



STATE ACTION PLAN FOR CLIMATE CHANGE & HUMAN HEALTH

UT of Dadra & Nagar Haveli and Daman & Diu

(Revised Version- 19.04.2023)



National Programme on Climate Change & Human Health
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Action Plan on Climate Change and Human Health



**National Programme
on Climate Change
and Human Health**

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PART A

General Profile of the UT of Dadra & Nagar Haveli and Daman & Diu

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 several 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 exacerbates cardio-respiratory and allergic diseases and certain cancers. Besides these, there is an increase in the transmission and spread of infectious diseases, changes in the distribution of water-borne, food-borne, and vector-borne diseases as well as the frequency of exposure to disasters and malnutrition.

The *United Nations Framework Convention on Climate Change (UNFCCC)* came into force on 21st March 1994. Since then many steps were initiated to reduce the effect of climate change at meetings like the “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 recognizes the need for strengthening the health sector to make it climate resilient. According to Male’ Declaration, it is desired that the healthcare facilities should be made climate-resilient, particularly to encourage them to withstand any climatic event, and continuity of essential services such as water, sanitation, waste management, and electricity during such events. Further, the health department is to undertake measures to initiate the greening of the health sector by adopting environment-friendly technologies and using energy-efficient services.

In this regard, the initiatives undertaken by the Government of India include the identification of the Ministry of Environment, Forest & Climate Change (MOEF&CC) as the nodal ministry, the formulation of National Environmental Policy 2006 and the formulation of Prime Minister's Council on Climate Change for matters related to Climate Change. Based on these initiatives, MoEFCC developed the National Action Plan on Climate Change including Health Mission. 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 (NEGCH) to prepare the National Action Plan on Climate Change and Human Health (NAPCCH) and recommend strategies for indicators, mitigation, capacity building, etc.

National Centre for Diseases Control (NCDC) is identified as the 'technical nodal agency' by MoHFW for National Mission on Health. Under NCDC, the *Centre for Environmental and Occupational Health Climate Change & Health (CEOH&CCH)*, is implementing the National Programme of Climate Change and Human Health (NPCCH), as a part of which the UT of Dadra and Nagar Haveli has prepared its Action Plan on Climate Change and Human Health (SAPCCH). The SAPCCH is a long-term vision and planning document, based on this, district-specific action plans will also be prepared. The SAPCCH highlights the current and future vulnerabilities to climate change in the UT, the disease burden and the initiatives to be undertaken by the UT to reduce the disease burden and develop a climate-responsive and sustainable healthcare ecosystem in Dadra and Nagar Haveli.

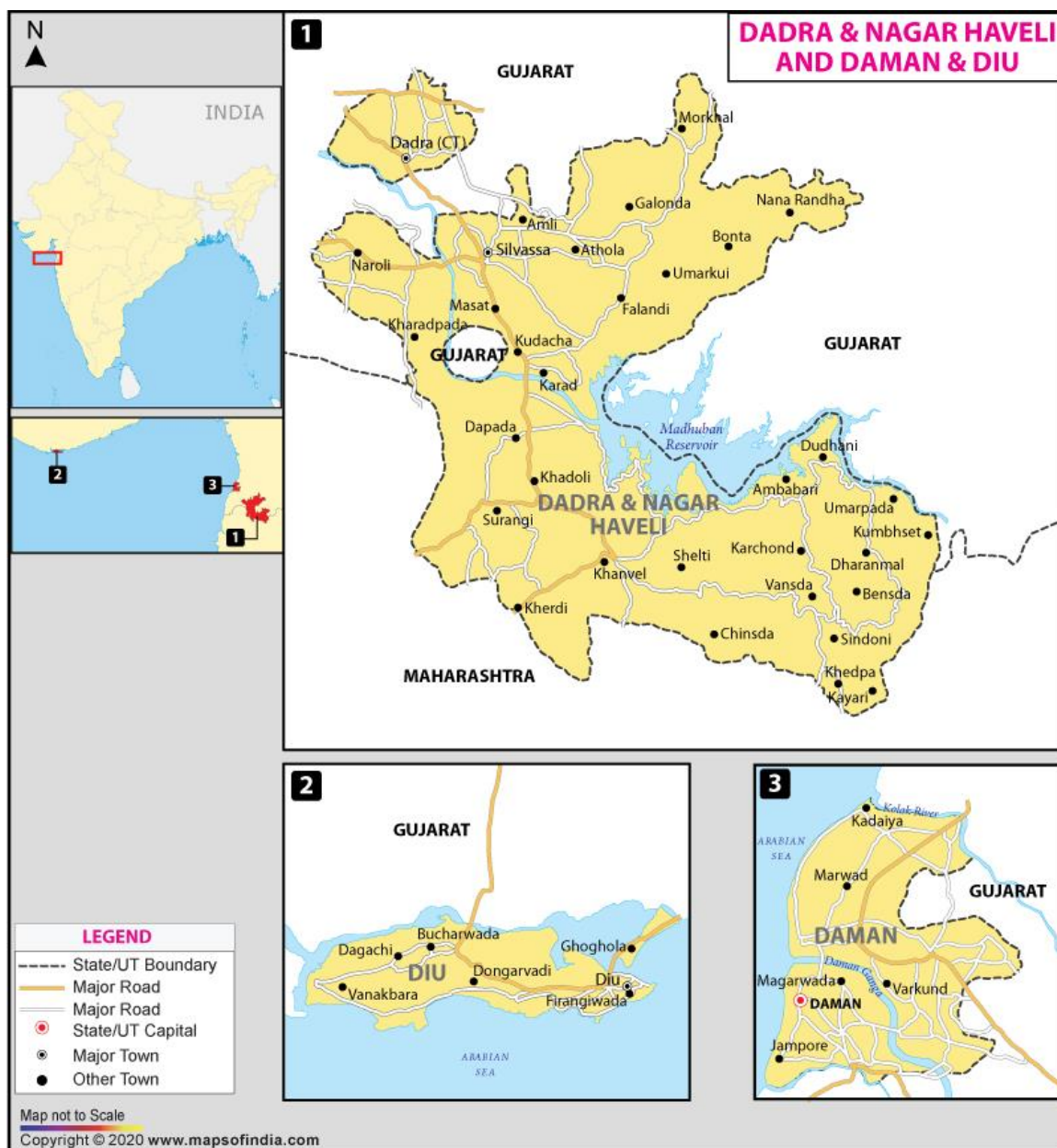
Chapter 2

Climate vulnerability

Dadra and Nagar Haveli is a land-locked Union Territory of India, situated on the western coast in the foothills of the Western Ghats.

It is bounded by the Valsad district of Gujarat in the North-West and East, and Thane district of Maharashtra in the South and South East. While Nagar Haveli is located between Maharashtra and Gujarat, Dadra is an enclave that is a few kilometres north of Nagar Haveli in Gujarat. Dadra and Nagar Haveli covers an area of 491 sq.km.

The territory has hilly terrain, especially towards the North-East and East where it is surrounded by ranges of Sahyadri Mountains (Western Hills). The terrain is intersected by the River Daman Ganga and its three tributaries. The river rises in the hill 64 kms. from the Western coast and discharges itself in the Arabian Sea at the port of Daman.



The climate is moderate and generally healthy in the Central zone, though hot in the summer season. The monsoon season is from June to September and the average rainfall of the UT is between 2000 to 2500 mm. The tribal population is predominantly housed in Dadra and Nagar Haveli, constituting about 62% of the entire population. This includes Varli, Dhodia, Dubla, and Kokna tribes. Whereas, Daman and Diu is a fisherman's area consisting of the Koli community.

District Profile

Dadra and Nagar Haveli District

The district Dadra and Nagar Haveli is situated near the western coast of India between the parallels of 20.27°N 73.02°E. It has an area of 491.0 sq. Km. As per the Surveyor General, India, it comprises two enclaves Dadra and Nagar Haveli. Silvassa is the district headquarter. Silvassa Municipal Council came into existence in the year 2006 and was formed by 15 wards. Thus, the district comprises 1 Municipal Council (15 wards) and 20 Gram Panchayat towns (72 villages). The territory is surrounded on the west, north, and east by the Valsad district of Gujarat and in the South and South-East by the Palghar and Nasik districts of Maharashtra.

Topography

In Dadra & Nagar Haveli, there are two major physical divisions, i.e. the Hilly tract and the Central-Western and North-Western plains. The major part of the district is occupied by the hilly tract. The hilly tract has an elevation between 76m to 346m above the mean sea level. The maximum height rises to 361m the near village Sindoni in the extreme east of the district. The other major physical division of the district is the plains covering parts of the Central-Western and North-Western parts of the district. The plains have an elevation of up to 76m above the mean sea level. Damanganga is the main river flowing through the district. Rivers Piparia and Sankartod also flow through this area and are flooded in the monsoon. The total geographical area of Dadra and Nagar Haveli is 491 Sq. km out of which 220 Sq.km is declared as Reserved Forest and about 92.00 Sq. km. has been declared as Wildlife Sanctuary.

Climate

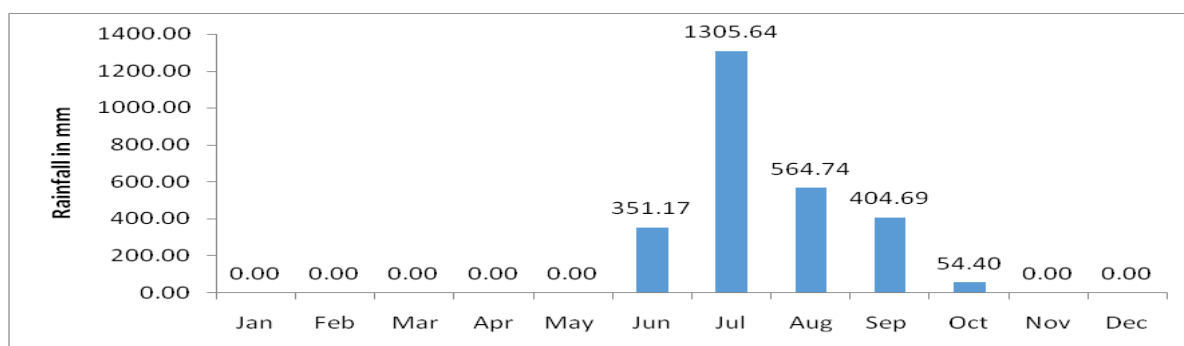
The climate is moderate and generally healthy in the central zone though hot during summer. The rainy season is normally from the middle of June to September. The

territory enjoys a very pleasant climate from November to March. The summer temperature does not go very high.

Rainfall

The average rainfall in the district is 2500mm. Details of monthly rainfall are given below.

Fig 02- Average monthly rainfall in Dadra & Nagar Haveli during the last 7 years (2013-2019)

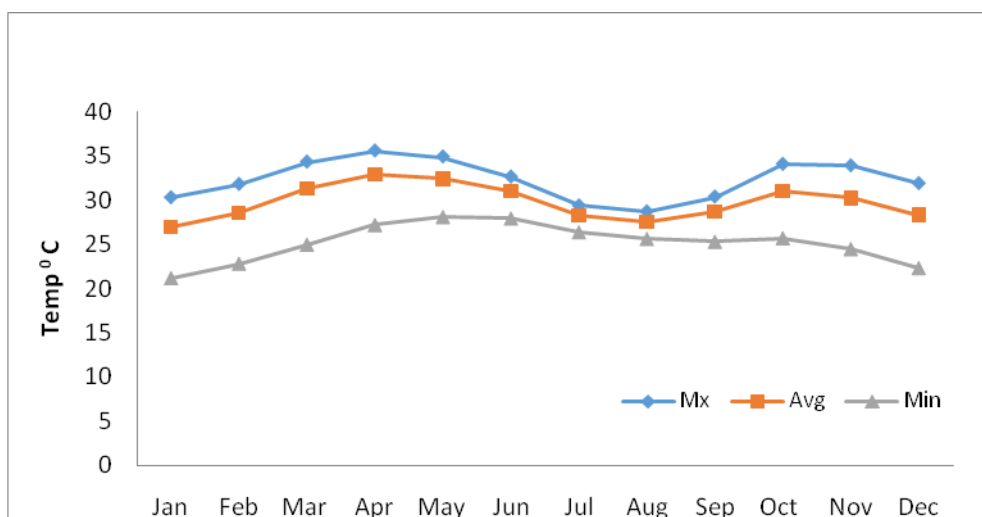


Source: District Disaster Management Cell, Dadra & Nagar Haveli

Temperature

The average maximum and minimum temperature in 2012 was 32.10°C (29.77°C-33.73°C) and 22.04°C (15.06°C-26.42°C) respectively. During the pre-monsoon (March to June) period, the maximum and minimum temperature ranged between 32.2°C to 33.7°C and 18.9°C to 26.4°C respectively. During the monsoon, the average temperature experienced is 30.4°C to 33.6°C and 23.6°C to 25.7°C, and during the post-monsoon period, it decreases to 29.7°C to 33.1°C and 15.0°C to 19.2°C respectively.

Fig 03- Month wise trend of temperature in the Dadra & Nagar Haveli average of last 12 year (2009-2020)



Source: District Disaster Management Cell, Dadra & Nagar Haveli

Wind

The winds are moderate and cool in winter in the central zone but hot winds are blowing during summer. During the rainy season, the intensity of the winds increases.

Daman District

Daman is situated on the West Coast of India between the 20.42°N 72.85°E. The total geographical area of the district is 72 Km². The altitude is 12 m above sea level. It is located about 168 km to the North of Bombay, near the coast of Valsad, Gujarat.

Topography

Daman is bordered by the Kalem River towards the south, Bhagwan towards the north, the Arabian Sea towards the west, and the district of Valsad towards the east. Daman is a small part near south Gujarat coastal land, developed on the alluvial deposits brought down by the parallel flowing streams. The land of the district shows features of extensive alluvial deposition and is prone to subsequent erosion. Damanganga is the major stream rising from the Sahyadris Ghat of Nasik district of Maharashtra and develops in this district its estuarine land. Damanganga River divides the district into two traditionally well-recognized regions, the 'Moti Daman in the South and the 'Nani Daman' in the North.

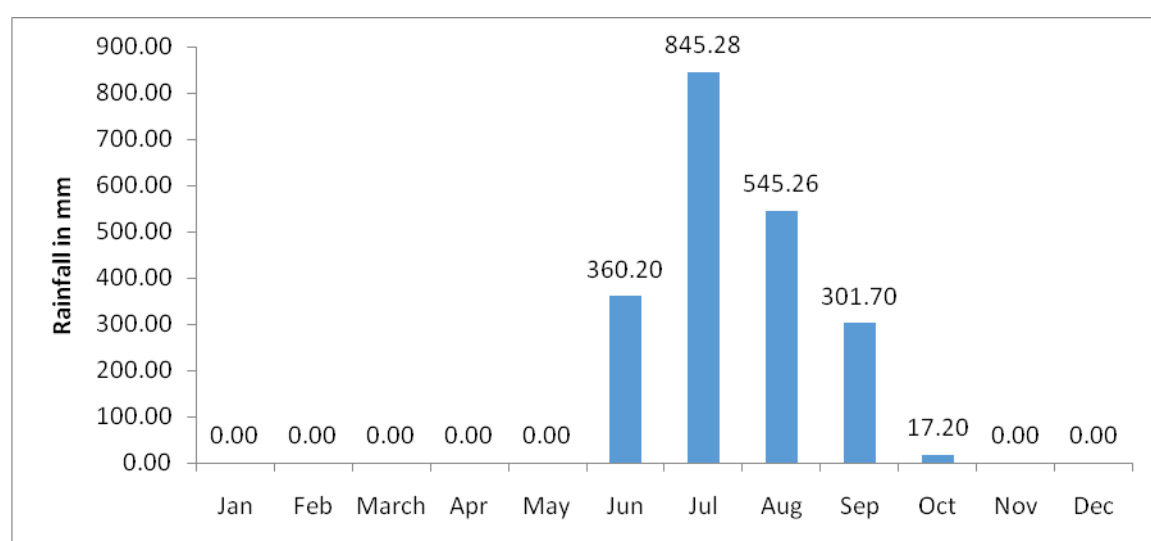
Climate:

The climate of the Daman district is, although, humid still pleasant. The climate can be divided into four main seasons, i.e. the summer season from March to May, the southwest monsoon season from June to September, the post-monsoon or retreating season from October to November, and the winter season from December to February.

