

# Climate SAR

Climate Science And Research

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## CLIMATE CHANGE AND HUMAN HEALTH



CLIMATE  
CHANGE



**Climate Change Research Institute**

Science & Technology Solutions for Sustainable Energy Future

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# Climate Change



## FROM EDITOR



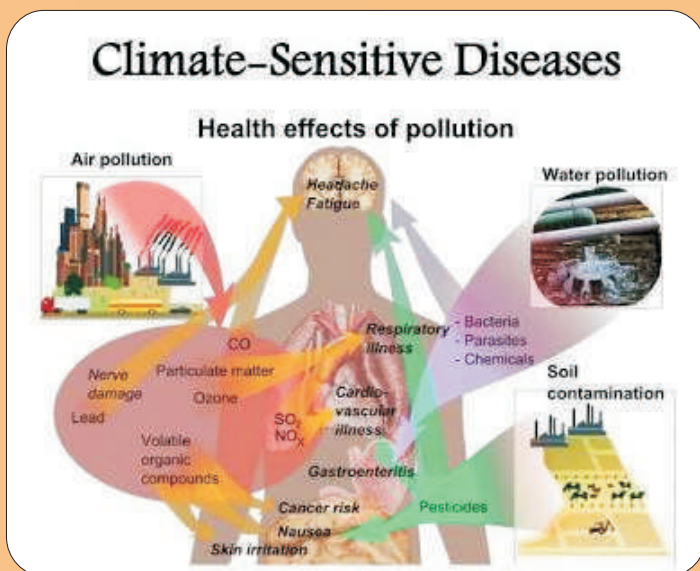
*Changing Weather or Climate impact our health and well being. Increase atmospheric temperature due to Global Warming makes existing diseases worse and adds new diseases because of the new pathogens introduced. Steps should be taken either for climate change mitigation or reducing exposure for minimizing the impact on our health.*

*In this issue I describe the climate change impacts on human health and scientific assessment of health risks. The Government of India proposed **National Mission on Climate Change and Human Health (NMCC&HH)** and its main objectives are capacity building of population and training for Health services.*

*Climate Change Research Institute has started this Bulletin of Climate Science and Research – '**Climate SAR**' for wider dissemination of information about climate change and environmental education. In this issue you learn about the health related issues of climate change.*

*Happy reading!*

*Please send your feedback to [contactus@ccri.in](mailto:contactus@ccri.in)*



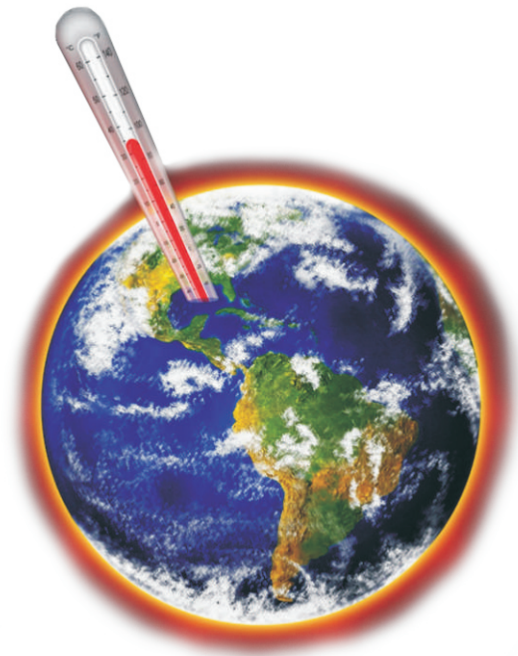
**Dr.(Mrs) Malti Goel**

President, Climate Change Research Institute



## OUR CHANGING CLIMATE

Weather and Climate affect human health in many ways. Changes in climate particularly, changes in weather extremes affect the environment and threatens human health and well-being. Climate change makes many existing diseases and conditions worse, and introduces new virus, pests and vector borne diseases. The most vulnerable are; children, the poor and those with a weak immune system and older people with underlying health conditions. They are at increased risk from adverse health effect.



Global Warming and Climate Change are physical manifestations of growing human influences on Planet Earth. **Weather** is state of the atmosphere at any given time and location. **Climate** is average weather condition that persists for several years. **Climate Change** is the change observed in climatic patterns over a longer period.

