



Heat Waves and Its Mitigation Measures

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Article Info

Volume 5, Issue 5

Page Number : 22-25

Publication Issue :

September-October-2022

Article History

Accepted : 01 Sep 2022

Published : 12 Sep 2022

Abstract :- A heat wave is a period of excessively hot weather. Temperatures that people from a hotter climate consider normal, can be called a heat wave in a cooler area, if they are outside the normal climate pattern for that area. If more than 40°C temperature happen in the plain area and more than 30°C temperature in hilly regions in India induce the heat waves, but it is not the unique definition. It varies from one place to another, severe heat waves have caused catastrophic crop failures, thousands of deaths from Hyperthermia and affected the ecosystem of particular regions. Heat waves also induce an urban heat island due to unscientific urban infrastructure, lots of activities of people etc. Here, we have discussed how to minimize the heat waves and mitigate as an urban heat island through the methodology of secondary data and observations. Mitigation measures should be adopted for sustainable development.

Keywords :- Heat waves, Urban heat island, Mitigation measures, Catastrophic failures.

Introduction

A heat wave is a period of comprehensive hot weather. A heat wave is usually measured relative to the usual weather in the area and relative to normal temperatures for the season. Temperatures that people from a hotter climate consider normal, can be called a heat wave in a cooler area, if they are outside the normal climate pattern for that area.

Severe heat waves have caused catastrophic crop failures, thousands of deaths from Hyperthermia and widespread outages due to increased use of air conditioning. A heat wave is considered extreme weather, that can be a natural disaster and a danger because heat and sunlight may overheat the human body, also affect the ecosystem. If more than 40°C temperature happen in the plain area and more than 30°C temperature in hilly regions in India induce heat waves but this is not the unique definition. A high relative humidity with more than 30°C temperature induces heat waves.

An urban heat island or UHI, is a metropolitan area that is a lot of warmer than the ruler area surrounding it. Urban heat islands are created in those areas that have lots of activities and lots of people.

Objectives:-

To study the heat waves of various regions.

To understand the causes, types and impacts of heat waves.

To describe the mitigation measures of heat waves as spatial study.

Methodology:- The present study is based on secondary sources of data. It has been taken from newspapers, websites, and historical events. The interpretation of geographical data, map and phenomenon are based on intensive field study.

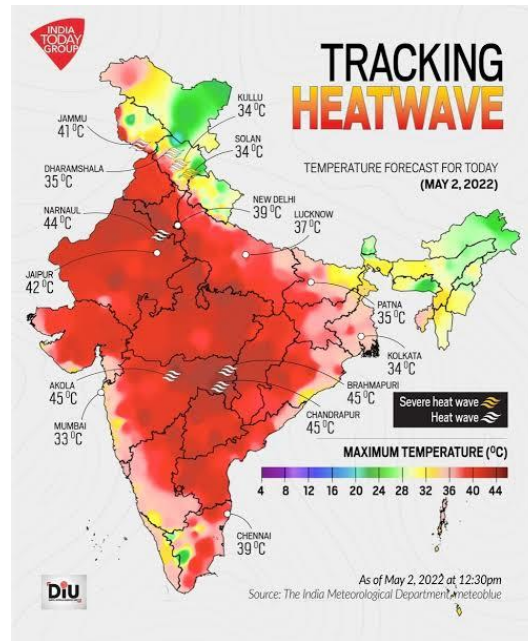
Study domain:- Our country has been suffering from acute heat waves or loo since a prolonged year. It has broken the record of 18 years of highest temperature of Delhi in may 2020. It is attracted on the attention on the attention on the hottest city recorded in India. The temperature of churu district God beyond 50°C in the last week of May 2020, not by the year but also many years, It cross 50°C temperature. It should be remembered, thousands of people in India and another country have lost their life due to heatwaves, mostly poor and homeless people, of course, our attention have not gone on the heat stroke disaster due to covid 19 pandemic this year.

However, the tragedy of heatness in Summer is going to increase year by year. A major role played in Australian bush fire season 2019-20, that known as black summer, began with several serious uncontrolled fires throughout the summer, hundreds of fires brunt, mainly in the southeast of the country. The major fires which peaked during December-January. It is not only happening in Australia but happen in several parts of country mainly due to heatwaves, can be other factor regarding the accident.