Rainfall

The district receives an average normal rainfall in the district is 2200 mm. Details of average monthly rainfall is given below.

Fig 04 - Average monthly rainfall in the District of Daman during the last 9 years (2012-2020)



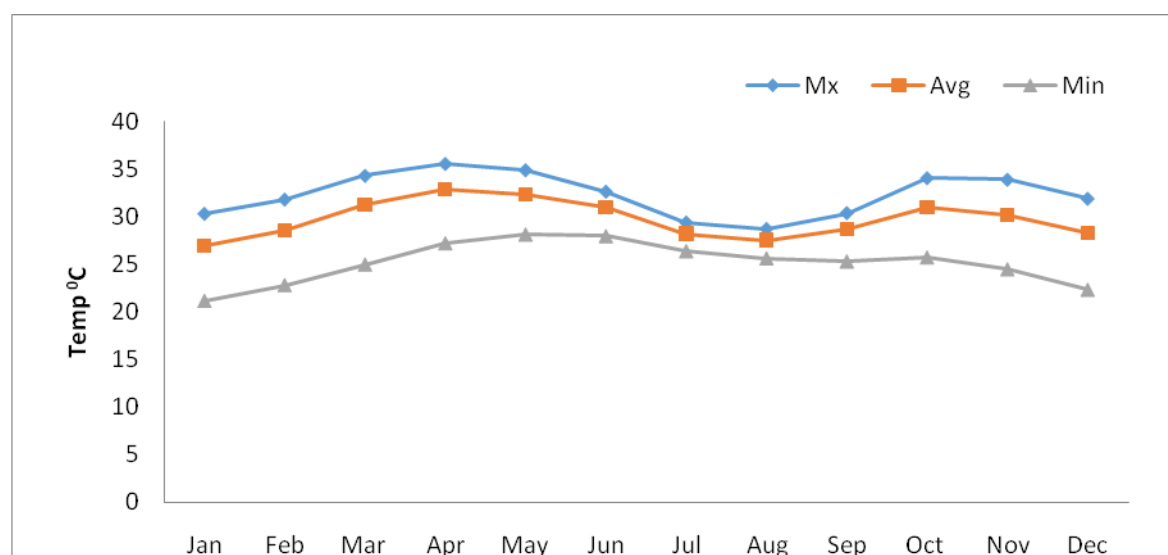
Source: District Disaster Management Cell, Daman

Temperature

During the summer season, before the advance of the monsoon, the day temperature may occasionally exceed 40°C. The oppressive heat is relieved by the cool sea breeze in the afternoon on most days. With the advance of the monsoon during the second week of June, there is a drop in temperature, after the withdrawal of the monsoon, day temperatures rise. From December onwards, the day and night temperatures drop rapidly till January, which is the coldest month. The mean daily maximum temperature during January is about 37°C and the mean daily minimum is about 12°C. During the cold season, this district is affected by cold waves in association with the passage of western disturbances across north India. On such occasions, the

minimum temperature could drop to 7°C or even less. The figure below details the average minimum and maximum temperature for the Daman district.

Fig 05- Month wise trend of temperature in the Daman average of last 12 years (2009-2020)



Source: District Disaster Management Cell, Daman

Humidity

Due to the proximity to the sea, the humidity is generally high. During the southwest monsoon season, the relative humidity generally exceeds 80 percent. There is a decrease in humidity after the withdrawal of the southwest monsoon, the driest part of the year being November to March, but the relative humidity is generally above 40 percent.

Wind

Moderate to strong wind blows during the late summer and the monsoon months.

Diu District

Diu is situated between the 20.71°N 70.98°E. It is a tiny island in the Arabian Sea near the port of Veraval, separated from the southern extremity of the Saurashtra peninsula by a narrow channel running through a swamp. The Channel is navigable only for fishing boats and small crafts. The geographical area of Diu is 39 Km².

Topography

The altitude of Diu is 6m above sea level. The topography is generally plain. The hillocks attain a maximum height of 30m. The physical features of Diu are similar to Daman district, although Diu is more arid and saline. There are no natural forests in Diu district.

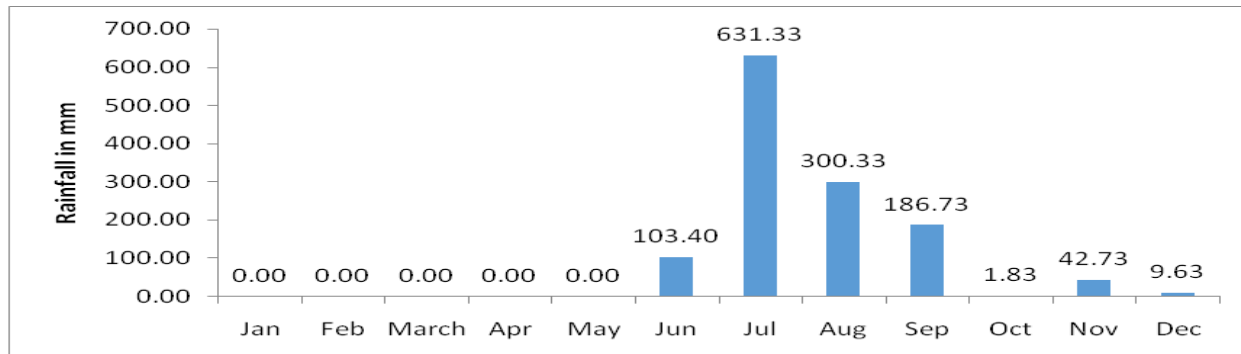
Climate:

The climate is generally pleasant. The year may be divided into four seasons. The cold season is prevalent from December to February, followed by the hot season between March to May. From June to September, the South-West monsoon season is experienced, followed by the post-monsoon season of October and November

Rainfall

The district receives an average rainfall of 1276 mm. Details of annual rainfall are given below.

Fig 6: Status of average monthly rainfall in the district of Daman during the last 3 years (2018-2020)

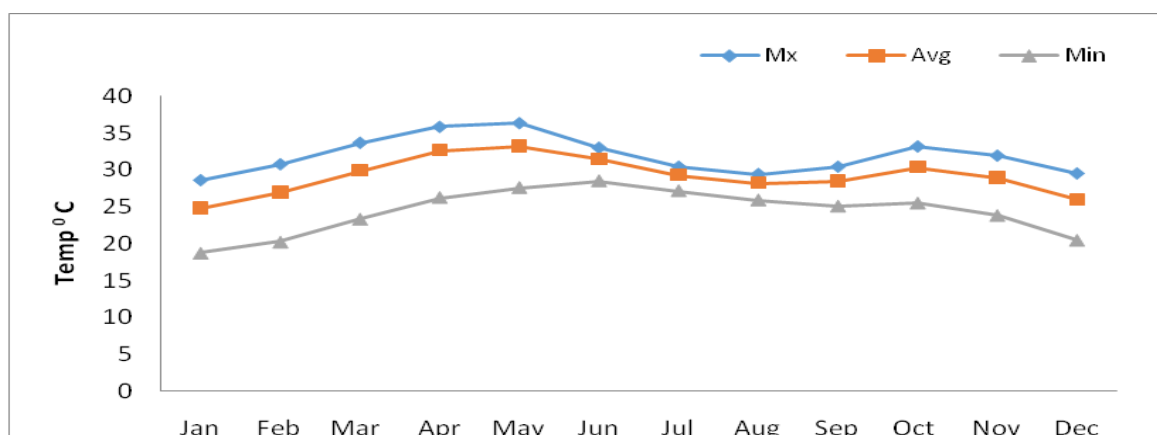


Source: District Disaster Management Cell, Diu

Temperature

From the beginning of March, the temperatures begin to rise till May which is the hottest month with a mean daily maximum temperature of about 39°C and a mean daily minimum of about 11°C. With the onset of the South-West monsoon by about mid-June, there is a slight drop in the temperature but the relief from the heat is not marked due to the increase in humidity. The figure below indicates the average minimum and maximum temperature for the Diu district.

Fig 07- Month wise trend of temperature in the Diu average of last 12 years (2009-2020)



Source: District Disaster Management Cell, Diu

After November, temperatures decrease till January. In association with cold waves, in the wake of western disturbances passing across North India during the cold season, the minimum temperature may sometimes go down to about 4°C to 5°C.

Humidity

The relative humidity is generally over 80 percent from May to September. The relative humidity is low in the winter but is never below 50 percent. The sky is heavily clouded to overcast on many days in the monsoons.

Wind

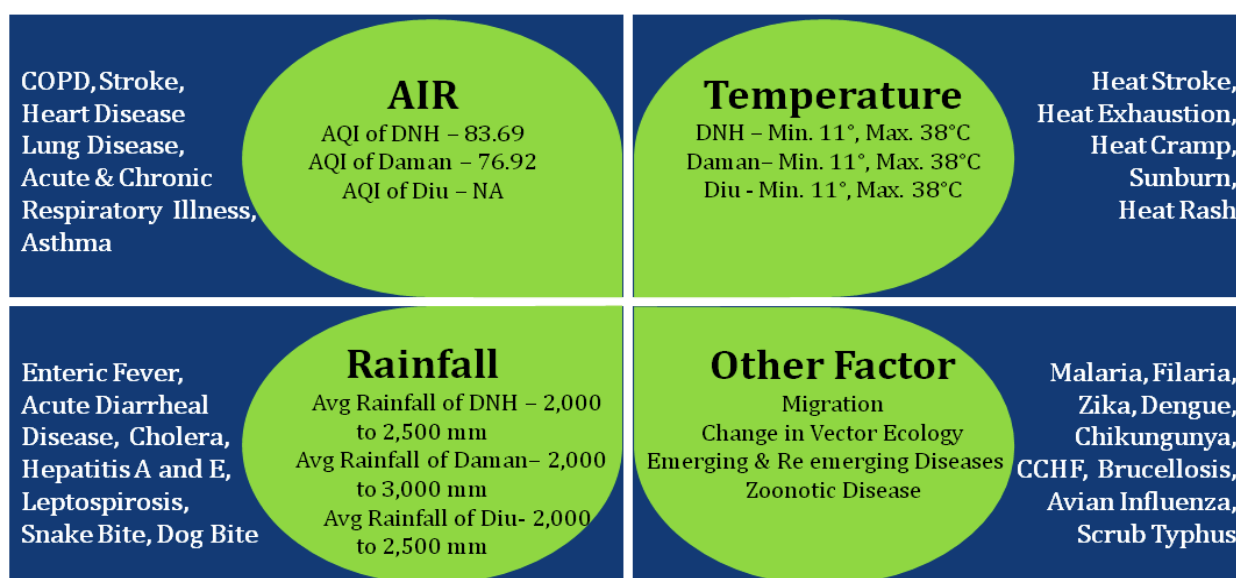
Winds are light to moderate and increase during the South-West monsoon season.

Chapter 3

Climate-sensitive issues /diseases in the UT

Climate change poses several threats to the health of the population. The health effects of climate change occur either through the direct effects (changes in temperature and precipitation and occurrence of heat waves, floods, droughts, and fires, etc) or indirect effects (ecological disruptions resulting in crop failures, shifting patterns of diseases' vectors, or displacement of populations).

Fig 01- Summary of climatic factors and their impact on Health in UT of Dadra Nagar Haveli.



The Summary of climatic factors and their impact on Health in the UT of Dadra & Nagar Haveli and Daman & Diu

Keeping in view the above aspects, the State Action Plan for Climate Change and Human Health (SAPCCHH) proposes a multi-pronged approach to address the health-related aspects of climate change. It is envisioned to strengthen the health of citizens of UT of DNH & DD against climate-sensitive illnesses. The goal is to reduce morbidity, mortality, injuries, and health vulnerability to climate variability and extreme weather. The objective is to build the capacity of healthcare services against the adverse impact of climate change on human health. This SAPCCHH endeavors to seek coordination and

synergies with other departments and initiatives like Sustainable Habitat, Agriculture, Water, Natural Ecosystems, and Biodiversity to help the state to assess vulnerability in terms of geography, vector prevalence, diseases pattern, etc. to adapt and to yield health benefits in the increasingly changing climate.

Epidemic:

In all districts, preventive, and curative health is being looked after by the health department. There are also 3 District Hospitals, 1 Sub District Hospital, 4 CHCs, 13 PHCs, and 92 HWCs supplementing the task. With the view of detecting epidemics at the earliest, a robust Integrated Disease Surveillance mechanism along with Rapid Response Team has been established under the Department of Health And Family Welfare (IDSP). The outbreak-prone diseases like Cholera, Gastroenteritis, Acute Diarrhoea / Dysentery, Foodborne disease, Hepatitis, Typhoid, Dengue, Malaria, and other Fever are monitored. A total of 77 outbreaks and 46 Early Warning Signals of different diseases were encountered in the UT of Dadra Nagar Haveli and Daman Diu during the last 8 years.

Given the history and geography and climate conditions of the territory, the following climate-sensitive health illnesses are identified and an action plan detailing the implementation and monitoring is prepared with the coordination and involvement of other departments. Following are the major illnesses identified in the UT.

Table 02: Details of climate-sensitive illnesses in the UT of Dadra & Nagar Haveli and Daman & Diu-

Communicable Disease	Prevalent Disease	Risk of Transmission
Heat-Related Illness	<ul style="list-style-type: none"> • Heat Stroke • Heat Exhaustion • Heat Cramp • Sunburn • Heat Rash 	
Air Pollution Related Illness	<ul style="list-style-type: none"> • COPD • Stroke • Heart Disease • Lung Disease • Acute & Chronic Respiratory Illness • Asthma 	
Water Borne Diseases	<ul style="list-style-type: none"> • Enteric Fever 	

	<ul style="list-style-type: none"> • Acute Diarrheal Disease • Cholera • Hepatitis A and E 	
Vector borne Diseases	<ul style="list-style-type: none"> • Malaria • Filaria • Dengue • Chikungunya 	<ul style="list-style-type: none"> • Zika • CCHF
Zoonotic diseases	<ul style="list-style-type: none"> • Leptospirosis • Dog Bite • Snake Bite • Swine Flu 	<ul style="list-style-type: none"> • Toxoplasmosis • Brucellosis • Avian Influenza • Scrub Typhus • Zika Virus • Nipha Virus

Chapter 4

NPCCHH programme, Goal, and Objectives

Vision:

Strengthening of healthcare services for all the citizens of the U.T. especially vulnerable groups like children, women, elderly, tribal, and marginalized populations 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), healthcare providers, and policy makers regarding the impacts of climate change on human health.

Objective 2:

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

Objective 3:

To strengthen health preparedness and response by performing situational analysis at U.T./ district/ below district levels.

