseases	10 lakhs	10 lakhs	13 lakhs	19 lakhs	28 lakhs
MO	26 Districts	October-November						
District level trainers, MO, Health care workers	26 Districts	December						

3. Surveillance

The state has established surveillance mechanisms on illnesses due to air pollution to help understand the health problems in the area and establish a pattern to better inform the impact of air pollution on the population as well as strengthen the healthcare facility's response to the illnesses. The state has initiated Sentinel Surveillance for illnesses in the context of air pollution by identifying the hospitals across the region.

a. Selection of sentinel surveillance cities

- The non-attainment cities as identified under National Clean Air Programme of the MoEFCC Central Pollution Control board (CPCB) had earlier identified five cities in Andhra Pradesh, namely Visakhapatnam, Vijayawada, Guntur, Nellore and Kurnool as non- attainment cities. In addition to the above, CPCB has identified additional 08 cities and towns for not meeting the national ambient air quality standards (NAAQS) for PM 10. These include Srikakulam, Vizianagram, Rajamahendravaram, Eluru, Anatapur, Chittoor, Kadapa and Ongole.

b. Sentinel hospitals selected for ARI surveillance activity

Currently, 11 sentinel hospitals have been identified in Andhra Pradesh for acute respiratory illnesses (ARI) surveillance, the details of these include:

ARI Sentinel Surveillance					
Sl. No.	**District Name**	**Facility Name**	**Nodal Officer Name**	**Mobile No.**	**Email ID**
1	Anantapur	GGH Anantapur	Dr Aruna	9441081447	adinatesh69@gmail.com
2	Chittoor	SVRR GGH Tirupati	Dr Kalyan	7989434133	kchakravarthy533@gmail.com
3	East Godavari	GGH Kakinada	Dr Vineela Priyanka	9666475003	dr.muppidivineela@gmail.com
4	Guntur	GGH Guntur	Dr Vishnu Nandan	8919193010	drvishnunandan@gmail.com
5	Krishna	GGH Vijayawada	Dr U Vamsi Krishna Dr. Siva Durga Nayak	9966149148 9493252154	undavallivamsi@gmail.com
6	Kurnool	GGH Kurnool	Dr Natesh	9398686300	radhika.aruna@gmail.com
7	Prakasam	GGH Ongole	Dr P Sudha Kumari	9441493556	drpsudha@yahoo.co.uk
8	Spsr Nellore	GGH Nellore	Dr Pravallika	8333021453	pravallikasomavarapu@gmail.com
9	Srikakulam	RIMS Srikakulam	Dr K Helena	8978733082	drhelenasundar@gmail.com
10	Visakhapatanam	KGH Visakhapatnam	Dr D Errayya	9441083160	errayyadowrula@gmail.com
11	Y.S.R.	RIMS Kadapa	Dr Renuka	9494736832	biyyala.renuka@gmail.com

Roles and Responsibilities

In accordance with the action plan on air pollution and its impact on human health, the 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

	Responsibilities
	• 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 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
DNO	• Ensure IEC dissemination to the community level • Facilitate community level IEC activities • Organize training for Block health officers, Medical officer, Sentinel hospital nodal officers with relevant training manuals • Organize 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 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 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, 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 Action Plan on Heat Related Illnesses

Introduction

Heat-related illnesses (HRI) encompass a spectrum of disorders ranging from heat syncope, muscle cramps, and heat exhaustion to a life-threatening emergency such as heat stroke. These illnesses arise when there is a disruption in the regulation of the body's temperature because heat input from the environment and body metabolism is increased in comparison to without the rise in temperatures from the skin via radiation, evaporation, and convection.

In India, significant number of deaths occur every year due to heat related illnesses. Integrated Disease Surveillance Programme (IDSP) at National Centre for Disease Control (NCDC) under MoHFW, GoI is collecting and reporting the morbidity and mortality data of HRI from heat vulnerable states since 2015. In the context of global warming, extreme weather events are on rise and among them, heat waves are projected to increase in number, intensity and duration with consequent health risk.

In India, 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 Departure from Normal

- Heat Wave: Departure from normal is 4.5°C to 6.4°C
- Severe Heat Wave: Departure from normal is >6.4°C

B. Based on Actual Maximum Temperature (for plains only)

- Heat Wave: When actual maximum temperature ≥ 45°C
- Severe Heat Wave: When actual maximum temperature ≥47°C

To declare a heat wave, the above criteria should be met at least at two stations in a Meteorological sub-division for at least two consecutive days. A heat wave gets declared on the second day.

Types of heat related illnesses

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
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

Heat-wave Action Plan in Andhra Pradesh

The Heat-Wave Action plan provides a framework for implementation, coordination and evaluation of extreme heat response activities in cities in Andhra Pradesh that reduces the negative impact of extreme heat. The primary objective of the action plan is to alert those populations at risk of heat-related illness in places where extreme heat conditions either exist or are imminent, and to take appropriate precautions,

which are at high risk. Severe and extended heat-waves can also cause disruption to general, social and economic services.

The Heat Action Plan is a comprehensive early warning system and preparedness plan for extreme heat events. The plan presents immediate as well as longer-term actions to increase preparedness, information-sharing, and response coordination to reduce the health impacts of extreme heat on vulnerable populations. It is intended to mobilize individuals and communities to help protect their neighbors, friends, relatives, and themselves against avoidable health problems during spells of very hot weather.

For Andhra Pradesh, the reported heat wave incidences are presented in the table below:

Average Number of Heat wave days reported													
State/UT	No. of stations	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Andhra Pradesh	7	8	16	11	16	7	10	10	8	13	3	4	5

The major components of the action plan are mentioned below:

I. Awareness Generation

To increase general awareness among all the relevant stakeholders including general population especially vulnerable communities, health-care providers and policy makers regarding the impacts of heat and ways to address them.

a. IEC

The State has developed five types of posters which have been shared with the at the district level. These illustrate the preventive measures for the general as well as vulnerable population to undertake in situations of heat wave as well as on seeking medical support. At the community level, the IEC material is to help the population be aware of the heat wave situation as well as adapt to the same. The developed IEC material will be disseminated in the state during the intensive summer months on a regular basis for maximum population reach-out in all the cities and districts with high susceptibility and exposure to heat wave related events as per current as well as future climatic conditions.

