

Approved Draft, VM Katoch, 23/10/2018

VERSION AS on Feb 2021



Ministry of Health & Family Welfare
Government of India

NATIONAL ACTION PLAN FOR CLIMATE CHANGE & HUMAN HEALTH

NATIONAL PROGRAMME ON CLIMATE CHANGE AND HUMAN HEALTH (NPCCHH)



National Centre for
Disease Control
Government of India



National Programme
on Climate Change
and Human Health

PREFACE

Climate sensitive illnesses are on increase due to climate change and extremes of weather either through direct or indirect impact. The United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol in 1997 refers to the legal framework for Climate change process internationally. The Conference of the Parties (COP) to the Convention meets annually to negotiate and discuss the international climate change agenda and related commitments from countries. The sustainable development Goal 13 (SDG 13) also emphasises to “take urgent action to combat climate change and its impacts.”

India's first National Action Plan on Climate Change (NAPCC) was released by the then Prime Minister Manmohan Singh on June 30, 2008. It outlines existing and future policies and programs addressing climate mitigation and adaptation. The plan identifies eight core “national missions”. After the 21st Conference of Parties (COP 21) under the United Nations Framework Convention on Climate Change (UNFCCC) concluded in Paris, Hon'ble Prime Minister Mr Narendra Modi broadened India's response to climate change, by introducing four new missions including one for “Health” in 2014. The proposed ‘Mission on Health’ will address the health- related aspects of climate change through multi-pronged approach.

A National Expert Group on Climate Change & Health was constituted in July 2015 under the chairmanship of Dr Vishwa Mohan Katoch, Former Secretary (Health Research), Government of India and DG (ICMR) to prepare action plan, recommend strategies for adaptation, capacity building etc. The National Centre for Disease Control (NCDC) is the nodal agency for drafting of Action Plan under the Health Mission. The expert group (NEGCCH) had members' representation from Dte.GHS, MoHFW, MoEFCC, ICMR, DST, NDMA, CGWB, Min of Agriculture, CPCB, MoES, TERI, NEERI, which had drafted the National Action Plan on Climate Change and Human Health after detailed deliberation.

India is a diverse country in terms of geography, climatic conditions, resources and health care infrastructure etc. Owing to this diversity, each state and UT may have morbidity and mortality due to diseases which may occur as per the geographic-climatic conditions. Hence it was realised that country requires state/region specific action plan for climate change and human health (SAPCCHH). Four regional consultations for all the states and UTs were conducted by Centre for Environmental & Occupational Health, National Centre for Disease Control recently. The states and Union Territories were sensitized on effect of climate variability and change on ‘occurrence and virulence of vectors’ and recent change in pattern of different climate sensitive illnesses in their geographic area.

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EXECUTIVE SUMMARY

Climate change is occurring due to natural internal processes or external force and 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 through a number of ways, but the commonly experienced are increased frequency and intensity of heat waves, rise in heat related illnesses and deaths, increased precipitation, floods and droughts, costing lives directly. High temperature is known to increase the level of ‘ground level ozone’ and other ‘climate altering pollutants’ other than carbon dioxide, which further exacerbate cardio-respiratory and allergic diseases and certain cancers. Beside these, there is increase in transmission and spread of infectious diseases, changes in the distribution of water- borne, food borne and vector-borne diseases and effects on the risk of disasters and malnutrition.

The *United Nations Framework Convention on Climate Change (UNFCCC)* came into force on 21st March 1994. Since then many steps were initiated to reduce the effect of climate change at meetings like “Rio Convention 1992”, *Kyoto protocol 1997*”, “Convention of Parties”, “*Cancun Agreement 2010*”, “*Durban Platform 2011*”, “Nationally Determined Contributions” (NDCs) at Conference of Parties 21”,

Initiatives undertaken by India are: a) Identification of Ministry of Environment, Forest & Climate Change (MOEF&CC) as nodal ministry; b) Formulation of National Environmental Policy 2006; c) Formulation of Prime Minister’s Council on Climate Change for matters related to Climate Change. MoEFCC has developed National Action Plan on Climate Change with eight missions. Later on four new missions (including Health Mission) were identified. As a follow-up action, MoHFW constituted a National Expert Group on Climate Change & Health (NEGCH) under the chairmanship of *Dr Vishwa Mohan Katoch, Former Secretary (Health Research), Government of India and DG (ICMR)* to prepare action plan, recommend strategies for indicators, mitigation, capacity building etc.

The Health Mission aims to reduce climate sensitive illnesses through integration with other missions under NAPCC as well as through programmes run by various ministries, The vision of NAPCCHH is: To strengthen health of citizens of India against climate sensitive illness, especially among the vulnerable like children, women and marginalized population. With a goal to reduce morbidity, mortality, injuries and health vulnerability to climate variability and extreme weathers. The NAPCCHH objectives with some initially identified key actions are:

1. To create awareness among general population (vulnerable community), health-care providers and Policy makers regarding impacts of climate change on human health.
 - a. Sensitization meeting
 - b. IEC
 - c. Environment Days
2. To strengthen capacity of healthcare system to reduce illnesses/ diseases due to variability in climate
 - a. Trainings
 - b. Workshops
 - c. Teaching Curricula
3. To strengthen health preparedness and response by performing situational analysis at national/ state/ district/ below district levels.
 - a. Vulnerability needs assessments
 - b. Health Adaptation Plan
 - c. Surveillance
 - d. Green and Climate Resilient Healthcare Facilities
4. To develop partnerships and create synchrony/ synergy with other missions and ensure that health is adequately represented in the climate change agenda in the country

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

Initial Inputs desired (first 2 years)

1. Establish 'Environmental Health Cell' in State Health Department,
2. Identification of State Nodal Officer- Climate Change at State Health Department
3. Notification of Task Force with representation of other health programmes (vector-borne disease, infectious diseases, nutrition etc) multi-sectors/ departments such as Disaster Management Authority, Health Information System, district unit of departments of Meteorology, Pollution Control Board, Water and Sanitation, Public Works Departments and civil societies etc.
4. Vulnerability Assessment for baseline rate for Climate Sensitive Illnesses in terms of
 - Geography (Plain/ Mountain/ Desert/ Coastal), identify worst affected areas (districts)
 - Risk mapping with extreme events (heat/ cold/ drought/ flood/ cyclone/other),
 - Affected Population (Total, density, Vulnerable, Occupation)
 - Contributing/ exaggerating factors for these Climate sensitive illnesses
 - Healthcare Infrastructure/ facilities like PHC, CHC, District hospital, Tertiary care hospitals- Government as well as Private.
 - Identify areas for capacity building –human resource, technical and healthcare service delivery.
5. State health adaptation plan must be prepared with at least chapters on heat related illness and Air Pollution related health issues
6. State health department should identify and strengthen local organizations for support to manage climate related health issues
7. Coordinate with Centre of Excellence for subject specific health adaptation plans.
8. IEC plan for climate change and health

Process: 2 to 5 years

1. Formulate specific implementation framework for climate sensitive diseases.
2. Contingency plans for climate sensitive illnesses - appropriate and efficient health personnel, logistics & resource allocation.
3. Capacity building and training of health care personnel on guidelines for climate sensitive illnesses at district level in each state.
4. Development of early detection tools for CSDs (diagnostics, surveillance) or prediction models for preparedness of population and health care system.
5. Periodic reviews of vulnerability, response capacity and preparedness
6. Adapt new technologies, building design, energy, water and sanitation provisions for new constructions of healthcare facilities and modify existing ones.
7. Link data on climate sensitive diseases, environmental factors, meteorological information, and outcomes.
8. Risk mapping for seasonal trend of CSDs.
9. Research for climate sensitive illnesses.

Expected Output:

1. Awareness & Behavior modification of general population for impact, illnesses, prevention and adaptive measures for climate sensitive illnesses.
2. Increase in trained healthcare personnel and equipped institutes/ organization towards achievement of climate resilient healthcare services and infrastructure at district level in each state.
3. Integrated monitoring system for collection and analysis of health related data with meteorological parameters, environmental, socio-economic and occupational factors
4. Evidence-based support to policy makers, programme planners and related stakeholders

The Monitoring & Evaluation of the implementation of NAPCCHH has been stipulated with a mix of internal and external approaches. MoHFW, State DoHFW, District Health Officers and the individual health facilities will be involved in regular internal monitoring. External Monitoring will be done by an independent agency.

To address the diversity and to target the specific health issues, four regional consultations with states and

Union Territories were conducted in 2017-18 by *Centre for Environmental and Occupational Health*, National Centre for Disease Control, Delhi. The aim was to sensitize states/UTs' health personnel to reassess diseases' morbidity and mortality with respect to climate variability and extremes. The states and UTs were communicated to identify the '*Nodal Person for Climate Change from State Health Department*', Constitution of "*State Environment Health Cell*" at State Health Ministry level and Constitution of a team of experts with representation from Ministry for Environment, Forest & Climate Change, Ministry of Drinking Water and Sanitation, Ministry of Agriculture, Ministry of Earth Sciences, ICMR branch (if in state), Disaster Management Authority, State Pollution Control Board or other stakeholders identified by state.

These regional consultations had participations from health and non-health department of states and UTs, as well as from WHO as well as research institutions. The representatives were aware of the urgency and had serious concern for the agenda of these consultations. State health teams were expected to list and prioritize climate sensitive illnesses in their state and UTs, compilation of data on morbidity and mortality, statistics related to vulnerable population, geographical factors, health care infrastructure/ facilities, or any mitigation and adaptation measures adopted by state against impact of climate change on human health. The available data of states and UT need to be linked to climate/ weather data for which the assurance was given by the representative from Regional Centre Meteorological Departments. Many states have initiated actions by identifying State Nodal Officer (Climate Change), notified experts from non-health sectors for Task Force and few states have prepared their action plan for climate change as well as adaptation plan for heat related illnesses.

Now, India is signatory to "*Male' Declaration*" wherein health sector has to be strengthened so as to make it climate resilient. According to Male' Declaration, it is desired that health-care facilities should be prepared & climate-resilient, particularly in promoting to encourage that these are able to withstand any climatic event, and that essential services such as water, sanitation, waste management and electricity are functional during such events. Further, for climate resilient, the health department has to undertake measures to initiate the greening of the health sector by adopting environment-friendly technologies, and using energy-efficient services.

I. INTRODUCTION

Climate change refers to a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties (usually by models or statistical tests), and that persists for an extended period, typically decades or longer^{1-2,6}. Climate change may be due to natural internal processes or external force such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use. The Framework Convention on Climate Change (UNFCCC), in its Article 1, defines climate change 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 periods³”. The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition, and climate variability attributable to natural causes^{4,5}.

Climate change is perceived to be among the greatest health risks of the 21st Century^{4,5}. It affects social and environmental determinants of health like –clean air, safe drinking water, sufficient food and secure shelter. Climate change, together with other natural and human- made health stressors, influences human health and disease in numerous ways(Fig:1).

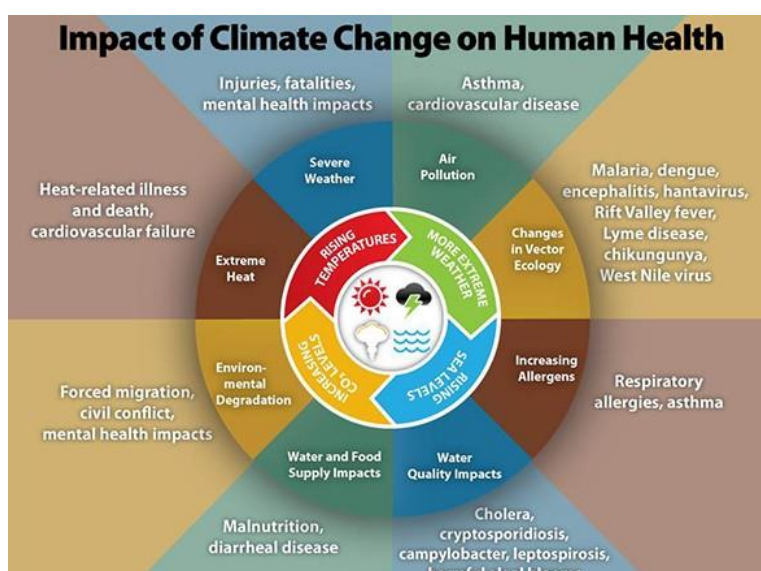


Fig:1. Likely Impacts of Climate Change on Human Health
Source: <https://www.cdc.gov/climateandhealth/effects/default.htm>

Climate change may have various impacts, but most commonly observed negative effects on human health are seen as rise in illnesses and deaths. The climatic variables costing lives directly are identified as increase in frequency and intensity of heat waves, increased precipitation, floods and droughts^{17-18,26}. High temperature is known to increase the level of ‘ground level ozone’ and other ‘climate altering pollutants’ other than carbon dioxide, which further exacerbate cardio-respiratory and allergic diseases and certain cancers.

Beside these, there is increase in transmission and spread of infectious diseases, changes in the distribution of water-borne, food borne and vector-borne diseases and occurrence of disasters and increased probability of malnutrition. The marginalized populations among all are found to be more adversely affected due to variability and change in climatic conditions.

The World Health Organization (WHO) estimates that between 2030 and 2050, climate change is expected to cause approximately 2,50,000 additional deaths per year, resulting from malnutrition, malaria, diarrhea and heat stress. These deaths will further have financial implications which are estimated to be between US\$ 2-4 billion/year by 2030^{13,14,16}. Diseases such as malaria, yellow fever, dengue and cholera are all sensitive to climate change due to effect on the viability and the geographical distribution of the mosquitoes and micro-organisms, which prefer a wetter, warmer world.

India is a highly populous country, undergoing industrialization, with large scale rural to urban migration, chaotic, unplanned urbanization, depletion of forest cover and requirement of high energy demand makes it more vulnerable to adverse impacts of climate change. As evident from various literature worldwide, the health effects may occur either due to direct or indirect causes of climate change or extremes of weather ²¹.

A) Direct Impacts of Change in Climate and Weather on Health:

Changes in temperature and precipitation and occurrence of heat waves, floods, droughts and fires directly impact health of people.

1. Heat-Stress and Related Impacts

The IPCC Special Report on Extreme Events (SREX)⁶ has a mention that there has been an overall decrease in the number of cold days and nights, and an overall increase in the number of warm days and nights, at the global scale. If there has been an increase in daily maximum temperatures, resulting in increase in number of heat-related illnesses. As per the basic processes of human thermoregulation, the health effects are seen when body temperature rises above 38°C i.e. physical functions are impaired with experience of weakness (heat exhaustion), when body temperature rises further to 40.6°C, the risk of physical and cognitive functions get impaired (heat syncope), risks of organ damage, loss of consciousness, and death increase sharply at further rise in body temperature usually above 40.6°C (heat stroke). Various factors interplay in occurrence of these morbidity and mortality majorly affecting mainly the vulnerable population especially in the vulnerable regions²¹⁻²³.

The *vulnerable population* implies the demography (extremes of age, sex, population density, pregnant women and certain occupations), Health Status (like proportion of malnourishment, suffering with infectious and/ or chronic diseases, mental or physical disability), socio-economic status (poor/ marginalized- more vulnerable), type of occupation or socio-cultural practices. The *vulnerable regions* implies unplanned urban housing, proportion of slums, drought risk zones, water-stressed zones, food-insecure zones and remote rural areas

Numerous studies have reported increase in temperature-related morbidity (hospital admissions or emergency presentations), events due to cardiovascular, respiratory, and kidney diseases. These impacts have been related to the duration and intensity of heat. Health risks during heat extremes are greater in people who are physically active.

Eighteen heat-waves were reported in India between 1980 and 1998, with a heat-wave in 1988 affecting ten states and causing 1,300 deaths. Heat-waves in Odisha, India during 1998 to 2000 caused an estimated more than two thousand deaths and heat-waves in 2003 in Andhra Pradesh, India, caused more than 3000 deaths. The significant correlation between mortality and high temperature and high heat index has also been documented.

2. Drought, Storms and Floods

Climate change can result in more hot days, resulting in more periods of 'drought', 'dust storms', or 'heavy rains (precipitation)', and even 'flooding'. The health gets directly affected due to injuries, hypothermia, hyperthermia, drowning and indirectly through population dislocation, crowding, poor living conditions, faeco-oral transmission of gastro-intestinal pathogens causing water and food borne illnesses, respiratory illness and other infectious diseases (e.g., leptospirosis, vector-borne disease, cholera and also mental illnesses)⁴⁸⁻⁵⁰. The reason primarily is due to contamination of water and sewage disposal.

3. Ozone

Ozone is a secondary pollutant, formed via sunlight-driven photochemical reactions involving precursor hydrocarbons and oxides of nitrogen. Ozone pollution is projected to increase because warmer temperatures enhance these reactions. Ozone is a powerful oxidant that has been persistently associated with damage to structure of airway or lung tissue. It contributes to more severe symptom of asthma, increase in other respiratory illnesses and deaths. High concentration of ground-level ozone accompanied with Heat waves result in higher frequency and severity of cardio-pulmonary attacks³⁴⁻³⁶. Similarly,

combination of high level of Ozone and dust storms or alteration of allergens or all, will result in outbreaks of asthma and allergic rhinitis.

4. Air pollution

Air pollution is a major environmental risk to health. The formation, transport and dispersion of many air pollutants is determined partly by climate and weather factors such as temperature, humidity, wind, storms, droughts, precipitation and partly by human activities known to produce various air pollutants. It is thus logical to assume that climate change will influence the dynamics of air pollution. By reducing air pollution levels, countries can reduce the burden of disease from stroke, heart disease, lung cancer, and both chronic and acute respiratory diseases, including asthma^{29,30}.

Ambient (outdoor air pollution) in both cities and rural areas was estimated to cause 3.7 million premature deaths worldwide in 2012. Air pollution also affect health by causing acid rain; eutrophication due to nitrogen oxides emission in air from power plants, cars, trucks, and other sources; Haze; toxic effects on wildlife; Ozone depletion; Crop and forest damage etc. Over 4 million people die prematurely from illness attributable to the household air pollution from cooking with solid fuels. 3.8 million premature deaths annually from non- communicable diseases including stroke, ischemic heart disease, chronic obstructive pulmonary disease (COPD) and lung cancer are attributed to exposure to household air pollution⁴¹⁻⁴³.

5. Ultraviolet Radiation

The IPCC AR5 mention few studies which states that ultraviolet radiation (UVR) are linked to higher incidence of few skin carcinoma for every 1°C increment in average temperatures³⁶. However, exposure to the sun also has beneficial effects on synthesis of vitamin D, with important consequences for health. Accordingly, the balance of gains and losses due to increased UV exposures vary with location, intensity of exposure, and other factors (such as diet) that influence vitamin D levels.

The excess of exposure to solar *ultraviolet radiation (UVR)* even within the ambient environmental range may results in sunburn, photo-ageing, cataracts, immune suppression and skin melanomas³⁷. UVR induced immune-suppression may influence occurrence of various infectious diseases as well as affect vaccine efficacy. There is evidence to support a relationship between sunburn during childhood and adolescence and skin cancer in adulthood. The World Health Organization (WHO) has argued that school sun protection

programmes should be emphasized, because a sizeable portion of lifetime sun exposure occurs during childhood and adolescence. Similarly, personal exposure studies among outdoor workers found that individuals engaged in road construction, horticulture, roofing and other outdoor occupations received ~20 - 26% of the total daily ambient solar UV radiation levels.

B) Indirect Impacts of Climate and Weather on Health:

Indirect impacts are due to ecological disruptions, rising sea level, changing temperatures and precipitation patterns which leads to crop failures, shifting patterns of disease' vectors, water-borne disease, vector-borne disease. Climate dependent diseases particularly affecting the vulnerable populations include the following:

1. **Air-Borne and Cardio-Respiratory Illnesses:** Climate change influences various illnesses including respiratory tract infections like asthma, rhino-sinusitis, chronic obstructive pulmonary diseases (COPD), respiratory viral diseases (Avian Influenza) & circulatory collapse posing danger to cardiac patients. The cited reasons are poor air quality, high ozone, dust storms, extreme heat, desertification, alteration of allergens, change in timing and duration of survival and transmission cycle of respiratory virus, alteration in bird migration. Further the other contributory factors are demographic factors (age, sex, immunity status, pregnant women, prevailing endemic illnesses etc) low socio-economic status, overcrowding, poor hygienic conditions, accessibilities to health care facilities, population with tuberculosis, immune-compromised level, or mentally or physically challenged people³⁷⁻³⁹.
2. **Vector-borne diseases (VBD):** Climate change and other weather parameters have significant impact on vector borne diseases such as Malaria, Dengue, Chikungunya, Japanese Encephalitis, kala-azar, and filariasis. The known parameters are temperature, humidity, wind, rainfall, flood and drought, affecting 'distribution of vector' and 'effectiveness of transmission of pathogen' through vectors. The temperature affects: vectors' survival, population growth, feeding behaviour, susceptibility to pathogen, incubation period, seasonality of vector activity as well as pathogen transmission. The roles of rainfall on vectors are: increase in breeding sites due to increase in surface water, increase vegetation and expansion of vertebrate hosts, flooding bring vertebrate host close to human population⁴¹⁻⁴³.