Objective 4:

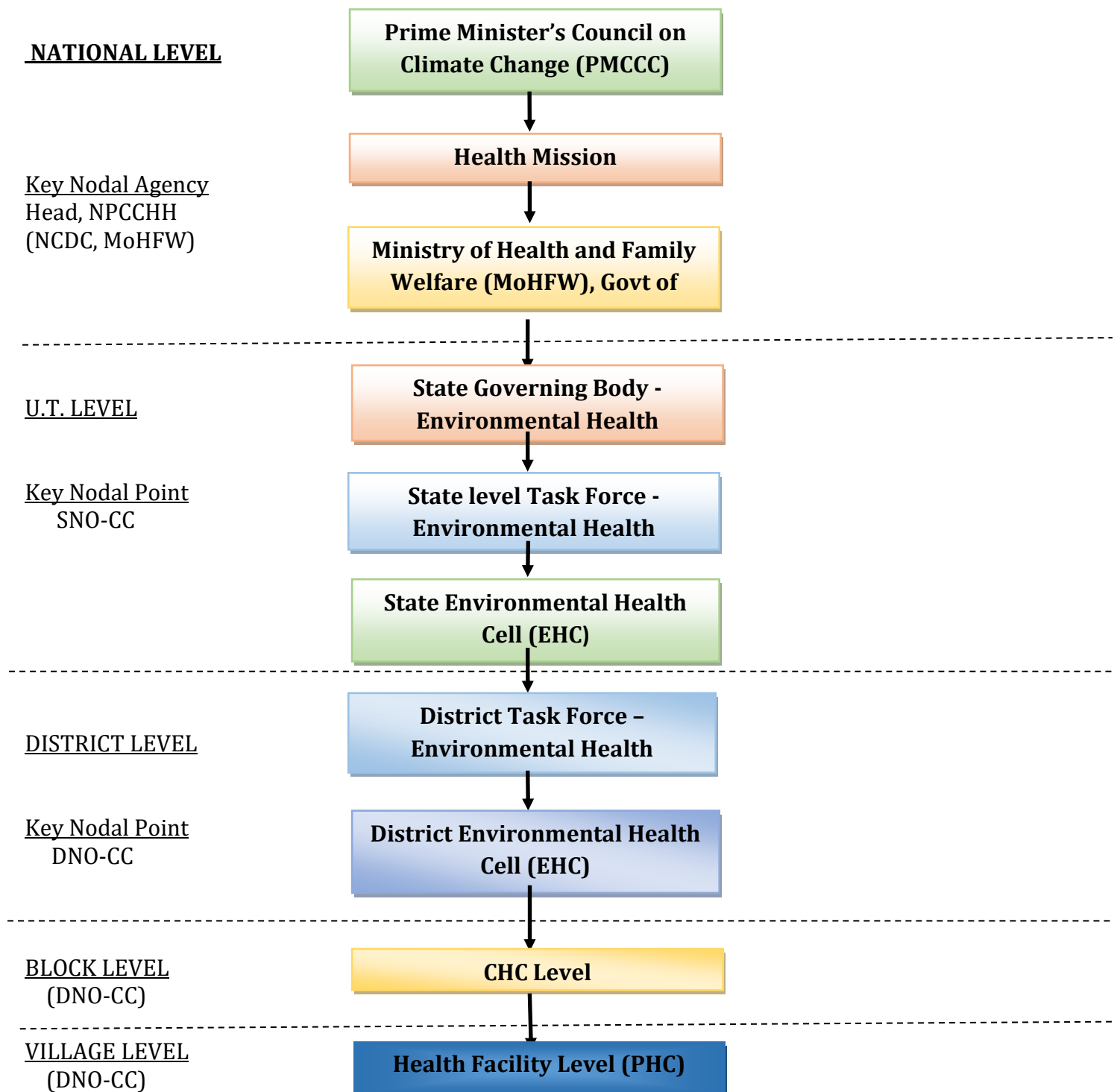
To develop partnerships and create synchrony/ synergy with other missions and ensure that health is adequately represented in the climate change agenda in the U.T. in coordination with the Ministry of Health & Family Welfare.

Objective 5:

To strengthen U.T. research capacity to fill the evidence gap on climate change's impact on human health

Chapter 5

Organization Structure of NPCCHH



Committees formed under National Program on Climate Change and Human Health

A) U.T. level governing body of the National Program on Climate Change and Human Health

The U.T. level governing body of the National Program on Climate Change and Human Health is formed for policy-level decision-making and shall be working under the Chairmanship of Advisor to Hon'ble Administrator, UT of Dadra & Nagar Haveli and Daman & Diu. The other members are as follows:

1. Secretary (Health), UT of DNH & DD - Co Chairman
2. Director Medical & Health Services, UT of DD & DNH - Member Secretary
3. Mission Director (NHM), UT of DNH & DD - Member
4. Regional Director, Health & Family Welfare, Ahmedabad - Member

Roles and Responsibilities

1. Review of the progress made by the department under NPCCHH
2. Approval of the draft of the State Action Plan on Climate Change & Human Health of the UT of Dadra & Nagar Haveli and Daman & Diu
3. Making policy decisions and advising the department to implement National Program on Climate Change and Human Health in UT.
4. Provide feedback to manage as well as prevent climate-sensitive diseases in the UT.

B) UT level Task Force / Environment Cell NPCCHH

The UT level Task Force / Environment Cell NPCCHH of the National Program on Climate Change and Human Health is formed to facilitate proper implementation of the National Program on Climate Change and Human Health and shall be working under the Chairmanship of Mission Director, National Health Mission, UT of Dadra & Nagar Haveli and Daman & Diu. The other members are as follows:

1. Nodal Officer- NPCCHH, Member Secretary
2. Department of Environment, Forest & Climate Change – Member
3. State Pollution Control Board – Member
4. Disaster Management Authority – Member

5. Agriculture Ministry – Member
6. Indian Metrological Department – Member

Roles and Responsibilities

1. Preparation and implementation of the U.T. Action Plan for Climate Change and Human Health
2. Conduct Vulnerability assessment and risk mapping for commonly occurring climate-sensitive illnesses in the U.T.
3. Assessment of needs for health care professionals (like training, and capacity building) and organise training, workshops, and meetings.
4. Maintain U.T. and District level data on physical, financial, and epidemiological profiles for climate-sensitive illnesses.
5. Ensure Convergence with NHM activities and other related programs in the U.T. / District
6. Monitor programme, review meetings, and field observations.
7. Timely issue of warnings/ alerts to health professionals and related stakeholders as well as the general public through a campaign or using mass media (electronic or printed)
8. Social mobilization against preventive measures through the involvement of women's self-help groups, community leaders, NGOs, etc.
9. Advocacy and public awareness through media (street plays, folk methods, wall paintings, hoardings, etc.)
10. Conduct operational research and evaluation studies for climate change and its impact on human health.

C) District-level Task Force / Environment Cell NPCCHH

The District level Task Force / Environment Cell NPCCHH of the National Program on Climate Change and Human Health is formed for proper implementation of the National Program on Climate Change and Human Health in the respective district and shall be working under the Chairmanship of Collector / District Magistrate. The other members are as follows:

1. Chief Medical Officer / DHO/CHMO - Vice Chairman

2. District Nodal Officer – NPCCHH - Member Secretary
3. Dean – Govt Medical College in the district/ Head- Department of Community Medicine of the Medical College (if available) - Member
4. District Surveillance Officer - Member
5. District Head, Department of Agriculture - Member
6. District Head, Department of Transport - Member
7. District Head, Department of Animal Husbandry - Member
8. District Head, Department of Environment and Forests - Member
9. District Head, Department of WCD / Social Justice - Member
10. District Head, Department of Education - Member
11. District Head, Department of Public Works Department - Member
12. District Head, Department of Panchayati Raj - Member

Roles and Responsibilities

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

D) Institutional (PHC/CHC) level Task Force / Environment Cell NPCCHH

The institutional (PHC/CHC) level Task Force / Environment Cell NPCCHH of the National Program on Climate Change and Human Health is formed for proper implementation of the National Program on Climate Change and Human Health in the PHC / CHC area and shall be working under Chairmanship of Incharge Medical Officer (PHC/CHC). The other members are as follows:

1. Community Health Officer - Member
2. Supervisor - Member
3. Auxiliary Nursing Midwife (ANM) - Member
4. Nodal Teacher (Health) - Member
5. Panchayat Secretary - Member
6. ASHA - Member
7. Anganwadi Worker - Member

Roles and Responsibilities

1. Preparation and implementation of Health Facility Level Action Plan for Climate Change and Human Health. e.g. PHC affected by draught/floods to prepare an action plan accordingly.
2. Conduct Vulnerability assessment and risk mapping for commonly occurring climate-sensitive illnesses in the area. e. g. If the PHC has a large number of industries in the vicinity, their main issue will be air and water-borne diseases.
3. Maintain and update the Health Facility Level database of climate-sensitive illnesses identified in the area. e.g. water-borne, airborne, vector-borne disease, heat wave-related illness, etc.

State Nodal Officer National Program on Climate Change and Human Health

The State Nodal Officer National Program on Climate Change and Human Health is overall in charge of the program in the UT for preparation and implementation of the State Action Plan for Climate Change and Human Health, coordination with other departments, and preparation and implementation of all program related activities in the UT.

Roles and Responsibilities

1. Preparation and implementation of State Action Plan for Climate Change and Human Health.
2. Conduct Vulnerability assessment and risk mapping for commonly occurring climate-sensitive illnesses in the UT.

3. Maintain and update the database of illnesses identified at the district level, the population at risk, geo-climatic conditions, seasonal variation, change in population demography, migration (in & out), available resources, healthcare infrastructure, laboratories, etc.
4. Assess the need for health care professionals and conduct UT level training/ workshops and meetings for capacity building.
5. Ensure the appointment of contractual staff and engage them in the assigned task of data management under the NAPCCHH.
6. Maintain UT level data on physical, financial, and epidemiological profiles for these illnesses.
7. Close interaction with stakeholders- policy makers, farmers, civil society, and media.

District Nodal Officer National Program on Climate Change and Human Health

The District Nodal Officer National Program on Climate Change and Human Health is in charge of the program in the district for preparation and implementation of the district Action Plan for Climate Change and Human Health, Coordination with other departments, preparation, and implementation of all program related activities in the district.

1. Mr. Sunil Kumar - Nodal Officer, NPCCHH, Dadra Nagar Haveli District
2. Dr. Sanket Nayak - Nodal Officer, NPCCHH, Daman District
3. Dr. Ajay Gadhavi - Nodal Officer, NPCCHH, Diu District

Roles and Responsibilities

1. Preparation and implementation of District Action Plan for Climate Change and Human Health.
2. Conduct Vulnerability assessment and risk mapping for commonly occurring climate-sensitive illnesses in the district.
3. Maintain and update district database of illnesses identified at the district level, the population at risk, geo-climatic conditions, seasonal variation, change in population demography, migration (in & out), available resources, healthcare infrastructure, laboratories, etc.

4. Assess needs for health care professionals and conduct sub-district/ CHC level training/ workshop and meetings for capacity building.
5. Maintain District level data on physical, financial, and epidemiological profiles for these illnesses.
6. Close interaction with stakeholders policy makers, farmers, civil society, and media
7. Strengthen/ Develop active and passive surveillance and establish sentinel sites, Early warning Signals
8. Develop or translate IEC on the effects of climate change in the local language, and make a communication plan for dissemination of health-related alerts/ education materials.
9. Ensure adequate logistic support, including equipment and other treatment modalities and supplies for case management at all levels of health care and also under 'the Emergency Response Plan' in case of a disaster or an outbreak in the district.

Annexure 1 – Orders / Approvals of Committees under NPCCHH

Part B:

Adaption plan on Climate sensitive Health Issues

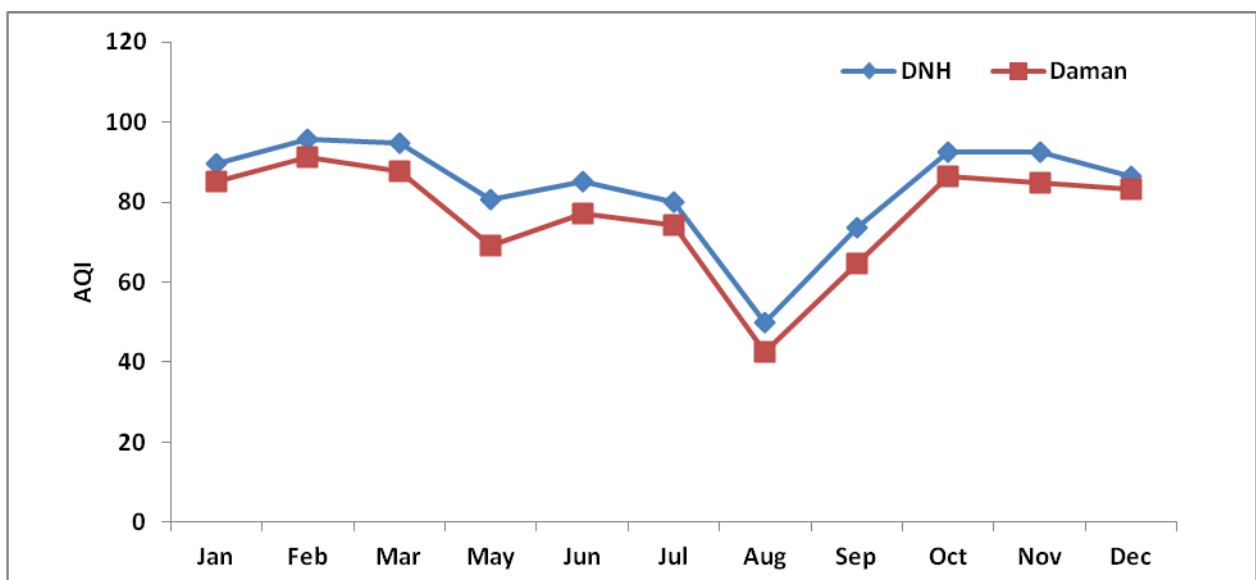
Chapter 6

Health Adaptation Plan for Air Pollution

Situational analysis

The UT has always been aware of air pollution. Various important steps have been taken by the administration to prevent this. As a result, the AQI in the UT is always recorded below a value of 100. The highest AQI has been recorded in February (93.39) and the lowest in August (46.17). The Month wise Air Quality Index of districts of Dadra & Nagar Haveli and Daman for the Year 2021 is presented below. No area in the UT has been identified as a part of 'non-attainment cities'. According to National Family Health Survey-5, 99.7% of the people in the state have electricity in their homes, and 79.9% of the people use clean fuel (electricity, LPG/natural gas/biogas) for cooking. Two districts of the UT have a large number of small, medium, and large industries which emit various gases into the air. Further due to industries and tourist destination, a large number of vehicles visit daily in the area which contributes to the cause of pollution.

Fig 09: Air Quality Index of districts of Dadra & Nagar Haveli and Daman for the Year 2021



HEALTH ADAPTATION PLAN

1.AWARENESS GENERATION

The department makes the people of the state aware of air pollution and its damages through various mass media channels including posters, hoardings, social media, print media, radio, and health talks during VHND and UHND days. Various IEC materials have also been prepared to ensure that the key message reaches the public properly. The summary of IEC and BCC activities conducted in the financial years 2021-22 is shown below.

Table 04: Awareness activities conducted in 2021-22-

S.No	Activity	Frequency	Responsible Authority
1	Press Note & Media, Sensitization	2	District Nodal Officer
2	IEC through Social Media	4	
3	SMS through NIC line	1 Time to 2.0 lakh persons	
	Videos	3	
4	IEC on LED /DIN	2 Time	
5	Radio Talk on Air Pollution	1	
6	Banners / Flex change	70	
7	Leaflet and Poster on Air Pollution	15000	
8	Awareness through VHND, UHND	One per month per village	
9	Celebration of Health Days	2 (World Health Day and International of Clean Air for Blue Skies)	
10	Greenery activities	2500 trees were planted on the premises of health institutions.	
11	Health Advisory	2(air pollution and before diwali celebration)	State Nodal Officer

IEC DISSEMINATION PLAN

S. No	IEC Content	Activity	Dissemination Plan for 5 years	Timeline	Budget (in lakhs) for 5 years				
					22 to 23	23 to 24	24 to 25	25 to 26	26 to 27
1.	Pamphlet, poster, banner, Newspaper	a. Development of IEC tools and printing	2 Posters for Healthcare facilities in all districts	August to September	0.50	0.50	0.50	0.50	0.50
2.	ad, School		Social Media (Facebook, Instagram, Twitter, etc.)						
3.	quiz/essay	a. Dissemination of IEC materials	1 in all the Healthcare facilities						
4.	competition, Voice message/OB								
5.	D calls etc.								