Plan for IEC dissemination on Heat for 5 years

Indicator Statement	Indicator	Unit	Target 2022-23	Target 2023-24	Target 2024-25	Target 2025-26	Target 2026-27
IEC campaigns (see list *)	% of Districts implemented IEC campaign on heat related illnesses	%	50%	100%	100%	100%	100%
	% of Districts included climate sensitive issues in the VHSNCs	%	50%	100%	100%	100%	100%

Listed IEC activities for an IEC campaign for heat related illness

- 1 or 2 video clips of 1-2 min duration broadcasted 1-2 times a day throughout the year on the heat related illness and its health impacts relevant to that part of year
- At least 1-2 Large Wall Poster and/or 1-2 Foam board printed and disseminated in all healthcare facilities and all government educational institutes. One each at each facility/institute per year
- Social Media – active circulation of audio-video clips and poster slideshow on prominent social media handles

Sl. No.	IEC Content	Priority Districts	Dissemination Plan for 5 years (2022-27)	Timeline	Budget (in lakhs)				
					2022-23	2022-24	2024-25	2025-26	2026-27
1.	Posters	26 districts	2 Posters for Healthcare facilities in all districts	February to March	12 lakhs	12 lakhs	18 lakhs	27 lakhs	40 lakhs
2.	Audio		4 audios (received from GOI)	April to May					
3.	Videos		7 videos (received from GOI)	April to may					

b. Public Health Advisories

Health advisories are issued to alert population of potential harmful impact of increasing heat. Advisories are issued at the central level i.e. NCDC and will be forwarded to the districts for public dissemination. Districts are responsible for ensuring timely dissemination of health advisories in locally acceptable language.

c. Observance of important days

World Environmental day will be observed for heat under NPCCHH every year (Annexure 3)

2. Capacity Building

To strengthen the capacity of the healthcare systems to adapt/address illnesses/diseases due to the heat waves in the state of Andhra Pradesh, capacity building and training plans have been developed. This is indicated in the table below:

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	March
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	March

Training Programme for	Trainer	Topics	Timeline
Community Health care workers (MPH, ASHA, ANM etc.)	District Level Trainers, MO	• Heat-health impact prevention • Indoor and outdoor mitigation measures	March-April
Panchayati Raj Institutions	District level trainers, MO, Health care workers	• Heat-health impact prevention • Indoor and outdoor mitigation measures	March-April

Schedule of training for 5 years (2022-2027)

Trainer	Priority Districts	Time of year	Content matter	Budget				
				2022-23	2023-24	2024-25	2025-26	2026-27
DNO-CC	26 Districts	March to April	Heat related Illnesses	10 lakhs	10 lakhs	13 lakhs	19 lakhs	28 lakhs
MO		March to April						
District level trainers, MO, Health care workers		May to June						

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

3. Surveillance

HRI surveillance is conducted to establish a baseline of HRI morbidity and mortality, to monitor HRI incidence in relation to environmental parameters and improve health system preparedness to extreme heat. The state is collecting HRI data report from IDSP and sharing with NCDC on a monthly basis.

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

Roles and responsibilities

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

	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 the IEC campaigns at 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

	Responsibilities
	• 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 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, 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 • 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

	Responsibilities
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

Health Action Plan on Extreme Weather Event-Related Health Issues

A hazard is defined as any process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation; while risk is a measure of the expected losses (deaths, injuries, property, economic activity etc.) due to a hazard of a particular magnitude occurring in a given area over a specific time period.

Floods, droughts, cyclones, earthquakes and landslides have been recurrent phenomena in the history of the Indian sub-continent. About 60% of the landmass is prone to earthquakes of various intensities; over 40 million hectares is prone to floods; about 8% of the total area is prone to cyclones and 68% of the area is susceptible to drought.

However whether the hazard constitutes a disaster or not depends on the risk or potential for losses involved in the affected area. **According to the Disaster Management Act, 2005, a disaster** is defined as "a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of property, or damage to, or degradation of environment and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area."

India has been experiencing an increasing number of climate change related natural disasters, resulting in extensive loss of lives, livelihoods, the environment and economy. During Kerala floods of 2018, almost 5.4 million people were affected while Cyclone Fani in Orissa affected almost 16.5 million people. These two disasters led to a total loss and damages of almost 5 billion USD.

Different disasters can be linked with different health implications, which are summarized in Table.

Health implications associated with different types of climate change related disasters

Primary	Secondary	
Heavy Rainfall	• Floods	Injuries, water borne diseases, vector borne diseases, death, drowning, hypothermia, and animal bites Indirect (infected wounds, complications of injury, poisoning, poor mental health, communicable diseases, and starvation)
	• Flash floods	
	• Urban floods	
	• Landslides/slope failures	High Mortality And Few Injuries: Trauma And Suffocation By entrapment

Primary	Secondary	
Dry spells/Low Rainfall	• Drought	Nutrition-related, Dust-related and airborne, migration-related
	• Desertification	
	• Forest fire	
Oceanic storms	• Cyclones	Trauma, Drowning, Injuries, gastroenteritis, vector-borne disease and acute respiratory illness.
Winds	• Dust storms/Sandstorms	Respiratory problems, eye problems.
	• Thunderstorms	Injuries, Thunderstorm asthma.
	• Air Pollution	Respiratory Disorders, Cardiovascular Disorders, Ophthalmic Disorders
Temperature extremes	• Heat wave	Dehydration, Heat cramps, Heat stroke; accelerated respiratory disease & cardiovascular disease
	• Cold wave	Heart attacks, Injuries, frost nip and frost bite, Hypothermia, immersion foot, influenza, Norovirus, Asthma, Sore throats
	• Fires (urban, rural, industrial)	Burns, Mortality, wheezing, coughing, sore eyes, respiratory issues, heat induced illnesses, Carbon Monoxide poisoning
Lightening	• Lightening disaster	Mortality, Injury, Burn, Disability

General Disaster Profile

- Andhra Pradesh is prone to cyclones
- The state is also are severely affected by drought
- The coastal regions are also prone to coastal flooding along with some internal areas
- In the past few years, may incidents of heat waves have been seen in the region.