Other factors affecting VBDs are population growth, population displacement, socio-economic status, changes in residential pattern, changes in land use, water projects,

agricultural practices, housing projects, international travel, resistance of diseases vectors and pathogens, accessibility to health care and diagnostic facilities.

3. **Waterborne & Foodborne diseases** such as typhoid, hepatitis, dysentery, and others caused from micro-organisms such as *Vibrio vulnificus* and *Vibrio cholera*, *E.Coli*, *Campylobacter*, *Salmonella*, *Cryptosporidium*, *Giardia*, *Yersinia*, *Legionella* are some climate-dependent infectious diseases. The increase in temperature is seen to be associated with increased survival and abundance of micro-organisms^{44,46}. The decreased precipitation and drought result in decrease availability of safe-water, reuse of wastewater, contamination of water sources, transmission from vertebrate to human or human to human etc. Flooding cause contamination of water source as well as disruption of sewage disposal system, further contributors are population displacement, overcrowding, poor sanitation and hygiene, subsequent faeco-oral contamination and spread of pathogens etc.
4. **Malnutrition** and consequent disorders, like retarded child growth and development have been identified as one of the health threat by the Working Group-II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Climate change result in food insecurity, namely, food availability, food accessibility, food utilization, and food system stability. Drought occurrence diminishes crop yield, dietary diversity, supply chain disrupted, increase in market prices, also reduction in animal and aquatic products are being experienced. These factors reduce overall food consumption, and may therefore lead to macro as well as micronutrient deficiencies.

For India, a proactive approach is critical as nearly half of children (48%) aged less than five are chronically malnourished, more than half of women (55%) and almost one-quarter of men (24%) are anaemic (NFHS-3). The health of the vulnerable population is further threatened by the changing climate. For instance, in Gujarat, during a drought in the year 2000, diets were found to be deficient in energy and several vitamins. In this population, serious effects of drought on anthropometric indices may have been prevented by public- health measures^{48,49}.

There are certain **positive effects of climate change** too, like modest reductions in cold-related morbidity and mortality, geographical shifts in food production, and reduced capacity of disease-carrying vectors due to exceeding of thermal thresholds. These positive effects will however be increasingly outweighed, worldwide, by the magnitude and severity of the negative effects of climate change.

II. STEPS TO REDUCE IMPACTS OF CLIMATE CHANGE

The United Nations Framework Convention on Climate Change (UNFCCC) came into force on 21st March 1994. The “Rio Convention”, was adopted out of three conventions identified at “Rio Earth Summit” in 1992. Today, this convention known as “Convention of Parties” has 197 countries. Industrialized nations agree under the Convention to support climate change activities in developing countries by providing financial support for action on climate change. This was followed by first Conference of Parties (COP1) that took place in Berlin in 1995.

Another milestone was *Kyoto protocol*, which was adopted in Kyoto, Japan, on 11th December 1997. The Parties agreed-for were made bound for ‘targets’ for reducing emission. The Kyoto Protocol places a heavier burden on developed nations under the principle of “*common but differentiated responsibilities*”, owing to high level of GHG emissions by developed nations by their industrial activity for approximately 150 years. The detailed rules for the implementation of the Protocol were adopted at COP-7 in Marrakesh, Morocco, in 2001, and are referred to as the “Marrakesh Accords.” Its first commitment period started in 2008 and ended in 2012.

The *Cancun Agreement* came up in 2010 at COP-16 in Cancun, where Governments decided to establish a “*Green Climate Fund*”. The fund will support projects, programmes, policies and other activities in developing country using thematic funding windows. The objective was to enhance action on adaptation, international cooperation and coherent consideration of matters relating to adaptation under the Convention.

At COP17, *Durban Platform*, Enhanced Action drafted, where governments clearly recognized the need to draw up the blueprint for a fresh universal, legal agreement to deal with climate change beyond 2020, where all will play their part to the best of their ability and all will be able to reap the benefits of success together. The Durban outcome recognized, in its spirit and intention that smart government policy, smart business investment, and the demands of an informed citizenry, all motivated by an understanding of mutual self-interest, must go hand in hand in pursuit of the common goal.

At COP 21 in Paris, Parties to the UNFCCC reached a historic agreement to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future. The Paris Agreement requires all Parties to put forward their best efforts

through “Nationally Determined Contributions” (NDCs) and to strengthen these efforts in the years ahead.

India has undertaken many initiatives in pursuance to the obligation implied by UNFCCC like: a) Identification of Ministry of Environment, Forest & Climate Change (MOEF&CC) as nodal ministry for matters related to Climate Change; b) Formulation of National Environmental Policy 2006; c) Formulation of Prime Minister’s Council on Climate Change to advice proactive measures, facilitate inter-ministerial coordination and guide policy in relevant areas.

The Hon’ble Prime Minister of India office had released a National Action Plan on Climate Change in June 2008. NAPCC addresses the urgent and critical concerns of the country through enhancement of the current and planned programmes presented in the Technology Document. It identifies measures that promote our development objectives along with yielding co-benefits for addressing climate change effectively. It outlines a number of steps to simultaneously advance India’s development and climate change related objectives of adaptation and mitigation. The NAPCC identified eight national missions initially:

1. National Mission on Sustainable habitat
2. National Mission for Sustaining the Himalayan Ecosystem
3. National Mission for Sustainable Agriculture
4. National Solar Mission
5. National Mission for Enhanced Energy Efficiency
6. National Water Mission
7. National Mission on Strategic Knowledge for Climate Change
8. National Mission for “Green India”

The reconstituted Prime Minister Council on Climate Change (PMCCC) reviewed the progress of eight national missions on 19th January 2015 and suggested formulation of four new missions on Climate Change viz.

1. Health Mission
2. National Mission on “Waste to Energy Generation”
3. National Mission on India’s Coastal areas
4. National Wind Mission

In this background, the proposed 'Health Mission' was undertaken by Ministry of Health & Family Welfare, Government of India under the umbrella of 'National Action Plan on Climate Change' by MoEFCC. As a follow-up action, MoHFW constituted a National Expert Group on Climate Change & Health (NEGCH) under the chairmanship of *Dr Vishwa Mohan Katoch, Former Secretary (Health Research), Government of India and DG (ICMR)* to prepare action plan, recommend strategies for adaptation and response plan for diseases occurring due to climate variability and change.

National Centre for Diseases Control (NCDC) was identified as the nodal agency for 'Health Mission' by Ministry of Health & Family Welfare, Government of India. An expert group was constituted with members' representation from Dte.GHS, MoHFW, MoEFCC, ICMR, DST, NDMA, CGWB, Min of Agriculture, CPCB, Ministry of Earth Sciences, TERI, NEERI etc.

III. INDIA'S STRATEGIC FRAMEWORK FOR ADAPTATION OF HUMAN HEALTH AGAINST CLIMATE CHANGE

India's Health and Family Welfare System derives strength from several institutes and infrastructures of the GOI, multi-lateral institutes, and NGOs including the National Institute of Malaria Research; Indian Institute of Tropical Meteorology, India Meteorological Department, Director General of Health Services, Indian Council of Medical Research, National Centre for Disease Control and many others.

Measures that would help address the imminent challenges would include *development of an integrated early health warning system, state specific emergency response plan*, along with increased capacity to provide health care to the most vulnerable and the marginalized populations.

Therefore, a fundamental area of intervention would include strengthening of local monitoring of appropriate climate and disease variables. This would be directed at building temporally and spatially *disease specific database*. A strong surveillance would help develop effective prevention strategies, aid epidemiological understanding and predictive computations. Improvements in information infrastructure that are innovative and that promote interdisciplinary collaborations have been identified as areas that require strengthening in India (Bush et al. 2011).

The linkage of health with environmental and climate change determinants is well recognized. Consequently, coordination and synergies with other Ministries becomes crucial to yield health benefits. To facilitate joint action and Inter-Ministerial cooperation, it is imperative to develop feedback mechanisms of health trends to related Ministries and agencies to enable health statistics to leapfrog.

Health sector in preparedness for climate change needs urgent, serious, and multifaceted action, which should include:

1. Strengthen/ develop coordination for health related early warning and surveillance systems in specific areas (e.g. heat waves, floods, air pollution, ultraviolet radiation, vector borne, water-borne and infectious diseases) through an integrated disease surveillance system.

2. Feedback mechanisms to other ministries responsible for several ecological determinants of health particularly- air, water, food, fuel and human resource.
3. Development of risk maps for climate sensitive diseases for each geographical area.
4. Strengthening/ developing response action based on innovative or new strategies or technological approaches to increase access, early health care advice/ referral and health tracking system incorporating *Aadhaar* card number to assist surveillance and generate trends.
5. Undertake case studies and research and pilot test new approaches aimed at building health resilience in climatically sensitive locations.

The proposed 'Health Mission' will take a multi-pronged approach to address the health-related aspects of climate change through the strategies listed in the National Action Plan for Climate Change and Human Health (NAPCCHH). The Health Missions seeks coordination with other missions identified under the umbrella of National Action Plan for Climate change (NAPCC) listed earlier in this document. The targets achieved by other national missions launched under the NAPCC will also scale down the morbidity and mortality of various types of illnesses.

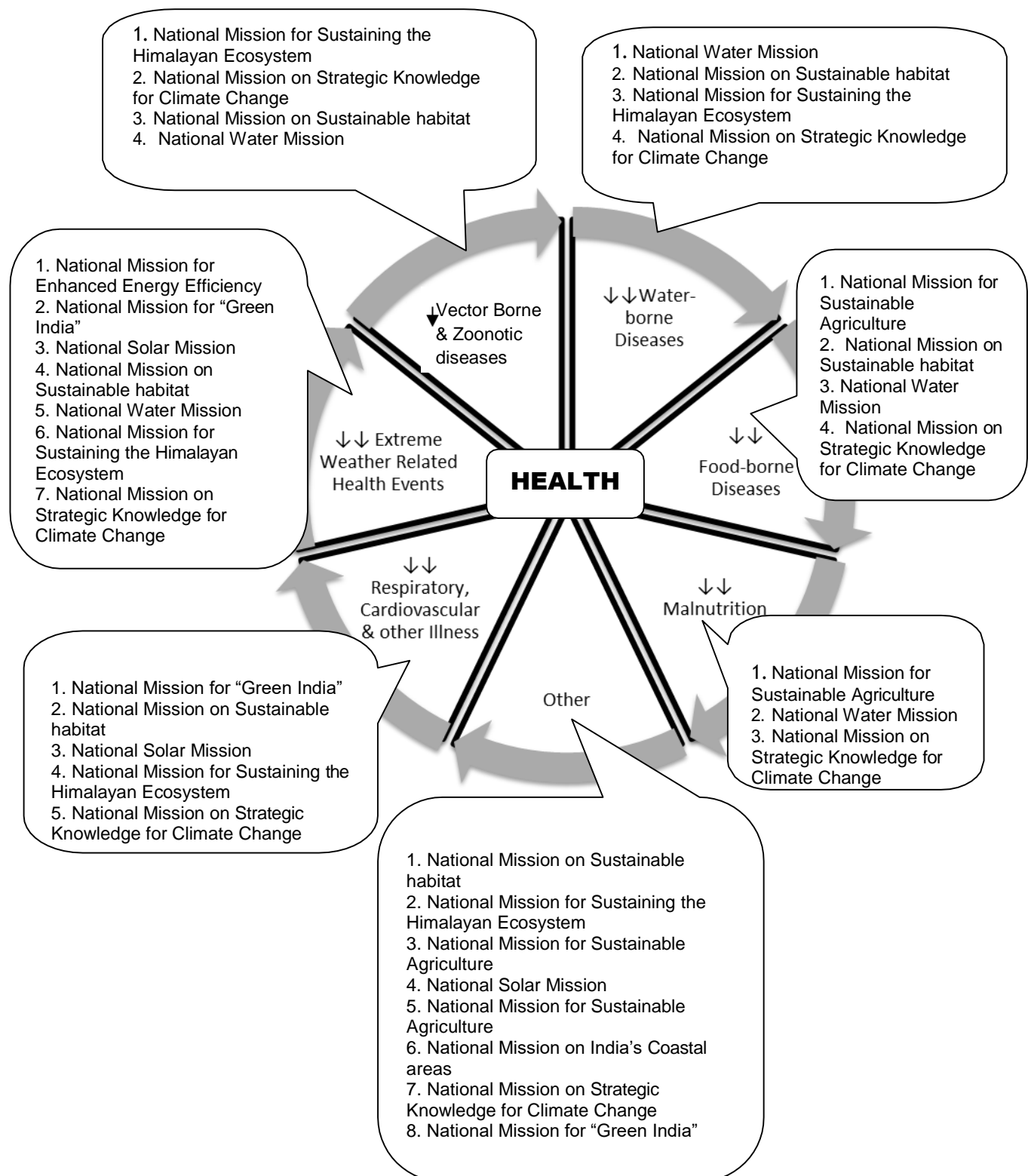
IV: INTEGRATION OF HEALTH MISSION WITH OTHER MINISTRIES AND MISSIONS ON CLIMATE CHANGE

The frequency and magnitude of occurrence of “morbidity and mortality”, “acute and chronic” “communicable” or “Non-Communicable” illnesses depends on socioeconomic status, residence, occupation, level of nourishment, underlying illness, availability of safe drinking water, sanitation facilities, overcrowding, pollution, extreme weather, chemical exposures, agricultural practices, governance (local, state and national level), access to health facilities, trained/ skilled health manpower, laboratory support, and religious practices etc.

The strengthening of the National Programmes under various ministries will raise the level of health of people through direct or indirect impacts by reducing risk factors. To name the beneficial national programmes/ schemes are: Namami Gange Programme, Mid Day Meal Programme, Integrated Child Development Schemes, Indira Gandhi Matritva Sahyog Yojna, Deen Dayal Upadhyaya Gram Jyoti Yojna, Atal Mission for Rejuvenation and Urban Transformation, Gramin Bhandaran Yojna, Jawaharlal Nehru National Urban Renewal Mission, Livestock Insurance Scheme, National Urban Livelihood Mission, Smart Cities Mission, National Vector Borne Disease Control Programme, *National Programme for Prevention and Control of Diabetes, Cardiovascular diseases, Cancer and Stroke, National Mental Health Programme, National Iodine Deficiency Disorder Control Programme, Revised National TB Control Programme (RNTCP), National Programme for Control and Treatment of Occupational Disease, National Programme for the Health Care for the Elderly, National Programme for Prevention and Control of Deafness and Universal Immunization Programme.*

The MoHFW seeks to coordinate & collaborate with other Ministries, departments & NGOs/CBOs. These Ministries & Departments are: *Ministry of Environment, forest & Climate Change, Ministry of Information & Broadcasting, Ministry of Human Resource Development, Indian Council of Medical Research, Ministry of Agriculture, Medical Council of India, Ministry of Drinking Water and Sanitation, Min. of New & Renewable Energy, National Disaster Management Authority, Ministry of Women and Child Development, Indian Institute of Tropical Meteorology, Indian Institute of Tropical Meteorology, Department of Space, Department of Science & Technology, Council of Scientific & Industrial Research, Ministry of Home Affairs, Defence Research & Development Organization, Indian Council of Agricultural research, National Institute of Malaria Research, Food Safety and Standards Authority of India, Department of Health Research, National Environmental Engineering Research Institute, Community Based Organizations, Public Health Foundation of India etc.*

The possible health impacts of other missions under NAPCC are foreseen as follows:



V: NAPCCHH: VISION, GOAL & OBJECTIVES

Vision: Strengthening of healthcare services for all the citizens of India esp vulnerable like children, women and marginalized population against climate sensitive illnesses.

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

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

Specific Objectives

Objective 1:

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

- Sensitization meetings
- IEC
- Environment day

Objective 2:

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

- Trainings
- Workshops
- Teaching Curricula

Objective 3:

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

- Vulnerability needs assessments
- Health Adaptation Plan
- Surveillance
- Green and Climate Resilient Healthcare Facilities

Objective 4:

To develop partnerships and create synchrony/ synergy with other missions and ensure that health is adequately represented in the climate change agenda in the country

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

Objective wise progress so far:

A. To create awareness among general population, health care providers and policy makers regarding impacts of climate change on human health

- Issuing seasonal advisory on Climate Sensitive Diseases (CSDs) including Acute Respiratory Illnesses (ARI) in context of air pollution and Heat Related Illnesses (HRI).
- Developed IEC content on CSDs including ARI and HRI
- Running social media campaign
- Organizing sensitization workshop on climate change and health
- Observing international days related to environment and health such as World Environment Day annually, International Day of clean air for blue sky in 2020.
- Task force meeting on CSDs

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

- 36 states have appointed a State Nodal Officer for Health & Climate Change
- 24 states have established state level Environment Health Cells
- 24 states have set up multi-sectoral Task Force under Principal Secretary (Health)
- 17 states have set up Governing Bodies under Hon'ble Health Ministers of States
- Training of all nodal officers on Climate Change
- Training of hospital nodal officers on strengthening of air pollution related surveillance
- Developed community level training modules on air pollution issues for women and children
- Conducted three workshop on health related impacts of air pollution
 - Building the bridge between air quality, weather and health in India
 - Technical consultation on Tools for assessing health impacts of air pollution
 - National Consultation on Burden of Diseases from Air Pollution and role of health sector in combating health impacts of air pollution
- Initiated effort with all six councils i.e. Medical Council of India, Dental Council of India, Nursing Council of India, Central Council of Homeopathy, Central Council of Indian Medicine and National Board of Examination for inclusion of climate change in the teaching curricula. The content on the matter are under consideration in respective councils.

C. To strengthen health preparedness and response by performing situational analysis at National/State/ District/below district level

- Provided template for drafting State- specific Action Plan for Climate Change & Human Health – First draft submitted by 12 States.
- Vulnerability Need Assessment (VNA) initiated in 3 States
- Acute Respiratory Illness (ARI) surveillance in context of air pollution
 - Going on in Delhi
 - 49 Surveillance Cities initiated reporting in the country
 - 60 Surveillance Hospitals initiated reporting ARI data in the country
- HRI surveillance in 23 heat vulnerable States March to July
- Developing Technical Expert Group and Task Force for all CSDs
- National Review workshop of all States in 2019, and Online reviews in 2021
- Principles of 'Climate Resilient' and "Green" submitted for inclusion in Indian Public Health Standards (IPHS) under NHM

D. To develop partnerships and create synchrony/ synergy with other mission and ensure that health is adequately represented in climate change agenda in country

- Initiated integration NPCCHH with NCD, NVBDCP, IMD, NDMA, MoEFCC, DST activities
- Identified 16 Centre of Excellences

E. To strengthen research capacity to fill the evidence gap on climate change impact on human health

- Supported MoEFCC in National Clean Air Programme (NCAP) preparation, Indoor air pollution guidelines, 20 cities study
- Supported ICMR in disease burden studies
- Requested ICMR to constitute research committee to guide in CSDs and air pollution research
- Contributed by sharing research questions to ICMR
- Over 30 institutions contributed to Compendium on Indian research on air pollution and health impacts
- Held regional and national Consultations in last two years

Regarding status of budget for the NPCCHH programme for the FY 2020-21, a state wise presentation on the budget allotted under the NCD Flexi pool of the NHM, MoHFW is placed in the table (below) which is shown regarding the following three categories as-

- NCD Flexi pool budget allocation under NHM for the FY 2020-21: **Rs 702.89 (Crores)**
- Total NPCCHH budget under NCD Flexi pool under NHM as per Record of Proceedings (ROP) for the NPCCHH programme for FY 2020-21: **Rs 28.981(Crores)**
- Expenditure done on the programme related activities in the States/UTs FY 2020-21 (reported till 5th Feb. 2021) – Rs. **0.46 Crores**. The reasons for very low budget expenditure observed from the allotted budget under the programme is being communicated by the programme officers as due to the exceptional and unusual COVID-19 pandemic situations. However, during the national review meeting conducted recently in Jan-Feb 2021, the programme officers reported that as the pandemic situations are started observing stabilizing the allocated budgets are gradually initiated utilizing the budget for the programme related activities for the FY 2020-21.