2. Capacity Building

The orientation training of the district nodal officers, officials of sentinel surveillance hospitals, and medical officers regarding respiratory illnesses / diseases with details of cardinal signs/diagnosis and management protocol and surveillance of respiratory illness due to Air Pollution have been completed. The training of remaining health officials and PRI are planned for October 2022.

Table 05–Details of training conducted in the UT of Dadra Nagar Haveli & Daman & Diu

S.No	Training Details	Tentative Date	Responsible Authority
1	Districts completed TOT of District Nodal Officer	Completed	State Nodal Officer
2	Training of Medical Officers trained in Districts	Completed	State Nodal Officer
3	Training of health workers CHO/ASHA/ANM in District	Scheduled on 28/10/2022	District Officer Nodal
4	Sensitization training planned for vulnerable populations in the district (PRI Training)	Scheduled on 27/01/2023	District Officer Nodal

Training / Sensitization Workshop Plan For 5 Years (2022-27)

S. No	Training / Sensitization	No. of Batches	Timeline	Budget (in lakhs) for 5 years				
				2022 - 23	2023 - 24	2024 - 25	2025 - 26	2026 - 27
01	Doctors and Medical Officers	03 (1 batch per district)	October-November	0.30	0.30	The budget will be calculated as per no. of batches (with min 15% increase)		
02	Health care workers	18 (12 -DNH) (04 - Daman) (02- Diu)	October-December	0.40	0.40	The budget will be calculated as per no. of batches (with min 15% increase)		
03	Human resources from PRI	18 (12 -DNH) (04 - Daman) (02- Diu)	January-February	0.30	0.30	The budget will be calculated as per no. of batches (with min 15% increase)		

3.Surveillance on Acute Respiratory Illness (ARI)

The objective of ARI surveillance is to identify the trend of air pollution-related illness in the context of the outdoor air quality in an area to help minimize the impact of the air pollution through timely and appropriate intervention measures.

A surveillance system has been established in the UT of Dadra & Nagar Haveli and Daman & Diu to monitor air pollution and diseases related to it. The district nodal officers have been identified for monitoring all surveillance activities.

Pollution Control Board has been established to monitor air pollution in the Union Territory. Under this monitoring mechanism, six instruments have been installed at the six locations (1- Shivom Industries, Khadoli, Silvassa, 2- Chetan Guest, Silvassa, 3- Baldevi Dandul Faliya, Silvassa, 4- Near Mashal Chowk, Nani Daman, 5- Makat Faliya, Moti Daman 6- M/s. Prima Plastic, Village Kadaiya, Nani Daman) to monitor all the important parameters related to air quality.

The Health and Family Welfare Department of the state has developed a mechanism to monitor the diseases related to air pollution. Under this, health problems like ARI and ILI are monitored under the Integrated Disease Surveillance Programme. Apart from this, district hospitals (Shri Vinoba Bhave Civil Hospital Silvassa, Marwad District Hospital Daman, and District Hospital Diu) have been identified as sentinel surveillance Hospitals for monitoring respiratory diseases. In all these hospitals, nodal

officers have been identified for monitoring respiratory diseases. The details of sentinel sites and their nodal officers are given below. The reporting format of sentinel hospitals is enclosed as Annexure 3.

Table 03: District-wise List of Sentinel hospitals selected for ARI surveillance activity

Name of City	Hospital	Public or Private	Type of Hospital	Nodal Officer	Contact Details
Silvassa	SVBCH	Public	District Hospital	Manager Admin	8690693020
Daman	GH Marwad	Public	District Hospital	Manager Admin	9574233938
Diu	GH Diu	Public	District Hospital	Manager Admin	8140710986

The month-wise percentage of ARI/ILI cases reported in Presumptive surveillance along with the AQI in UT of Dadra Nagar Haveli and Daman Diu is shown in graph (Fig 10). It was noted that ARIs/ILIs are reported throughout the year, with the peak time of cases being between January to March and the lowest number of cases being reported in June. Whereas, the highest AQI is reported in February, and the lowest AQI is reported in August.

Fig 10: Correlation of month-wise percentage of ARI cases against AQI in the DNH & Daman District for the year 2018- 2021

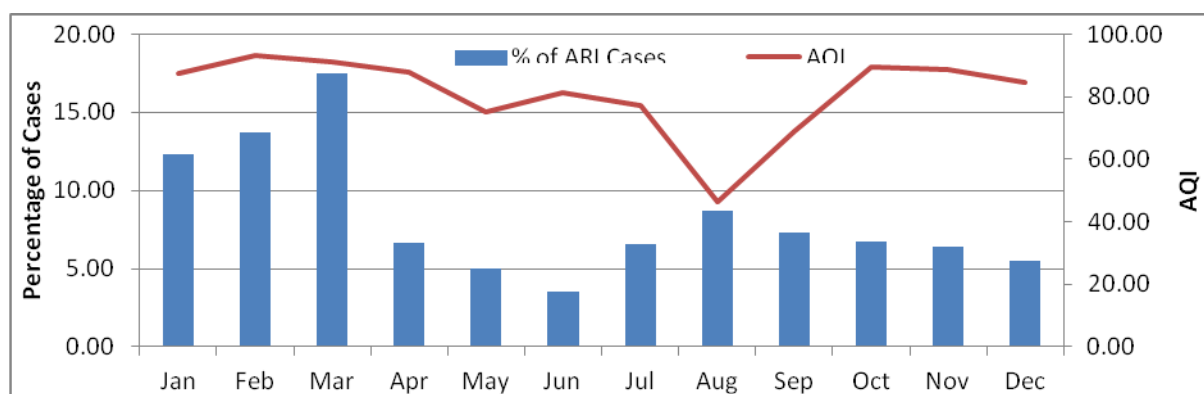


Table 06 – Summary of Five-Year Health Adaptation Plan for Air Pollution

SN	Name of the Component	2022-23	2023-24	2024-25	2025-26	2026-27
1	Surveillance of Air Quality	Throughout the year	Throughout the year	Throughout the year	Throughout the year	Throughout the year
2	Refresher Training of staff	As per the training schedule	As per the training schedule	As per the training schedule	As per the training schedule	As per the training schedule
3	IEC BCC Activities	Throughout the year and specially Sep to Jan	Throughout the year and specially Sep to Jan	Throughout the year and specially Sep to Jan	Throughout the year and specially Sep to Jan	Throughout the year and specially Sep to Jan
4	Early warning disseminating	Already in placed	Maintained	Maintained	Maintained	Maintained
5	Celebration of Days	1. World Environment Day (6 June) , 2.Earth Day (22 April) 3. International Day for Clean Air and Blue Sky (7 September)				
6	Tree plantation activity	As per the need, with coordination of the concerned department				
7	Health Advisory	Related to air pollution and before Diwali Celebration				

Roles and responsibilities:

State Climate Change & Human Health Cell:

1. To coordinate with the UT-level task force meetings to develop a HAP on air pollution and health as part of the State Action Plan on Climate Change and Human Health (SAPCCHH)
2. To undertake situational analysis of health impacts in the context of air pollution in the State

3. Identification and capacity building of human resources like DNO-CC, Nodal officer-ARI surveillance, and others
4. IEC development, translation, and dissemination planning
5. Development and dissemination of health advisories
6. Surveillance establishment in the context of air pollution
7. Hospital preparedness related to air pollution diseases
8. Timely issue of warnings to hotspot areas, health professionals, and the vulnerable and general population
9. Overall periodic reviews, supervision, monitoring, and evaluation of the identified activities being carried out at all levels – State, Districts, Blocks, and Villages/wards

District Climate Change & Human Health Cell:

1. To coordinate with the district-level task force meetings to develop a HAP on air pollution and health as part of the District Action Plan on Climate Change and Human Health (SAPCCHH)
2. To undertake a situational analysis of health impacts in the context of air pollution in the district
3. Identification and capacity building of human resources like Nodal officer-ARI surveillance, Medical Officers, Communities health officers, health care workers, and other departments like PRI, WCD, etc.
4. IEC development, translation, and dissemination planning
5. Development and dissemination of health advisories
6. Surveillance and reporting in the context of air pollution to the state level
7. Hospital preparedness related to air pollution diseases
8. Timely issue of warnings to hotspot areas, health professionals, and the vulnerable and general population
9. Overall periodic reviews, supervision, monitoring, and evaluation of the identified activities being carried out at all levels of districts, blocks, and villages/wards.

Medical officer at the Primary Health Centre/ Urban Healthcare Centre level:

The medical officer is responsible for implementing Comprehensive Primary Healthcare Services through a network of Health and Wellness Centres that are envisaged in the Ayushman Bharat to provide promotive, preventive, and curative services, etc. near the community through active participation of the whole team through the following actions:

1. Creating awareness at the healthcare facilities and the community level
2. Capacity building, developing village-level health adaptation plans related to air pollution
3. Management of outdoor cases of health problems, emergency services, and their referrals for cases in the context of air pollution

Community Health workers at the Village Level/ Ward Level-

- Village Health Sanitation Nutrition Committee
 - MAS (Mahila Arogya Samiti) in Urban wards
 - Community-level public awareness generation on the effects of air pollution, and ways to protect and prevent health problems
1. **ASHAs** are community-level health workers acting as an important link between the community and the healthcare system. With their community outreach activities, the following may be done-
 - a. Awareness generation at the community level on the sources of air pollution, health problems, and ways to protect and prevent air pollution
 - b. Organise campaigns, particularly on health problems of women and children related to air pollution
 2. **AWWs** – (through CDPO): At the Anganwadi centers during immunization sessions, information may be given on the sources of air pollution in the household and outside, its health problems, particularly on women and children, and ways to address them.

Chapter 7

Health Adaptation Plan for Heat

Situation analysis

As per multiple studies on Heat Vulnerability Analysis, Dadra and Nagar Haveli is not directly impacted by heat wave currently. Although, the recent study by the Center for Science and Environment (CSE) conducted in 2022 suggests that higher temperatures are becoming common in the UT region during the pre-monsoon or the summer season with a temperature rise of almost 2-7°C (Environment, 2022). In the year 2021, the annual average outdoor maximum and minimum temperature were 32.10°C (29.77°C-33.73°C) and 22.04°C (15.06°C-26.42°C) respectively.

Although heat wave-like conditions have not been experienced in the UT, concerted efforts are to be made to inform the general population about heatwave occurrence and preventive measures. In this regard, the following actions are to be taken-

IEC and Awareness Activities

The department makes the people of the state aware of heat waves and related illnesses through various mediums. This includes posters, hoardings, social media platforms, print and electronic media tools, radio, and health talks during VHND and UHND meetings. Various IEC materials have also been prepared to ensure that the key message reaches the public. The summary of IEC and BCC activities conducted in the financial years 2021-22 is presented below, and detailed IEC material prepared can be referred from Annexure 9.

Table 07: Showing different awareness activities conducted in the years 2021-22.

SN	Name of activity	Frequency	Responsible
1	Press Note & Media, Sensitization	2	District Nodal Officer
2	IEC through social Media	3	
3	SMS through NIC line	1 Time to 2.0 lakh persons	
4	Videos	2	
5	IEC on LED /DIN	3 Month	
6	Radio Talk on Air Pollution	1	
7	Banners / Flex change	70	
8	Leaflet and Poster on Air Pollution	15000	

9	Awareness through VHND, UHND	One Per Month per Village	
10	Celebration of Health Days	1 (World Environment Day- 5 June)	
11	Greenery activities	More 2500 trees were planted in the premises of Health Institutions.	
12	Health Advisory	2 (Advisory and Do's and Dents)	State Nodal Officer

IEC DISSEMINATION PLAN

SL. no	IEC Content	Activity	Disseminati on Plan for 5 years	Timelin e	Budget (in lakhs) for 5 years									
					22 to 23	23 to 24	24 to 25	25 to 26	26 to 27					
1.	Pamphlet, poster, banner, Newspaper ad, School quiz/essay competition , Voice message/O BD calls etc.	a. Development of IEC tools and printing	2 Posters for Healthcare facilities in all districts	August to September	0.50	0.50	0.50	0.50	0.50					
2.			Social Media (Facebook, Instagram, Twitter etc.)											
3.		a. Dissemination of IEC materials	1 in all the Healthcare facilities	October To February										
4.														
5.														

Capacity Building

The training of the district nodal officers and medical officers regarding heat wave and their harmful impacts on human health, a management protocol, and surveillance is periodically organized. The training calendar and the photographs related to the training activities are enclosed as Annexure 8.

Training / Sensitization Workshop Plan For 5 Years (2022-27)

S. No	Training / Sensitization	No. of Batches	Timeline	Budget (in lakhs) for 5 years				
				2022 - 23	2023 - 24	2024 - 25	2025 - 26	2026 - 27
01	Doctors and Medical Officers	03 (1 batch per district)	October-November	0.30	0.30	Budget will be calculated as per no. of batches (with min. 15% increase)		
02	Health care workers	18 (12 -DNH) (04 - Daman) (02- Diu)	October-December	0.40	0.40	Budget will be calculated as per no. of batches (with min. 15% increase)		

03	Human resource from PRI	18 (12 -DNH) (04 – Daman) (02- Diu)	January- February	0.30	0.30	Budget will be calculated as per no. of batches (with min. 15 increase)
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Surveillance

A surveillance system has been developed by the UT to monitor temperature and heat-related illnesses.

A- Temperature Surveillance-

To note the daily change in temperature, the Disaster Management Department has set up a center in each district to monitor the temperature. The Department of Health and Family Welfare receives this information monthly from the Department (format attached as Annex 6).

B- Disease Surveillance-

District hospitals of all three districts (Shri Vinoba Bhave Civil Hospital Silvassa, Marwad District Hospital Daman, and District Hospital Diu) have been identified as sentinel surveillance hospitals for monitoring heat-related illnesses. In all these hospitals, nodal officers have been identified. The reporting format of sentinel hospitals is enclosed as Annexure 7.

Table 10- Summary of Five-Year Health Adaptation Plan for Heat

S.No	Name of the Component	2022-23	2023-24	2024-25	2025-26	2026-27
1	Surveillance	Throughout the year	Throughout the year	Throughout the year	Throughout the year	Throughout the year
2	Refresher Training of staff	As per the training schedule	As per the training schedule	As per the training schedule	As per the training schedule	As per the training schedule
3	IEC BCC Activities	March to June	March to June	March to June	March to June	March to June
4	Health Advisory and Do's and Don'ts release	April and as per the needs.				

Roles and responsibilities: The department of Health & Family Welfare regularly is releasing an alert on heatwaves for taking precautionary measures by the citizen to prevent heat-related illnesses.