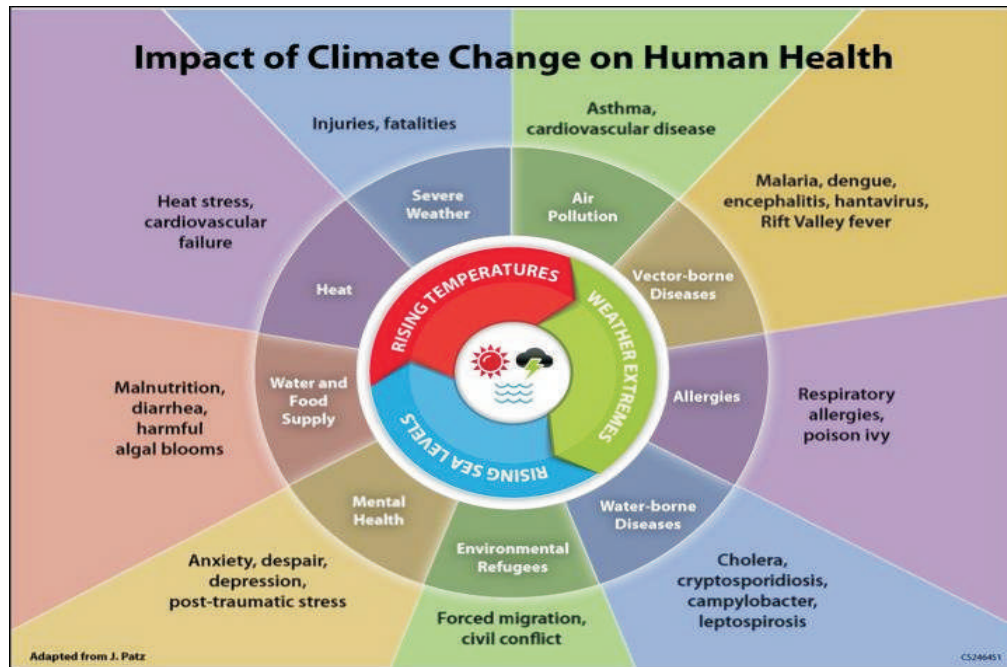
From 1880 to 2012, the average global temperature has increased by 0.85°C. To address climate change the Paris Agreement was adopted on 12 December 2015 at the COP21 held in Paris. It came into force on 4 November 2016 and all countries agreed to work towards limiting global temperature rise to well below 2 degrees Celsius, and to strive for 1.5 degrees Celsius.

Observed climate change impacts resulting from rise in atmospheric temperature include varying precipitation pattern, rising sea level, occurrence of heat waves, floods & droughts and other extreme events. We need to develop strategies to reduce greenhouse gas emissions for mitigation of climate change. It would require actions from household, transport, agriculture etc.



# HOW DOES CLIMATE CHANGE AFFECT HEALTH?

The impacts of weather and climate change on human health are becoming cause of concern. Weather and climate affect the survival, distribution, and behavior of mosquitoes, pests, and rodents that are disease carriers. Climate change impacts air, water and food quality with implications for human health and well-being. Main impact parameters are described below.



**Air Quality Impacts:** Pollution in the air affects mortality and morbidity due to respiratory, cardiovascular and circulatory diseases. In 2010, more than 7% of the global burden of disease was due to inhalation of various air pollutants.

**Heat Waves:** An extreme weather event of high temperature episode, affects more the vulnerable population giving rise to increased mortality.

**Vector-Borne Diseases:** Climate Change is giving rise to birth of new pests and viruses, resulting in dengue, swine flu, Chickengunya and others.

**Water-Borne Diseases:** Extreme events such as floods, give rise to water borne climate-dependent infectious diseases like typhoid, cholera etc.

**Food-Borne Diseases:** Climate change such as drought, affects crop yield and shift in cropping patterns affecting peak infection rate, malnutrition etc.

Incidences of aggravation of mental health problems are seen.



# DO YOU KNOW?

In the United States, the Government has created a high level **President's Task Force on Environmental Health and Safety Risks to Children** for protecting the current and future generations and helping to ensure opportunities for the development of healthy, more resilient children. A large number of activities are initiated to support the work of the Task Force. The Task Force collects examples from public to share information about their work being done to raise awareness and encourages others to adapt similar policies.

India has proposed a **National Mission on Climate Change & Human Health (NMCC&HH)** to address the health related aspects of climate change. It attempts to integrate health problems with eight ongoing Missions on Climate Change namely, Sustainable Habitat, Sustainable Agriculture, Water, Himalayan Ecosystems, Biodiversity, Solar, Energy Efficiency and Strategic Knowledge.