Table: Status of the NPCCHH programme Budget for the States/UTs under the NHM FY 2020-21

Sl.No	State/UTs	NCD Flexi pool budget allocation under NHM FY 2020-21	Approved ROP for respective States/UTs for NPCCHH programme under NHM FY 2020-21	States expenditure FY 2020-21 (reported till 5 th Feb. 2021)
1	Andaman & Nicobar Island	0.64	0	
2	Andhra Pradesh	24.62	4.223	
3	Arunachal Pradesh	7.12	0.520	
4	Assam	40.50	0.318	0.02
5	Bihar	51.32	0.403	
6	Chandigarh	0.59	0.030	
7	Chhattisgarh	21.12	12.625	
8	DD, DD&NH	0.98	0.04	
9	Delhi	5.75	0	
10	Goa	0.65	0.023	
11	Gujarat	30.01	0.373	
12	Haryana	10.74	0.575	0.07
13	Himachal Pradesh	9.22	0	
14	Jammu & Kashmir	17.30	0.155	
15	Jharkhand	21.50	0.644	
16	Karnataka	30.06	0.102	0.0011
17	Kerala	13.09	0.375	0.14
18	Lakshadweep	0.11	0.005	
19	Madhya Pradesh	50.36	0.845	0.23
20	Maharashtra	53.11	0.593	0.003
21	Manipur	4.56	0.0	
22	Meghalaya	4.84	0.0	
23	Mizoram	2.60	0.087	
24	Nagaland	3.33	0	
25	Odisha	27.80	0.257	
26	Puducherry	0.99	0.14	
27	Punjab	11.80	0.367	
28	Rajasthan	50.78	0.34	
29	Sikkim	1.16	0.675	
30	Tamil Nadu	30.31	0	
31	Tripura	4.85	0.055	
32	Uttar Pradesh	102.15	1.95	
33	Uttarakhand	12.66	0.483	
34	West Bengal	35.21	0.639	
35	Telangana	17.60	2.74	
36	Ladakh	3.45	0.0025	
	Total	702.89	28.981	0.46

S.no	Key Actions	Short term (2021-23)	Medium Term (till 2026)	Indicators
1	Development & dissemination of IEC material on health impacts of Climate variability & change	<p>-Undertake communication needs assessment</p> <p>Develop Communication Strategy & Tools</p> <p>Develop IEC materials in Hindi, English and other vernacular languages:</p> <p>Indicator: IEC developed on illnesses due to air pollution and heat in 10 regional languages and in 60% States</p> <p>Dissemination of IEC: mass media and inter-personal communication:</p> <p>Indicator: IEC disseminated in 50% of each States</p> <p>Sensitization of Health Care Providers, population grps, policy makers</p> <p>Indicator: 50% districts sensitized</p>	<p>IEC development and Dissemination:</p> <p>Indicator: IEC developed in on all climate sensitive diseases in 100% States and IECs revised in 60% States</p> <p>IEC disseminated in 100% of States</p> <p>-Explore inter-sectoral / inter- ministerial / civil society / NGOs for collaboration</p> <p>Sensitization of Health Care Providers, population grps, policy makers</p> <p>Indicator: 100% districts sensitized and 100% re-sensitized</p> <p>-Integrate health impacts of climate change into school and College curricula</p> <p>Periodic Impact assessment of communication activities and monitor dissemination and utilization of IEC material</p>	<p>Number of states and UTs developed & translated IEC on Health impacts of Extreme weather event like 'Heat' in local language</p> <p>Number of states and UTs developed & translated IEC on Health impacts of Air Pollution in local language</p> <p>Number of states and UTs developed & translated IEC on Health impacts of climate change on vector borne illnesses in local language</p> <p>Number of states and UTs developed & translated IEC on Health impacts of climate change on water borne illnesses in local language</p> <p>Number of states and UTs developed & translated IEC on Health impacts of climate change on food borne illnesses in local language</p> <p>Number of states and UTs developed & translated IEC on Health impacts of climate change on One Health / zoonotic diseases in local language</p> <p>Number of states and UTs developed & translated IEC on Health impacts of climate change on nutrition issues in local language</p>

			<p>Number of states and UTs developed & translated IEC on Health impacts of climate change on mental health in local language</p> <p>Number of states and UTs developed & translated IEC on Health impacts of climate change on occupational health in local language</p>
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S. No.	Key Actions			
		Short term (2021-23)	Medium Term (till 2026)	Indicators
2.				
	Strengthening of health care system in context of climate change	<ul style="list-style-type: none"> -Establishment of 'Environment Health Cell' at Health deptt.in all States and 150 districts -Appointment of State Nodal Officer (CC) in Health deptt of all States -Appointment of District Nodal Officer (CC) in Health deptt of 150 districts - Consultant Climate Change recruited in 15 States - Notify Task Force with multiple stakeholders in all states - Task force meetings: at least one meeting in all States and at least two Meeting in 18 States - Notify high level governing body in all states - State Action Plan finalized by 20 States/UTs. State to prepare action plan and upload the same on its website for ready reference. - District Action Plan published by 5 Districts 	<ul style="list-style-type: none"> - Environment Health Cell established in all districts - Nodal officers in all blocks - Consultant Climate Change in all States/UTs -State Action Plan finalized by all States/UTs. Revised by 15 States. - District Action Plan published by 300 Districts -Coordinate with other agencies (municipalities, PRIs) for efficient and effective implementation of proposed activities at state and below level. 	<ul style="list-style-type: none"> - Number of States/ UT with 'Environment Health Cell' at Health deptt - Number of States/ UT deputed State Nodal Officer (CC) at Health Department - Number of Districts deputed District Nodal Officer (CC) at Health Department - Number of States/ UT which have notified Task Force -Number of Task Force meetings conducted
	Capacity building in context of climate change	<ul style="list-style-type: none"> - Develop training modules and guidelines -Organize training of medical officers and healthcare personnel - Conduct workshops to strengthen knowledge on CC&HH for health care professionals 	<ul style="list-style-type: none"> - Sensitize and orient private health care providers - Integrate health impacts of climate change into Medical undergraduate and postgraduate curriculum 	<ul style="list-style-type: none"> - Number of States/ UTs that have enlisted organizations in their state for development of guidelines related to climate sensitive illnesses. - Number of States/ UTs conducted Training Need assessment in view of climate sensitive illnesses. -Number of States/ UTs conducted Training of medical officers and healthcare personnel on climate sensitive illnesses.

S. No.	Key Actions	Short term (2021-23)	Medium Term (till 2026)	Indicators
3.	To strengthen health preparedness and response by performing situational analysis at national/ state/ district/ below district levels.			
	Vulnerability Assessment of CSDs	- Vulnerability Need Assessment to be done in 20 States/UTs	- Vulnerability Need Assessment done in all States/UTs	- Number of states/ UTs conducted vulnerability assessment in the state.
	Develop/ strengthen the monitoring and surveillance systems for climate sensitive diseases	<ul style="list-style-type: none"> - Develop / strengthen surveillance for Heat Related Illnesses and Acute Respiratory Illnesses (ARI) in context of air pollution: <ul style="list-style-type: none"> • First surveillance training at State level in all States/UTs and at district/below district level in 550 districts • Heat related illnesses surveillance: 80% districts sending real time data • Air Pollution related surveillance started in one major hospital in 100 cities -Standardize information: Prepare Guidelines, reporting forms for Air pollution and heat related conditions. 	<ul style="list-style-type: none"> - Develop / strengthen surveillance for Heat Related Illnesses and Acute Respiratory Illnesses (ARI) in context of air pollution: <ul style="list-style-type: none"> • Second training at State level in all States/UTs and at district/below district level in all districts • Heat related illnesses surveillance: 100% districts sending real time data • Air Pollution related surveillance started in 3 major hospital in 300 cities and 1 major hospital in 250 more cities - Develop / strengthen surveillance for other CSDs - Build an interdisciplinary platform i.e. link health databases with real-time monitoring of weather, climate, geospatial, and exposure data so as to accurately forecast health illness/event. Integrate relevant non-health data in the health surveillance system - Develop/ modify mechanism and indicators to monitor trend of CSDs. - Conduct Joint Review Missions / Central Internal Evaluations and feedback mechanisms. 	<ul style="list-style-type: none"> - Number of states and UT conducted training for concerned personnel on surveillance system. -Number of states/ UT initiated surveillance for Climate sensitive illnesses (Illnesses due to Air Pollution, Heat Exposure, Vector borne and Water borne illnesses) -Number of states and UT integrated relevant meteorological data in the surveillance system of Climate sensitive illnesses.

Develop mechanisms for EWS/alerts and responses at state, district and below district level	<p>Constitute multi-stakeholder working group for development of early warning system for each CSD</p> <p>- Design and integrate public health response plan</p>	<p>-Review monitoring and surveillance system of CSDs</p> <p>-Develop thresholds/prediction models for health events or CSDs.</p> <p>-Develop communication plan and dissemination systems to warn people and communities</p>	<p>- Number of States and UTs constituted working group for development of mechanism for EWS/alerts</p> <p>-Number of states and UTs developed mechanism to integrate public health response plan with related stakeholders</p> <p>Number of states and UTs developed communication plan and dissemination systems to warn people and communities</p>
Develop subject specific health adaptation plans for CSDs	<p>-Identify Centres of Excellences that will develop the health adaptation plans</p> <p>-All CoEs submit first draft of HAPs</p> <p>-CoEs provide handholding to States in specific subjects</p>	<p>-CoEs submit final draft of HAPs</p> <p>-CoEs develop guidelines and training modules for concerned subject</p> <p>-CoEs undertake trainings</p>	<p>- Number of CoEs that submitted HAPs</p>
Green and climate resilient healthcare sector	<p>- Identify measures needed in health sector building design to make it green and climate resilient. Incorporate them in Indian Public Health Standards and other standards</p> <ul style="list-style-type: none"> • Use of energy-efficient equipment and services • Solar energy to replace traditional energy • Rain water harvesting <p>- 20 district hospitals, 10 CHCs, 20 PHCs ensured use of energy efficient equipment and technologies</p> <p>- 5 district hospitals, 2 CHCS, and 2 PHCS develop rain water harvest and solar energy use provisions</p> <p>- 15 PHCs & 2 CHCs developed Climate Resilient healthcare facilities</p>	<p>- Expand measures to make healthcare sector green and climate resilient</p> <p>- Replicate the successful 'model of building design' for new healthcare facilities</p> <p>- 100 district hospitals, 60 CHCs, 140 PHCs ensured use of energy efficient equipment and technologies</p> <p>- 100 district hospitals, 60 CHCS, and 140 PHCS develop rain water harvest and solar energy use provisions</p> <p>- 140 PHCs, 40 CHCs and 17 district hospitals developed Climate Resilient healthcare facilities</p>	<p>- Number of states and UTs initiated 'Greening Effort' in their healthcare sector</p> <p>-Number of states and UTs which have successfully built the 'prototype of healthcare building' which has incorporated measures to make it withstand climate disasters</p>

S. No.	Key Actions	Short term (2021-23)	Medium Term (till 2026)	Indicators
4.	To develop partnerships and create synchrony/ synergy with other missions and ensure that health is adequately represented in the climate change agenda in the country			
	Develop joint action plan with other deptt./ organizations In view of their capabilities and complementarities	<ul style="list-style-type: none"> -Enlist, map and analyze services by all possible stakeholders in the state as per their role in Climate Resilient Health Services -Identify health and non-health programmes, missions, projects and align health mission objectives in those programmes, missions, projects etc 	<ul style="list-style-type: none"> -Broaden Stakeholders' network and partnership -Establish Corporate Social Responsibility / Accountability in terms of finances for implementing measures for prevention/ reduction/ treatment of CSDs -Develop affordable and acceptable tools for risk reduction and Environmental Health Impact Assessment 	<ul style="list-style-type: none"> -Number of states and UTs conducted stakeholders' mapping -Number of states and UTs which have developed partnerships with other programmes, projects, missions in management of CSDs. -Number of states and UTs developed tool for Environmental Health Impact Assessment for commonly occurring CSDs.
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S. No.	Key Actions	Short term (2021-23)	Medium Term (till 2026)	Indicators
5.	To strengthen research capacity to fill the evidence gap on climate change impact on human health.			
	Strengthening of healthcare services based on researches on climate variables and impact on human health	<ul style="list-style-type: none"> - Develop a research committee with ICMR that would develop research strategy for climate change and environment related health issues - Create database of professionals, researchers and institutions engaged in studies of impact of weather and climate on health – air pollution and health - Create a platform for 'data-repository' of various researches on climate and health effects – air pollution and health 	<ul style="list-style-type: none"> - Initiate research projects that can guide climate service - Development of models mathematical or other types for early warning alerts for CSDs. - Inform Policy-makers about 'scenario' of health-related statistics with focus on CSDs. - Conduct workshops, conferences on new knowledge. - Vector mapping started in all States/UTs 	<ul style="list-style-type: none"> Number of states and UTs with database of professionals, researchers and institutions engaged in studies of impact of weather and climate on health - Number of states and UTs which have created a platform for 'data-repository' of various researches on climate and health effects - Number of states and UTs which have listed 'Best Practices' of measures to combat effect of climate change





Year-wise Output Outcome indicators for National Programme on Climate Change and Human Health (NPCCHH) for year 2021-25 submitted to NHM

S.No	Output	Indicators	Target					Outcome	Indicators	Target				
			2021-22	2022-23	2023-24	2024-25	2025-26			2021-22	2022-23	2023-24	2024-25	2025-26
1	Development of IEC material and advocacy on health impacts of Climate variability & change	1. Development of IEC prototype and translation in regional language 2. Revision of IEC	1. IEC developed for Acute respiratory illnesses due to Air pollution and Heat Related Illnesses in 5 regional languages	1. IEC developed for Acute respiratory illnesses due to Air pollution and Heat Related Illnesses in 10 regional languages	1. IEC developed for Acute respiratory illnesses due to Air pollution and Heat Related Illnesses in 15 regional languages 2. IEC developed on 6 Climate sensitive diseases in 5 regional languages	1. IEC developed for all climate sensitive diseases 2. IEC revised for 3 climate sensitive diseases	1. IEC revised for all climate sensitive diseases	To create awareness among general population (vulnerable community), health-care providers and policy makers regarding impacts of climate change on human health.	1. % of States developed the IEC	1. IEC developed in 30% States	1. IEC developed in 60% States	1. IEC developed in 100% States	1. IEC revised in 30% States	1. IEC revised in 60% States
		2. Dissemination of IEC.	1. IEC disseminated in 70% districts 2. IEC disseminated in 50% blocks	1. IEC disseminated in 95% districts 2. IEC disseminated in 70% blocks	1. IEC disseminated in 100% districts 2. IEC disseminated in 90% blocks	1. IEC disseminated in 100% districts 2. IEC disseminated in 90% blocks	1. IEC disseminated in 100% districts		Percentage of population covered through IEC	1. IEC disseminated in 1/3 rd of each States	1. IEC disseminated in 1/2 of each States	1. IEC disseminated in 3/4 th of each States	1. IEC disseminated in 100% of States	1. IEC disseminated in 100% of States
		3. Meeting workshops and Health education campaign for health effect of climate change	1. First meeting at State level in 20 States/UTs 2. Two meeting at District/below level in 200 districts	1. First meeting at State level in 36 States/UTs 2. Four meeting at district/below level in 550 districts	1. Second meeting at State level in 25 States/UTs 2. Five meeting at district/below level in 739 districts	1. Four meeting at district/below level in 400 districts	1. Second meeting at district/below level in 739 districts		% of districts sensitized	1. 20% of districts sensitized	1. 50% districts sensitized	1. 95% districts sensitized	1. 100% districts sensitized 2. 50% districts re-sensitized	1. 100% districts re-sensitized

S.No	Output	Indicators	Target					Outcome	Indicators	Target				
			2021-22	2022-23	2023-24	2024-25	2025-26			2021-22	2022-23	2023-24	2024-25	2025-26
2	Strengthening health care system and Capacity building for vulnerability assessment in context of climate change	Establishment of Environment Health Cell (EHC) at State, District/block level	1. EHC in all States 2. EHC in 150 districts 3. Consultant climate change recruited in 5 States	1. EHC in 400 districts 2. Nodal officer in 10% blocks 3. Consultant climate change recruited in 15 States	1. EHC in 600 districts 2. Nodal officers in 30% blocks 3. Consultant climate change in 25 States	1. EHC in all districts 2. Nodal officers in 50% blocks 3. Consultant climate change in all States/UTs	1. Nodal officers in all blocks	To strengthen capacity of healthcare system to reduce illnesses/disease due to variability in climate	Percentage of the State healthcare system made climate resilient	30% States	50% States	75% States	95% States	100% States/UTs
		Development of State Action Plan on Climate Change and Human Health (SAPCCHH)	10 States/UTs	20 States/UTs	30 States/UTs	All States/UTs	Revised by 15 States		% States developed SAPCCHH	25% States	50% States	75% States	100% States	
		Development of District Action Plan on Climate Change and Human Health (DAPCCHH)	2 Districts	5 Districts	20 Districts	100 Districts	300 Districts		Districts developed DAPCCHH	2 Districts	5 Districts	20 Districts	100 Districts	300 Districts
		Situational analysis and Health Vulnerability Assessment for common climate sensitive illnesses in the State	10 States/UTs	20 States/UTs	30 States/UTs	All States/UTs			% States developed VNA for State specific CSDs	25% States	50% States	75% States	100% States	
		Task force meetings	First meeting 10 States/UTs, 1 st in 5 Districts	First meeting in 20 States/UTs, 1 st in 10 Districts	First meeting in 30 States/UTs, second meeting in 10 States/UTs,	First meeting in all States/UTs, 2 nd meeting in 20 States/UTs 1 st in 200 Districts	Second meeting in 30 States/UTs, 1 st in 500 Districts		% of State conducted task force meeting	25% States	50% States	75% States	100% States	

					1 st in 50 Districts									
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S.No	Output	Indicators	Target					Outcome	Indicators	Target				
			2021-22	2022-23	2023-24	2024-25	2025-26			2021-22	2022-23	2023-24	2024-25	2025-26
3	Develop/ strengthen the monitoring and surveillance systems for climate sensitive diseases and develop mechanisms for EWS/ alerts and responses at state, district and below district level	- Develop / strengthen surveillance for Heat Related Illnesses and Acute Respiratory Illnesses (ARI) in context of air pollution	1. First training at State level in 20 States/UTs 2. First training at District/below level in 200 districts	1. First training at State level in 36 States/UTs 2. First training at district/below level in 550 districts	1. Second training at State level in 25 States/UTs 2. First training at district/below level in 739 districts	1. Second training at State level in 36 States/UTs 2. Second training at district/below level in 400 districts	1. Second training at district/below level in 739 districts	To strengthen health preparedness and response at national/ state/district/ below district levels	Surveillance of priority CSDs in the State	Surveillance system strengthened in 30% States	Surveillance system strengthened in 50% States	Surveillance system strengthened in 80% States	Surveillance system strengthened in 100% States	
		- Initiate Sentinel & real-time surveillance for illnesses due to Air Pollution, Heat etc	1. Heat related illnesses: 50% districts sending real time data 2. ARI surveillance started in one major hospital in 50 cities	1. Heat related illnesses: 80% districts sending real time data 2. ARI surveillance started in one major hospital in 100 cities	1. Heat related illnesses: 100% districts sending real time data 2. ARI surveillance started in one major hospital in 200 cities	1. ARI surveillance : 50% hospitals sending real time data 2. ARI surveillance started in two major hospital in cities 100 cities and one major hospital in 250 cities	1. ARI surveillance: 50% hospitals sending real time data 2. ARI surveillance started in 3 major hospital in cities 300 cities and one major hospital in 250 cities		% of State sending real time data	30% State sending real time data	50% State sending real time data	80% State sending real time data	90% State sending real time data	100% State sending real time data
4	Integrate, adopt and implement environment friendly and climate resilient methods	Green efforts in healthcare sector (solar power, rain water harvesting, LED lighting)	10 district hospitals ensured use of energy efficient equipment and technologies	20 district hospitals, 10 CHCs, 20 PHCs ensured use of energy efficient equipment and technologies	40 district hospitals, 20 CHCs, 40 PHCs ensured use of energy efficient equipment and technologies	80 district hospitals, 40 CHCs, 80 PHCs ensured use of energy efficient equipment and technologies	100 district hospitals, 60 CHCs, 140 PHCs ensured use of energy efficient equipment and technologies	To strengthen the green efforts and climate resilient methods	% of districts developed Green healthcare facilities	0.5% districts	1% districts	2% districts	5% districts	10% districts

						technologies								
		Building prototype of healthcare building to withstand climate disasters (retrofitting the existing)	5 PHCs developed Climate Resilient healthcare facilities	15 PHCs & 2 CHCs developed Climate Resilient healthcare facilities	35 PHCs, 10 CHCs & 2 district hospitals developed Climate Resilient healthcare facilities	70 PHCs, 20 CHCs and 7 district hospitals developed Climate Resilient healthcare facilities	140 PHCs, 40 CHCs and 17 district hospitals developed Climate Resilient healthcare facilities		% of districts developed Climate Resilient healthcare facilities	0.5% districts	1% districts	2% districts	5% districts	10% districts

S.No	Output	Indicators	Target					Outcome	Indicators	Target				
			2021-22	2022-23	2023-24	2024-25	2025-26			2021-22	2022-23	2023-24	2024-25	2025-26
5.	Strengthening of healthcare services based on researches on climate variables and impact on human health	Vector Borne Disease: vector mapping	Vector mapping started in 5 States	Vector Mapping Started in 9 more States	Vector mapping started in 15 more State	Vector mapping completed in 5 States	Vector mapping completed in 14 States	To strengthen research capacity to fill the evidence gap on climate change impact on human health	% of States started vector mapping	10% States started vector mapping	40% States started vector mapping	100% States started vector mapping	10% States completed vector mapping	40% States completed vector mapping

VI. CLIMATE CHANGE vs HEALTH RESILIENCE

As per the available evidences, it is known that change or variation in climate at any geographic location may affect the pattern of morbidity and mortality among the dwelling population. The commonly identified illnesses may be grouped as i) Extreme events (heat related illness), ii) Air Pollution and health related issues, iii) Vector borne diseases and iv) Water borne illnesses v) Malnutrition and vi) Various NCDs.