Table 08: Roles and responsibilities of the Department of Health & Family Welfare

Season	Roles and responsibilities of SNO and DNO
During Pre-Heat Season (Annually from January through March)	<ul style="list-style-type: none"> • Update surveillance protocols and programs, including tracking daily heat-related data • Develop/revise and translate IEC in the local language • Make a communication plan for the dissemination of heat-related alerts or education materials • Check inventories of medical supplies in health centers • Identify cooling centers and barriers to accessing cooling centers • Capacity building of health care personnel to detect and treat heat-related illnesses • Issue health advisory to healthcare personnel based on IMD seasonal prediction or warning • Ensure inter-sectoral convergence and coordination for improving the architecture, design, energy-efficient cooling, and heating facility, and increase in plantation i.e. Climate Resilient Green Building Design.
During Heat Season (Annually from March through July)	<ul style="list-style-type: none"> • Ensure real-time surveillance and monitoring system in case of an extreme event • Prepare rapid response team • Distribute “Dos and Don’ts” to the community • Effectively send a “Don’t Panic!” message to the community • Ensure access to Medical Helpline • Ensure strict implementation of legislative/regulatory actions as per Occupational Health Standards. • Coordination with the meteorological department for analyzing cases and death data with meteorological variables like maximum temperature and relative humidity
During Post-Heat Season (Annually from July through September)	<ul style="list-style-type: none"> • Participate in the annual evaluation of heat action plan • Review the revised heat action plan
Health Facility level	
<ul style="list-style-type: none"> • HRI daily reporting • IEC and awareness generation & dissemination • Hospital level preparedness 	
Frontline Health Care Worker	
<ul style="list-style-type: none"> • HRI surveillance 	

- Generate awareness among the community
- Timely referral of suspected cases to the nearest health facility

Table 09: Roles and responsibilities of other departments

S.No	Department	Season	Roles and responsibilities
1	Meteorological Department	Pre-Heat	Issue weather forecasts on Short/Medium/Long range duration
		Heat	Issue Heatwave alerts Coordination with the health department for analyzing cases and death data with meteorological variables like maximum temperature and relative humidity
		Post-Heat	Participate in the annual evaluation of heat action plan Review the revised heat action plan
2	Dept of Drinking Water & Sanitation	Pre-Heat	Identify vulnerable places
		Heat	Provide drinking water points at identified places and worksites
		Post-Heat	Participate in the annual evaluation of the heat action plan Review the revised heat action plan
3	Public Health & Engineering Dept	Pre-Heat	To construct cool shelters/sheds at public places, bus stands, etc.
		Heat	To maintain shelters/sheds, bus stands
		Post-Heat	Participate in the annual evaluation of heat action plan Review the revised heat action plan
4	Municipalities	Pre-Heat	Review the heat preparation measures.
		Heat	Ensure implementation of guidelines of the heat action plan
		Post-Heat	Review the heat preparation measures and make a note of the lessons learned for the next season
5	Dept of Education	Pre-Heat	Train and sensitise teachers and students towards the health impact of extreme events and disseminate health ministry-approved prevention and first-aid measures
		Heat	Rescheduling school timing during summer During extreme events keep a check on outdoor activities Close teaching institutes in case of issue of alert from the Government
		Post-Heat	Participate in the annual evaluation of the heat action plan Review the revised heat action plan
6	Dept of Labour & Employment	Pre-Heat	Reassess 'Occupational Health Standards' for various types of Occupation. Utilize maps of construction sites to identify more high-risk outdoor workers Heat illness orientation for factory medical officers and general practitioners Communicate directly about heat season with non-factory workers
		Heat	Encourage employers to shift outdoor workers' schedules away from peak afternoon hours (1 pm-5 pm) during a

			heat alert or consider extended afternoon breaks or alternate working hours for workers. Provide water at work sites
		Post-Heat	Participate in the annual evaluation of heat action plan Review the revised heat action plan
7	Dept of Power supply	Pre-Heat	Maintenance of electrical lines
		Heat	Ensure uninterrupted supply of electricity
		Post-Heat	Participate in the annual evaluation of the heat action plan Review the revised heat action plan
8	Dept of Forest & Climate change	Pre-Heat	Develop/encourage projects to decrease the 'Urban Heat Island effect'
		Heat	Ensure implementation of guidelines of the heat action plan
		Post-Heat	Review the heat preparation measures and make a note of the lessons learned for the next season
9	Dept of Transport	Pre-Heat	Review the road map for preparation for the heat season
		Heat	Ensure implementation of guidelines of the heat action plan
		Post-Heat	Participate in the annual evaluation of the heat action plan Review the revised heat action plan
10	Media or Press officer	Pre-Heat	Secure commercial airtime slots for public service announcements Identify areas to post warnings and information during the heat season Activate telephone heat hotline Begin placing temperature forecasts in newspapers Increase installed LED screens with scrolling temperature
		Heat	Issue heat warnings in heat and electronic media Contact local FM radio and TV stations for announcements Use SMS, text, and WhatsApp mobile messaging and centralized mobile databases to send warnings Contact transport department to place warnings on buses
		Post-Heat	Evaluate the reach of advertising to target groups and other means of communication such as social media

Chapter 8

Health Adaptation Plan for Vector-Borne Disease

1- Situation analysis:

Vectors can cause various diseases. The UT has achieved unprecedented success in the prevention of vector-borne diseases in the last few years. Filariasis is near elimination in the state. Malaria is also in the pre-elimination phase (API less than 1). Dengue is the main vector-borne disease in the state. Apart from this, there is also a risk of transmission of Zika, Japanese Encephalitis, CCHF, and Scrub Typhus based on the climatic conditions and vector profile of Dadra and Nagar Haveli.

Table 11: Status of Vector-Borne diseases in Dadra Nagar Haveli

Prevalent Vector borne Disease

- Malaria, Filaria, Dengue and Chikungunya.

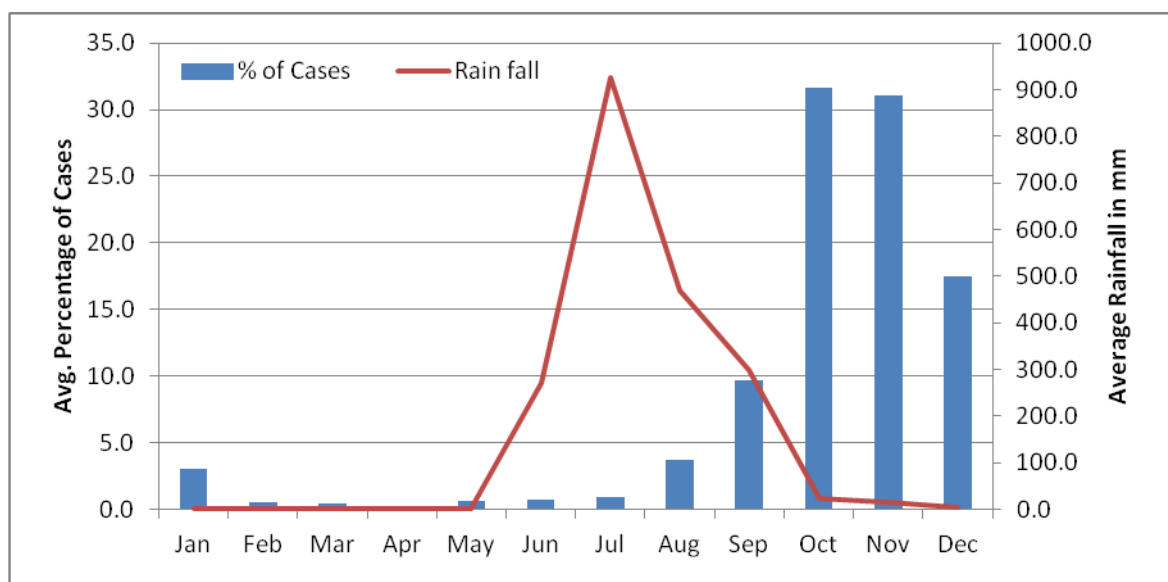
Risk of Transmission

- Zika, Japanese, Encephalitis, CCHF, Scrub Typhus

A) Dengue

Both presumptive as well as laboratory dengue surveillance is conducted in the UT. The Sero-positivity ranged between 4.2-20.26 % during the corresponding period from 2018 to 2021. In general, dengue cases were reported throughout the year in varying proportions, but the majority of the cases were reported from August to January (monsoon and the post-monsoon season). The correlation between rainfall and dengue cases is shown below.

Fig 11: - Month-wise comparison of average rainfall and the average percentage of dengue cases reported in the UT of Dadra Nagar Haveli & Daman Diu in the last 3 years (2018-2021)



B) Malaria

Dadra Nagar Haveli is a tribal-dominated district. The prevalence of sickle cell anemia in the tribal community is direct evidence of malaria endemicity. The surveillance data of the last decade shows that the entire population of the district was once at high risk of malaria.

Although due to continued efforts, remarkable progress has been made in malaria control. In the year 2011, the Dadra Nagar Haveli had more than 5000 cases, which increased in 2012. and the number of cases increased reached and up to 6000. From 2013 to 2015, the burden of malaria drastically reduced. From 2018-2020, the API of malaria reached below 1 and the district has got the status of very low endemicity. Also, the district of Daman and Diu falls in the category of the low endemic district

Fig 12 - Trend and incidence of API in the UT during the last ten years

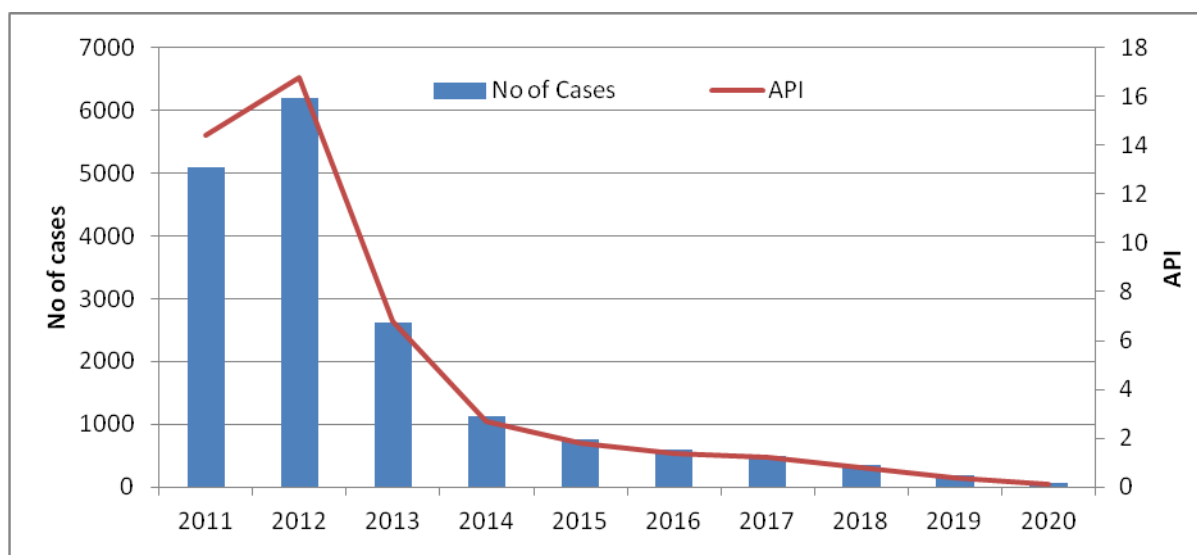


Fig 13: - Month-wise comparison of average rainfall and the average percentage of Malaria PV cases reported in the UT of Dadra Nagar Haveli & Daman Diu in the last 3 years (2018-2020)

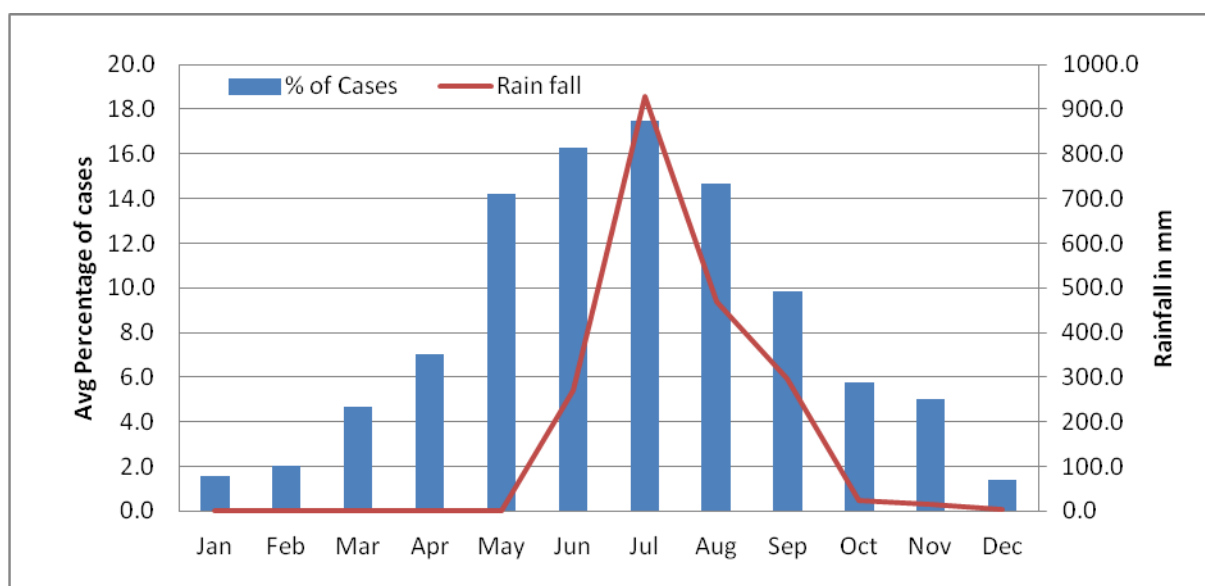
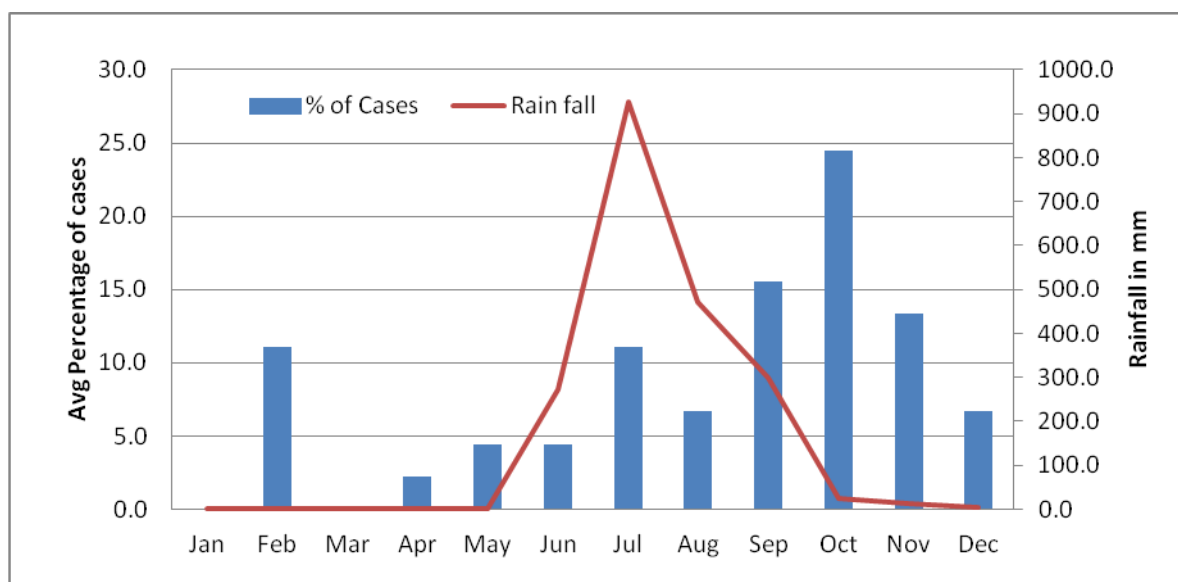


Fig 14: - Month-wise comparison of average rainfall and the average percentage of Malaria PFs cases reported in the UT of Dadra Nagar Haveli & Daman Diu in the last 3 years (2018-2020)



2. Surveillance-

An entomology unit has been established in the state to surveillance the vector and the surveillance of vector-borne diseases is done as per the protocols of NCVBDC and IDSP.

ii- Surveillance of Zika, Japanese, Encephalitis, CCHF, Scrub Typhus

- a. Hospital-based sentinel surveillance of the Zika, Japanese, and Encephalitis
- b. Xenosurveillance of the vector of the Crimean-Congo hemorrhagic fever (CCHF)

Awareness

To increase awareness amongst all the relevant stakeholders, including general people and vulnerable communities, healthcare providers, and policy makers regarding the impacts of vector-borne disease and ways to address them, the following is undertaken-

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

The content for the IEC for vector-borne disease will be provided by the UT NPCCHH division and NCVBDC. The UT will translate the content into the local or regional language and the role of the districts is to utilize these materials and disseminate them at all levels.

IEC dissemination plan: As per the schedule of NCVBDC & IDSP

Capacity Building

To strengthen the capacity of the healthcare system to adapt/address illnesses/ diseases, training will be held as per the schedule of NCVBDC and IDSP.

Future Action Plan of the Department of Health & Family Welfare: As per the guideline of NCVBDC, suggestive preventive measures are given below. Awareness sessions and breeding control activities will be carried out as per the plan of NCVBDC with the NCVBDC budget.