Regional Issues

- There has been increase in flood incidents in Andhra Pradesh
- Prolonged periods of increase in temperature has been seen in many areas.
- Rainfall peak events have increased. Coastline erosion has also been observed but more data is needed in this context.
- The temperature and sea level are constantly rising, affecting the ecosystems significantly. This in turn affects the sea catch and thus the nutrition of coastal population.
- Wind speed changes affect the spread of infectious agents causing the diseases.
- Increase in the cases of vector borne diseases in the past few years like malaria, dengue, chikungunya etc.
- Morbidity data for many diseases is missing, while hospital based mortality data is present.

- Even non-communicable diseases incidence and severity is affected in the event of disasters due to hindrances in the supply chain of medicines.
- There is also an increase in injuries and violence against the vulnerable populations' post- disasters.
- Occupational health of industrial workers is affected due to changing temperatures, making them take longer and more frequent breaks during the day and at the same time increasing the hours of late-night shifts.
- Accessibility to health care facilities and health workers is also decreased due to extreme weather events.
- Due to effect of disasters on animals, predators come in close contact with humans, causing loss of life.

Adaptation Plan

I. Awareness generation and sensitization programmes

- Mass meetings among schools and college students
- Advertisement and promotion through IEC Posters, pamphlets, billboards and other advertisement modes like social media
- Rallies
- Wall paintings on earthquake resistant buildings in important places to educate people and give information on earthquake resistant technology
- Public awareness programmes on safe construction practices

II. Capacity building

- Training of trainers at the State, District and block levels to enhance the capacity if disaster management committee
- Medical professional training:
  i. Expanded training of doctors and other health workers on health impacts due to disasters
  ii. Increased training of the community level staffs.
- Specialist training like Search & Rescue and First Aid to disaster management teams
- Studies and Research
- Training manuals, standard operating procedure and documentation on best practices
- Mock drill to be carried out before the disaster seasons and regular mock on earthquake by the key players to find out the feasibility of the plan and ensure greater role.

Training plan

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
Panchayati Raj Institutions	District level Trainers, MO, Health care workers	• Climate change and health impact of extreme weather events • Disaster planning and response with community participation	February-April

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

	Responsibilities
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
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
Panchayati Raj Institutions	• Conduct community level IEC activities • Community involvement in planning and demonstration of measure taken before-during-after an EWE

CHAPTER 9

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

Vector borne diseases (VBD) are climate sensitive as the arthropod vectors like mosquitoes, sand flies, ticks and mites are cold-blooded creatures. The development of vectors is affected by the temperature, rainfall, and Relative Humidity (RH). At lower temperatures, the rate of development is slow while at the higher temperatures the life cycle of vectors gets completed in a shorter time. Rainfall helps in the creation of breeding grounds for mosquitoes, while the RH helps in the survival and longevity of vectors. However, climate change poses a risk for such areas, as the unsuitable areas are likely to become suitable with the:

Vector borne diseases in Andhra Pradesh state

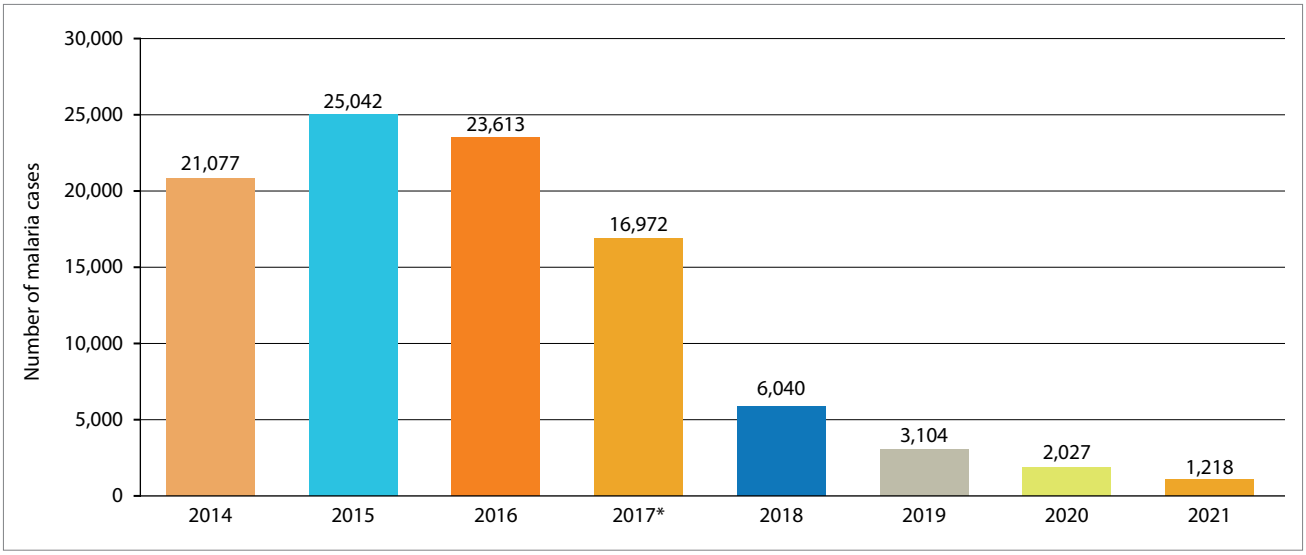
The most prevalent vector-borne diseases in the state include malaria, dengue and chickungunya. The monitoring and prevention of outbreaks for these is looked into by the National Vector- borne diseases Control Programme, Directorate of Health Services, Government of Andhra Pradesh.