To protect health of people, it is necessary that health department of all states must consider the climate change as an emerging threat in causation of most of the illnesses and hence must undertake measures to adequately address this issue.

Initial Inputs/ activities desired (first 2 years)

1. Establish 'Environmental Health Cell' in State Health Department,
2. Identification of State Nodal Officer- Climate Change at State Health Department
3. Notification of Task Force with representation of other health programmes (vector-borne disease, infectious diseases, nutrition etc) multi-sectors/ departments such as Disaster Management Authority, Health Information System, district unit of departments of Meteorology, Pollution Control Board, Water and Sanitation, Public Works Departments and civil societies etc.
4. Vulnerability Assessment for baseline rate for Climate Sensitive Illnesses in terms of
 - a. Geography (Plain/ Mountain/ Desert/ Coastal), identify worst affected areas(districts)
 - b. Risk mapping with extreme events (heat/ cold/ drought/ flood/cyclone/other),
 - c. Affected *Population* (Total, density, Vulnerable, Occupation)
 - d. Contributing/ exaggerating factors for these *Climate sensitive illnesses*
 - e. Healthcare Infrastructure/ facilities like PHC, CHC, District hospital, Tertiary care hospitals- Government as well as Private.
 - f. Identify areas for capacity building –human resource, technical and healthcare service delivery.
5. State health adaptation plan must be prepared with at least chapters on heat related illness and Air Pollution related health issues
6. State health department should identify and strengthen local organizations for support to manage climate related health issues
7. Coordinate with Centre of Excellence for subject specific health adaptation plans.
8. IEC plan for climate change and health

Process: 2 to 5 years

1. Formulate specific implementation framework for climate sensitive diseases.
2. Contingency plans for climate sensitive illnesses - appropriate and efficient health personnel, logistics & resource allocation.
3. Capacity building and training of health care personnel on guidelines for climate sensitive illnesses at district level in each state.
4. Development of early detection tools for CSDs (diagnostics, surveillance) or prediction models for preparedness of population and health care system.
5. Periodic reviews of vulnerability, response capacity and preparedness
6. Adapt new technologies, building design, energy, water and sanitation provisions for new constructions of healthcare facilities and modify existing ones.
7. Link data on climate sensitive diseases, environmental factors, meteorological information, and outcomes.
8. Risk mapping for seasonal trend of CSDs.
9. Research for climate sensitive illnesses.

Expected Output:

1. Awareness & Behavior modification of general population for impact, illnesses, prevention and adaptive measures for climate sensitive illnesses.
2. Increase in trained healthcare personnel and equipped institutes/ organization towards achievement of climate resilient healthcare services and infrastructure at district level in each state.
3. Integrated monitoring system for collection and analysis of health related data with meteorological parameters, environmental, socio-economic and occupational factors
4. Evidence-based support to policy makers, programme planners and related stakeholders

India is signatory to “Male’ Declaration” wherein health sector has to be strengthened so as to make it climate resilient. According to Male’ Declaration, it is desired that health-care facilities should be prepared & climate-resilient, particularly in promoting to encourage that these are able to withstand any climatic event, and that essential services such as water, sanitation, waste management and electricity are functional during such events. Further, for climate resilient, the health department has to undertake measures to initiate the greening of the health sector by adopting environment-friendly technologies, and using energy-efficient services(Annexure-).

The existing efforts in public health preparedness, disaster risk reduction, and programs for communicable and non-communicable diseases may be inadequate, ineffective or unsustainable, if they are not climate resilient. It requires vulnerability re-assessment and should take into account both current climate variability and projected future impact of climate change on disease burden and hence management. The overview of roles and activities for health as well as non-health departments are listed below as guide for group of Climate Sensitive Diseases. States and UTs have to make micro-plan as per their vulnerabilities and geo-climatic conditions.

A. Human Health vs Extreme weather events

States and UTs may have recorded raised morbidity and mortality due to effect of extreme weather conditions viz frequent and severe episodes of heat waves, floods, droughts and fires as a direct impact of climate variability and affecting population at large.

Vulnerability factors: Demography especially people at extremes of age (>65yrs, children), Health status, Socioeconomic status, Occupation, working place and working conditions, unplanned urban housing, overcrowding, remote area, Drought/ flood prone area, water scarcity zone

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

1. Develop/ adapt health micro-plans for extreme weather events based on meteorology warnings and change in trend of illnesses in recent years.
2. Map vulnerable population based on demography, land cover, water bodies, potential exposure, available resources health insurance coverage, and burden of chronic illnesses in the community.

3. Develop or translate IEC in local language, and make a communication plan for dissemination of health related alerts/ education materials for target or general population.
4. Build capacity of health care personnel to detect and treat illnesses associated with extreme weather events
5. Issue health advisory to healthcare personnel based on IMD seasonal prediction or warning
6. Ensure health related Real-time Surveillance and Monitoring System in case of extreme event
7. Explore collaborative mechanisms (e.g. memoranda of understanding) with other departments, stakeholders, such as meteorological, pollution control board etc for sharing data and for coordinating efforts to manage health risks.
8. Ensure Inter-sectoral convergence and coordination for improving architecture, design, energy efficient cooling and heating system at health facility, increase in plantation i.e. Climate Resilient Green Building Design.
9. Reassess 'Occupational Health standards' for various types of Occupation.
10. Ensure strict implementation of legislative/ regulatory actions as per Occupational Health Standards.

Coordination with other sectors in reducing illnesses due to Extreme Weather Events

SNO-CC and the Task Force should explore collaborative mechanism (e.g. memoranda of understanding) for regular sharing data and for coordinating efforts to manage health risks. The suggested sectors are listed below, however the list may be expanded or modified as per the need of the state /UT.

Meteorological Department

- Accurate and timely forecast for extreme weather
- Communication of 'alert' to state health departments, vulnerable groups/agencies

Water Board

- Management and supply of safe and adequate water to all in the state.
- support & promote water conservation methods like rain water harvesting.

Municipalities

- Develop and promote building design and other infrastructure codes supporting 'Green building' and use of energy efficient and natural ways of lighting and cooling
- Undertake actions like: planting trees, ensure non-burning of garbage, supply of safe water and maintaining sanitation.
- build cool shades at public places, cool corridors for pedestrians

Ministry of Environment, Forest Climate Change

- Develop/ encourage projects to decrease the 'Urban Heat Island effect'.

- Ensure green coverage in the cities through checking deforestation, urban planning and increasing plantation.

Ministry of Education

- Sensitize students towards health impact of extreme events and disseminate health ministry approved prevention and first-aid measures.
- Train teachers on first aid measures for all possible extreme events (as per state's vulnerability)
- During extreme events: keep a check on outdoor activities and close teaching institutes in case of issue of alert from Government.

Ministry of Transport

- Provision of safe and improved Public transport like air conditioned buses, local trains and other transport at affordable rates.

Media & NGOs

- Disseminate success stories, methods and measures to promote community awareness on preventive measures and first aid to reduce health impacts of extreme weather.

B. Water borne & Food borne diseases

Illnesses due to contaminated water and food are usually seen following flood, drought, religious or other mass gatherings. SNO-CC and the related stakeholders must undertake suitable measures to keep a check on morbidity and mortality due to water and food borne illnesses.

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

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

1. Develop/ adapt health micro-plan for water and food borne illnesses (case management, resources required like logistics, drugs, vaccines, laboratories' role)
2. Map vulnerabilities: population at risk, geo-climatic conditions, recent trend of climate variability (flood, drought), change in population demography (migration), available resources, healthcare infrastructure, laboratories, burden of chronic illnesses in the community etc
3. Build capacity of health care personnel to detect and treat water and food borne illnesses
4. Strengthen/ Develop real-time surveillance, evaluation and monitoring system for water and food borne illnesses, enhance this surveillance during high risk period
5. Issue advisory to healthcare personnel, laboratories and related stakeholders
6. Develop or translate IEC in local language, and make a communication plan for dissemination of health related alerts/ education materials.

7. Ensure adequate supplies (vaccines and medications) for cases management with other required logistic as identified to the affected region
8. Improve access to health care facilities by vulnerable population, especially those in remote areas.
9. Coordinate with related stakeholders like Municipalities to keep a check and strengthen surveillance of food handling units, local vendors, water supply etc.
10. Explore collaborative mechanisms (e.g. memoranda of understanding) with other departments, stakeholders for sharing of data and for coordinating efforts to manage health risks.

Coordination with other sectors in reducing water and Food borne illnesses

Department of Water & Sanitation

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

Municipalities and other Local regulating bodies

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

Ministry of Agriculture

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

FSSAI and other food regulatory body

- Check food items for various types of contamination or adulteration
- Disseminate appropriate information for reducing food borne illnesses

C. Air Borne, Cardio-pulmonary & Respiratory Allergic Diseases

Climate variability and frequent change in weather and extreme events affects have been linked to increase in illnesses of lungs and cardio-vascular system.

Vulnerability: Change in timing, survival, transmission & duration of certain microbes (like Influenza virus), Interaction of air pollution, pollen and weather, Proportion of population-malnourished, extremes of age, underlying illnesses, pregnant females, Commonest type of occupation, urban slums and remote rural areas, Socio-economic status, accessibility to health care

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

1. Develop/ adapt health micro-plan for 'Air borne, Cardio-pulmonary and Respiratory diseases (case management, resources required like logistics, drugs, vaccines, and laboratories' role).

2. Map vulnerabilities: population at risk, geo-climatic conditions, seasonal variation, exposure to pollens or allergens by change in types of crops or flower plants, change in population demography, migration (in & out), available resources, healthcare infrastructure, laboratories, burden of chronic illnesses in the community
3. Strengthen/ Initiate Sentinel surveillance, real-time surveillance, evaluation and monitoring system for respiratory and cardio-vascular illnesses, hospital admission as well as Outpatient attendance in relation to weather and air quality parameters.
4. Enhance vaccination programs and 'Vaccination Campaign' for vaccine-preventable air borne and respiratory diseases
5. Develop or translate IEC in local language, and make a communication plan for dissemination of health related alerts/ education materials.
6. Capacity building and increasing awareness for individuals, communities, health care workers through involvement of various media as well as campaigns and training workshops.
7. Develop Standard treatment guidelines for allergen management based on exposure forecasts – air quality, allergens, dust, etc.
8. Ensure adequate logistic support, including equipments and other treatment modalities and supplies for case management at all levels of health care and also under 'Emergency response Plan' in case of any disaster where air borne illnesses may occur as an out break
9. Inter-sectoral and stakeholders' coordination to monitor health outcomes with early warning system related to extreme weather events/ Air Quality Index/ ground level Ozone etc.

Coordination with other sectors for reducing respiratory and cardio-vascular illnesses

(Adapted from MoHFW's Steering Committee Report on Air Pollution & Health Related issues 2015)

Ministry of Environment, Forests and Climate Change

- Ensure that Central and State Pollution Control bodies set standards for industry-specific emission and effluent, monitor levels of pollutants and enforce penalties.
- Enforce strict air quality standards for pollution
- Strict implementation of Environment Impact Assessments (EIA) to minimize the adverse impact of industrial activities on the environment
- Effective implementation of 'National Green Tribunal' directives on trash burning/ waste disposal from different sources
- Take strict measures for unregulated sectors (such as brick kilns, trash burning, stone crushing) which contributes to ambient air pollution

Ministry of Human Resource Development

- Regular screening of school children for early detection of diseases, this can be attributed to the existing air pollution

- Inclusion of harmful health effects of environmental pollution (AAP and HAP) in the school curriculum, including current policies and mitigation practices that are designed to reduce air pollution
- Improve indoor air quality of educational institutions nationwide
- Improve walkability and access to educational institutions by non-motorised transport, thus minimizing the air pollution in the school surroundings
- Sensitize students and teachers on using the Air Quality Index in planning outdoor school activities

Ministry of Agriculture

- Policy in place to promote multiple uses of crop residues and prevent their on-farm burning.

Ministry of Rural Development

- Include health promotion (like clean air) guidelines as part of “Nirmal Gram Puraskar”/ Model Villages evaluation criteria/ create alternate awards with specific criteria based on air pollution.
- Under integrated rural development, develop and implement micro level planning policies/schemes with Panchayati Raj Institutions to address the social determinants of health for reducing the hazards of air pollution (lack of education, unemployment, poverty, poor housing conditions ,etc.)

Ministry of Urban Development

- Formulate/revise urban transport policy which reduces vehicular pollution (Include Health Promoting city guidelines in the “100 Smart Cities”)
- Develop and implement policies to reduce indoor air pollution (like disincentivizing diesel gensets and promoting clean cooking fuels thus ‘making available clean and making clean available’)
- Enforcement of ban on burning garbage or biomass (especially during winter months)
- Help cities develop air pollution alerts and emergency plans based on the Air Quality Index or CPCB continuous air monitoring data

Ministry of New & Renewable Energy

- Develop policies for truly clean cook stoves and support research and development.
- Research and development of other non-conventional/renewable sources of energy and programmes relating thereto, including locally generated power to supply cooking appliances;
- Support and strengthen Integrated Rural Energy Programme (IREP) with emphasis on indoor air pollution
- Develop National Policy on clean Biofuels (biogas, ethanol, etc) and set up National Biofuels Development Board for strengthening the existing institutional mechanism and overall coordination.
- Create a national consensus action plan for replacing biomass fuels with alternative clean fuels

Ministry of Petroleum & Natural Gas

- Expand new initiatives to increase the availability of LPG and other cleaner fuels to the rural & tribal areas
- Expand the piped natural gas network to reach out to a larger population
- Better target LPG subsidies to poorer households

Ministry of Power

- Promote the development of more efficient cooking devices
- Evaluate the potential for electric cooking appliances to substitute for biomass and LPG

Ministry of Road Transport and Highways

- Ensure effective implementation of New Motor Vehicles Act, once approved
- Ensure proper engine checks for vehicles to assess pollution levels

Ministry of Information and Broadcasting

- Develop hard hitting, high impact and cost effective media plans, strategies and conduct activities for awareness generation on harmful effects of air pollution and options for their mitigation.
- Ensure enforcement of relevant provisions in the Cable Television Networks Act to regulate advertisements of tobacco etc.
- Involvement of Songs & Drama division; Department of Field Publicity to promote health promotion activity for air pollution and its impact on respiratory and NCD risk factors
- Develop policies to ensure that media houses allocate free airtime for health promotion messages as a corporate social responsibility activity

Ministry of Communications & Information Technology

- Use of mobile phones to encourage healthy choices and warn people about air pollution (both AAP and HAP, using Air Quality Index)
- Establish Telemedicine linkages between different levels of health care

Ministry of Labour and Employment

- Regular health check- ups for early screening of pollution related diseases.
- Frame guidelines and conduct workshops for health promoting workplaces, (guidelines on indoor air quality),
- Strengthen the capacity of ESI Hospitals to cater to the growing burden of respiratory diseases and NCDs
- Showcase and support companies which employ workplace policies that can reduce vehicular travel such as telecommuting, or placing the workplace in sites that are accessible through public transportation (eg. Metro) or non-motorised transport.

Ministry of Women and Child Development

- Advocate through Self Help Groups and Mahila Mandals for protection of women and children from significant exposure to smoke from biomass while inside the house.

- Awareness raising can be done to improve household ventilation to reduce smoke inhalation from lighting (ex. kerosene) or cooking fuel

Ministry of Finance

- Analysis of the economic and financial implications of the health and other impacts of air pollution

Ministry of Law and Justice

- Support enforcement on bans of burning trash for heating or as a way of disposal

D. Vector-borne and Zoonotic diseases

Effect of variation in climate has been well established for illnesses which are spread through vectors or which are transmitted from animals to humans..

Vulnerability: Weather variables: temperature, rainfall, humidity, floods, drought, wind, daylight duration etc., Change in Vector / animal population due to change in growth, survival, feeding habits, seasonality, breeding sites, resistance etc, Change in interaction of vector/ animal & pathogen due to change in susceptibility, Incubation period, or transmission, Change in demography, migration, land-usage practices, water projects, agricultural practices and Public health infrastructure and access to it.

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

1. Programme Officer for National Programs for control of vector borne diseases (NVBDGP) & various zoonotic diseases must consider climate variability as an important factor for assessment of morbidity and mortality statistics and develop/ adapt health micro-plan based on recent VBD & Zoonotic diseases trend
2. Map vulnerabilities: population at risk, geo-climatic conditions, seasonal variation, change in population demography, migration (in & out), available resources, healthcare infrastructure, laboratories ,etc.
3. Strengthen/ Develop active and passive surveillance and establish sentinel sites for vector borne & Zoonotic diseases.
4. Capacity building and increasing awareness for individuals, communities, health care workers through involvement of various media as well as campaigns and training workshops.
5. Develop or translate IEC on effects of climate change on VBDs & zoonotic diseases in local language, and make a communication plan for dissemination of health related alerts/ education materials.
6. Ensure adequate logistic support, including equipments and other treatment modalities and supplies for case management at all levels of health care and also under 'Emergency response Plan' in case of any disaster or an out break
7. Vaccination of animals and animal handlers for vaccine preventable diseases.

8. 'Environmental Health Impact Assessment' of new development projects
9. Early warning system for vector borne and zoonotic diseases.
10. Enforce legislation and regulations of vector borne and zoonotic diseases

Coordination with other sectors for reducing VBDs & Zoonotic diseases

(As per the suggested sectors in the NVBDCP)

- Inter-sectoral collaboration for vector control
- Providing equipments and other related logistics for control of vectors
- Elimination and reduction of vector breeding sites.
- Encourage research on new safe and effective control measures

Intervention by veterinary task force

- Prevention and control of animal diseases and zoonoses
- Vaccination of animals & control on population of stray animals
- Safe destruction of carcasses and other material of animal origin
- The care of 'food animals', including collection, feeding, sheltering, slaughtering etc

Intervention by Community & Individual

- Eliminate/ control small & manmade vector breeding sites
- Make barriers for human dwellings to keep stray animals away from human dwellings by fencing the residential areas especially if in approximation to forests etc.
- House protection by using screening windows, doors and fencing the garden etc.
- Use self protection measures like protective clothing etc,

E. Nutrition related diseases

Climate variability and extremes of weather events affect food quantity and quality through reducing production, poor storage, pathogen infestation, disrupted supply chain, hike in market price.

Vulnerability: Changes in food like availability, accessibility, utilization, system stability, crop failure/ yield decline. Indirect effects are due to reduction in animal/ aquatic population, agricultural yield

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

1. Develop/ adapt health micro-plan for reducing nutritional deficiency disorders
2. Map vulnerabilities based on seasonal nutritional screening (Vit A, Anaemia) in children, pregnant & lactating females high risk communities
3. Capacity building and increasing awareness for individuals, communities, health care workers through involvement of various media as well as campaigns and training workshops.
4. Strengthen/ Develop active and passive surveillance for nutritional deficiency diseases

5. Strengthening surveillance & control programs for diseases like malaria, schistosomiasis, parasitic infections
6. Scale up integrated food security, nutrition and health programmes in vulnerable zones for at risk populations
7. Strengthen maternal & child health services and promote implementation of IMNCI programme.
8. Expand & promote fortified food consumption in the vulnerable population
9. Develop or translate IEC, communication plan and mass media strategy for behaviour change of vulnerable population.
10. Capacity building and increasing awareness of the population through regular training workshops on health and nutrition education
11. Support and strengthen preventive programme on health nutrition (fortification and supplementation) and projects within public health divisions, with emphasis on community involvement projects.

