CLIMATE CHANGE AND HEALTH

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Introduction:

Climate Change currently contributes to the burden of disease and premature death. The most direct effect of Climate Change on human might be the impact of hotter temperature themselves. Extreme high temperature increase the heat related death in the United State, Europe, and all countries outside the tropics. The World Health Organization has estimated that in the year 2000, Climate Change accounted for the losses of 150000 lives globally and 77000 lives in the Asia Pacific region. WHO further warns that the health of millions could be threatened by increases in malaria, water-born disease and due to malnutrition. The IPCC (Intergovernmental Panel on Climate Change) has inferred that higher temperature will cause an increase in death and illness, especially among the old and the urban poor as they have limited access to air conditioning.

Heat Waves:

According to the IMD (Indian Meteorological Department), heat wave is a period of hot weather, which could last from several days to weeks with day temperature 5 to 6 degree Celsius or more above the normal in situations where normal maximum temperature is more than 40 degree Celsius. So, a heat wave not as a feature of the measured absolute temperature but the departure from a value fixed at 40°C. The IMD further divides heat waves into two categories i.e. moderate and severe. The first category includes places where the normal day temperature is 40°C. In these regions if the day temperature exceeds by 3-4°C above the normal, it is said to be affected by a moderate heat wave. Similarly when the day temperature is 5°C or more than the normal it is a severe heat wave condition. The second category includes regions where the normal maximum temperature is 40°C or less. The discomfort due to heat waves is different in different regions. In places, where the normal

temperature is itself is high, people become adapted to that temperature. For the same temperature, people from colder regions often feel more.

In April and May, the sun is directly above India, temperatures rise rapidly and these are the hottest months over most of India. The air is very dry and over the dry north west the relative humidity may be as low as 1 percent. These hot winds in the north-west India are locally called 'loo'.

Heat Prone Areas in India:

Generally, heat waves develop in two areas, one is dry low rainfall area over the west of India and the second is the western part of the Deccan Plateau (Kapur, 2010). Heat waves are more common in the states of Bihar, Orissa, Rajasthan and parts of Maharashtra and Uttar Pradesh. In the south, it is the Krishna and Godavari Delta that appear strong on disastrous heat waves. Table 1 indicates the loss of human lives due to heat waves along with their number of occurrences during 1978-1999 in India.

Table: 1

Loss of Lives and Number of Spells of Heat Waves during 1978-99 in India

S. No.	Years	No. of Death.	No. of Heat Waves.
1	1978	368	9
2	1979	365	8
3	1980	106	8
4	1981	63	4
5	1982	11	2
6	1983	185	13
7	1984	58	9
8	1985	141	4
9	1986	155	5
10	1987	90	7
11	1988	924	17
12	1989	43	10

13	1990	2	2
14	1991	250	4
15	1992	114	5
16	1993	73	6
17	1994	234	9
18	1995	410	34
19	1996	17	9
20	1997	8	9
21	1998	2514	33
22	1999	163	16
i)	Average.	286.0909	10.13636
ii)	S.D.	538.045	8.514947

Source: Impact of Heat waves over India, Current Science, Vol 79, No.2, 2000.