Malaria

Malaria is a life threatening diseases caused by parasites that are transmitted to people through the bites of infected mosquitoes. Malaria is preventable and curable. Non immune travellers from malaria free areas are very vulnerable to the diseases when they get affected.

Burden of malaria in Andhra Pradesh

Malaria is the most prominent and problematic of all vector borne communicable diseases of Andhra Pradesh. Three paradigms of malaria are observed in the state i.e., tribal, rural and urban. The number of malaria cases across Andhra Pradesh in 2021 amounted to approximately 1.2 thousand, down from just over 24.6 thousand malaria cases in 2016. The state recorded the highest malaria cases in 2015 with over 25 thousand cases.



District wise status of Malaria 2015 to 2022

Sl. No.	District	2015		2016		2017		2018		2019		2020		2021		2022	
		Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1	Srikakulam	1143	0	693	0	592	0	264	0	125	0	37	0	38	0	2	0
2	Vijayanagaram	3241	0	2939	0	1835	0	305	0	124	0	121	0	104	0	10	0
3	Visakhapatnam	10197	0	6479	0	4836	0	2252	0	1121	0	1262	0	839	0	148	0
4	East Godavari	6806	0	9061	2	5995	0	1865	0	646	0	291	0	102	0	14	0
5	West Godavari	682	0	730	0	504	0	209	0	145	0	134	0	74	0	9	0
6	Krishna	521	0	704	0	666	0	27	0	21	0	21	0	16	0	4	0
7	Guntur	413	0	369	0	962	0	420	0	620	0	28	0	18	0	0	0
8	Prakasam	466	0	305	0	262	0	152	0	61	0	34	0	3	0	0	0
9	Nellore	186	0	149	0	125	0	47	0	34	0	12	0	11	0	2	0
10	Chittoor	74	0	141	0	87	0	44	0	8	0	3	0	30	0	0	0
11	Kadapa	352	0	866	0	521	0	204	0	87	0	30	0	22	0	3	0
12	Ananathapur	559	0	757	0	496	0	186	0	72	0	42	0	15	0	1	0
13	Kurnool	402	0	420	0	91	0	65	0	36	0	32	0	47	0	1	0
Total		**25042**	**0**	**23613**	**2**	**16972**	**0**	**6040**	**0**	**3100**	**0**	**2047**	**0**	**1319**	**0**	**194**	**0**

Dengue

Dengue is a mosquito borne viral infection. The infection causes flu like illness and occasionally develops into a potentially lethal complication called dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS).

Burden of Dengue in Andhra Pradesh

In 2021, there were approximately 3.3 thousand cases of dengue across Andhra Pradesh. This was a significant increase compared to the previous year when over 900 cases were reported in the state.

District wise status of Dengue 2010 to 2022

Sl. No.	District	2015		2016		2017		2018		2019		2020		2021		2022 (up to 8th May)	
		Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1	Srikakulam	6	0	114	1	57	0	69	0	164	0	23	0	191	0	12	0
2	Vijayanagaram	16	0	53	0	46	0	99	0	196	0	16	0	270	0	40	0
3	Visakhapatnam	285	0	1127	0	983	0	2480	0	1275	0	232	0	1214	0	215	0
4	East Godavari	59	0	336	0	170	0	566	0	576	0	84	0	798	0	87	0
5	West Godavari	7	0	32	0	61	0	132	0	434	0	84	0	354	0	38	0
6	Krishna	240	0	399	0	142	0	107	0	181	0	45	0	225	0	33	0
7	Guntur	138	0	349	0	686	0	262	0	971	0	188	0	650	0	32	0
8	Prakasam	194	0	174	1	751	0	62	0	437	0	84	0	155	0	38	0
9	Nellore	536	0	80	0	378	0	39	0	153	0	32	0	139	0	45	0
10	Chittoor	998	2	166	0	421	0	49	0	327	0	28	0	214	0	61	0
11	Kadapa	220	0	13	0	103	0	22	0	111	0	22	0	90	0	31	0
12	Ananathapur	408	0	526	0	805	0	76	0	348	0	108	0	178	0	17	0
13	Kurnool	55	0	48	0	322	0	9	0	113	0	18	0	289	0	58	0
Total		**3162**	**2**	**3417**	**2**	**4925**	**0**	**3972**	**0**	**5286**	**0**	**964**	**0**	**4767**	**0**	**707**	**0**

Chikungunya

Chikungunya is a viral Diseases transmitted to humans by infected mosquitoes. It causes fever and severe joint pain. Other symptoms include muscle pain, headache, nausea, fatigue and rash. Visakhapatnam district accounted for about 95% chikungunya cases recorded in Andhra Pradesh. The state witnessed 17 chikungunya cases, as many as 16 people fell victim to the diseases in Visakhapatnam district. The increased construction activity in the suburbs, growing population densities and inadequate sanitation has been creating fertile ground for the mosquito breeding. The Aedes Aegypti mosquito which spreads dengue, chikungunya, yellow fever and other diseases is a highly domesticated urban mosquito that prefers to live in human habitat.