Coordination with other sectors for reducing Nutrition related diseases

Ministry of Human Resource Development & Ministry of Women & Child Development

- Regular screening of school children for early detection of nutritional diseases.
- Inclusion of dietary guide in the school curriculum, with reference to Indian food habits.
- Sensitize students and teachers on nutritional deficiency, worm infestation and other Gastro-intestinal infections leading to malnutrition.

Ministry of Agriculture

- Promote agriculture practice addressing specific nutrition demand of general population and availability of same

F. Non-communicable Diseases (NCD) & Mental illnesses

Non-communicable diseases and mental disorders have been found to be closely associated with variation in climate, exposure to various types of pollutants and type of occupation

Vulnerability: Demography, Health status, Socio-economic status, type of occupation, accessibility to health care and diagnostic facilities, weather variables, exposure to pollution and Nutritional status

Role of Health Sector and related non-health sectors (State Nodal Officer and Task Force)

1. Establish & Integrate multisectoral mechanisms to plan, guide, monitor and evaluate and enactment of NCD through implementation of plans, policies and legislation

2. Adapt and implement WHO surveillance framework that monitors exposure (risk factors), outcome (morbidity and mortality), and health system response
3. Implement effectively the national health programmes aimed at reducing/ controlling NCD and mental illnesses.
4. Strengthen surveillance and monitoring for the high risk population and identify/ assess need in routine as well as in emergency situation (Emergency preparedness plans).
5. Ensure access to appropriate diagnostic facilities, related logistics and case management to the high risk population.
6. Define price regulatory mechanism for NCD drugs and basic diagnostic equipments and laboratory tests to increase affordability by the poor section of the society.
7. Risk communication, counselling and case management skills, should be available at all the levels including primary health-care level
8. Capacity building through training of human resource for addressing NCD related risk factors due to climate change.
9. Raise public and political awareness and understanding about NCDs including mental health, oral health, injuries and indoor air pollution through social marketing, mass-media and responsible media-reporting during extreme weather.
10. Assess the health impact of policies in non-health sectors e.g., agriculture, education, trade, environment, energy, labor, sports, transport, urban planning.
11. Strengthen supportive policies and legislations to promote healthy diet, reducing food with high trans fat content, artificial colours and junk food
12. Strengthen capacity of the enforcement agencies (Police, Food Trade Inspectors and Road Safety Inspectors).
13. Provide adequate and sustained resources for NCDs by increasing domestic budgetary allocations, innovative financing mechanisms, and through other external donors

IX. NAPCCHH: ORGANISATIONAL FRAMEWORK FOR IMPLEMENTATION

Operational framework for implementation of National Action Plan for Climate Change and Human Health at National, States/UTs, District and Health-facility level is as follows:

National Level

A) National Level- Advisory Committee

This committee shall function under the Chairmanship of Secretary Health & Family Welfare. The proposed members of this committee are:

Secretary Health & Family Welfare	Chairman
Additional Secretary, Health, MoHFW, GOI	Member
Secretary Health Research cum Director General-ICMR, GOI.	Member
Director General Health Services, GOI	Vice-Chairman
Director, NCDC, Dte. GHS, MoHFW, GOI	Member Secretary
Director, NVBDCP, Dte. GHS, MoHFW, GOI	Member

Representation from other Ministries/ departments

Director General, National Disaster Management Authority	Member
Secretary, Ministry of Environment, Forest & Climate Change	Member
Secretary, Ministry of Earth Sciences	Member
Secretary, Ministry of Agriculture	Member
Secretary, Central Ground Water Board, Ministry of Water Resources, Rural Development and Ganga Rejuvenation	Member
Chairman, Central Pollution Control Board	Member
Representation from Department of Science & Technology	Member

Roles and Responsibilities of the National Level Advisory/ Steering Committee

- ☐ Nodal body to take decision regarding the policy making and implementation of the National Action Plan for Climate Change and Human Health (NAPCCHH) in the country.
- ☐ Nodal body to roll out the NAPCCHH in the country.

B) National Level- Centre for Environmental & Occupational Health Climate Change & Health (CEOHCCH) at National Centre for Diseases Control.

This centre is nodal agency for Climate Change & Human Health and will provide technical inputs and support to Environmental Health Cell at state and UTs regarding the capacity building, implementation, monitoring, supervision & evaluation of the NAPCCH program. Director, NCDC is the Nodal Person and Member-Secretary of Climate Change and human Health. The proposed manpower structure at this centre is as follows:

Additional Director & Head (Public Health)	1
Joint Director(Public Health)	3
Deputy Director(Public Health)	3
Assistant Director(Public Health)	6
Senior Consultant-Capacity building/Training	2
Senior Consultant-Environmental Health Specialist	2
Senior Consultant –Monitoring &Evaluation	1
Senior Consultant- Public Health Informatics Specialist	1
Consultant- Finance& Admin	1
Consultant-Communication/Advocacy	1
Technical Officer –Data Management	3
Secretarial Assistants cum Data Entry Operators	3

Roles and Responsibilities of the CEOHCCH Division, NCDC are:

- ☐ Technical inputs to be provided to all states and UTs for activities related to climate change and human health.
- ☐ Plan, Coordinate, Monitor and evaluate NAPCCHH related activities at National, State and below level
- ☐ Support states and UTs for development of health adaptation plan and operational guidelines for Climate Sensitive Diseases’.
- ☐ Review meetings, field observations regarding implementation of NAPCCHH.
- ☐ Strengthening of Surveillance of Climate Sensitive Diseases
- ☐ Strengthening of health care system by involving premiere institutes and organization for disease management

- Development of prototype of IEC and advocacy material, training modules for healthcare personnel, revision of students' curriculum.
- Guiding state health department for providing list of required manpower, logistics, drugs and equipments for managing climate sensitive illnesses.
- Conduction of operational research and evaluation studies for the NAPCCHH

For coordination with other stakeholders, government departments at National and states/ UTs level in the country, the Environmental Health Cell at the Directorate General Health Services will support CEOHCCH division at NCDC. It will help assess the achievement of targets planned under the NAPCCHH programme.

State Level:

A) State Level - Governing Body

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

<i>Honorable State Health Minister</i>	<i>Chairman</i>
Principal Secretary (Health)	<i>Vice Chairman</i>
Director Health Services/Head of Health System	Member Secretary
Mission Director-National Health Mission	Member
Director Medical Education	Member
Regional Director -Health &Family Welfare	Member

B) State Level Task Force

This task force shall be working under the guidance of Principal Secretary (Health) of the state. It shall be directly overseeing the implementation of the State Action Plan for Climate Change and Human Health (SAPCCHH) in their state/UT. It shall be working through Directorate of Health Services (DHS) of the state, which will be the implementing agency for SAPCCHH.

DHS will create an **Environmental Health Cell** within State Health Department, and will identify a **Nodal Officer** from Health department which preferably should be Public Health Expert of the rank of Joint/ Deputy Director. The State level task force shall have inter-ministerial members which are suggested as:

- *Public Health Expert* from State Health Department **Nodal Officer**
- Director, ICMR Institute/Centre (If any branch in the State/UT)Member

• Director, Meteorological department of State/UT	Member
• Chairman, State Pollution Control Board	Member
• Chairman, State Disaster Management Authority	Member
• State Surveillance Officers	Member
• Environmental Engineer/ Scientist from MOEFCC	Member
• Secretary, State Agriculture Ministry	Member
• Secretary, State Ground Water Board	Member

The Task force of the State/ UT's Environmental Health Cell will coordinate with the Centre for execution of state/ UTs SAPCCHH. The proposed State Level Structure of Environmental Health Cell is as follows:

Structure at State/ UT Environment Health Cell:

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

Roles and Responsibilities of the State/ UT Environmental Health Cell

- ☐ Preparation and Implementation of State Action Plan for Climate Change and Human Health
- ☐ Conduct Vulnerability assessment and risk mapping for commonly occurring climate sensitive illnesses in the state/UT.
- ☐ Assessment of needs for health care professionals (like training, capacity building) and organize training, workshop and meetings.
- ☐ Maintain State and District level data on physical, financial, epidemiological profile for climate sensitive illnesses.
- ☐ Ensure Convergence with NHM activities and other related programs in the State /District
- ☐ Monitor programme, Review meetings, Field observations.
- ☐ Timely issue of warning/ alerts to health professionals and related stakeholders as well as general public through campaign or using mass media (Electronic or printed),

- ☐ Social mobilization against preventive measures through involvement of women's self-help groups, community leaders, NGOs etc.
- ☐ Advocacy and public awareness through media (Street Plays, folk methods, wall paintings, hoardings etc.)
- ☐ Conduction of operational research and evaluation studies for the Climate change and its impact on human health.

District Level:

At District level, a District Environmental Health Cell shall be constituted; which shall be comprised of the following:

The proposed District Level Structure is as under:

- | | |
|---|------------------|
| • District Magistrate/District Commissioner | Chairman |
| • Chief Medical Officer/CDHO | Member Secretary |
| • Deputy CMO(Admin) | Member |
| • Senior Deputy CMO | Member |
| • DMO/DVBDOPO | Member |
| • District Health Education Information Officer | Member |
| • District Coordinator | Member |

Structure at District Environment Health Cell:

District Coordinator	1
Data entry operator	1

Roles and Responsibilities of the District Environmental Health Cell

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

Community Health Centre Level

The proposed CHC Level Structure is as under:

- Medical Superintendent(CHC Hospital) :Chairman
- Health Education Officer :Member Secretary
- Block Development Officer :Member
- Health Supervisor :Member

Health Facility Level:

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

X. NAPCCHH: CAPACITY BUILDING AND SYSTEM AWARENESS

Capacity building will be based on the baseline and follow-up situation which should be assessed periodically. Communication and training are crucial in adaptation to variability or changes in the climate. Communication programmes based on a thorough needs assessment must aim to enable and empower people, in particular, the illiterate, poor and other vulnerable people such as women, children, the elderly, people suffering from debilitating medical problems and those living in coastal areas, highlands and urban slums. Such programmes should have adequate and appropriately designed communication tools that are locally suitable, popular and comprehensible.

- ☐ Effective communication and public awareness activities/advocacy: sensitize, orient and take support of leaders/ opinion makers / stakeholders/ celebrities/ civil societies.
- ☐ Communication intervention for target audience: Appropriate, efficient and cost-effective measures include clear and timely information covering who is involved; what happened; when it happened; where it happened; and why or how it happened or what may happen – how, why, where, among whom and how to face it.
- ☐ National and Regional level capacity building institutions needs to be identified for capacity building of health staff: include training and imparting technical skills for case management, risk assessment skills, entomology, epidemiology, climate models, disaster management, meteorology, monitoring and evaluation, and research.
- ☐ Conducive institutional and management arrangements to ensure involvement of private sector by forming public private partnerships.
- ☐ Hospital and all other health-care systems must be strengthened. Involve community in the process of strengthening and in managing and maintaining the system.
- ☐ Inventory management: standardized list of adequate and appropriate logistics medicines, kits, equipment and machines along with efficient storage systems.
- ☐ Specific strategies and standard operating procedures for managing climate sensitive diseases need to be developed in light of the future impacts of climate change with prevention in mind.
- ☐ Communication interventions in schools are effective approaches for which teachers would need materials and training to educate the children.

XI. NAPCCHH: REPORTING, MONITORING AND EVALUATION

The Monitoring & Evaluation of the implementation of NAPCCHH has been stipulated with a mix of internal and external approaches. MoHFW, State DoHFW, District Health Officers and the individual health facilities will be involved in regular internal monitoring. External Monitoring will be done by an independent agency.

- a) **Internal:** Monthly / quarterly progress monitoring for climate sensitive illnesses has to be done at all levels, i.e. District to State to MoHFW. These Monthly / Quarterly Progress Reports should include a collation / aggregation of the data / information compiled in each health care facility. The District Cell will have the responsibility of collation / aggregations of the data / information compiled in each health care facility and submit to the State Cell which will validate and forward the data to the National Cell. A set of indicators for NAPCCHH implementation should be merged with the overall HMIS that has been established under the NHM.
- b) **External:** Each state should commission an independent evaluation every 2 years. At the minimum, the audit should cover one well performing district and one slack performing district. The agency to conduct the NAPCCHH Implementation Audit should be chosen based on the background, experience in the State's health sector, environmental auditing and reputation of reliability. The recommendations of the audit should be developed into an action plan to strengthen the existing system.

XII. FRAMEWORK FOR STATE SPECIFIC ACTION PLAN FOR CLIMATE CHNAGE AND HUMAN HEALTH

India is a diverse country in terms of geography, climatic conditions, resources and health related infrastructure. Also, it is a highly populous country, undergoing rapid industrialization, unplanned urbanization, increasing malnutrition and having triple burden of diseases comprising of communicable, non-communicable, emerging and re-emerging diseases. All these factors have cumulative effect resulting in risk of ill- health of citizens of India.

States have developed Action Plan on Climate Change (available at MoEFCC's website), but, 'health related component' is missing in it. Hence all states and Union Territories are being encouraged to develop their State-specific Action Plan on Climate Change and Human Health (SAPCCH). The broad suggested framework for the same is as follows:

1. Background

(Following Data has to be compiled district wise)

Geo-physical & Climate variables: Type of area (Plain/ Mountain/ Desert/ Coastal), type of Climatic or extreme events (heat/ cold/ drought/ flood/ cyclone/other) usually occurring in the state/ UT with potential to affect health status of the population. Approximate green cover and recent change in green cover/ forest, if any.

Statistics of state/ UT: Population (Total, Population density), Vulnerable Population (Under five Children, Adolescents, Elderly, migrants and Occupation (Primarily for major population and others).

Health care Infrastructure: Enlist the number of Health care Infrastructure/ facilities like PHC, CHC, District hospital, Tertiary care hospitals- Government as well as Private in State/UTs (preferably District wise).

Enlist and identify roles and responsibilities of operational district level bodies relevant to climate change and their constitution, such as Distt. Disaster Management Authority, Disease Surveillance Programmes, Distt. Health Information System, district unit of Departments of Meteorology, Pollution Control Board, Water and Sanitation, Public Works Departments and civil societies etc.

2. Operational Framework at StateLevel

Governing Body

The state level governing body for policy level decision may be constituted under Chairmanship of Honorable State Health Minister or any other Senior Officer. The suggested body is as below:

- | | |
|--|------------------|
| • Honorable State Health Minister | Chairman |
| • Principal Secretary(Health) | Vice Chairman |
| • Director Health Services/Head of Health System | Member Secretary |
| • Director Medical Education | Member |
| • Mission Director-National Health Mission | Member |
| • Regional Director -Health &Family Welfare | Member |

(However, State may take its own decision).

Task Force: The task force under the guidance of Principal Secretary (Health) with Directorate of Health Services (DHS) of the state, and will ensure implementation of the State Action Plan for Climate Change and Human Health (SAPCCHH) in their state/UT.

Environmental Health Cell within State Health Department, DHS may identify a Nodal Officer from Health department, preferably should be Senior Public Health Expert. The State level task force shall have inter-ministerial members which are suggested as:

- | | |
|---|---------------|
| • Public Health Expert from State Health Department | Nodal Officer |
| • Director, ICMR or other Research Institute | Member |
| • Director, Meteorological department of State/UT | Member |
| • Chairman, State Pollution Control Board | Member |
| • Chairman, State Disaster Management Authority | Member |
| • Environmental Engineer/ Scientist from MOEFCC | Member |
| • Secretary, State Agriculture Ministry | Member |
| • Secretary, State Ground Water Board | Member |
| • State Surveillance Officers | Member |

The details of Nodal Officer and experts in Task Force like name, designation, contact details (Phone number, postal address and email) should be listed in the SAPCCHH.

3. Current status of Climate Sensitive Illnesses

- Identify, assess, and document potential risks of climate sensitive diseases (as applicable to the state)like
 - Extreme weather events affecting health
 - Vector Borne diseases
 - Water & Food Borne disease
 - Cardio-respiratory illnesses
 - Zoonotic diseases
 - Others like renal diseases, nutritional deficiency disease etc

- Document Morbidity, Mortality and related statistics of these Climate Sensitive diseases with reference to change in recent years.
- Risk Mapping to identify the 'Hot spots' for vulnerable population with respect to health infrastructure and other resources.

4. Adaptation strategy and action plan for each of the illnesses/ diseases sensitive to Climate variability (as listed in point 3above)

- List the stakeholders with defined roles and responsibilities (Govt. & non-Govt)
- Identify and list the resources available
- Identify actions for risk reduction that are agreed upon by stakeholders and the public
- Operational Coordination (Stakeholders' role and involvement): Building partnerships by involving citizens, organizations, and businesses.
- Make a detailed action plan with checklist for each identified climate sensitive illness:
 - Logistics required at health care facilities
 - Preparedness of health system and personnel
 - List activities for prevention of illnesses (IEC, pamphlets, advisories, training, workshop etc).
 - Operational communication channel
 - Mechanism to ensure data maintenance, surveillance, timely sharing with concerned departments and stakeholders.

5. List Actions undertaken and further proposed to reduce the burden of Climate sensitive illnesses at State/UT

- Activities conducted and planned for awareness generation on the health impacts of climate change
- Activities conducted and proposed to integrate climate-sensitive health concerns in respective health programmes or policy.
- Activities undertaken if any and further proposed to train health workforce on climate change.
- Actions undertaken if any and further proposed to ensure unaffected water supply, sanitation, waste management and electricity.
- Activities undertaken and further proposed related to greening of health sector i.e. health facilities use energy-efficient services and technologies.
- Activities undertaken and further proposed related to integration with State Disaster Management Authority for emergency risk reduction and early response.

- Activities undertaken and further proposed related to data collection and analysis, strengthening of surveillance related to climate variable and climate change sensitive illnesses.

6. Miscellaneous

- Diseases Specific Action plan/ Advisory/ IEC prepared if any, please enumerate and may kindly share with NCDC at email:ncdc.env@gmail.com.
- Other factors (if any) contributing to increase/ decrease of climate sensitive illnesses in your state
- How effective are current health and other sector policies and programmes to manage the climate sensitive illnesses in your state/UT.
- Success Stories if any, of the State/ UT health sector for adaptation or mitigation of climate sensitive illnesses.
- Research studies, reports, innovative actions etc related to climate change and human health if taken in the state must be shared with CEOHCCH division at NCDC for sharing it further with our states and UTs.

(Note: The indicators related to input process, output and outcome shall be added in the State Action Plan during subsequent meetings at time of firming up the State Action Plan for Climate Change and Human Health).

Regional Consultations

The *Centre for Environmental and Occupational Health Climate Change & Health*, National Centre for Disease Control, Delhi, conducted four regional consultations in 2017-18 involving all the states and Union Territories' of the country. Officials from Health department and related stakeholders were invited in these consultations.

Regional consultations aimed at sensitizing states and Union Territories on reassessment of diseases' morbidity and mortality with respect to climate variability and extremes have been conducted. Prior to these regional consultations, the states and UTs were requested for:

1. Identification of *Nodal Person for Climate Change* from *State Health Department*.
2. Constitution of "*State Environment Health Cell*" at State Health Ministry level.
3. Notification of a Task Force with experts from other departments/ organization or other stakeholders identified by state.

These regional consultations had participations from ministries and department of states and UTs including Senior Regional Directors, Regional Directors from Regional Office of Health & Family Welfare, State Nodal Officers, State Surveillance Officers, National Vector Borne Diseases Control Programme, Officers from Integrated Diseases Surveillance Programme, representatives from identified Centre of Excellence, representatives from Regional Centre of Meteorological Departments, Ministry of Environment Forest and Climate Change and Central Ground Water Board. The states and UTs' representatives were aware of the urgency and serious concern for the agenda of the consultation.