1. Regular monitoring of climate factors and assessment of correlation with VBDs.
2. Establishment of a benchmark to generate Early warning signal
3. Mapping of potential vector breeding sites.
4. Regular adult vector monitoring (prevalence and density).
5. Environmental management and modification in rural areas through village Health, Sanitation & Nutrition Committee (VHSNC), MNREGA & Swachh Bharat Abhiyan and in rural areas by desilting, de-weeding, channelizing, larviciding, through Urban VBD scheme.
6. Biological control- Larvivorous fish.
7. Foci-based adult vector control interventions in and around 50 houses of the positive case- Space spray followed by IRS

Table 12: Summary of Five-Year Health Adaptation Plan for Vector Borne Disease

SN	Name of the Component	2022-23	2023-24	2024-25	2025-26	2026-27
1	Surveillance (NCVBDC/IDSP)	Throughout the year	Throughout the year	Throughout the year	Throughout the year	Throughout the year
2	Refresher Training of staff	As per the training schedule of NCVBDC	As per the training schedule of NCVBDC	As per the training schedule of NCVBDC	As per the training schedule of NCVBDC	As per the training schedule of NCVBDC
3	IEC BCC Activities	June to October	June to October	June to October	June to October	June to October
4	Health Advisory and Do's and Don'ts release	In the month on June and as per the needs				
5	Destruction of breeding sites	As per the schedule of the NCVBDC. Actively from June to November				

Roles and responsibilities

State Climate Change & Human Health Cell

1. Prepare advisory and disseminate to the district level.
2. Coordinate with other National health programmes like IDSP & NCVBDC for surveillance activities.
3. Coordinate with multisectoral task force members in developing the State Action plan for vector-borne diseases.
4. Capacity building of DNO-CC and MOs in coordination with IDSP & NCVBDC.
5. IEC and awareness generation & dissemination planning in coordination with IDSP & NCVBDC.

District Climate Change & Human Health Cell

1. Disseminate advisory received from the state level to block and health facility level
2. Coordinate with other National health programmes at the district level like IDSP & NCVBDC for surveillance activities.
3. Coordinate with multisectoral task force members in developing the State Action plan for vector-borne diseases.
4. Capacity building of MOs, LTs, and other staff in coordination with IDSP & NCVBDC.
5. IEC and awareness generation & dissemination planning in coordination with IDSP & NCVBDC.

Health Facility Level

1. Reporting of VBDs
2. IEC and awareness generation
3. Capacity building of frontline healthcare workers
4. Hospital level preparedness

Frontline Health Care Worker

1. Generate awareness amongst the community
2. Reporting and timely referral of suspected cases to the nearest health facility

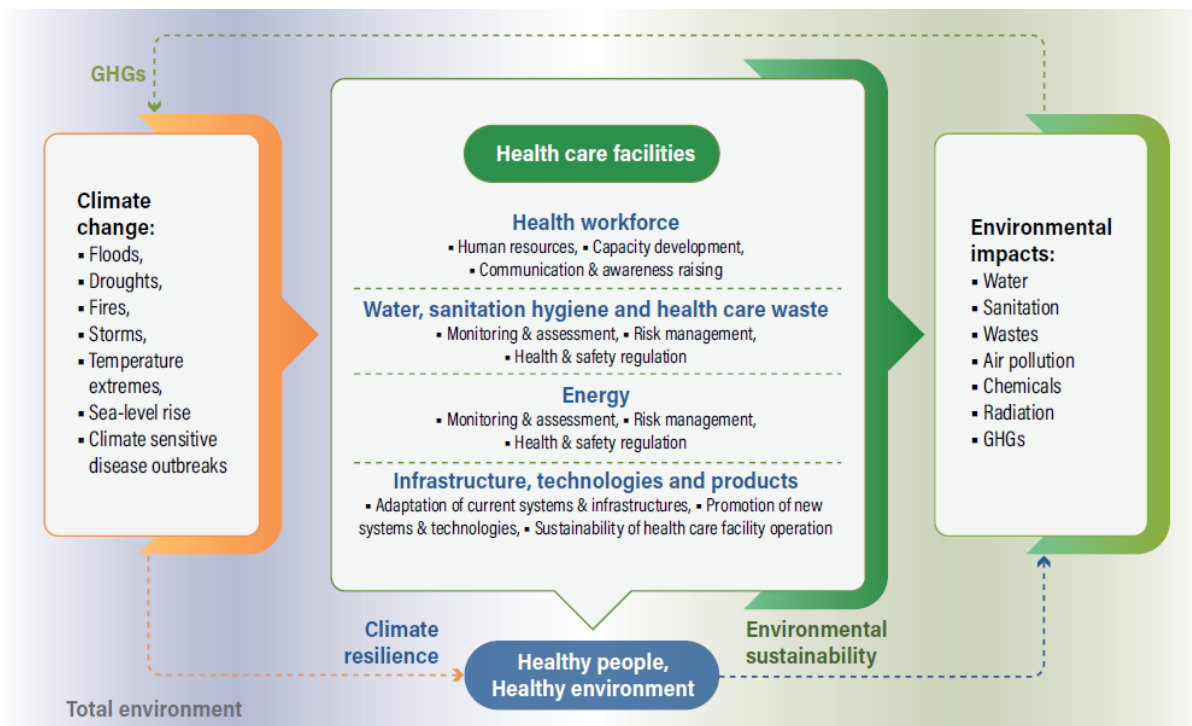
Chapter 9

Green and Climate-Resilient Infrastructure

“Climate-resilient and environmentally sustainable health care facilities anticipate, respond to, cope with, and 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, 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. Healthcare facilities are the first and last line of defence against climate change impacts as they can be responsible for large emissions of greenhouse gases (GHGs), and because they provide the needed services and care to people harmed by extreme weather and other long-term climate hazards.

Figure: 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 litres of water every year. This in turn can result in substantial cost savings in addition to adopting climate-smart practices.

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

- The healthcare facility would develop a strategy for the optimum usage of water.
- The HCFs would develop a plan for the conservation of water. e.g., water- efficient fixtures, dual flush mechanism, sensor-operated urinals, waterless urinals, rainwater harvesting
- The HCFs would have a plan for wastewater treatment. e.g., sewage treatment plant and effluent treatment plant at sites of generation of contaminated grey water, like pathology.
- The HCFs would develop a programme/plan for the conservation of water
- The HCFs would have a water management programme for the conservation of water by establishing a team, setting goals with timelines, conducting water audits, determining the cost of water, and preparing an action plan
- The HCFs would have an ongoing educational programme for the efficient usage and conservation of water for all the stakeholders (staff, patients and visitors)
- The HCFs would have a plan to train the staff on water savings techniques
- The HCFs would develop a wide variety of methods to communicate through IEC materials, new and/or revised operating guides and manuals

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

It is essential that HCF planning and designing should be responsive to local climate and hazard profile 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

Activity plan

Health care including hospitals, health systems, and the health products supply chain can paradoxically contribute to emissions from the entire lifecycle of their operations, estimated to be 2.6 gigatons of carbon dioxide a year or about 4.6% of total greenhouse gas emissions. Healthcare systems, hence, have a responsibility to adopt sustainable, low-carbon solutions to mitigate and reduce their own climate footprint.

Climate resilient healthcare infrastructure refers to the capacity of the healthcare facility to adapt, reorganize and evolve to be better prepared for future disasters and climate change impacts. Healthcare facilities need to take effective measures to withstand the impacts of increasing extreme weather events and other climate-related hazards such as higher temperatures, increasing precipitation over longer periods (causing increased flooding), intense but short-lived rainfall (causing flash flooding), decreasing precipitation (affecting places where rainwater harvesting contributes to the water supply systems of health care facilities), and higher winds and storms.

Table 13: Roadmap to Green and Climate Resilient Health Infrastructure

Climate Resilient Infrastructure	Assessment Analysis and intervention identification	Action Planning Project, Policy, and Institutional Planning	Implementation of policy and programs
Situation analysis	Stakeholder input	Local ownership and validation	Capacity and advisory support
Stakeholder mapping and Authority Alignment	Data collection and analysis	Development of financial mechanisms or budgets	Monitoring and reporting
	Identification of effective interventions	Target setting and results framework	
Green Resilient Infrastructure	Green Resilient Infrastructure growth pathway analysis	Financial approval	Evaluation and learning
	Prioritization and costing of		

	interventions		
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Situational Analysis:

- Assessment of health infrastructure for Green and Climate Resilient (Energy Conservation, Water Conservation, and Green Resilient Infrastructure)
- Assess the possibilities of outbreak/ disaster around the health facilities
- Assess Manpower requirements for the outbreak/ disaster and plan deployment
- Assess the requirement of Equipment and Medicines
- Find an alternate place in case of non-functioning of Healthcare facilities or case of mass casualties.
- Assess the financial implication

Awareness & Capacity Building:

Sensitization meetings/trainings on green resilient health infrastructure at the strategy level and tactical level through various talks, and meetings with higher authorities, Health Staff, Civil Engineers, and political leaders.

Table 14- NPCCHH target for Green and Climate Resilient infrastructure

SN	Activities	Indicator	Target (2022-23)	Achievement
1	Assessment of the healthcare facilities	% of HCF per district per year that have conducted the assessment	50%	Online assessment done for PHC/CHC/HWC
2	Green and Climate Resilient infrastructure measures e.g Energy efficiency Solarisation Water conservation	% of districts with at least one climate-resilient healthcare facility complying IPHS guideline per year	30%	Will be assessed after receiving checklist
		% of HCF have been replaced existing (Non-LED) lighting facilities with LED in Districts	20%	LED light installed in 100%HCF
		% HCF with installed solar panels in Districts	20%	66.67% (Daman & Diu)
		% HCF with Rain Water Harvesting (RWH) system in Districts	10%	80%

Table 15- Summary of Five-Year Health Adaptation Plan Green and Climate Resilient Infrastructure

SN	Name of the Component	2022-23	2023-24	2024-25	2025-26	2026-27
1	Assessment of Health Facilities. Identification and Correction of gaps	100% PHC in all three districts	All District Hospitals, Sub District Hospitals, and CHC	100% Health and Wellness Center Daman & Diu District	50% Health and Wellness Center Dadra & Nagar Haveli District	50% Health and Wellness Center Dadra & Nagar Haveli District
2	Green and Climate Resilient infrastructure measures	Upto PHC Level Only			Health & Wellness Center	
	Energy Audit	30 % of HCF	35 % of HCF	35 % of HCF	20 % HWC	20 % HWC
	LED Light	100 % Achieved			100 % Achieved	
	Solar Panel	30 % of HCF	35 % of HCF	35 % of HCF	20 % HWC	20 % HWC
	Rain Water Harvesting (RWH) system in Districts	30 % of HCF	35 % of HCF	35 % of HCF	20 % HWC	20 % HWC
	Seismic Safety certificate by a structural engineer	30 % of HCF	35 % of HCF	35 % of HCF	20 % HWC	20 % HWC

Roles and responsibilities:

UT level Climate Change and Human Health Cell

- Assessment and approval for identified health facilities (shared by districts) for climate-resilient infrastructure and Green measures based on disaster and vulnerability assessment.
- Identify and coordinate with all relevant departments/sectors at in developing the capacity for climate resilient health system.
- Overall monitoring and supervision of Green Measures in healthcare facilities.
- Estimation and provision of budget for all activities.
- Regular capacity building and handholding of district-level climate change and human health cell.

District-level Climate Change and Human Health Cell

- Identify health facilities for climate resilient infrastructure and Green measures based on disaster and vulnerability assessment.

- Prepare a proposal and estimation of the budget for the identified health facilities for all activities and share with UT.
- Coordinate for energy auditing, energy conservation, solarization, rain water harvesting, retrofitting healthcare facility infrastructure (climate/ disaster resilient) etc.
- Regular capacity building and handholding of district and block level stakeholders.
- Monitoring and supervision of Green Measures in healthcare facilities.

Block level / Health facility level

- In charge of the Health Facility to initiate changes and modifications.
- Identify health facilities for climate resilient infrastructure and Green measures based on disaster and vulnerability assessment.
- Prepare proposal and estimation of budget for the identified health facilities for all activities and share with the district level.
- Coordinate with all relevant departments/sectors in developing capacity for climate-resilient health systems.

Medical officer

- Conduct health facility assessment: Energy audit, Water audit
 - Lead water committee, sustainable procurement committee, and operational measures to make health facility function during disasters or power cut
- Support community-level IEC activities

Chapter 10

Health Adaptation Plan for Disaster and Extreme Weather Events

UT of Dadra & Nagar Haveli and Daman & Diu experiences various natural calamities. The most common ones recorded include cyclones, floods, and earthquakes.

Cyclone

The risk of a cyclone is more in the Daman and Diu districts as compared to Dadra & Nagar Haveli. Over 25 cyclones originating in the Arabian Sea have passed through the UT for over 150 years. Recently, the Tauktae cyclone hit the coastal area of Daman & Diu in 2017 and 2021.

Earthquake:

In the Seismic Zoning Map of India, the UT region lies in Zone III (moderate zone of risk). No major earthquake has been reported in UT.

Drought:

The territory's vulnerability to droughts is low. The southern part of the district Dadra & Nagar Haveli faces a seasonal drought between March, April, and May. Substantial portions of the Territory are arid to semiarid.

Flood:

The climatology of UT is influenced by the Arabian Sea in the West and Sahyadri hill range along its Eastern border making parts of the region arid and occasionally experiencing very high rainfall. These occasional heavy rainstorms are responsible for most of the floods in the Territory. Concentrated runoff and flat lowlands of the lower river basins of Daman Ganga are prone to flooding. Silvassa and Khanvel are located on the bank of large rivers so they are prone to flood. The relatively flat plains in the lower basic areas with hilly catchments in the territory accentuate flood risks. The flood-prone river sections were identified from settlement level analysis. Flood-prone river sections here extend to the upper basins due to the presence of dams that have to resort to emergency discharge during heavy rainstorms. Hence, flooding in these zones impacts both residents and settlements.

Fig 08- Flood prone area in the District Daman



Table 01: Disaster Risk Assessment in the UT D

Hazards	Risk Mild /Moderate/Severe	Last Incident Year
Earthquake	Moderate	1856
Cyclone	Moderate	2017 and 2021
Flood	Low	2004 and 1998
Epidemic	Moderate	-

Table 17 - Surveillance and Alert/ Early Warning Mechanism -

Hazards	Responsible Department	Details of Mechanism
Cyclone	IMD	<ul style="list-style-type: none"> 72 hours advance warning of various levels of certainty is provided by the IMD. This system is well established and the UTEOC and ERCs gear up emergency operations soon after the first warning is received.
Earthquake	IMD, ISR, NGRI	<ul style="list-style-type: none"> Earthquakes that are of magnitude 3.0 and above on the Richter Scale are also reported by the IMD to the UT Administration Immediately.
Flood	Madhuban Dam Authority, CWC	<ul style="list-style-type: none"> Meteorological Center and Flood Meteorological office stationed at Ahmedabad collects information regarding the meteorological situation of the Union Territory. These Hydro-Meteorological data are transmitted by the flood meteorological office to the Executive Engineer, Madhuban Dam. Data is transmitted to control Room Silvassa.
Drought	IMD	<ul style="list-style-type: none"> Drought is monitored from the progress of the onset and the withdrawal of the southwest monsoon. These forecasts are issued by the Indian Meteorological Department through All India Radio, the Doordarshan, and various Newspapers.
Epidemic	Director, Medical & Health Services, UT of Dadra & Nagar Haveli And Daman & Diu	<ul style="list-style-type: none"> Any unusual Health event reported to the concerned District Magistrate within 24 Hours.

Incident Command System in Health Department:

The Incident Command System or ICSE is in place in all districts to manage any health-related emergency. The details of the Incident Command System are given below.