The new Mission has a goal to reduce health vulnerability to climate change and extreme weather events. Its objective is to build capacity of the population and train health services to take action for protection of people from climate change vulnerabilities. It is also proposed to introduce the subject in the course curriculum of School Children.

HINDUSTAN TIMES, NEW DELHI  
WEDNESDAY, SEPTEMBER 27, 2017

## nteducation | EXPAND YOUR HO

# School curriculum to include climate change

**NEW SYLLABUS** The proposal to include 'climate change and its impact on human health' in the school curriculum is part of the National Action Plan on Climate Change and Human Health

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**NEW DELHI:** Climate change and its impact on human health will soon be made part of the school curriculum, so children can learn how to protect themselves from climate sensitive illnesses such as heat stroke and respiratory diseases.

The proposal is a part of the ministry of health and family welfare's National Action Plan on Climate Change and Human Health (NAPCCHH) that is aimed at protecting women, children and marginalized sections of the society.

"We are planning to include climate sensitive illnesses and related mitigation and adaptation measures in students' curriculum. We are working in tandem with the ministry of human resource development (HRD) to integrate climate change with nutritional status and health into school and college curricula," said Jagdish Prasad, director general of health services (DGHS), ministry of health and family welfare.

The health ministry, working with the HRD ministry, plans to integrate the health effects of extreme heat events in students' curriculum.

Teachers will be trained in first aid measures for heat waves. Schools and colleges would be advised to prevent outdoor activities during heat waves, according to the proposal.



PHOTO: HT

The health effects of extreme heat events is likely to be included in the curriculum

Apart from heat waves, air pollution-related diseases would also be a focus in lessons.

"We have also proposed the inclusion of harmful health effects of environmental pollution in the school curriculum, including current policies and mitigation practices that are designed to reduce air pollution," said Prasad.

"Communication interventions in schools are effective approaches to disseminate important information. We are in the process of developing materials for teachers' training so that they can educate children," he

said.

The health ministry has said children should be regularly screened for climate sensitive illnesses and provided a pollution-free environment in schools and colleges.

"We have proposed regular screening of school children for early detection of diseases, which can be attributed to the existing air pollution. We have also urged the HRD ministry to improve indoor air quality of educational institutions nationwide," said Prasad.

"Walkability and access to educational institutions by non-motorized transport should also be improved, thus minimizing

the air pollution in the school surroundings. We have proposed that students and teachers should be sensitized to use the Air Quality Index (AQI) in planning outdoor school activities," he said.

Research studies across the world have shown that climate change may have negative health effects. A rise in heat-related illnesses and deaths, increased precipitation, floods and droughts are costing lives.

With climate change, there is an increase in transmission and spread of infectious diseases due to changes in the distribution of water-borne, food-borne and vector-borne diseases, experts say.

### What you can do?

With the onset of Winter Season the pollution in the air is growing and the high incidences of respiratory problems are reported in the hospitals. It is seen that fine particles when inhaled affect lungs, heart and weaken our immunity system. How one can protect himself or herself;

- I. Avoid going out when pollution is high
- II. Keep the doors and windows tightly closed
- III. If you have to go out, then
  - a. Cover your nose and mouth with handkerchief
  - b. Use Mask (N95)
  - c. Avoid traffic congested areas



# LINKAGE WITH SUSTAINABLE DEVELOPMENT GOALS (SDGS)

## SDG 3: Ensure healthy lives and promote wellbeing for all at all ages

The Sustainable Development Goal 3 aiming at protecting our health is one of 17 UN Global Goals that make up the **2030 Agenda Sustainable Development**. Ensuring healthy lives and promoting the well-being for everyone is essential for sustainable development.