State health teams were expected to list and prioritize climate sensitive illnesses in their state and UTs, compilation of data on morbidity and mortality, statistics related to vulnerable population, geographical factors, health care infrastructure/ facilities, or any mitigation and adaptation measures adopted by state against impact of climate change on human health. The salient points of recommendations of regional consultations are as follows:

- Representative from Regional Centre, Indian Meteorological Department suggested to use the term '*Climate Variability*' to study the health consequence as Climate Change is more vast and generic term.
- The geographical distribution, mapping and epidemiology of the diseases like vector borne, water borne etc should be done at the earliest in each state/UT.
- "*Personal Cooling Garment*" or equivalent devices developed by other agencies may be advocated for use if it is (these are) found appropriate.
- Existing surveillance system like IDSP should be used for disease related data capture, through expanding of reporting units and regularly conducting review meetings may be weekly.
- As population is indirectly related and resulting to climate change, population policy may be revised.
- Vector survival and breeding are known to be affected by the climate variability hence programme on vector borne diseases control should be revised to check diseases occurrence in new areas.
- For dealing with the extreme heat events, reconsider the following for issue of health related advisories:
 - OPD timings in healthcare settings
 - Drugs and vaccine storage
 - Norms for Working hours at workplace
 - School timings etc

- Detailed plan for each climate sensitive illnesses should be laid down by each state/ UT considering planning for present illnesses and also with scope to include new/ emerging or re-emerging climate sensitive illnesses.
- The state while drafting their state health action plan for climate change should also refer the Joint Monitoring Meeting report of IDSP.
- Rapid Response Teams may be trained at state level using infrastructure of CSU, IDSP and medical colleges.
- Participants proposed rules and regulations formulation should be in place for the factors which are directly or indirectly affecting weather and climate and hence the human health.
- Actionable points/ good initiatives/ practices should be shared so as the same can be adopted by other states/UTs.
- Chairman proposed a 'Climate Change Health Forum' to include all experts as informal members. This forum will help in sharing of experience, meeting outputs and further it will bring all together to contribute in terms of feedback, suggestions,

XIII. NAPCCHH: BUDGET

The proposed activities under NAPCCHH focus primarily on awareness generation, sensitization for effect of climate on occurrence of CSD, making of health system climate resilient, capacity building of states and UTs for preparing their specific action plan for climate change, promotion of partnership with multiple stakeholders and strengthening of monitoring, surveillance of CSDs in a geographic area and encouraging research for identifying linkages between weather parameters and diseases in a geographic area and supporting evidence based building capacity of health personnel.

To undertake proposed activities, it requires establishment of an 'Environment Health cell', hiring of experts and other human resources on the subject, arrangement of logistics/ equipments, carrying out capacity building activities like training and meetings, development of IEC material and advisories (*Dissemination cost of IEC material cost is not included in the first year of proposed budget*), development of Health Adaptation Plan and prediction model for developing early warning system for climate sensitive diseases.

The tentative budget proposal of NAPCCHH has been proposed under the NHM through EPC. The proposed sub-heads are as a) Human Resource (Contractual), b) Logistics/ Equipments, c) Trainings/ Meetings/ Workshops, d) Centre of Excellence (initially six in first year), e) Development of pilot models like Integration, Green hospitals etc, f) Development of prototype of IEC/ Advisory for impact of Climate Change on Human health (do not include dissemination cost) and g) Air pollution and Human health (do not include dissemination cost).

The budget for the NPCCHH programme for the FY 2021-22 of Rs.7.5 Crore is approved under the NCDC budget but it is yet to released. (Annexure C1).

The budget for States and UTs for the programme under the NHM for 2021-26:

The states every year proposed their budget through PIP after necessary deliberation during Pre NPCC, NPCC, Post NPCC meetings. In the F.Y.2020-21 about 29 Crore were sanctioned through PIP for state level activity. Due to COVID-19 not too much should be received in the F.Y. The PIP process for F.Y.2021-22 is in process. The proposed budget for next five years (2021-26) for the National Programme on Climate Change and Human Health (NPCCHH) has been submitted under the NHM and it has a total amount of **Rs 1,98,65,43,000/- (One Ninety eight Crore Sixty Five Lakhs Forty Three Thousands Rupees)** The tentative budget is attached at the Annexure-C.2

SFC Draft Proposal
**(The National Programme on Climate Change and Human Health
for activities at the central level)**

The draft SFC proposal is presently put up for considerations and it is detailed below with a proposal of a total amount of the budget is approximately about Rs.97.246 Crore (INR) (Ninety seven Crore twenty four lakh and sixty thousand rupee only) and it is attached at Annexure C.3

Part A

1. Name of the Umbrella scheme under which scheme is to be continued: **Not Applicable (Standalone Scheme)**
2. Total outlay of the umbrella scheme: **Not Applicable**
3. In case of centrally sponsored umbrella scheme, specify central component: **Not part of centrally sponsored umbrella scheme yet.**

Part B

1. Name of the scheme:

National Programme on Climate Change and Human Health

2.Objective of the scheme: The vision of NPCCHH is: To strengthen health of citizens of India against climate sensitive illness, especially among the vulnerable like children, women and marginalized population. With a goal to reduce morbidity, mortality, injuries and health vulnerability to climate variability and extreme weathers. The NAPCCHH objectives with some initially identified key actions are:

- i. To create awareness among general population (vulnerable community), health-care providers and Policy makers regarding impacts of climate change on human health.
- ii. To strengthen capacity of healthcare system to reduce illnesses/ diseases due to variability in climate
- iii. To strengthen health preparedness and response by performing situational analysis at national/ state/ district/ below district levels.
- iv. To develop partnerships and create synchrony/ synergy with other missions and ensure that health is adequately represented in the climate change agenda in the country
- v. To strengthen research capacity to fill the evidence gap on climate change impact on human health

3. Background of the scheme:

Climate sensitive illnesses are on an increase due to climate change and extreme weather events. India is signatory to “Male’ Declaration” wherein health sector has to be strengthened so as to make it climate resilient. According to Male’ Declaration, it is desired that health-care facilities should be prepared & climate-resilient, particularly in promoting to encourage that these are able to withstand any climatic event, and that essential services such as water, sanitation, waste management and electricity are functional during such events. Further, for climate resilient, the health department has to undertake measures to initiate the greening of the health sector by adopting environment-friendly technologies, and using energy-efficient services

At the 21st Conference of Parties (COP 21) under the United Nations Framework Convention on Climate Change (UNFCCC) concluded in Paris, Hon’ble Prime Minister Mr Narendra Modi broadened India’s response to climate change, by introducing four new missions including one for “Health” in 2014. The proposed ‘Mission on Health’ will address the health-related aspects of climate change and the Ministry of Health and Family Welfare (MoHFW) is the nodal ministry. Thus, The National Programme on Climate Change and Human Health (NPCCHH) was approved by National Health Mission Empowered Programme Committee (EPC) in Nov 2018 and NHM Mission Steering Group (MSG) in Feb 2019 to support the States in implementation of NPCCHH at States. However NHM will not support central component of NPCCHH. Hence this proposal seeks funds to support central component of NPCCHH.

4. Whether Central Sector (CS) scheme/Centrally sponsored scheme:

Central component of NPCCHH is proposed to be implemented as Central Sector Scheme (CS) while state/district level components are included under NHM-PIP and is proposed to be continue in same manner.

5. Total Proposed outlay (component-wise and year-wise)

New proposal: Attached at Annexure C.3.A

6. Actual Expenditure of the ongoing scheme in last 3 years

State level expenditure of FY 2020-21 is at Annexure C.3.B

7. Approved output/outcome of ongoing scheme year wise and achievements (in tabular form)

Achievements of programme in FY 2020-21 is at Annexure C.3.C

8. Existing and proposed funding pattern (in a tabular form) along with rationale

New proposal: Attached at Annexure C.3.A

9. Major findings of evaluation/outcome review and comments of the Ministry/Department on each observation of the scheme (Attach evaluation report)

No evaluation done

10. Major changes/departure proposed from earlier scheme along with justification

New proposal

11. Major changes in costing norms, if any

New proposal

12. Convergence architecture with other central government schemes

NA

13. Rationale for continuation

New proposal

14. Proposed output/outcomes year-wise (per year)

- NPCCHH/NCDC activities
 - National Action Plan on Climate Change and Human Health (updating/revision)
 - Development of guidelines and SOPs on various climate sensitive health issues with 10 expert group meetings per year
 - Review of all CoEs activities, 3 times/year
 - National Review meeting of all State, 2 times a year
 - Capacity building of State Nodal Officer and Consultant Climate Change, 5 day training, twice a year
 - One day workshop, 5 workshop a year
 - Development of IEC prototype (print, audio visual, Gif, social media)
- CoE activities
 - Development of Health Action Plan on Climate sensitive subject allocated to CoE
 - Develop guidelines and SoPs on subject area
 - To support States for development of chapter in their State Action Plan on Climate Change and Human Health(SAPCCHH) related to climate change subject looked after by CoE
 - Development of training modules

- Develop surveillance or integrate in existing surveillance of climate sensitive conditions looked after by CoEs.
- Develop Monitoring and evaluation system for climate change subject looked after by existing CoE
- Documentation of Reports, best practices
- Training of trainers
- IEC development on subject specific climate sensitive health issues

15. Sunset date

Ongoing Programme

16. Details of posts created for the Scheme (Regular/Contractual separately) and the number of persons engaged against them with annual financial implications

Two Senior Consultant: Rs 3600000

Two Technical Officers: 1800000

Total: 54,00,000

17. Any additional posts proposed to be created with annual financial implication

At NPCCHH/NCDC

One senior programme Manager : Rs 2100000

Two Senior Consultant: Rs 3600000

One Consultant Communication: Rs 1200000

One Administrative Manager: 900000

One Financial Consultant: 900000

One secretariat Assistant: 960000

Graphic Designer: 900000

Total: 1,05,60,000

For CoEs

One consultant, one Scientist and two Technical Officer-Data management

Total: Rs 3540000

18. Comments of other stakeholders including Ministries/Departments/NITI Aayog and response thereon (in a tabular form)

Nil

Table: Status of the NPCCHH programme Budget for the States/UTs under the NHM FY 2020-21

Sl.No	State/UTs	NCD Flexi pool budget allocation under NHM FY 2020-21	Approved ROP for respective States/UTs for NPCCHH programme under NHM FY 2020-21	States expenditure FY 2020-21 (reported till 5 th Feb. 2021)
1	Andaman & Nicobar Island	0.64	0	0
2	Andhra Pradesh	24.62	4.223	0
3	Arunachal Pradesh	7.12	0.520	0
4	Assam	40.50	0.318	0.02
5	Bihar	51.32	0.403	0
6	Chandigarh	0.59	0.030	0
7	Chhattisgarh	21.12	12.625	0
8	DD, DD&NH	0.98	0.04	0
9	Delhi	5.75	0	0
10	Goa	0.65	0.023	0
11	Gujarat	30.01	0.373	0
12	Haryana	10.74	0.575	0.07
13	Himachal Pradesh	9.22	0	0
14	Jammu & Kashmir	17.30	0.155	0
15	Jharkhand	21.50	0.644	0
16	Karnataka	30.06	0.102	0.0011
17	Kerala	13.09	0.375	0.14
18	Lakshadweep	0.11	0.005	0
19	Madhya Pradesh	50.36	0.845	0.23
20	Maharashtra	53.11	0.593	0.003
21	Manipur	4.56	0.0	0
22	Meghalaya	4.84	0.0	0
23	Mizoram	2.60	0.087	0
24	Nagaland	3.33	0	0
25	Odisha	27.80	0.257	0
26	Puducherry	0.99	0.14	0
27	Punjab	11.80	0.367	0
28	Rajasthan	50.78	0.34	0
29	Sikkim	1.16	0.675	0
30	Tamil Nadu	30.31	0	0
31	Tripura	4.85	0.055	0
32	Uttar Pradesh	102.15	1.95	0
33	Uttarakhand	12.66	0.483	0
34	West Bengal	35.21	0.639	0
35	Telangana	17.60	2.74	0
36	Ladakh	3.45	0.0025	0
	Total	702.89	28.981	0.46

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S. No	Objective	Activities done in FY 2020-21
1.	To create awareness among general population (vulnerable community), health care providers and Policy makers regarding impacts of climate change on human health,	<ol style="list-style-type: none"> 1. Issued seasonal advisory to all States on Acute Respiratory Illnesses (ARI) in context of air pollution and 2. Issued seasonal advisory to 23 heat vulnerable States on Heat Related Illnesses (HRI). 3. Observed World Environment Day every year (also in 2020) and had observed first International Day of clean air for blue sky in year 2020. 3. Developed IEC on ARI and HRI and shared with all States. 4. Running social media campaign on MoHFW and NCDC twitter. 5. Access to Air Quality Index of all cities on NCDC website 6. Daily heat wave alerts sent to state health departments for predicted heat waves for next 5 days (March-July)
2.	To strengthen capacity of healthcare system to reduce illnesses/ diseases due to variability in climate	<ol style="list-style-type: none"> 1. Trained 230 hospital nodal officers of sentinel hospitals from 24 States and 4 UTs on 5th Oct 2020 on Acute Respiratory Illness (ARI) Sentinel Surveillance in relation to air pollution. 2. Conducted training of State and District Nodal Officer Climate Change (SNO-CC and DNOCC), Madhya Pradesh and the training of SNO-CC and DNO-CC of Kerala, Mizoram, Rajasthan and Haryana is undergoing on Climate change and health (20-28th Oct 2020) 3. Developed community level training modules for women and children. ToT done on 03 Sept 2020. Awareness campaign on air pollution and health done in villages by States and districts from 07-12 Sept 2020. 4. As per Male' Declaration 2017, NPCCHH is undertaking measures for developing Climate Resilient and Green Healthcare facilities. 5. The principles of "Climate Resilient" and "Green" in healthcare facilities approved for inclusion in IPHS standards under National Health Mission
3	To strengthen health preparedness and response by performing situational analysis at National/ state/ district/ below district levels	<ol style="list-style-type: none"> 1. Acute Respiratory Illnesses (ARI) surveillance in context of air pollution in 6 Central Hospitals in Delhi 2. Acute Respiratory Illnesses (ARI) surveillance in context of air pollution in 317 Hospital of 23 States initiated 3. Heat related illnesses (HRI) surveillance in 23 heat vulnerable States 4. Vulnerability Need Assessment (VNA) started in 3 states (Madhya Pradesh, Puducherry and Haryana) 5. Online Nation Review Meeting of all State Nodal Officers Climate Change: 21st Jan to 09th Feb 2021
4.	To develop partnerships and create synchrony/ synergy with other missions and ensure that health is adequately represented in the climate change agenda in the country	<ol style="list-style-type: none"> 1. Focusing on Climate and Health specific inputs through collaboration with other National Programmes i.e., Non-Communicable Diseases and Vector Borne Disease 2. High level Inter-Ministerial committee chaired by Secretary (Health) and Secretary (Environment) for issues of Climate Change, Environment and Health: held on 4th Dec 2020 3.
5	To strengthen research capacity to fill the evidence gap on climate change impact on human health	<ol style="list-style-type: none"> 1. Supporting ICMR and other institution in Air Pollution studies 2. Over 30 Institutions contributed to Compendium on Indian research on air pollution and health impacts, uploaded on website.

Progress of NPCCHH in States/UTs

- Notification of State Nodal Officers – Climate Change – 36 States
- Environment Health Cell – 24 States
- Notification of Task Force with representation from various department and relevant stakeholders - 24 States
- Governing Body – 17 States
- Provided template for drafting State- specific Action Plan for Climate Change & Human Health – First draft submitted by 25 States
- Held regional and national Consultations in last two years

All six councils i.e. Medical Council of India, Dental Council of India, Nursing Council of India, Central Council of Homeopathy, Central Council of Indian Medicine and National Board of Examination have accepted the proposal for inclusion in the teaching curricula. The content on the matter are under consideration in respective councils

The programme has identified sixteen Centre of Excellences (CoE) for various CSDs, for developing subject specific Health Adaptation Plan, guidelines and standard operating procedures in subject area, for developing training modules and organize training of trainers, to develop IECs, support states with State Action Plan on Climate Change and Human Health (SAPCCHH) document best practices and document impact of actions.

Following 18 institutes were identified as Centre of Excellence for 17 Climate Sensitive Health Issues :

S. No.	Centre of Excellence	Health Issue
1	A. National Institute of Medical Research, Delhi (NIMR) B. Centre for Medical Entomology and Vector Management , NCDC	Vector Borne Diseases
2	National Institute of Cholera and Enteric Diseases, Kolkata (NICED)	Water Borne Diseases
3	Post-graduate Institute of Medical Education & Research, Chandigarh (PGIMER)	Air Pollution related Illness
4	Vallabhbhai Patel Chest Institute, New Delhi (VPCI)	Allergic Diseases
5	All India Institute of Medical Sciences, New Delhi (AIIMS)	Cardio-pulmonary Diseases
6	National Institute of Nutrition (NIN)	Nutrition related diseases
7	National Institute of Occupational Health, Ahmedabad (NIOH)	Occupational Health
8	National Institute of Mental Health & Neurosciences, Bangalore (NIMHANS)	Mental Health
9	National Institute of Disaster Management. New Delhi (NIDM)	Climate Change and Disaster related diseases

10	Indian Institute of Public Health, Gandhinagar (IIPH)	Heat related Illness
11	Public Health Foundation of India, Gurugram (PHFI)	Green and Climate resilient Infrastructures
12	Nutrition Foundation of India, Delhi (NFI)	Foodborne Illnesses
13	International Institute of Health Management Research, Delhi (IIHMR)	Vulnerability Assessment
14	The Energy and Resources Institute, Delhi (TERI)	Health Information System
15	Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry (JIPMER)	Coastal Climate Sensitive Diseases
16	North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences, Shillong (NEIGRIHMS)	Hilly region Climate Sensitive Diseases
17	Division of Zoonotic Disease Programmes, NCDC	Zoonotic Disease and One Health

XIV. REFERENCES

1. IPCC. Summary for policymakers. In: Stocker TF, Qin D, Plattner, GK, Tignor M, Allen SK, Boschung J, et al., editors. Climate Change 2013: the physical science basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, UK and New York, USA: Cambridge University Press; 2013 (https://www.ipcc.ch/report/ar5/wg1/citation/WGIAR5_Citations_FinalRev1.pdf).
2. IPCC. Summary for Policymakers. In: Edenhofer O, R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B., Kriemann JS, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx editors. Climate Change 2014, Mitigation of Climate Change Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, United Kingdom and New York, NY, USA.: Cambridge Univ Press;2014.
3. IPCC. Glossary. In: Field CB, Barros VR, Dokken DJ, Mach KJ, Mastrandrea MD, Bilir TE, et al., editors. Climate change 2014: impacts, adaptation, and vulnerability. Part A: Global and Sectoral Aspects Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, UK and New York, USA: Cambridge University Press;2014.
4. Metz, B., O.R. Davidson, P.R. Bosch, R. Dave, and L.A. Meyer (eds.) 2007. Climate Change 2007: Mitigation of Climate Change. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, UK; and New York: Cambridge Univ Press.
5. Chapter 11, Human Health: Impacts, Adaptation, and Co-Benefits http://ipcc-wg2.gov/AR5/images/uploads/WGIAR5-Chap11_FINAL.pdf & https://www.ipcc.ch/pdf/assessment-report/ar5/wg2/drafts/fd/WGIAR5-Chap11_FGDall.pdf
6. http://www.ipcc.ch/pdf/special-reports/srex/SREX_Full_Report.pdf
7. Human Health; <https://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter8.pdf> &
8. http://unfccc.int/essential_background/convention/items/6036.php.
9. http://unfccc.int/meetings/cancun_nov_2010/items/6005.php
10. http://unfccc.int/key_steps/durban_outcomes/items/6825.php
11. http://unfccc.int/paris_agreement/items/9485.php
12. <http://www.moef.gov.in/sites/default/files/introduction-nep2006e.pdf>
13. <http://www.who.int/mediacentre/news/releases/2016/deaths-attributable-to-unhealthy-environments/en/>
14. <http://www.cdc.gov/climateandhealth/effects/>
15. http://www.who.int/globalchange/publications/WMO_WHO_Heat_Health_Guidance_2015.pdf?ua=1
16. Rooney, C., A.J. McMichael, R.S. Kovats and M.P. Coleman, 1998: Excess mortality in England and Wales, and in Greater London, during the 1995 heat wave. J. Epidemiol. Comm Health, 52(8):482–486.
17. Monika Nitschke, Graeme R Tucker, Alana L Hansen, Susan Williams, Ying Zhang and Peng Bi; Impact of two recent extreme heat episodes on morbidity and mortality in Adelaide, South Australia: a case-series analysis; <http://www.biomedcentral.com/content/pdf/1476-069X-10-42.pdf%5D>.
18. De, U.S. and Mukhopadhyay, R.K. (1998). Severe heat wave over Indian subcontinent in 1998 in a perspective of global Climate. Current Science, 75, 12:1308-1311.
19. Mohanty, P. and Panda, U. (2003). Heat wave in Orissa: A study based on heat indices and synoptic features. Regional Research Laboratory, Institute of Mathematics and Applications, Bhubaneswar, 15.
20. Joon V, Jaiswal V: Impact of climate change on human health in india: an overview; Health and Population - Perspectives and Issues 35(1), 11-22, 2012
21. Vikas K Desai, Urvi Patel, Suresh K Rathi, Shailesh Wagle, Hemant S Desai: Temperature and Humidity Variability for Surat (coastal) city, India; International Journal of Environmental Sciences Volume 5, No 5, 2015.
22. J. Schnitzler, J. Benzler, D. Altmann, I. Mucke, G. Krause; Survey on the population's needs and the public health response during floods in Germany 2002; J Public Health Manag Pract, 13 (2007), pp. 461–464.
23. T. Jakubicka, F. Vos, R. Phalkey, M. Marx; Health impacts of floods in Europe: Data gaps and information needs from a spatial perspective MICRODIS report, Centre for Research on the Epidemiology of Disasters — CRED, Brussels, Belgium (2010) http://www.cred.be/download/download.php?file=sites/default/files/Health_impacts_of_floods_in_Europe.pdf
24. Paranjothy, J. Gallacher, R. Amlot, G. J. Rubin, L. Page, T. Baxter, J. Wight, D. Kirrage, R. McNaught, S. R. Palmer; Psychosocial impact of the summer 2007 floods in England; BMC Public Health, 11 (2011), p.145.