Table 18 - Details of Incident Command System –

S.N	Name and Designation with Contact Number	Job Responsibility
1	Incident Commander	Pre and Post Disaster Management, Review of DM Plan, Command, Planning, Operations, Finance, Logistics
2	Operation Chief	a. Medical Care (Emergency Department, In patient areas, Surgical Services, and Critical care units) b. Ancillary Services (Laboratory Services, Radiology Services, Pharmacy Services, and Mortuary Services). c. Human Services (Psychological Support & Social Work Support)
3	Safety and Security Officer	a. If able, assign a security person to each area being evacuated for traffic control/safety. b. Turn off oxygen, lights, etc. as the situation demands. c. Check the complete evacuation has taken place and that no patients/staff remain. d. Place "Evacuated at " (date/time) sign up at the main area exit/entrance of the evacuated area after evacuation is complete.
4	Logistics Chief	The logistics chief is overall in-charge of all support services of the hospital and supervises the following areas: Communication systems, Transportation, Dietary Services, Stores, Sanitation, Water and Power Supply
5	Planning Chief	The planning chief is overall in-charge of the manpower planning and is responsible for making immediate as well as extended rosters of the following staff Medical Staff, Nursing Staff, Group 'C' and 'D' Staff.
6	Liaison / Media	The liaison officer is responsible for maintaining a close liaison with the other agencies providing rescue and relief to the victims of MCI/ Disaster. His work is liaison with the following agencies: <ul style="list-style-type: none"> • The Police • The Ambulance Services • Other hospitals in the network/ Area • Blood Banks or other ancillary medical services in the area Call personnel from nearby hospitals and clinics as necessary.
7	Stores In-Charge	<ul style="list-style-type: none"> • To ensure that adequate medical supplies

		<p>reach the patients' care areas when demanded by the operation chief</p> <ul style="list-style-type: none"> • Keep all first-aid kits ready • Sufficient medicines • Plan emergency material needed during the event of any disaster • Deploy a pharmacist with a mobile medical unit, emergency area, and pharmacy
8	Medical Care In-Charge (MOIC Emergency/Casualty Medical Officer)	<ul style="list-style-type: none"> • Triage with the help of ED nursing staff • Give directives to the enquiry staff to call for additional help from wards • Inform all concerned specialists as per the need • Report to the operational chief
10	Transport	<ul style="list-style-type: none"> • The ambulances should be periodically maintained and checked to be in functional condition. • Utilized according to Plan - A (outside hospital) or Plan - B (transport to other facilities). • Transportation can also be asked for from district headquarters and other departmental vehicles.
11	Transportation Officer	<ul style="list-style-type: none"> • Assemble evacuation teams from Labor Pool. • Ensure coordination of off-campus patient transportation • Confirm implementation of the Transportation Action Plan. • If able, assign six people to each floor for evacuation manpower. • Brief team members on evacuation techniques, (attached) • Arrange transportation devices (wheelchairs, gurneys, etc. to be delivered to assist in evacuation). • Report to the floor being evacuated and supervise evacuation. • Report to Nurse Manager/Charge Nurse for order of patients being evacuated and method of evacuation. • Transportation is necessary for an emergency situation mainly to bring the patients from the site of a mass casualty incident to the hospital. • Transport is also required to transfer patients to other hospitals if the facilities at the hospital in question are overwhelmed

		<p>or unable to perform their functions due to internal damage.</p> <ul style="list-style-type: none"> • The transport room/driver room should also have a telephone or any other means of communication like wireless to remain in touch with the control room.
12	Dietary	<ul style="list-style-type: none"> • Hospital Dietary Services (Kitchen) • The department head or designee will call in their own personnel as needed after reporting to Command Center. • Prepare to serve nourishments to ambulatory patients, in-house patients, and personnel as the need arise. • Utilize additional areas for extra eating space. Be responsible for setting up menus in a disaster situation and maintain adequate supplies. • Makes the necessary arrangement to provide coffee and snacks to the casualty, other designated areas, and the operation theatre.
13	Sanitation & Water and Mortuary Services	Adequate sanitation services within and around the hospital should be ensured by the hospital Administration.
14	IT, Enquiry & Communication	<ul style="list-style-type: none"> ➤ Planning for communications (within and outside the hospital) ➤ Communication is one of the main problems in major emergencies and disasters. ➤ Information transfer has to be reduced to the most important facts only. ➤ Multiple means of communication should be planned to communicate with hospital staff and administrators. ➤ The currently available communication networks which should be looked into for availability in the hospital are; <ul style="list-style-type: none"> • internal telephone exchange (for the hospital) • landline phones • private mobile/cellular phones • mobile/cellular phones in closed user group (CUG) for hospital staff only provided by the hospital • Loudspeakers/ public address system • Wireless sets for security and ambulance personnel • The communications room

		<ul style="list-style-type: none"> ➤ An area should be identified as a communication room within the hospital and all internal and external ➤ Communications must be made from here. ➤ This communication room should be in continuous contact with the command centre/control room. ➤ All-important numbers of hospital personnel, police, and district functions of administration other nearby Hospitalet. Should be clearly mentioned in the disaster manual and a copy of this manual should also be present in the communication room/ telephone exchange. ➤ On getting the go-ahead from the control room the disaster message should be flashed/ communicated to all the Numbers
15	Engineering / BME	<ul style="list-style-type: none"> • The Engineering Department carries evaluation of the utilities and/or structure of the department • Availability of sufficient water • Ensure uninterrupted electrical supply • The smooth functioning of medical gases • Functionality of DG • Check the functionality of all medical equipment • Any task assigned by ICO/ Immediate in charge

Awareness

The first step towards making hospitals safe is to create awareness among various stakeholders about the need to have safe hospitals, what it entails, and actions that can be undertaken. All awareness generation activities for hospital safety shall aim at sensitizing the key stakeholders and community on the need for disaster management in health facilities and to achieve the overall aim of protecting the lives of patients and health workers by ensuring the structural resilience of health facilities as well as improving the risk reduction capacity of health workers and institutions.

The key objectives of awareness generation activities shall be:

- a. Spreading awareness on protecting critical health facilities from disasters by including risk reduction in the design and construction of all new health

facilities, and by reducing vulnerability in existing health facilities through structural and non-structural measures.

- b. Sensitizing the health workforce in hospitals as they are central to identifying potential health risks from hazards.

Capacity Building: To strengthen the capacity of the healthcare system to extreme weather events and disaster management.

Training Programme	Trainer	Participants	Training Content
Medical Officers (3 Days)	<i>DNO</i>	<i>MO (DH,CHC,PHC)</i>	<i>Extreme weather events</i>
Community Health Care Workers (HWC) (2 Days)	<i>MO</i>	<i>Community Health Workers (MPHW, ASHA)</i>	
Panchayati Raj Institutions (1 Day)	<i>MO, MLHP</i>	<i>Panchayati Raj Institutions, communities</i>	

Roles and responsibilities

State Climate Change & Human Health Cell

- Disseminate early warnings to the district level
- Finalization of IEC material and dissemination plan
- Formalize intersectoral coordination for disaster planning, management, and response with SDMA/IMD and other response departments
- Organize training of district-level officers
- Facilitate disaster vulnerability assessments
- Facilitate assessment and implementation of climate-resilient measures in health facilities

District Climate Change & Human Health Cell

- Disseminate early warnings to the block level
- Finalization of IEC material and dissemination plan
- Formalize intersectoral coordination for disaster planning, management, and response with DDMA and other response departments
- Organize training of MOs and block-level officers

- Facilitate disaster vulnerability assessments
- Assessment and implementation of climate resilient measures in health facilities

Health Facility level

- Conduct health facility-based IEC activities
- Support community-level IEC activities
- Preparation of Disaster Management Plans and hospital safety plan
- Assessment of health facilities in the context of climate change-extreme weather events
- Identifying structural changes/retrofitting measures at the facility level to equip the healthcare facility
- Ensuring routine monitoring and maintenance of support functions (Water quality, waste management)
- Health facility preparedness for seasonal events

Frontline Health Care Worker

- Generate awareness among the community
- Training of community members for preparedness and response due to disaster/extreme weather events

Chapter 11

Budget and Finance

Table 19: Finance statement for last Year

SN	Financial Head	Budget approved in FY 2021-22	Budget utilized in FY 2021-22
1	Capacity building incl. training	0.45	0.45
2	Others including operating costs(OOC)		
3	IEC & Printing	2.00	2.00
4	Planning & M & E		
5	Surveillance, Research, Review, Evaluation (SRRE)		

Table 20: Finance statement for the next 5 years

SN	Name of the Component	2022-23	2023-24	2024-25	2025-26	2026-27
1	Capacity building incl. training	With coordination budget of other National program such as Quality Assurance, NCVBDC				
2	Others including operating costs(OOC)	Through UT Budget Head				
3	IEC & Printing	2.0 Lakh	2.25 Lakh	2.5 Lakh	2.75 Lakh	3.0 Lakh
4	Planning & M & E	Through UT Budget Head				
5	Surveillance, Research, Review, Evaluation (SRRE)	Through UT Budget Head				

Note : As the resource envelope of the National Health Mission is small. The UT will conduct various activities such as training, IEC, Surveillance, Green and Climate Resilient Health Infrastructure through UT budget.

Annexure

Annexure 1 – Orders / Approvals of Committees under NPCCHH

SUBMITTED:-

Proposal received from the Director, Medical & Health Services, Dadra and Nagar Haveli, Silvassa to form a Committee for State Level Governing Body and State Level Task Force (SLTF) District Environment Cell as per directives given in the meeting held on 22nd & 23rd November, 2017 may kindly be perused.

It is stated that a regional consultation meeting for west and central region was conducted between 22nd & 23rd November 2017 at Bhopal to deal with health effects of climate change.

As per discussion and directives in the meeting, the States/UTs has to form a State Level Governing Body and State Level Task Force (State/District Environment Health Cell) as per format given by the Ministry of Health & Family Welfare which is placed at C/14.

Hence, the department proposed to form the State level Governing Body and State Level Task Force (State/District Environment Health Cell) as below:-

I. State Level Governing Body

1. Advisor to Administrator/ Secretary (Health), DD&DNH	-	Chairman
2. Director, Medical & Health Services, DD & DNH	-	Member
3. Mission Director (NHM), DNH	-	Secretary
4. Regional Director, Health & Family Welfare Ahmedabad	-	Member

II. State Level Task Force (State/District Environment Cell)

1. Nodal Officer, State Health Ministry	-	Mr. D.B. Zala, SSO
2. Environment, Forest & Climate Change Ministry: Environmental Engineer / Scientist	-	Shri Dhaval M. Gavil, R.F.O. (SZ)
3. State Pollution Control Board	-	Mr. S. Sutar, JPE
4. Disaster Management Authority	-	Mr. M.K. Rana, Sup (C)
5. Agriculture Ministry	-	Mr. S. Bhoja, EO

Submitted for kind approval of the Advisor to Administrator/ Secretary (Health), DD & DNH.

the above proposal examined. the specific details of the above two bodies be so per submitted for approval of Secretary (Health) Advisor to Administrator

Deputy Secretary (Per.)

Secretary (Health) Advisor to Administrator

N/3

- Replacement of existing (non-LED) lighting with LED in Healthcare Facilities (Energy Efficiency Measures to reduce carbon emissions HCFs)
- Installation of Solar Panels in Healthcare Facilities
- Install Rainwater Harvesting System in Healthcare Facilities
- Retrofitting Healthcare Facility Infrastructure (Climate/ Disaster resilient) in Districts as per IPHS guidelines.

Structure of District Task Force – Environment Health

SN	Committee Member	Designation
1	District Magistrate	Chairman
2	Chief Medical Officer / DHO/CHMO	Vice Chairman
3	District Nodal Officer – Climate Change	Member Secretary
4	Dean – Govt Medical College in the district/ Head-Department of Community Medicine of the Medical College	Member
5	District Surveillance Officer	Member
6	District Head, Department of Agriculture	Member
7	District Head, Department of Transport	Member
8	District Head, Department of Animal Husbandry	Member
9	District Head, Department of Environment and Forests	Member
10	District Head, Department of Women and Child Development / Social Justice	Member
11	District Head, Department of Education	Member
12	District Head, Department of Public Works Department	Member
13	District Head, Department of Panchayati Raj	Member

The detail Guidance Note for Districts release by the Ministry of Health and Family Welfare is placed at C/3-29.

In this regard department proposes formation of above **District Task Force – Environment Health in each districts of the UT of Dadra & Nagar Haveli and Daman & Diu.**

Submitted for your kind perusal and approval please.

Veterinary Consultant (DST)

SPO (NPCCHH)

Mission Director (NHM)

Secy (Health)

Approved.

MD NHM

SPO

No. MO/PHG/NRL/ Outward No. 514 Date: 05/12/2021

Administration of UT of Dadra & Nagar Haveli & Daman & Diu Department of Health & Family Welfare PHC – Naroli

No. Date: 08-12-2021

Order

As per the MD, NHM Directives issued vide circular No. NHM/NPCCHH/General/2021/732 dated 29 Nov 2021 we hereby constituting **Task Force/Environmental Health Cell for NPCCHH at PHC Level** which is as follows:

SN	Name	Designation	
1	Dr. Keyur Desai	I/C Medical Officer, PHC/CHC	Chairman
2	Dr. Roshni Solanki	Community Health Officer	Member
3	-	Supervisor	Member
4	Shardaben T. Parmar	ANM	Member
5	Dimpalben Solanki	Nodal Teacher (Health)	Member
6	Ashwin Patel	Panchayat Secretary	Member
7	Kaushika Ahir	ASHA	Member
8	Sumanben Rathod	Anganwadi Worker	Member
9	Rameshsinh C. Solanki	Pharmacist	Member

Roles and Responsibilities of Health Facility Level (PHC/CHC) committed for NPCCHH

- Preparation and Implementation of Health Facility Level Action Plan for Climate Change and Human Health.
- Conduct Vulnerability assessment and risk mapping for commonly occurring climate sensitive illnesses in the district.
- Maintain and update Health Facility Level database of illnesses identified in the district.
- Maintain Health Facility Level data on physical, financial, epidemiological profile for the climate sensitive illnesses.
- Committee will meet once in Quarter to review the activities related to program
- Committee will review the data related to Climate Change diseases and submit the report to Climate Change office at UT of DNH & DD

(Dr. Keyur Desai)

Primary Health Centre

Signature of Dr. Keyur Desai

Medical Officer I/c, PHC/CHC, Naroli, Dadra & Nagar Haveli & Daman & Diu

Roles of the Pharmacists:

Regarding procurement, stock maintenance, logistics supply including Medicines, Equipments, Ambulances etc for the health facility.

- To enlist required drugs and medications, stock and buffer maintenance and availability of drugs/medicines required for managing diseases due to air pollution like Cardio-pulmonary Diseases and allergies.
- Priorities procurement of logistics, drugs and medications, kits like antiallergic and respiratory medications, oxygen supply, nebulizers etc. which are required to deal with health problems due to air pollution also such as Cardio-pulmonary Diseases and allergies.
- To make functional of the equipments, proper maintenance and repair of the logistics like nebulizers, ventilators etc. to manage diseases such as cardio-pulmonary and allergic problems.

Community Health workers at the Village Level/ Ward Level

- Village Health Sanitation Nutrition Committee in Rural areas
- MAS (Mahila Arogya Samiti) in Urban wards
- Community level public awareness generation on health effects of air pollution, and ways to protect and prevent health problems

ASHAs are community level health workers who link between the community and the healthcare system. With their community outreach activities, following may be done.

- Awareness generation at the community level on the sources of air pollution, health problems and ways to protect and prevent air pollution
- Organize campaigns particularly on health problems of women and children related to air pollution.

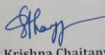
AWWs – (Through CDPO): At the Anganwadi centres during immunisation sessions, awareness generation may be given on the sources of air pollution in the household and outside, its health problems particularly on women and children and ways to address them

Order

In view of the smooth implementation of National Programme on Climate Change and Human Health (NPCCHH), UT of DNH & DD following officers shall also look after the work of District Nodal Officer, National Programme on Climate Change and Human Health (NPCCHH), in respective districts in addition with their own duties. The officers will be look after all programme activities of NPCCHH in respective district.