District wise status of Dengue 2010 to 2022

Sl. No.	District	2015		2016		2017		2018		2019		2020		2021		2022 (up to 8th May)	
		Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1	Srikakulam	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2	Vijayanagaram	0	0	0	0	0	0	2	0	12	0	0	0	1	0	0	0
3	Visakhapatnam	74	0	115	0	80	0	65	0	31	0	25	0	31	0	3	0
4	East Godavari	0	0	0	0	0	0	2	0	0	0	1	0	0	0	2	0
5	West Godavari	0	0	18	0	0	0	10	0	11	0	1	0	9	0	1	0
6	Krishna	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0
7	Guntur	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
8	Prakasam	0	0	0	0	0	0	0	0	11	0	0	0	3	0	0	0
9	Nellore	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Chittoor	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Kadapa	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
12	Ananathapur	4	0	2	0	2	0	0	0	4	0	0	0	0	0	0	0
13	Kurnool	0	0	8	0	3	0	0	0	0	0	0	0	2	0	0	0
Total		**83**	**0**	**147**	**0**	**108**	**0**	**79**	**0**	**69**	**0**	**28**	**0**	**48**	**0**	**6**	**0**

Roles and Responsibilities

In order to address the current as well as future exposure of the state to vector borne diseases due to 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, Andhra 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 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.

EWARS

The early warning and response system (EWARS) is a toolkit that provides countries with early-warning systems for efficient and cost-effective local responses. It uses outbreak and alarm indicators to derive prediction models that can be used prospectively to predict a forthcoming dengue outbreak at district level. In collaboration with WHO TDR, WHO WR, IMD, NVBDCP and NCDC, EWARS is piloted in selected States across the country. Several meetings were organized with the stakeholders and in consultations with the States- 6 States have been identified for rolling out EWARS application tool. The one of the states for implementation of EWARS is Andhra Pradesh. High, moderate and low endemicity districts have been identified in the state with respect to historical data of dengue cases. IMD has assured that the historical data of climate variables for the above selected Districts will be provided to integrate the variable into the EWARS format. (IMD).

List of high, moderate and low endemic Districts for Dengue for EWARS application tool

State	High Endemicity	Moderate Endemicity	Low Endemicity
Andhra Pradesh	Visakhapatnam	Krishna	Kadapa

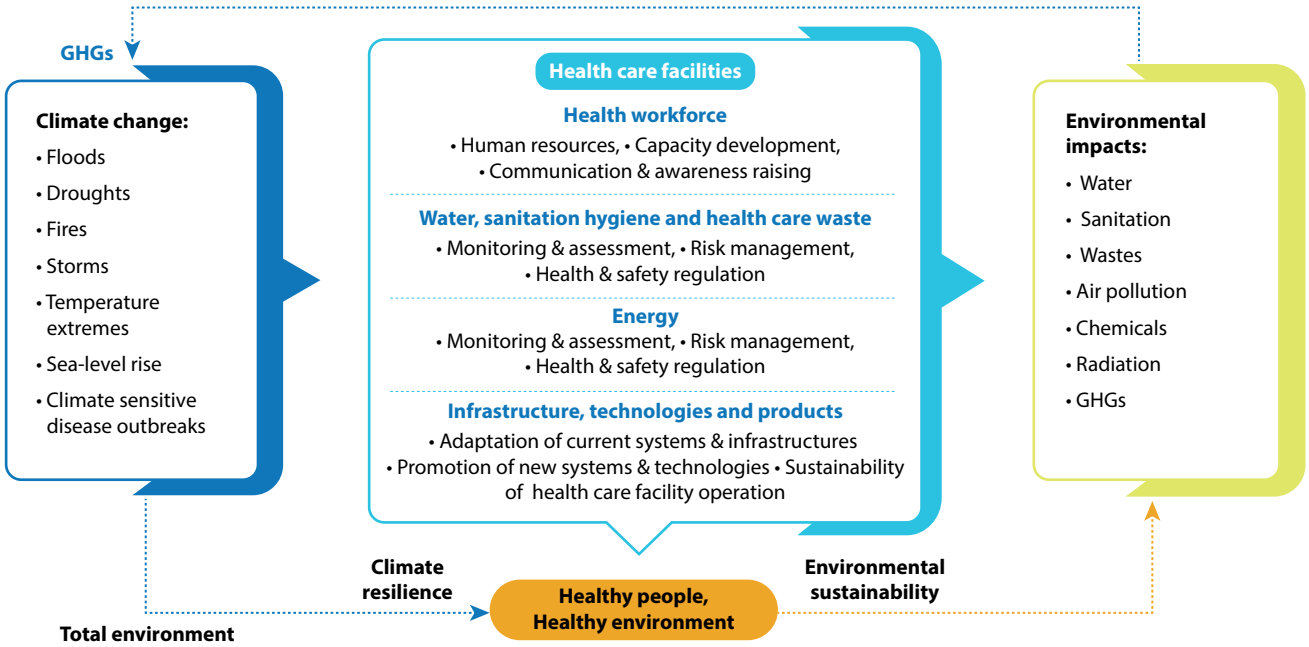
CHAPTER 10

Action Plan for Green and Climate Resilient Health Care 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 to 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.

Framework for building climate-resilient and environmentally sustainable HCF



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

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
   a. Energy Auditing
   b. Installation of LED lighting at Health Care Facilities
   c. Installation of Solar panels
   d. 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:

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.

b. Replacing the existing non-LED lights with LEDs: 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.

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.

d. 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 liters 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 the 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, patient 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 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

- Climate risk assessment at the time of planning and designing the building.
- 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.
- Use double glazing glass on windows; it provides thermal and optical properties to the building and reduce the noise level.
- Insulation of building from inside and outside in colder regions of the country.
- 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.
- Installation of Rainwater Harvesting System.
- Installation of alternative energy systems.
- Installation of STP & ETP.

Existing Infrastructure

- Introduction of electronic patient records in the facility to reduce the use of paper.
- Availability of 10-30 per cent area for the herbal garden in the facility.

- Floor and wall finishes are conducive for infection prevention control practices.
- Modifications in the critical care rooms to make them functional during disasters.
- Installation of Rainwater Harvesting System.
- Installation of alternative energy systems.
- Installation of STP & ETP.