25. Health Protection Agency: Annual report and Accounts 2012/13; https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/246760/0174.pdf
26. Pope, C.A. III, and D.W. Dockery. 2006. Health Effects of Fine Particulate Air Pollution: Lines That Connect. *Journal of the Air & Waste Management Association* 56(6):709–42.
27. World Health Organization. 2006. Air Quality Guidelines: Global Update 2005-Particulate Matter, Ozone, Nitrogen Dioxide and Sulfur Dioxide. Copenhagen, Denmark: World Health Organization.
28. Rajarathnam U, Sehgal M, Nair S, Patnayak RC, Chhabra SK, Kilnani, et al. 2011. Part 2. Time-series study on air pollution and mortality in Delhi. *Res Rep Health Eff Inst* 157:47–74.
29. NSS; 68th round; http://mospi.nic.in/mospi_new/upload/nss_report_567.pdf
30. Norval M, Lucas RM, Cullen AP, et al. The human health effects of ozone depletion and interactions with climate change. *Photochem Photobiol Sci* 2011;10(2):199-225.
31. Armstrong BK. Stratospheric ozone and health. *Int J Epidemiol* 1994;23(5):873-885.
32. Armstrong BK, Kricke A. The epidemiology of UV induced skin cancer. *Photochem Photobiol B* 2001;63:8-18.
33. Stern RS, Weinstein MC, Baker SG. Risk reduction for non-melanoma skin cancer with childhood sunscreen use. *Arch Dermatol* 1986;122:537-545.
34. World Health Organization. Sun Protection and Schools: How to Make a Difference. Geneva: WHO, 2003.
35. Hammond V, Reeder AI, Gray A. Patterns of real-time occupational ultraviolet radiation exposure among a sample of outdoor workers in New Zealand. *Public Health* 2009;123:182-187.
36. Gies HP, Roy C, Toomey S, MacLennan R, Watson M. Solar UVR exposures of three groups of outdoor workers on the Sunshine Coast, Queensland. *Photochem Photobiol* 1995;62:1015-1021.
37. World Health Organisation; Ambient (outdoor) air quality and health; <http://www.who.int/mediacentre/factsheets/fs313/en/>
38. Health & Environmental Effects of Air Pollution; <http://www.mass.gov/eea/docs/dep/air/aq/health-and-env-effects-air-pollutions.pdf>
39. World Health Organisation; Household air pollution and health; <http://www.who.int/mediacentre/factsheets/fs292/en/>
40. Singh PK, Dhiman RC: Climate change and human health: Indian context. <http://www.ncbi.nlm.nih.gov/pubmed/22898475>
41. Bhattacharya P, Sarkar S; Cerebral malaria caused by Plasmodium vivax in adult subjects; <http://www.ijccm.org/article.asp?issn=0972-5229;year=2008;volume=12;issue=4;spage=204;epage=205;aulast=Sarkar>.
42. Akhtar R, Seth RK, Sharma C, Chaudhary A et al: Assessing the relationship between climatic factors and diarrhoeal and vector-borne disease – a retrospective study Generic Research Protocol: A World health Organisation- SEARO report
43. Dhiman RC, Pahwa S, Dhillon GPS, Dash A: Climate change and threat of vector-borne diseases in India: Are we prepared? https://www.researchgate.net/publication/41429754_Climate_change_and_threat_of_vector-borne_diseases_in_India_Are_we_prepared.
44. Panic M, Ford JD: A Review of National-Level Adaptation Planning with Regards to the Risks Posed by Climate Change on Infectious Diseases in 14 OECD Nations. *Int J Environ Res Public Health*. 2013 Dec; 10(12): 7083–7109. Published online 2013 Dec 12. doi: 10.3390/ijerph10127083 PMID: PMC3881155.
45. Morgan O, Ahern M, Cairncross S. Revisiting the Tsunami: Health consequences of flooding. *PLoS Med*. 2005;2:491–3.
46. Mandal S; Cholera Epidemic in and Around Kolkata, India: Endemicity and Management *Oman Med J*. 2011 Jul; 26(4): 288–289. PMID: PMC3191718 doi:10.5001/omj.2011.71. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3191718/>
47. Rudolph L; Towards sustainable groundwater management in the agricultural landscape, University of Waterloo; Published April 2015; <http://www.cwn-rce.ca/assets/End-User-Reports/Agri-Food/Rudolph/CWN-EN-Rudolph-2015-5Pager-Web.pdf>
48. NFHS-3 2005-06; http://rchiips.org/nfhs/nutrition_report_for_website_18sep09.pdf
49. Kumar H, Venkaiah S, Kumar S, Vijayraghavan K; Diet and Nutritional Situation of the Population in the Severely Drought Affected Areas of Gujarat; https://www.researchgate.net/publication/237522677_Diet_and_Nutritional_Situation_of_the_Population_in_the_Severely_Drought_Affected_Areas_of_Gujarat

LIST OF ABBREVIATIONS

WHO	World Health Organization
IPCC	Intergovernmental Panel on Climate Change
IPCC SREX	Intergovernmental Panel on Climate Change -Special Report on Extreme Events
UV	Ultraviolet
GOI	Government of India
NGO	Non-Governmental Organization
NIMR	National Institute of Malaria Research
IITM	Indian Institute of Tropical Meteorology
IMD	India Meteorological Department
DGHS	Director General of Health Services
ICMR	Indian Council of Medical Research
MOHFW	Ministry of Health & Family Welfare
MOEF&CC	Ministry of Environment, Forest and Climate Change
NCDC	National Centre for Diseases Control
NDMA	National Disaster Management Authority
MHRD	Ministry of Human Resource Development
NEERI	National Environmental Engineering Research Institute
TERI	The Energy and Resources Institute
PHFI	Public Health Foundation of India
UNICEF	United Nations International Children's Emergency Fund
IEC (ICT)	Information Education Communication (Information and communications technology)
EWS	Early Warning System
PHC,	Primary Health Care
CHC	Community Health Centres
V&A	Vulnerability and Adaptation Assessments for Climate Change assessments
FSSAI	Food Safety and Standards Authority of India
MHA	Ministry of Home Affairs
DHR	Department of Health Research
DST	Department of Science & Technology
DOS	Department of Space
GIS	Geospatial Information System
ENSO	El Niño-Southern Oscillation

PRECIS	Providing Regional Climates for Intervention Studies
HADCM3	Hadley Centre Coupled Model, version 3
Ministry of I&B	Ministry of Information & Broadcasting
MCI	Medical Council of India
Dy.DG	Deputy Director General
DoHF&W	Department of Health & Family Welfare
NAPCCH	National Action Plan on Climate Change & Health
RKS	Rogi Kalyan Samiti
NHM	National Health Mission
PIP	Programme Implementation Plan

Constitution of NEGCCCH: Office Order



T-25013 03/2013-NCD
Government of India
Ministry of Health and Family Welfare

Nirman Bhawan, New Delhi
Dated 2nd July, 2013

साधारण ड
ORDINARY PC

OFFICE ORDER

Subject: Constitution of National Expert Group on Climate Change and Health

Pursuant to the decision to establish a Health Mission on Climate Change, the Government hereby constitutes an Expert Group comprising representatives from different Ministries, Institutions, State Governments and Special Invitees as under:

Composition of the Expert Group

Sl.No	Name and Designation	
1	Dr Vishwa Mohan Katoch, Former Secretary (Health Research), Government of India & Former DG ICMR	Chairperson
2	Joint Secretary (PH), Ministry of Health & Family Welfare, GOI Joint Secretary (NCDs), Ministry of Health & Family Welfare, GOI Joint Secretary (VBDs), Ministry of Health & Family Welfare, GOI	
3	Director (NVBDCP), Dte.GHS, MOH&FW, GOI Dy. Director General (PH), Dte.GHS, MOH&FW, GOI Dy. Director General (NCD), Dte.GHS, MOH&FW, GOI	Members
4	Representative of National Disaster Management Authority*	
5	Representative of Ministry of Environment Forest & Climate Change*	
6	Representative of Ministry of Earth Sciences*	
7	Representative of Central Ground Water Board, Ministry of Water Resources, River Development & Ganga Rejuvenation*	
8	Representative of Ministry of Agriculture*	
9	Representative of ICMR, New Delhi*	
10	Chairman, Central Pollution Control Board, New Delhi or his representative*	
11	Director / Director General Health Services from the State Governments**	Member Secretary
14	Director, National Centre for Disease Control, Delhi	

*Joint Secretary level representative from Ministries / Departments / Institutions.

** Representative from the State Governments of Maharashtra, Uttarakhand and Odhisa at present.

Special Invitees:

Sl.No	Name and Designation
1	WHO India Country Representative, New Delhi
2	Dr K Srinath Reddy, President, Public Health Foundation of India, New Delhi
3	Director, Calcutta School of Tropical Medicine, Kolkata
4	Director, Centre for Environment and Occupational Health, MAMC, New Delhi
5	Director, National Environmental Engineering Research Institute (NEERI), Nagpur
6	Director, The Energy and Resources Institute (TERI)
7	Dr (Ms) H Achyuthan, Dept. of Geology, Anna University, Chennai
8	Dr R Nigam, Scientist F, Dy. Director, Geological Oceanography Division, National Inst. Of Oceanography, Goa

The MoH&FW, Govt. of India, may add members / experts to the said expert group as per requirement.

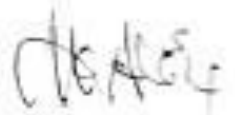
Terms of Reference

- (1) Prepare an Action Plan for climate change, environment and human health
- (2) Recommend strategies for mitigating adverse effects of climate change on human health
- (3) Review epidemiological data on environment health and climate change
- (4) Recommend strategies including indicators for monitoring and evaluation of health impact of climate change
- (5) Recommend coordination mechanism with various stakeholders
- (6) Recommend means of financial assistance to States and other Agencies working in the field of health and environment / climate change
- (7) Suggest ways for building capacity in different areas of health including human resources, infrastructure and research for addressing the issues emanating from climate change
- (8) Recommend National Environment Health Policy and Strategy
- (9) Any other matter as requested by MoH&FW, Govt. of India

Meetings and Report

The "Expert Group" will meet as required with the objective to submit an interim report by the end of 3 months and a final report by the end of 6 months from the date of this office order.

All financial expenditure towards organizing meetings of the "Expert Group", including TA/DA, etc. will be borne under the NCDC Budget as per Govt. of India norms. TA/DA of government officials will be borne by their respective organizations as per Govt. of India norms. TA/DA of non-official members (including Special Invitees) will be provided by NCDC as per eligibility and as per Govt. of India norms. The outstation non-official members shall be entitled to economy class to & fro airfare as per applicable rules.



(A.K. Arora)
Deputy Secretary to the Government of India.
Tele: 23061975

Distribution:

Chairperson and all Members / Special Invitees of the "Expert Group" on Climate Change and Health

Copy with request to nominate appropriate level officer as indicated in the OM for "Inter Ministerial Expert Group" to:-

1. Secretary, MOEF&CC / Secretary, Ministry of Earth Sciences / Chairman, NDMA
Secretary, Ministry of Water Resources, RD & GR / Secretary, Ministry of Agriculture / DG,
ICMR / Director, TERI / Health Secretaries of the State Govt. of Uttarakhand, Odhisa &
Maharashtra

Copy for information to:

1. Secretary (H&W)
2. DGHS
3. AS & MD, NHM, MOH&FW / AS (Health), MOH&FW / AS (SK), MoEF&CC
4. JS (PH)
5. Director (IFD)

2/4/15

2/2/2015
@ 4:45 PM

National Expert Group for Climate Change & Health (NEGCCH)

S.No. Name & Designation

1	Dr Vishwa Mohan Katoch , Former Secretary (Health Research), Government of India and Former DG,ICMR	Chairman
2.	Shri Anshu Prakash , Joint Secretary (PH & NCD), Ministry of Health and Family Welfare, Nirman Bhawan, New Delhi –110011	Member
3.	Shri Ravi S. Prasad , Joint Secretary, Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhawan,JorBagh, Aliganj, New Delhi –03.	Member
4.	Dr N. S. Dharmshaktu , Additional Director General, Directorate General of Health Services, Nirman Bhawan, New Delhi –110011	Member
5.	Dr A.C. Dhariwal , Director, National Vector Borne Disease Control Programme, Block Number -III, Ground Floor, Delhi IT Park Shastri Park, Delhi-110053	Member
6.	Dr Inder Parkash , DDG(PH), Dte General of Health Services, Nirman Bhawan, New Delhi–110011	Member
7	Dr Mohammed Shaukat , DDG(NCD), Directorate General of Health Services, Nirman Bhawan, New Delhi –11	Member
8	Dr A.K. Sinha , Senior Research Officer, National Disaster Management Authority, No. 1, Safdarjung Enclave, NDMA Bhawan, NewDelhi-110029	Member
9	Dr Ajay Raghav , Scientist F, Climate Change Division, Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhawan, Jor Bagh, Aliganj, New Delhi –03	Member
10.	Dr S. K. Peshin , Scientist F, India Meteorological Department, Prithvi Bhawan, Opposite India Habitat Centre, Lodhi Road, NewDelhi-110003	Member
11	Dr B. C. Joshi , Scientist D, Central Ground Water Board, Bhujal Bhawan, NH-IV, Faridabad – 121001	Member
12.	Dr Dushyent Gehlot , Soil Conservation Officer (Climate Change), Climate Change Cell (Room No. 22), Department of Agriculture and Cooperation, Ministry of Agriculture, Krishi Bhawan, NewDelhi	Member
13.	Dr D. K. Shukla , Scientist G, Indian Council of Medical Research (ICMR),ICMR HQ, NewDelhi	14. Dr R. M. Bhardwaj , Scientist

t E, In-charge, Pollution Assessment Monitoring Survey, Central Pollution
Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi –110096

Member

15. **Dr S. Venkatesh**, Director, National Centre for Diseases Control,22-Shamnath
Marg,Delhi-110054

Member

Member
Secretary

Special Invitees

S.No. Name & Designation

- 1 **Dr Sadhna Bhagwat**, National Professional Officer (NCD), WHO Country Office For India, First Floor, RK Khanna Stadium, Safdarjung Enclave, Africa Avenue, New Delhi-110029.
- 2 **Dr V. Rao Aiyagari**, Senior Advisor, Research and Scientific Operations, Public Health Foundation of India (PHFI), Plot No. 47, Sector 44, Gurgaon-122002.
- 3 **Prof Nandita Basu**, Director, School of Tropical Medicine, 108, C. R. Avenue, Kolkata-700073
- 4 **Dr T. K. Joshi**, Director, Centre for Occupational and Environment Health, Maulana Azad Medical College, New Delhi-110002.
- 5 **Dr Pravin Naoghare**, Scientist, Environmental Health Division, National Environment Engineering Research Institute (NEERI), CSIR Lab, Nehru Marg, Nagpur-440020.
- 6 **Dr Suruchi Bhadwal**, Associate Director, Earth Science and Climate Change Division, The Energy and Resources Institute (TERI), Darbari Seth Block, India Habitat Centre, Lodhi Road, New Delhi-110003.
- 7 **Dr Hema Achyuthan**, Department of Geology, Anna University, Chennai

Invitees

S.No. Name & Designation

- 1 **Dr Jyoti Misri**, Principal Scientist (AH), Indian Council of Agriculture Research (ICAR), Room No. 410-A, Krishi Bhawan, New Delhi-110001
- 2 **Dr Tanvir Kaur**, Scientist E, Indian Council of Medical Research (ICMR), ICMR HQ, New Delhi
- 3 **Dr Anjali Srivastava**, Chief Scientist and Head, NEERI Zonal Centre, Lohamandi Marg, Naraina Industrial Area Phase I, Naraina, New Delhi, Delhi-110028.
- 4 **Ms Meena Sehgal**, Fellow, The Energy and Resources Institute (TERI), Darbari Seth Block, India Habitat Centre, Lodhi Road, New Delhi-110003.
- 5 **Dr D.R. Sikka**, Former Director, Indian Institute of Tropical Meteorology (IITM), Dr. Homi Bhabha Road, Pashan, Panchawati, Pune, Maharashtra-411008.
- 6 **Dr Akhilesh Gupta**, Head, Climate Change Programme & Strategic Programme, Large Initiatives and coordinated Action Enabler (SPLICE), Department of Science & Technology, Technology Bhawan, New Mehrauli Road, New Delhi-110016.
- 7 **Dr Nisha Mendiretta**, Scientist F and Director, Climate Change Programme, Department of Science & Technology (DST), Ministry of Science & Technology, Government of India

- 8 **Dr D. Behera**, Professor and Head, Pulmonary Medicine, PGIMER, Kairon Block, Sector-12, Chandigarh –160012.
- 9 **Prof. Manju Mohan**, Professor, Centre for Atmospheric Sciences, Indian Institute of Technology, Delhi –16
- 10 **Dr Sagnik Dey**, Assistant Professor, Centre for Atmospheric Sciences, Indian Institute of Technology, New Delhi –110016.
- 11 **Dr Vidhya Venugopal**, Professor, Department of Environmental Health Engineering, Sri Ramachandra University, Porur, Chennai –600116.
- 12 **Dr P.K. Sen**, Additional Director, National Vector Borne Disease Control Programme, Block Number -III, Ground Floor, Delhi IT Park, Shastri Park, Delhi-110053.
- 13 **Dr. Sher Singh**, Assistant Director (PH), National Vector Borne Disease Control Programme, Block Number -III, Ground Floor, Delhi IT Park, Shastri Park, Delhi-110053.