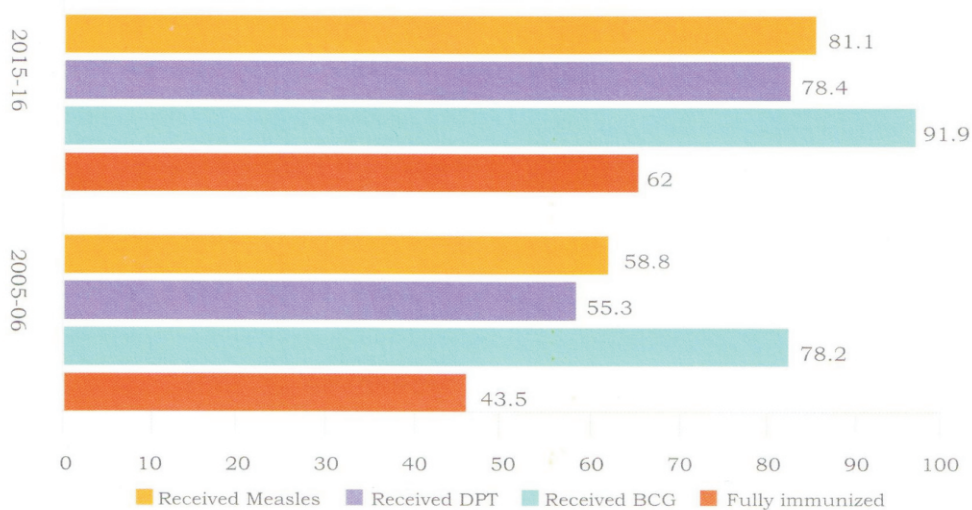


Over the years significant strides have been made globally, resulting in increased life expectancy and reducing some of the diseases associated with child and maternal mortality. Progress is being made on increasing access to clean water and sanitation, reducing malaria, tuberculosis, polio and other diseases. However, new research indicates there is fall in rural productivity across the globe by 5.3% due to climate change since 2000.

Climate change induced health concerns therefore require more efforts to address many different, persistent and emergent health issues for achieving the targets of SDG3. Also the greenhouse gas emissions are needed to cut down to lessen the pace of Climate Change. We need to clearly identify the indicators at the intersection between the Environment and Health for corrective actions.

### PROGRESS MADE IN THE AREAS OF FAMILY PLANNING, MATERNAL HEALTH AND CHILD HEALTH

Improvements in the vaccination coverage of children between 12-23 months (%)



# SCIENTIFIC ASSESSMENT OF HEALTH RISKS

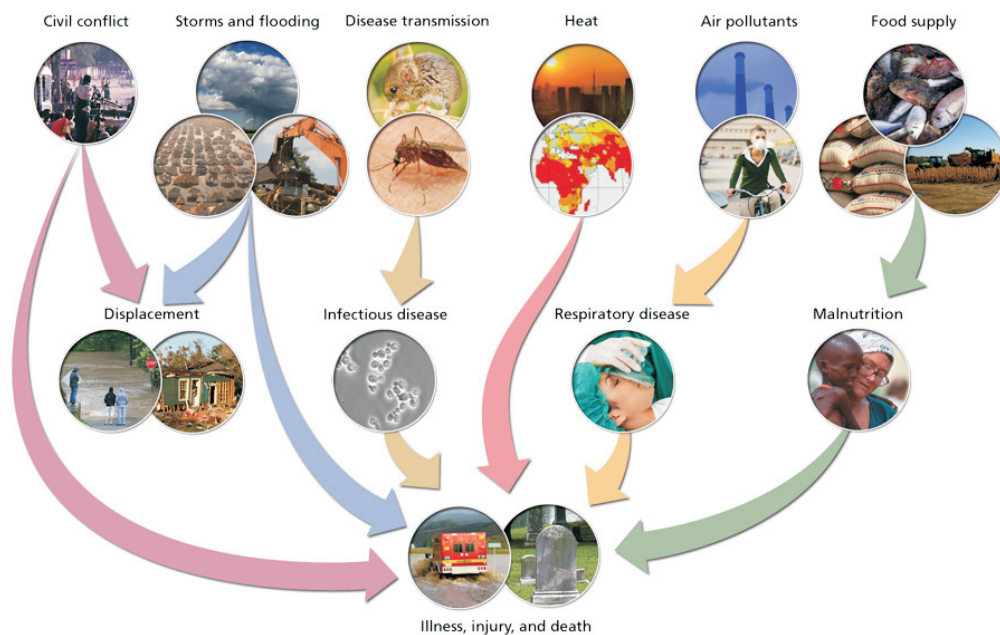
Recent studies in Lancet medical journal suggest that climate change is affecting the health of all populations around the globe. The health risks arise from the interactions of three factors: (1) how climate change will alter the ecosystems that support mosquito populations; (2) who is exposed most to these changing weather patterns; and (3) the underlying vulnerability of the exposed populations.

Scientific Assessment would help in taking measures for improving air, water quality and in finding solutions for minimizing the adverse impacts on human health and preventing diseases. Future rate of health impacts is a function of baseline health status, expected changes in exposure, response function of the vulnerable population.



For some health impacts, the ability to understand the relationships between climate related exposure and health exposure impacts is limited due to complex relationships between local temperature change, air pollutants, unsafe food consumption and contaminated water supply.

**India should make a scientific assessment for determining health impacts in each of its six climatic zones with different geographic coverage.**





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