Implementation Plan

1. Health Sector Preparedness

Objective	Activities	Priority districts	Identified Health facilities	Timeline	Budget (in lakhs)				
					2022-23	2023-24	2024-25	2025-26	2026-27
Strengthening Healthcare System	Energy Audit	5 Districts (N.T.R., Guntur, Visakhapatnam, East Godavari, West Godavari)	PHCs, CHCs, SDH, DH	January to February	**104.0**	**113.1**	**169.5**	**253.5**	**379.5**
	Energy Saving Appliances								
	Led Installation	5 Districts (N.T.R., Guntur, Visakhapatnam, East Godavari, West Godavari)	PHCs, CHCs, SDH, DH	December					
	Solar Panels Installation	5 districts (N.T.R., Guntur, Visakhapatnam, East Godavari, West Godavari)	PHCs, CHCs, SDH, DH	December					
	Rainwater Harvesting	2 Districts (Anantapur and Kadapa)	PHCs, CHCs, SDH, DH	January					
	Retrofitting of Health Care Facilities	2 Districts (Srikakulam Visakhapatnam)	PHCs, CHCs, SDH, DH	February					

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

IEC dissemination plan

Dissemination of IEC material

IEC type	Material (Link/ Annexure)	Dissemination Timeline	Targeted districts	Budget				
				2022-23	2023-24	2024-25	2025-26	2026-27
Posters	2 Posters for Healthcare facilities in 6 Districts	November	6 districts	6 lakhs	6 lakhs	8 lakhs	17 lakhs	20 lakhs
Wall painting			6 Districts					
Audio-Visual			6 Districts					

2. 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.

	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

	Responsibilities

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

3. Capacity Building

The plan for training of ToTs, DNO-CC and Medical officers on guidelines and operational framework of Green and Climate resilient measures in Health Care Facilities is mentioned in the table below:

Sl. No.	Activities	Priority Districts	Timeline	Budget				
				2022-23	2023-24	2024-25	2025-26	2026-27
1.	Training of TOTs	6 districts	November	10 lakhs	10 lakhs	13 lakhs	19 lakhs	28 lakhs
2.	Training of DNO-CC		December					
3.	Training of Medical Officers		December					

PART III

Budget

CHAPTER 11
Budget

Sl. No.	Activities	Indicator	Target					Budget (in lakhs)				
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
PROGRAMME MANAGEMENT												
01.	Taskforce meeting to draft health sector plan for heat and air pollution	• % State Task Force Quarterly Meetings conducted in a year	75%	100%	100%	100%	100%	9.50	9.50	13.5	19.5	28.5
		• % Districts conducted quarterly District Task Force Meetings in a year	50%	75%	100%	100%	100%					
02.	Sensitization workshop/ meeting of the state programme Officers and District level Health Officers.		100%	-	-							
GENERAL AWARENESS												
03.	Development of IEC material, campaigns, Innovative IEC/BCC Strategies	• % of Districts implemented IEC campaign on all climate sensitive issue	50%	100%	100%	100%	100%	59.47	59.47	88.5	132.0	198.0
		• % Districts included climate sensitive issues in the VHSNCs	50%	100%	100%	100%	100%					

Sl. No.	Activities	Indicator	Target					Budget (in lakhs)				
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
CAPACITY BUILDING OF HEALTH PROFESSIONALS AND HEALTH WORKERS												
04.	Orientation/ Training/capacity Building of healthcare staffs	• % of Districts completed TOT	100%	-	-	-	-	47.74	47.74	70.5	105	157.5
		• % of Medical Officers trained in Districts	40%	80%	100%	100%	100%					
		• % of health workers and ASHA/ AWW trained on NPCCHH in District	30%	50%	100%	100%	100%					
		• % of targeted sensitization trainings planned for vulnerable population in district (PRI Training)	30%	50%	100%	100%	100%					
STRENGTHENING OF THE HEALTH SYSTEM												
05	Green and Climate-Resilient Health Care Facilities and Surveillance (SRRE)	• Energy auditing of the Healthcare for energy efficiency in the HCFs						104.0	113.1	169.5	253.5	379.5
		• % of HCF that replaced existing (Non-LED) lighting facility with LED in Districts	20%	40%								
		• % HCF with installed solar Panels in Districts	20%	40%								
		• % HCF with Rain water harvesting system in districts	10%	30%								
		• % HCF with installed Retrofitting of healthcare facilities	30%	50%								
		• Surveillance Research, Review, Evaluation (SRRE)						2 lakhs	2 lakhs	3 lakhs	4.5	6.7

Note: Year 1 = FY 2022-23; Year 2 = FY 2023-24; Year 3 = FY 2024-25; Year 4 = FY 2025-26; Year 5 = FY 2026-27.

Annexures

GOVERNMENT OF ANDHRA PRADESH
ABSTRACT

HM& FW Deptt., – National programme on Climate Change and Human Health (NPCCH) - Constitution of committees - Orders - Issued.

HEALTH, MEDICAL AND FAMILY WELFARE (E2) DEPARTMENT

G.O.RT.No. 73 **Dated: 16-02-2021**
Read:

From the Commissioner, Health & Family Welfare, A.P., Vijayawada, Lr.Rc No**:** 8046/IDSP/2018, dated:18.01.2021.

***

ORDER:-

The Commissioner of Health and family Welfare, A.P, Vijayawada has stated that, Government of India launched National Programme for Climate Change and Human Health (NPCCHH) under the National Health Mission in the year 2019 vide D.O.No.Z-21020/34/2019-PH, dated:12.04.2019 and operational guidelines also issued for implementation of National Programme for Climate Change and Human Health (NPCCHH). As per the guidelines, the CHFW, A.P, Vijayawada has requested the Government to constitute the Committees for implementation of NPCCHH.

2. Government after careful examination of the matter hereby constitute the committees for implementation of National programme on Climate Change and Human Health (NPCCH) as follows:

i. Governing Body :

The state level governing body for policy level decision shall be working under Chairmanship of Honourable State Health Minister.