OFFICERS FROM NCDC (Nodal Agency for Climate Change & Human Health)

S.No. Name & Designation

- 1 **Dr CS Aggarwal**, Additional Director, Centre for Environment, Occupational Health, and Climate Change, National Centre for Disease Control (NCDC), Delhi 110054
- 2 **Dr Shikha Vardhan**, Deputy Director, Centre for Environment and Occupational Health, National Centre for Disease Control (NCDC), Delhi 110054
- 3 **Dr Pranil M Kamble**, Assistant Director, Centre for Environment and Occupational Health, National Centre for Disease Control (NCDC), Delhi 110054

NAPCCHH: Proposed Annual Budget

Annexure:C.1

Proposed budget for Centre for Environmental & Occupational Health Climate Change& Health (includes CCHH related activities to be conducted by Division of Entomology) Financial year 2021-22								
Activities 2021-22								
S. No	Title	2021-22				Units	Unit Cost	Estimated budget in Rs
		Q 1	Q 2	Q 3	Q 4			
1.	Human Resources							
	Senior Consultant-Capacity building/ Training/ Monitoring & Evaluation					1	150000	18,00,000
	Senior Consultant-Environmental Health Specialist/ Public Health Informatics Specialist					1	150000	18,00,000
	Technical Officer-Data Management					2	75000	18,00,000
	Subtotal							54,00,000
2.	Logistics							
	Annual Consumables for computer and related equipments/ instruments including stationeries etc*					@5000/- per unit for 12 months		3,60,000
	*Logistics required for new consultants and Technical Officers							
	Sub Total							
								3,60,000
3.	Travel related expenses of Contractual Consultants and Staffs							
	Travel expense and avg three days stay at hotel of Consultants as per eligibility. (Two consultants; one visit per month by each consultant)	Travel to and fro @ 35000/-;				24	44,750	10,74,000
	Travel expense and avg three days stay at hotel of Technical Officer/ staff as per eligibility. (Two Technical Officers; one visit per month by each)	3 Days Hotel stay @ 2250/- per day; 3 days food @1000/- per day				24	44,750	10,74,000
	Sub Total							
								21,48,000
4	Training and capacity building							
	Four days Training of Trainers (TOT)/workshop					14	1118750	1,56,62,500
	Two days training/ Workshop / meeting					12	860250	1,03,23,000
	One day Training/ Meeting/ Expert Group consultation					22	541250	1,19,07,500
	Sub Total							
								3,78,93,000
5	Proposed budget for identified Centres of Excellence (COE) for services related to CCHH							
	Health Adaptation Plan, Training Modules, SOPs, Expert inputs for CSDs, Guidance to states for CSD					16	10,00,000	1,60,00,000
6	Proposed budget for development of prototype of IEC/ Advisories for Impact of Climate Change & Human Health							
	Prototype of IEC Creative (Print, Audio Visual and Social media) on Climate Sensitive diseases							60,00,000
7	Printing of documents developed under the NPCCHH							
	Printing and related cost including binding etc of documents developed under the NPCCHH like Adaptation plans for CSDs, manuals, compendium, posters etc							12,00,000
8	Misc cost							
	Cost pertaining to hiring consultancies for developing training modules, hiring consultancies for developing softwares and other information technology based platforms, purchasing maps or data etc							60,00,000
	Total							
								7,50,01,000

	Rupees Seven Crore Fifty Lakh One Thousands only
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Resource requirement (year wise) for five years for National Programme on Climate Change and Human Health (NPCCHH) - Rs 198,6543 000/- (One Ninety eight Crore Sixty Five Lakhs Forty Three Thousands Rupees)

S.No	Heads	FMR Code	Year wise expenditure expected (in Rs '000)					Amount for 5 years
			2021-22	2022-23	2023-24	2024-25	2025-26	
A	Non-recurring expenditure							
1	Vulnerability assessment	10.2.14	48,00	96,00	1,9200	10000	2500	3,91,00
2	Printing State Action Plan Climate Change & Human Health, Climate Change and Health Training Module, Climate Change and Health Module for women+ children+ municipality+ traffic police	12.17.3	1000	2000	3000	4000	10000	2,00,00
3	Greening of health sector (Solar panel with battery installation, rain water harvesting, energy efficient LEDs)	5.1.1.2.13	1,44,00	2,16,00	2,16,00	2,88,00	5,76,00	14,40,00
4	Climate resilient Healthcare facility (retrofitting)	5.1.1.2.13	25,00	43,00	2,42,00	2,50,00	5,00,00	10,60,00
5	Research on climate variables	10.2.14	5000	80,00	80,00	4000	4000	2,90,00
B	Recurring expenditure							
1	IEC on Climate Sensitive Diseases at Block , District and State level – Acute Respiratory Illnesses in context of Air pollution; Heat and other relevant Climate Sensitive diseases	11.24.4.4	7,14,90	14,29,80	18,00,00	20,00,00	20,00,00	79,44,70
2	Training of Panchayati Raj Institution/block level under NPCCHH	3.3.3.3	40,00	80,00	1,60,00	2,00,00	3,00,00	7,80,00
3	Training at State level: Training of Trainers of District Nodal Officer Climate Change (DNO-CC)	9.5.29.8	3,00,00	1,00,00	1,00,00	4,00,00	1,00,00	10,00,00
4	Training at District level (One training in a year for each nodal officer for 5 days)	9.5.29.8	4,85,00	6,06,25	5,80,00	9,70,00	8,22,00	34,63,25
5	Sensitization workshops/meeting at State level (Two day workshop) (All district officers)	16.1.2.1.24	21,00	12,18	25,00	10,00	15,00	83,18

6	Sensitization workshops/meeting at District level	16.1.2.1.24	1,22,00	3,05,00	2,00,00	1,00,00	3,00,00	10,27,00
7	Task force meeting @Rs 1000/meeting	16.1.2.1.23	500	250	250	500	250	17,50
8	Consultant Climate Change @ Rs 95,000/month	16.4.1.5.2	90,00	2,90,00	4,51,00	6,00,00	6,00,00	20,31,00
9	Maintenance cost for greening health sector (Solar panel with battery installation, rain water harvesting, energy efficient LEDs)	5.1.1.2.13	2,88	4,32	4,32	5,76	11,52	28,80
	Total		20,57,78	32,85,05	40,82,82	50,08,76	54,31,02	1,98,65,43

The proposed budget for next five years (2021-26) for National Programme on Climate Change and Human Health (NPCCHH) is **Rs 1,98,65,43,000/- (One Ninety eight Crore Sixty Five Lakhs Forty Three Thousands Rupees).**

SFC FY 2021-26 Proposal for NPCCHH under NCDC

C.3.A.1. NPCCHH/NCDC activities and CoE activities budget proposal for FY 2021-26

(in Crore)

NPCCHH/NCDC activities and CoE activities	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	Total
1.1 Budget for NPCCHH/NCDC activities	4.678	4.487	4.487	4.487	4.487	22.626
1.2 Budget for CoEs activities	14.924	14.924	14.924	14.924	14.924	74.62
Total	19.602	19.411	19.411	19.411	19.411	97.246

C.3.A.1.1. Budget proposal for NPCCHH activities under each head for FY 2021-26

(in Crore)

Heads/Component	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	Total
Activities: NAPCCHH update/revision/print, Development of guidelines/SOPs, Review meeting with (CoE, States), Capacity building(ToTs/Workshop), IEC development (print/audio/visual)(details at C.3.A.1.1.A)	2.448	2.448	2.448	2.448	2.448	12.24
Human resource, logistic, travel of HR for conducting activities, miscellaneous(details at C.3.A.1.1.B)	2.23	2.039	2.039	2.039	2.039	10.386
Total	4.678	4.487	4.487	4.487	4.487	22.626

NAPCCHH: National Action Plan on Climate Change and Human Health, SOP: Standard Operating Procedures, CoE: Centre of Excellence

C.3.A.1.2. Budget proposal for CoE activities under each head for FY 2021-26

(in Crore)

Heads/Component	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	Total
Activities: Development of National Action Plan on CSDs/guidelines/SOPs/Training Modules/Surveillance, To support states for development of SAPCCHH, Training of Trainers, IEC development, Documentation of Reports/best practices, Develop Monitoring and Evaluation system(details at C.3.A. 1.2.A)	5.4	5.4	5.4	5.4	5.4	27
Human resource, Travel for HR for conducting activities , Contingencies/Overheads.(details at C.3.A. 1.2.B)	9.524	9.524	9.524	9.524	9.524	47.62
Total	14.924	14.924	14.924	14.924	14.924	74.62

CSDs: Climate Sensitive Diseases, SAPCCHH -State Action Plan on Climate Change and Human Health

C.3.A.1.1.A. Details of budget proposal for NPCCHH/NCDC activities

(in Lakh)

[illegible]

C.3.A.1.1.B. Human resource, logistic, travel of HR for conducting activities, miscellaneous
(in Lakh)

Human resources	Unit	Unit Cost	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	Total
Senior Programme Manager-Climate Change	1	1.75	21.0	21.0	21.0	21.0	21.0	105.0
Senior consultant-climate change*	4	1.50	72.0	72.0	72.0	72.0	72.0	360.0
Consultant-Communication Officer	1	1.00	12.0	12.0	12.0	12.0	12.0	60.00
Technical Officer- Data Management	2	0.75	18.0	18.0	18.0	18.0	18.0	90.00
Administrative Manager	1	0.75	9.0	9.0	9.0	9.0	9.0	45.00
Finance Manager-Consultant	1	0.75	9.0	9.0	9.0	9.0	9.0	45.00
Graphic Designer	1	0.75	9.0	9.0	9.0	9.0	9.0	45.00
Secretariat Assistant	2	0.40	9.6	9.6	9.6	9.6	9.6	48.00
Sub Total	13		159.6	159.6	159.6	159.6	159.6	798.0
Logistic Equipments	Unit	Unit Cost						
Computer with Printer	13	0.60	7.80					
Table with Chair	13	0.10	1.30					
Photocopy Machine	1	1.50	1.50					
Photocopy Machine(Colour)	1	3.00	3.00					
Video conferencing Device and Projector	1	1.00	1.00					
Almirah	13	0.10	1.30					
Scanner (High Resolution)	1	2.00	2.00					
Laptop	1	0.80	0.80					
Hard Disks/Pen- Drives	4	0.10	0.40					
Sub Total			19.1					19.1
Travel for HR for conducting the activities	Unit	Unit Cost						
Travel expense and average 3 days stay at hotel(One visit per month by each**)	96	0.3475	33.36	33.36	33.36	33.36	33.36	166.8
Travel expense and average 3 days stay at hotel(one visit per 2 month by each***)	18	0.3475	6.255	6.255	6.255	6.255	6.255	31.27
Sub Total			39.61	39.61	39.61	39.61	39.61	198.05
Miscellaneous (Additional meetings/Training/printing cost)			5.00	5.00	5.00	5.00	5.00	25.00
Total			223	203.9	203.9	203.9	203.9	1038.6

*Senior consultant-climate change-Senior Consultant-Capacity Building/Training, Senior Consultant-Environment Health Specialist, Senior Consultant-Monitoring & Evaluation, Senior Consultant-Public Health Informatics Specialist .

**1 Senior Programme Manager,4 Consultants,1 Communication officer,2 Technical officer

***1 Graphic Designer, 1 Administrative manager,1 Finance Manager

C.3.A.1.2.A. Details of Budget Proposal for CoEs Activities

(in Lakh)

Heads	*Unit Cost	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	Total
Development of Health Action Plan on Climate sensitive subject allocated to CoE Develop guidelines and SoPs on subject area To support States for development of chapter in their State Action Plan on Climate Change and Human Health(SAPCCHH) related to climate change subject looked after by CoE Development of training modules Develop surveillance or integrate in existing surveillance of climate sensitive conditions looked after by CoEs. Develop Monitoring and evaluation system for climate change subject looked after by existing CoE Documentation of Reports, best practices	10	180	180	180	180	180	900
Trainings: Training of Trainers (ToTs) (9 CoE will conduct training in one year) (detail at C.3.A.1.2.A.1)	20	180	180	180	180	180	900
IEC development on the subject specific climate sensitive diseases (print, audio visual, Gif, social media)	10	180	180	180	180	180	900
Total		540	540	540	540	540	2700

*unit-18 CoEs

C.3.A.1.2.B. Human resource, Travel for HR for conducting activities, Contingencies/Overheads**(in Lakh)**

Human resources	Unit	Unit Cost	CoE/ year	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	Total
Consultant	1	1.20	14.4	259.2	259.2	259.2	259.2	259.2	1296
Scientist	1	0.75	9	162	162	162	162	162	810
Technical Officer-Data Management	2	0.50	12	216	216	216	216	216	1080
Sub Total	4		35.4	637.2	637.2	637.2	637.2	637.2	3186
Travel for HR for conducting the activities	Unit	Unit cost							
Travel expense and avg three days stay at hotel;one visit per month by each#).	36	0.3475	12.51	225.18	225.18	225.18	225.18	225.18	1125.9
Sub Total			12.51	225.18	225.18	225.18	225.18	225.18	1125.9
Contingencies/o ver heads			5.0	90.0	90.0	90.0	90.0	90.0	450.0
Total				952.4	952.4	952.4	952.4	952.4	4762

#1consultant, 1 scientist,1 data entry operator

C.3.A.1.1.A.1. Detail cost of Expert Group Meeting**(in Lakh)**

Budget Head	Unit	Unit Cost	Total
Travel cost for outstation <i>Guest Expert</i> at Regional/ state / National Level	4	Travel to and fro @ 25000/- round trip	1.0
Accommodation to outstation <i>Guest Expert</i> at Regional/ state / National Level	4	@4500/- per night	0.18
Refreshments (incl tea , snacks and lunch)	35	Rs 700/- per person per day	0.245
Incidental expenditure, photocopying, job aids etc	10	Rs 250/- per day per expert	0.025
Total			1.45

C.3.A.1.1.A.2 National level review meetings (9 Meetings/YEAR) for the programme for 18 Centres of Excellence

Budget for 1 meeting: Detail cost of one batch of Centres of Excellence (6 CoE) At the National Level review meeting per 1 day for 2 consultants of the CoE

(in lakh)

	Budget Head	Unit	Unit cost	Total
CoE consultants	Travel cost	12	Travel to and fro @10,000 per consultant	1.2
	Accommodation	12	@ 4500/-per consultant per night	0.54
	Refreshments (including tea, snacks and lunch	27	@700/- per person per day	0.189
	Incidental expenditure, photocopying, job aids etc.	12	@250/- per day per participants	0.03
	Total			1.959

C.3.A.1.1.A.3. National level review meetings (6/YEAR) for the programme for 36 States/UTs

Budget for 1 meeting: Detail cost of one batch of State Nodal Officer – Climate Change (12 States) at the National Level review meeting per 1 day for 2 consultants of the States

(in lakh)

	Budget Head	Unit	Unit cost	Total
Guest Faculty	Travel cost for outstation	15	Travel to and fro@25,000/-	3.75
	Accommodation	15	@4500/- per night	0.675
SNO-CC consultants	Travel cost	24	Travel to and fro@10,000 per consultant	2.4
	Accommodation	24	@ 4500/-per consultant per night	1.08
	Refreshments (including tea,snacks and lunch	54	@700/- per person per day	0.378
	Incidental expenditure,photocopying, job aids etc.	24	@250/- per day per participants	0.06
	Venue Hiring		(2500 x 54)+ 30% GST	1.755
	Total			10.098

C.3.A.1.1.A.4 Capacity Building of State Nodal Officer and Consultant-Climate Change

(5days Training at National Level; Twice a year)

(in Lakh)

	Budget Head	Unit	Unit cost	Total
Guest Faculty	Travel cost for outstation Guest faculty	15	Travel to and fro @ Rs.25,000/-	3.75
	Accommodation	15	2 days Hotel stay @4500/-per day	1.35
	Honorarium	15	2 days @ 1500/-per day	0.45
In-House Faculty	Honorarium	8	5 days @ 1000/- per day	0.40
Trainee	Travel cost	72	Travel to and fro@10000/-	7.2
	Accommodation	72	5 days Hotel stay @4500/-per day	16.2
	DA	72	5 days @ 1000/- per day	3.60
	Refreshments (including tea,snacks and lunch	102	5 days @700/- per day	3.57
	Incidental expenditure, photocopying, job aids etc	72	5 days @250/-per day	0.90
	Venue Hiring		(2500 x 102) + 30% GST	3.315
	Total			40.735

C.3.A.1.1.A.5 Workshop (1 day) (5 workshop/year)

(in Lakh)			
Budget Head	Unit	Unit cost	Total
Travel cost for Guest faculty	10	Travel to and fro @ Rs.25,000/-	2.5
Accommodation	10	1 day hotel stay @ 4500/-	0.45
Refreshments (including tea,snacks and lunch	25	@700/- per day	0.175
Incidental Expenditure, photocopying,job aids etc	20	@250/-per day	0.05
Venue Hiring		(2500 x 25) + 30% GST	0.8125
Total			3.9875

C.3.A.1.2.A.1 Training of Trainers by Centres of Excellence

(3 days Training at National Level; 9 CoE will conduct training in a year)

(in Lakh)				
	Budget Head	Unit	Unit cost	Total
Guest Faculty	Honorarium	4	3 days @1000/-per day	0.12
Trainee	Travel cost	72	Travel to and fro@10000/-	7.2
	Accommodation	72	3 days Hotel stay @4500/-per day	9.72
	DA	72	3 days @1000/- per day	2.16
	Refreshments (including tea,snacks and lunch	82	3 days @400/- per day	0.98
	Incidental expenditure, photocopying, job aids etc	72	3 days @100/-per day	0.22
	Total			20.4

REGIONAL METEOROLOGICAL OFFICES: Address

Regional Meteorological office	Address
India Meteorological Department, Regional Meteorological Centre, Chennai	New 6, Old 50, College Road, Chennai, Tamil Nadu- 600006
India Meteorological Department, Regional Meteorological Centre, Guwahati	LGBI Airport, Guwahati, Assam- 781015
India Meteorological Department, Regional Meteorological Centre, Kolkata	4, Duel Avenue, Alipore, Kolkata, West Bengal – 700027
India Meteorological Department, Regional Meteorological Centre, Mumbai	Regional Meteorological Centre, Mumbai, Colaba, Mumbai, Maharashtra- 400089
India Meteorological Department, Regional Meteorological Centre, Nagpur	Regional Meteorological Centre, IMD DBAI Airport, Sonegaon, Nagpur, Maharashtra- 440005
India Meteorological Department, Regional Meteorological Centre, New Delhi	RMC Building, Lodi Road, New Delhi- 110003

STATE POLLUTION CONTROL BOARD: Address

State Pollution Control Board	Address
Andhra Pradesh Pollution Control Board	Paryarana Bhawan, A-3, Industrial Area , Sanath nagar, Hyderabad-500 018, Andhra Pradesh
Arunachal State Pollution Control Board	Government of Arunachal Pradesh Office of the Principal Chief and Secretary (E&F) Conservator of Forests, Itanagar 791111, Arunachal Pradesh
Assam Pollution Control Board	Control Board Bamunimaidam, Guwahati - 781021 Assam
A & N Islands Pollution Control Committee	Van Sadan, Port Blair-744 102
Bihar State Pollution Control Board	IInd Floor, Beltron Bhavan, Jawaharlal Nehru Marg, Shastri Nagar, Patna 800023, Bihar.
Chattisgarh State Environment Conservation Board	Nanak Nivas, Civil Lines Raipur - 492001 Chattisgarh
Chandigarh Pollution Control Committee	Chandigarh Administration, Additional Town Hall Building, IInd Floor, Sector 17-C, Chandigarh 160 017.
Delhi Pollution Control Committee	4th Floor, I.S.B.T. Building, Kashmere Gate, Delhi-110006
Daman Diu & Nagar Haveli Pollution Control Committee	Office of the Dy. Conservator of Forests, Moti Daman-396220, Daman
Goa State Pollution Control Board	Dempo Tower, Ist Floor Patto Plaza Goa 403110
Gujarat State Pollution Control Board	Sector 10-A, Gandhi Nagar 382043 Gujarat
Haryana State Pollution Control Board	S.C.O.No.11 A-12, Sector 7-C Madhya Marg, Chandigarh – 160019
H.P. State Environment Protection & Pollution Control Board	Paryavaran Bhawan, Phase III New Shimla -171 009 Himachal Pradesh
Jammu & Kashmir State Pollution Control Board	SheikhulAlam Campus, Behind Govt. Silk Factory, Rajbagh , Srinagar (April - Oct.) Parivesh Bhawan Forest Complex, Gandhi Transport Nagar (Nawal), Jammu (Nov. - March)
Jharkhand State Pollution Control Board	T.A. Building, HEC P.O. Dhurwa Ranchi - 834004 Jharkhand
Karnataka State Pollution Control Board	6th-9th floors Public Utility Building NSB Building, Mahatama Gandhi Marg Bangalore 560001 Karnataka

Kerala State Pollution Control Board	Plamoodu Junction Pattom Palace Trivandrum 695004 Kerala
Meghalaya Pollution Control Board	"ARDEN", Lumpyngngad, Shillong – 793 014, Meghalaya.
Madhya Pradesh Pollution Control Board	E-5, AreraClony, ParyavaranParisar, Bhopal - 463016 Madhya Pradesh.
Maharashtra Pollution Control Board	Kalpataru Points, 3rd & 4thfloor, Opp. Cine Planet, Sion Circle, Sion (E) Mumbai-400 022.
Mizoram State Pollution Control Board	M.G. Road, Khatna, Aizwal-796 012, Mizoram
Manipur Pollution Control Board	Langol Housing Complex, Imphal-795 004, Manipur.
Nagaland Pollution Control Board	Office of the Chairman, Forests Colony, Dimapur, Nagaland
Orissa State Pollution Control Board	A-118, Nilakantha Nagar, Unit-VIII, Bhubaneswar 751012. Orissa
Punjab Pollution Control Board	Vatavaran Bhawan, Nabha Road, Patiala-147 001 Punjab.
Pondichery Pollution Control Committee	Department of Science, Technology & Env. Housing Board Complex, Illrd Floor Pondicherry-600 005
Rajasthan Pollution Control Board	A-4, Institutional Area, JalanaDungri, Jaipur-302 004, Rajasthan.
Sikkim Pollution Control Board	State Land Use and Environment Cell Govt. of Sikkim, Deorali,- 737101
Tamil Nadu Pollution Control Board	No. 76, Mount Salai, Guindy, Chennai- 600 032, Tamil Nadu.
Tripura State Pollution Control Board	Vigyan Bhawan, Pandit Nehru Complex, Gorkhabasti,PO-Kunjaban, Agartala (W)-799 006 (Tripura) .
Uttar Pradesh Pollution Control Board	Illrd floor PICUP Bhavan, Vibhuti Khand, Gomti Nagar, Lucknow - 226020, UP.
West Bengal Pollution Control Board	Paribesh Bhavan, 10-A, Block LA, Sector III, Salt Lake City, Kolkata-700 091.