There are unprecedented event happen in 2022 A. D. in Europe, where most of countries suffered from severe heatwaves. Portugal faces highest temperatures at Pinhao, recorded 47°C, on 14 July. It continues from June to August 2022, persistent heatwaves affected parts of Europe, causing evacuation and heat related death. An estimated total of more than 51000 , acres were brunt by wildfires in Gironde (France) causing about 37,000 people to evacuated These types of events happened in so many European countries. Our government prepare instantaneous measures to face this kind of disaster but may be possibilities any permanent solution to fight against the heat waves? Whether to say watching the trends of increasing heatwaves or Loo, we should accept the effects of climate change, reflected in disaster in the form of unseasonal rain, increasing frequency of drought, increasing frequency of tropical cyclone, fire in wood etc. It was seen the picture of disaster of heatwaves in various city of world. It is giving alarming, not to come out from the house in many places.

Heatwaves or Loo, generally blow for couple of day like 3 days or 5 days. It is very few to blow several weeks continuously but in India, it blow several weeks and temperature reach or across about 50°C in various parts of the country in Summer season. It is the matter of natural phenomenon to increase the temperature but anthropogenic factors induce the potential of heatwaves. However human beings have skills to keep harmonize with nature, it should be complete or follow. Rich classes have taken measure to fight against heatwaves or Loo, but a major class of Indian earn daily for the survival like residents along the road, footpath / homeless people rikshapuller, wheel barrow etc., can't bear like riches. It is compulsion for poor people to come out from home in scorching sun. Tracking of Heatwaves have shown through maps as below. Heatwaves are the results of global warming, deforestation, decreasing the

sinkhole of green house gases, affected through Indian Ocean dipole, Meddan Julian oscillation, El Nino etc.



Therefore, it is raised the question, it is really, it is can't be thought about measures to save from heatwaves for the poor. If we search the answer of this question then it is acknowledged that is not exactly right, there were some measures running in our traditional knowledge in India.

It increase temperature of Rajasthan and Bundelkhand in summer, Banda district the part of Bundelkhand, every year touching the temperature of 50°C. Therefore we look into history of Bundelkhand. What steps had taken to fight against heats by Ancient rulers. Mahoba is the district near Banda district, king of there had facilitated to minimize the temperature, 1000 year earlier from now. Chandel kings, ruler of Bundelkhand, who ruled between 9th- 13th A.D. was spreaded the sheet of water from surviving from heat the spreaded sheet of water form as ponds. Whenever the drought comes in Bundelkhand then it is remembered of made constructed ponds by Chandels. But it come less attention that Chandels made ponds to keep cool of their capital Mahoba. Today's scholars have understood on the basis of research of Chandels period ponds that Chandels made seven vast ponds for water management in Mahoba. But the storage size and capacity of ponds are so big that was par limit capacity of necessities of people. However ponds as British officers also mentioned pond as the sheets of water in their record. There is not less example to safe from heat stroke through water in other country in the world. Most of the people used to splash water on the roof to cool the floor.

Some people used to splash water on the road in Summer for cooling. If we look in our past, have seen there were many ponds in our city. Now it is dried and dump garbage into it. It is converted as building. Deforestation have faced in each and every city. So definitely Aforestation are require to balance the nature. Due to laying concrete metals road, bricks building along to each other decrease the rate of albedo. Water tanks construction under building and apartment is not implemented strictly. So the underground

water have gone very deep and the moisture of soil has decreased and tends to increase heatwaves in summer. There was broken all the old record of heatness in last year then some country like French government made some small temporary ponds with in cities. It was filled water strip along road. Water sprinklers (Phavvara) and water strips which was used for beautification. It is opened for uses of people. Most of people of various part of France put leg in water, have seen. In our country, it was the ancient tradition when people have come in their relative house, their legs were put in full of disc water.

Many people, specially villagers dip in water in our country from very earlier to safe from heat, it is seen in France. It is very difficult to minimize the temperature through naturally but it is not very tough to spread the sheet of water like Mahoba, in metropolitan city under that circumstances where the underground water have gone very deep or detoriate the quality of underground water. If capital city or metropolitan city even the small city have own ponds where the rainy water is collected, it does not only replenishable the underground water but also can keep cool the city from the becoming of stone-wood.

Conclusion:- It can raise the question, is not practical to constructed ponds which invests more money for safe from scorching heat along with government program like aforestration, green city, storage of water under building, control of pollution and so on to mitigate. Global warming is the focal for climate change which induced heatwaves, therefore collective attempt to minimize the Greenhouse gases are essential.

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