1	Honourable Minster for Health Medical & Family Welfare	Chairman
2	Principal Secretary, Health Medical & Family Welfare dept	Vice Chairman
3	Mission Director(National Health Mission)	Member Secretary
4	Special Chief Secretary, Agriculture & Cooperation Department	Member
5	Special Chief Secretary, Animal Husbandry, Dairy Development & Fisheries Department	Member
6	Special Chief Secretary, Infrastructure and Investment Dept,.	Member
7	Principal Secretary, Revenue (Disaster Management) Department	Member
8	Principal Secretary, Panchayat Raj & Rural Development Department	Member
9	Principal Secretary, TR&B Department	Member
10	Principal Secretary, Department for Women,Children,Differently abled and Senior Citizens.	Member
11	Principal Secretary, School Education Department	Member
12	Principal Secretary, MA&UD Department	Member
13	Principal Secretary, Finance Department	Member
14	Secretary, Environment, Forests, Science & Technology Department	Member
15	Secretary , Energy Department.	Member
16	Ex- Officio Secretary, Consumer affairs, Food and Civil Supplies.	Member
17	Secretary, Law Department	Member
18	Regional Director - Health & Family Welfare (GoI), Hyderabad.	Member
19	Director of Medical Education, A.P, Vijayawada	Member

20	Director of Public Health & Family Welfare, A.P, Vijayawada.	Member
21	State Nodal Officer- NPCCHH, A.P	Member
22	Head – NAPCCHH, CEOH&CCH Division, NCDC (GOI), New Delhi	Member

ii. State Level Task Force:

The State level 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.

1	Principal Secretary Health Medical & Family Welfare dept	Chairperson
2	Mission Director-National Health Mission	Vice Chairman
3	Director of Public Health & Family Welfare, A.P, Vijayawada	Member Secretary
4	Commissioner , Disaster Management	Member
5	Commissioner of Agriculture	Member
6	Commissioner of PR&RD	Member
7	Commissioner of Transport	Member
8	Director of Animal Husbandry	Member
9	Representative of PCCF, Forest	Member
10	Director of Women and Child Welfare department	Member
11	IGP and Controller of Legal Meteorology	Member
12	E-In-C, R&B	Member
13	Commissioner and Director Municipal Administration	Member
14	Commissioner of School Education	Member
15	Commissioner of Civil Supplies	Member
16	CMD, A.P GENCO.	Member
17	Director of Treasuries and Accounts	Member
18	Director State Ground Water department	Member
19	Secretary, State Pollution Control Board	Member
20	Regional Director -Health & Family Welfare (GoI), New Delhi	Member
21	Director Medical Education , A.P, Vijayawada	Member
22	State Nodal Officer- NPCCHH, A.P.	Member
23	State Surveillance Officer , O/o DPH &FW, A.P.	Member
24	Head – NAPCCHH, CEOH&CCH Division, NCDC, MoHFW, New Delhi	Member
25	Head, NCDC Branch (GOI), Rajahmundry	Member

iii. District Level Task Force :

District Level Task Force shall be directly overseeing the implementation of the activities related to National Programme on Climate Change and Human Health (NPCCHH) in their district.

1	District Collector	Chairperson
2	Principal , Government Medical College	Vice Chairman
3	District Medical & Health Officer	Member Secretary
4	District Surveillance Officer	Member
5	District Programme Management Officer	Member
6	District Revenue Officer	Member
7	Joint Director, Agriculture	Member
8	Supdt. Engineer, RWS	Member
9	Deputy Commissioner, Transport	Member
10	Joint Director, Animal Husbandry	Member
11	District Forest Officer	Member
12	Project Director, ICDS, Women & Child welfare	Member
13	District Education officer	Member
14	Supdt. Engineer, R&B	Member

15	Supdt. Engineer, APTRANSCO	Member
16	District Treasury Officer	Member
17	District Panchayath Officer	Member
18	Gazetted Food Inspector	Member

Iv State Environmental Health Cell

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

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

a. Preparation and Implementation of State Action Plan for Climate Change and Human Health.

b. Conduct Vulnerability assessment and risk mapping for commonly occurring climate sensitive illnesses in the state/ UT.
c. Assessment of needs for health care professionals (like training, capacity building) and organise training, workshop and meetings.
d. Maintain State and District level data on physical, financial, epidemiological profile for climate sensitive illnesses.
e. Ensure Convergence with NHM activities and other related programs in the State / District
f. Monitor programme, Review meetings, Field observations.
g. 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),
h. Social mobilization against preventive measures through involvement of women's self-help groups, community leaders, NGOs etc.
i. Advocacy and public awareness through media (Street Plays, folk methods, wall paintings, hoardings etc.)

J. Conduction of operational research and evaluation studies for the Climate change and its impact on human health..

v. District Environmental Health Cell

1	District Nodal Officer –NPCCHH
2	Joint Director, Animal Husbandry
3	District Surveillance Officer
4	Additional DMHO(FW)
5	District Immunisation Officer
6	Project Officer, District Training Team
7	District Epidemiologist
8	Microbiologist, IDSP.
9	DEO/Supporting Staff

Roles and Responsibilities of the District Environmental Health Cell

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

4. The Commissioner of Health and Family Welfare, A.P., Vijayawada shall take further necessary action in the matter.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