SN	Name of Officer	Designation	Nodal Officer (NPCCHH) for District
1	Mr. Sunil Kumar	Consultant NPCCHH/IDSP	Dadra Nagar Haveli
2	Dr. Sanket Nayak	Epidemiologist IDSP (DNH & Daman)	Daman
3	Dr. Ajay Gadhavi	Epidemiologist IDSP (Diu)	Diu

This order will be with immediate effect.


(S. Krishna Chaitanya)
Mission Director
National Health Mission
UT of DNH & DD

To,

1. Mr. Sunil Kumar, Consultant NPCCHH/ APO NCD, Dadra & Nagar Haveli
2. Dr. Sanket Nayak, Epidemiologist IDSP, DNH & Daman
3. Dr. Ajay Gadhavi, Epidemiologist IDSP, Diu


Copy to

1. The Secretary Health, UT of DNH & DD, for information please.
2. The Director, Medical & Health Services, UT of DNH & DD for information please.
3. State Programme Officer, IDSP & NPCCHH, UT of DNH & DD, for necessary action.

Order

Mr. Sunil Kumar, Consultant, Integrated Diseases Surveillance Programme (IDSP), UT of DNH & DD shall also look after the work of Consultant, National Programme on Climate Change and Human Health (NPCCHH), UT of DNH & DD in addition with his own duties. He will be look after all programme activities of NPCCHH.

This order will be with immediate effect.


(Krishna Chaitanya)
Mission Director (NHM)
Department of Health & Family Welfare
UT of DNH & DD

To,

Mr. Sunil Kumar
Consultant, IDSP
UT of DNH & DD

Copy to

1. The Secretary Health, UT of DNH & DD, for information please.
2. The Director, Medical & Health Services, UT of DNH & DD for information please.
3. State Programme Officer, IDSP & NPCCHH, UT of DNH & DD, for necessary action.

Annexure 2 - Reporting format Air Quality Monitoring

National Programme on Climate Change and Human Health UT of Dadra & Nagar Haveli and Daman & Diu District level monthly reporting format of Temperature								
Details of Nodal Officer of District Disaster Management Cell / Pollution Control Board								
Name: Contact Number:					Designation: Email id:			
Name of the District						Name of Site		
Date	Sulphur dioxide	(NO) _x	(PM10)	(PM2.5)	(CO)	(NH3)	(O3)	Lead
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
Average of the month								
Signature of Nodal Officer								

Annexure 3 - Reporting format of sentinel hospitals – Air Pollution related diseases

National Programme on Climate Change and Human Health UT of Dadra & Nagar Haveli and Daman & Diu Hospital / Sentinel Site level ARI surveillance monthly reporting format					
Details of Nodal Officer of Hospital Name: _____ Designation: _____ Contact Number: _____ Email id: _____					
Name of the state:	Name of the City	Name of the Hospital:			Date of forwarding report:
(1) Date	(2) Total Number of Emergencies Reported to ED	(3) Total Number of Acute Respiratory illness cases reported to ED	(4) Cases of Respiratory illnesses requiring nebulization	(5) Cases of Respiratory Illnesses requiring Non-invasive ventilation	(6) Cases of Respiratory Illnesses requiring invasive ventilation
Total No. of Cases (ED)					
Sign of Hospital Nodal officer					

To be sent every first day of the Month by Nodal Officer of sentinel hospital to District Nodal Officer – Climate Change

वायु प्रदूषण

वायु प्रदूषण से बचाने के उपाय

प्रदूषण से बचाने के लिए कुछ निम्न तरीके उपयुक्त बन सकते हैं। जहाँ जहाँ प्रदूषण से ज़रूरी मुकाबला हो सके।

- पुरातन, सिगरेट के धुआँ आदि के संपर्क से दूर रहने से बचना चाहिए।
- वातावरण में प्रदूषण को कम करने के लिए कच्ची को पेड़ लगाना चाहिए। ताकि वायु प्रदूषण को कम किया जा सके।
- लोगों को पैदल चलने, साइकिल चालने और कार्सैरिक परिवहन माध्यमों से दूरी-दूरी को छुड़ाना देना चाहिए।
- बस्तियों और पार्कों में पेड़पौधा लगाए जा सकें।
- अधिक प्रदूषण करने वाले कारों में केबल जगती करना हो, तो बाहर निकलने किन्तु मास्क का उपयोग करना न भूलें। इसके अलावा छोटे गिट्टि, अम्बिया के बगीचे, किचन के बगीचे को साफ़ रखने से रोके।
- घर के भीतर कारोनास करने से बचें।
- मोटर में रिफिलिंग हो और न प्लू को ज़ोर देना चाहिए।
- ऐसे हाईवे पर अधिक ना गये जहाँ कारवाँ और गाड़ियों की भीड़ होती हो।
- अगर आपको कूलर रीम से दूरी हो तो तमाम रीम, तो रेफरीली तमाम केन्द्र पर जाकर रिफिलिंग करावें।

आकाशवाणी दमण. FM 102.3 MHz

"विश्व पर्यावरण दिवस"

वक्ता: भुशुभु यौडाण

प्रसारण : रविवार , 05-06-2022

समय - सवारे - 07.20 मिनिटे.

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राष्ट्रीय कार्यक्रम जनवायु परिवर्तन और मानव स्वास्थ्य

स्वास्थ्य एवं परिवार कल्याण विभाग

संघ प्रदेश शाखा नगर हुबली एवं दमण वीथ



Annexure 5 - Snapshot of various Air Pollution training activities



Annexure 6 - Reporting format Temperature Monitoring.

National Programme on Climate Change and Human Health UT of Dadra & Nagar Haveli and Daman & Diu District level monthly reporting format of Temperature & Humidity				
Details of Nodal Officer of District Disaster Management Cell / Pollution Control Board				
Name:		Designation:		
Contact Number:		Email id:		
Name of the District				
Date	Minimum temp of the Day	Average temp of the Day	Maximum temp of the Day	Average humidity
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
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27				
28				
29				
30				
31				
Average of the month				
Signature of Nodal Officer				

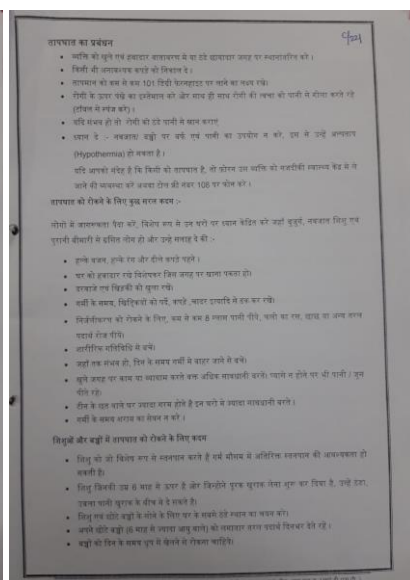
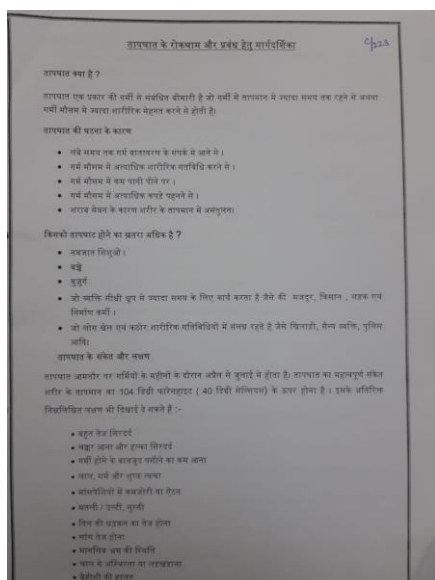
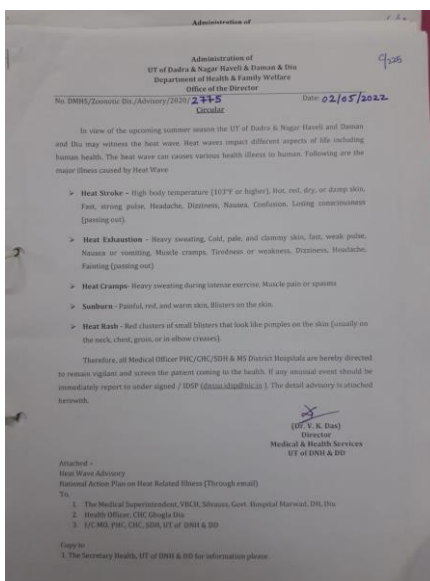
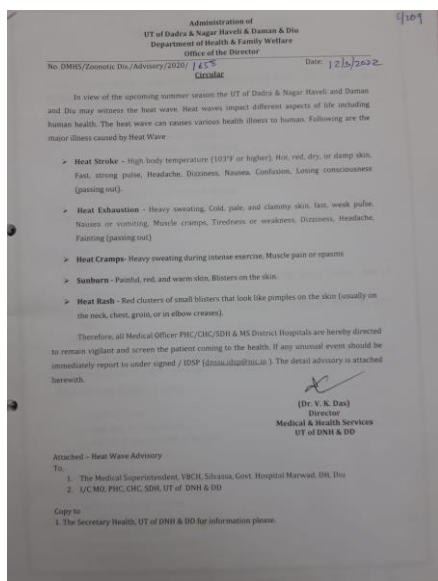
Annexure 7 - Reporting format of sentinel hospitals – Heat related diseases

National Programme on Climate Change and Human Health UT of Dadra & Nagar Haveli and Daman & Diu Hospital / Sentinel Site level Heat Wave related illness surveillance monthly reporting format						
Details of Nodal Officer of Hospital						
Name:		Designation:				
Contact Number:		Email id:				
Name of the state:	Name of the City	Name of the Hospital:				Date of forwarding report:
(1) Date	(2) Total Number of Emergencies Reported to ED	(3) Total Number of Heat stroke cases reported to ED	(4) Total Number of Heat syncope cases reported to ED	(5) Total Number of Heat exhaustion cases reported to ED	(6) Total Number of other cases related to heat reported to ED	(6) Total Number of Heat related illness cases required hospitalization Out of (3,4,5&6)
Total No. of Cases (ED)						
Sign of Hospital Nodal officer						

To be sent every first day of the Month by Nodal Officer of sentinel hospital to District Nodal Officer – Climate Change

Annexure 8 - Snapshot of various Heat related illness training activities

Annexure 9 - Snapshot of various Heat related IEC and BCC





प्रदेश में बढ़ रही गर्मी के दिनों में नवजात शिशुओं, बच्चों एवं बुजुर्ग व्यक्तियों का रखे विशेष ध्यान : डॉ. वी. के दास



असली आजादी न्यूज नेटवर्क, सिलवासा 2 मई। देश के कई राज्य भीषण गर्मी की मार झेल रहे हैं। गर्मी या लू स्वास्थ्य को प्रभावित कर सकती है। इस समय प्रदेश एक सख्त गर्मी की लहर से गुजर रहा है और अगले कुछ दिनों में यह बरकरार रहने की संभावना है। गर्मी के दिनों में ध्यान न रखने से आप गर्मी के प्रकोप से ग्रस्त हो सकते हैं। ज्यादा गर्मी का असर ज्यादातर नवजात शिशुओं, बच्चों, बुजुर्ग एवं जो व्यक्ति सीधी धूप में ज्यादा समय के लिए कार्य करता है जैसे की मजदूर, किसान, सड़क एवं निर्माण कर्मी

इसके अतिरिक्त बहुत तेज सिरदर्द, चक्कर आना, गर्मी होने के बावजूद पसीने का कम आना, लाल, गर्म और शुष्क त्वचा, मांसपेशियों में कमजोरी या ऐंठन, मतली / उल्टी, सुस्ती, दिल की धड़कन का तेज होना, सांस तेज होना, मानसिक भ्रम की स्थिति एवं बेहोशी जैसे लक्षण भी दिखाई दे सकते हैं। कुछ खास बातों का ध्यान रख के गर्मी के प्रकोप से बचा जा सकता है जैसे कि ज्यादा मात्रा में पानी पिये, जहां तक हो सके कड़ी धूप में बाहर न निकले, घर में छाव

एवं कठोर शारीरिक गतिविधियों में संलग्न व्यक्ति जैसे खिलाड़ी, सैन्य व्यक्ति, पुलिस आदि पर होता है। लू लगने का महत्वपूर्ण संकेत शरीर के तापमान का 104 डिग्री फारेनहाइट (40 डिग्री सेल्सियस) के ऊपर होना है।

में रहे। अगर बाहर निकलना पड़े तो छाते या टोपी का इस्तेमाल करे, फीके रंग के हल्के और ढीले कपड़े पहने। धूप से बचने के लिये कपड़े या स्कार्फ का इस्तेमाल करे, कड़ी धूप में बाहर निकलते वक़्त गीले कपड़े से सर को ढँके, गर्मी के दिनों में नींबू-पानी, छाछ या नारियल पानी पिये, हरी पत्तीदार सब्जियों/ फलों का ज्यादा इस्तेमाल करे। गर्मी के दिनों में क्या न करे जैसे कि सॉफ्ट ड्रिक्स, शराब एवं नशीले पदार्थों का सेवन न करे, कड़ी धूप में घर से बाहर न निकले, कड़ी धूप में ज्यादा शारीरिक श्रम वाले काम न करे, गर्मी की ऋतु में खाना जल्द बासी हो जाता है, बासी खाना न खाये, बच्चे, गर्भवती महिलाएं और बुजुर्ग लोग दोपहर के समय घर से न निकले। इन सभी बातों का ध्यान रख कर हम सभी खुद को और अपने परिवार को सुरक्षित रख सकते हैं। अधिक जानकारी के लिये 104 पर संपर्क करे या फिर अपने नजदीकी स्वास्थ्य अधिकारी की सलाह ले।

Annexure 10 - Vector profiles and its ecology in UT of DNH & DD

- 1) Vikram Khan, Aiysha S Khan, AA Sanghai, DB Zala and VK Das (2019): Distribution pattern of dengue cases in the tribal UT of Dadra & Nagar Haveli, India. International Journal of Mosquito Research. 6(6): 01-03
- 2) D.B. Zala, Vikram Khan, M. Kakadiya, A.A. Sanghai, V.K. Das (2018): Circulation of dengue serotypes in the Union Territory of Dadra & Nagar Haveli (India). Parasite Epidemiology and Control. e00069 04/2018; 3(3), DOI:10.1016/j.PAREPI.2018.e00069.
- 3) A A Sanghai, Dolatsinh Zala, Vikram Khan (2018): Population ecology of *Hyalomma anatolicum anatolicum* (Acari: Ixodidae) in cattle of UT of Dadra & Nagar Haveli, India. The Indian veterinary journal. 95(3):21-23.
- 4) Vikram Khan, Daolatsinh Zala, Sandeep Sanghvi, H.C. Srivastava and V K. Das (2016): Occurrence of Dengue Cases in Silvassa, Dadra Nagar Haveli (Union Territory), India. Journal of Tropical Diseases. 5(4). DOI:10.4172/2329-891X.1000221.
- 5) Vikram Khan, Zala DB, Das VK (2015): Epidemiological and Entomological investigation during outbreak of malaria in village Bonta, PHC Kivani, UT of Dadra & Nagar Haveli, India. International Journal of Mosquito Research. 2(3): 01-04.
- 6) Vikram Khan, D. B. Zala, K. M. Joshi (2014): Occurrence of *Hyalomma*, (Acari: Ixodidae) Koch, 1844 on domestic animal in the Union Territory of Dadra & Nagar Haveli, Indian. Journal of parasitic diseases. 40(2): DOI:10.1007/s12639-014-0490-y.
- 7) Vikram Khan, D. B. Zala, H. C. Srivastava (2013): Entomological indicators during transmission season of dengue in Silvassa (India). Journal of parasitic diseases. 39(2), DOI:10.1007/s12639-013-0343-0.