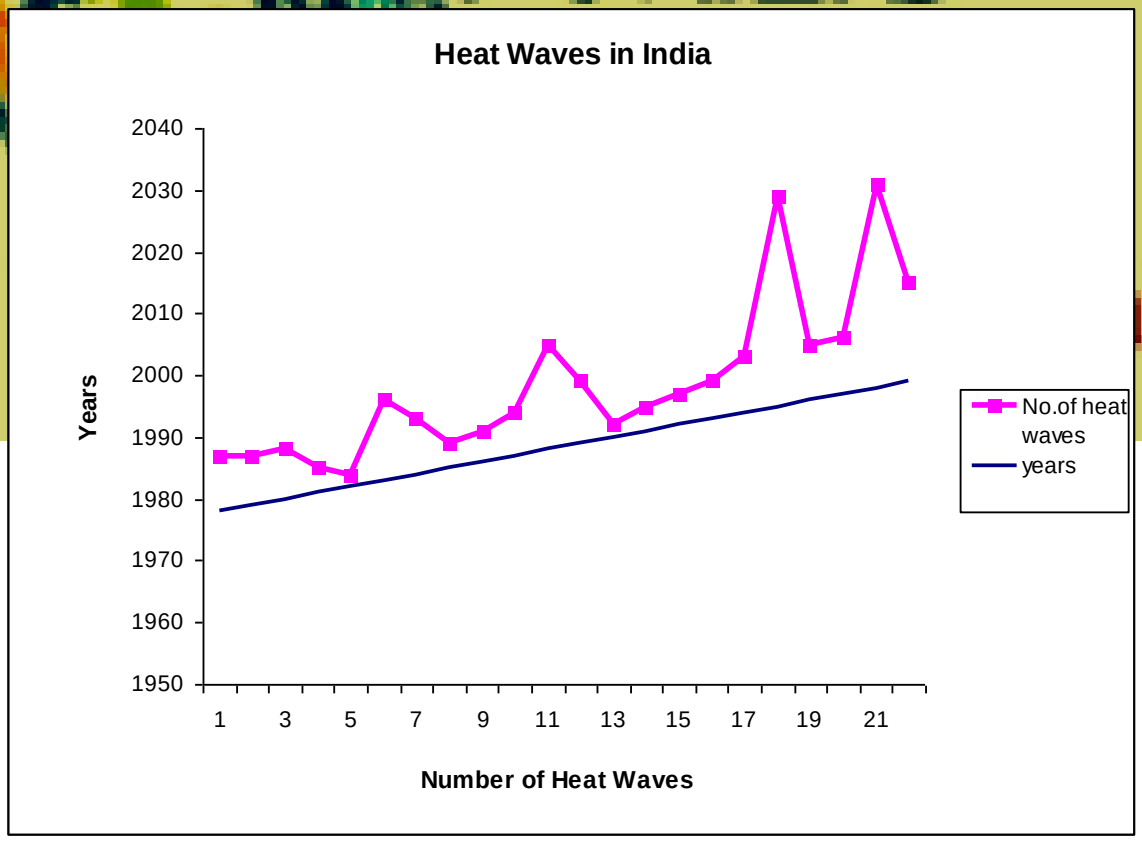

Table 1 clearly indicate that the no. of heat waves has been increase over the year. Further the Standard Deviation (S.D.) clearly shows that the variance is very high in the trend of Heat

Waves. So, we conclude that the trend of Heat Waves is not natural or in other words we can say that it has been occurred due to the Climate Change. The trend of Heat Waves clearly indicates that the Climate is changing.

Effects of Heat waves on Human Being:

Heat wave is attributed to failure of the heat regulating mechanism. It is characterised by very high body temperature which may rise to 110° F (43.3°C) and profound disturbances including delilium, convulsions and partial or complete loss of consciousness (Park, 2005).

- The first symptom of heatstroke is muscle fatigue due to loss of water and salts. The other symptoms include headache, nausea and vomiting.
- The skin is dry, hot and flushed. Classically, sweating is absent or diminished, but many victim of clear-cut heat stroke perspire profusely.
- There is a marked tachycardia with pulse which is initially full and bounding but many soon become small and irregular.
- Arteries dilate and blood collects in the lower limb, depriving the brain. The temperature rises and liver, kidneys and the respiratory system shut down.
- Neurological manifestations include a coarse muscle tremor and confusion, aggression or loss of consciousness.
- In most severe cases, death may occur within a few hours due to acute rinal failure, peripheral circulatory failure or multiple organ failure.

Management of Heat Stroke:

Physical cooling is the mainstay of treatment in such cases. The body should be loosely wrapped in a cool wet sheet frequently sprinkled with ice-cold water. Ice packs should be applied to the heads and the limbs and the skin massaged with ice wrapped in cloth. This will accelerate heat loss and also increase the circulation between the cold peripheral blood and other viscera, thereby helping to reduce the internal core temperature.

So, with the changing climate, numbers of heat waves are increasing day by day. It adversely affects the physical and socio-economic conditions of inhabitants.

Conclusion:

Climate Change affects human health and increases death and illness, especially among the old and the urban poor as they have limited access to air conditioning. Heat wave is attributed to failure of the heat regulating mechanism and the trend of Heat Waves clearly indicates that the Climate is changing.

References:

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