ANIL KUMAR SINGHAL
PRINCIPAL SECRETARY TO GOVERNMENT

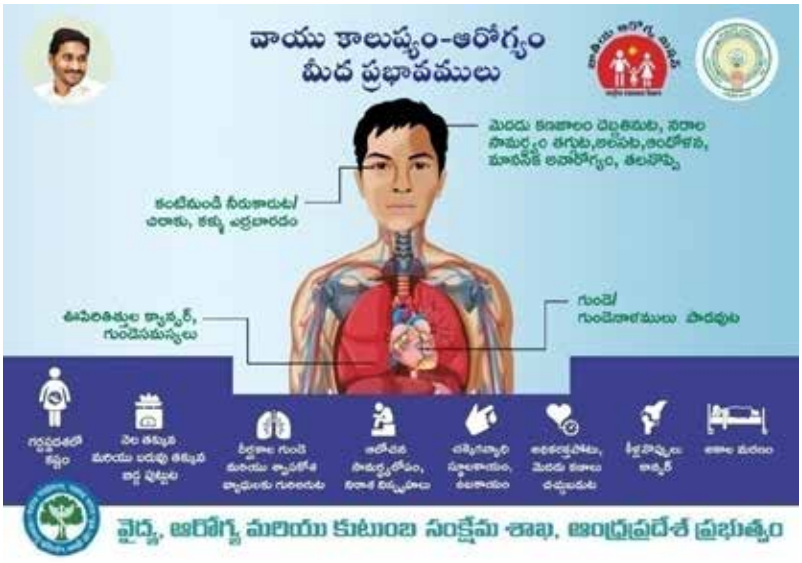
To
The Commissioner of Health & Family Welfare, A.P.Vijayawada.
Copy to:-
Departments concerned.
The Director of Medical Education, A.P, Vijayawada.
The Director of Public Health and family Welfare, A.P, Vijayawada.
The P.S. to Chief Secretary.
The P.S. to Dy. CM (HF&ME).
The P.S. to Principal Secretary to Government, HM&FW Department.
SF/SC.

//FORWARDED :: BY ORDER //

SECTION OFFICER

Annexure 1: Posters Distributed to the Districts (English & Local Language)

IEC on Air Pollution and Health under the NPCCHH



Annexure 2: Number of Type of Audio-videos are 7

Links are given below

- https://drive.google.com/drive/u/0/folders/1LbPjTB8B6blBnpiIpCgz3qxXz8LLZTxw
- Link:https://drive.google.com/drive/folders/1x2eXBjdjrrv-Rw2pcchMTVOl8tQzm623?usp
- https://www.youtube.com/watch?v=GWK-4Kct3Oc
- https://pib.gov.in/PressReleseDetail.aspx?PRID=1842630

Annexure 3: Observance of important days in the state

World Environment Day (WED) 2022 is being observed on June 5th with the theme "Only One Earth" which highlights the need for collective, transformative action to protect and restore our planet.

The United Nations Environment Programme (UNEP) initiated the observance of this day.

Globally celebrate the spirit of positive environmental action. Every year, millions of individuals and organizations engage in various activities on this day which includes tree-planting drives, art exhibitions, social media campaigns, etc. This way, there is a build-up of a collective power of people belonging to different walks of life, leading to the generation of an exponential positive impact on the planet.

The UN General Assembly declared June 5 as World Environment Day in the year 1972. Two years later in 1974, WED was celebrated for the first time, with the United States hosting it. The theme for this first ever WED was 'Only One Earth'. Since then, WED has been trending every year with a different theme.

The most recent theme of WED (for 2022) was "Only One Earth" calls for transformative changes to policies and choices to enable cleaner, greener, and sustainable living in harmony with nature. The host country for 2022 is Sweden. The year 2022 is a historic milestone for the United Nations Environment Programme (UNEP) and the global environmental community. It marks the 50th anniversary of the establishment of UNEP as an outcome of the Stockholm Conference. It also coincides with the high-level Stockholm+50 international meeting. The meeting reflected on the urgent need for actions towards a healthy planet and prosperity of all, achieving a sustainable and inclusive recovery from the COVID-19 pandemic, and accelerating the implementation of the environmental dimension of Sustainable Development in the context of the Decade of Action.

National Programme on climate change and human health (NPCCHH) is a flagship programme of Ministry of Health and Family Welfare, Government of India shaping Health system response to climate change in the country with goal to reduce morbidity, mortality, injuries and health vulnerability to climate variability and extreme weather events.

Every year National Programme on climate change and human health (NPCCHH) under the Ministry of Health and Family Welfare, Government of India observes this day with state officials under the Programme. It is proposed that a state has to undertake activities on this day and possibly the whole of the first week of June 2022 underscoring various health impacts of climate change. Considering increasing heat waves, special attention to the health impact of extreme heat and need for urgent climate action at various levels to reduce further global warming (mitigation) and its impact (adaptation).

In this regard, the state instructed districts to celebrate world environment day 2022 with the proposed activities in health sector. The following activities undertaken by the Andhra Pradesh state and Districts under NPCCHH cell:

- Sensitisation zoom was conducted with DMHO, additional DMHO & District Programme officers and presented speech on world environmental day by state Nodal Officer (SNO) Dr. TVSN Sastry (NPCCHH), talking about importance of environment, environment issues, Effects on Public health and what actions to be taken for environment Protection.

- World Environmental Day awareness Banner Prepared in regional and English language and distributed to all the district health facilities on the theme of the year 2022 "**Only One Earth**".

- The Programme began with the ceremonial planting of indigenous sapling as part of plantation drive by Dr. TVSN Sastry (SNO of NPCCHH), Dr. Suhasini (DM & HO) NTR District, Dr. Usha Rani (Addl. DM & HO), Dr. Indhumati (Dy. DM & HO) at Vijayawada division along with ANMS.
- It was then followed by Environment Protection Pledge.

- The plantation Drive by State NPCCHH Consultant Ms. D. Steffe at UPHC, Markendeya, 16th ward and 18th ward of sachivalyam along with Medical Officer Dr. Ramya, ANMs and Children on occasion of World Environmental Day 2022 and spread awareness and encouraging children to protect environment and importance of Planting.




- IEC poster related to health impact to heat is displayed at UPHC, markendeya and educated specifically to pregnant women, above 60 years age groups and children regarding Do's and Don'ts during summer season.