

Environmental Change and its effect on well-being: Indian Scenario

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Abstract:

There is well established consensus that the earth is getting warmed at a rate unprecedented during the post hunter-gatherer human existence. The third assessment report of the intergovernmental Panel on Climate change so published in the year 2001, explains further stating that “there is new and stronger evidence that most of the warming so observed over the last fifty years is likely to be attributable to human activities”. These does include not only rising surface temperatures, but also increasingly frequent floods and droughts and changes in natural ecosystems. All such changes may be linked to the health of human societies. Climate conditions do affect human wellbeing both directly and indirectly, through the influences on the levels of pollution in the Air, on the agriculture land, marine and freshwater systems that provide us basic stuff for survival. Keeping this in mind, the researcher would like to unearth the hidden complexities pertaining to this subject of discussion thereby defining the role of the international community with special reference to India thereby highlighting the major cause accountable for the climate change which are going to create very serious health hazards in times to come. Ultimately, the researcher would like to recommend certain suggestions in order to mitigate this issue to a great extant.

Key Words: *International Law, Case Studies, Pollution, Water, Supreme Court*

Introduction:

So far as climate change is concerned, having been together with other atmospheric imbalances, it has impacted the health of people in many ways. Accordingly, the health hazards in existence may go up and in some places their may be the appearance of newly developed health threats. Though, all communities may not face the risk on equal footing, but dangers may eclipse the overall growth of such populations. Important scenarios do include age factor, economic capacities, and locations. It is also a proven fact that climate change happens because of drastic increase of greenhouse gases in the ether thereby resulting into the rise in the temperature of the planet earth. Such gases do trap such heat in the ether and accordingly the temperature of air and sea is also bound to scale up. Such changes are found to be produced through the burning of fuels such as coal while generating power. For the past few years, the negative impact of climate change has been seen in terms of global warming. Countries like Australia, India, Japan, New Zealand has recorded an unprecedented increase of temperature by 1.4 degree Celsius since 1910.²

Such places have started experiencing:

- ❖ *an increase in the frequency of days of extreme heat*
- ❖ *an increase in dangerous fire weather and length of fire seasons*
- ❖ *a decline in cool season rainfall, resulting in the lowest streamflow on record over the past decades*
- ❖ *a rise in sea levels.*³

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² Sommer, Alfred. “Burning Fossil Fuels: Impact of Climate Change on Health.” *International Journal of Health Services*, vol. 46, no. 1, 2016, pp. 48–52. JSTOR, <https://www.jstor.org/stable/48512864>. Accessed 23 Jun. 2022.

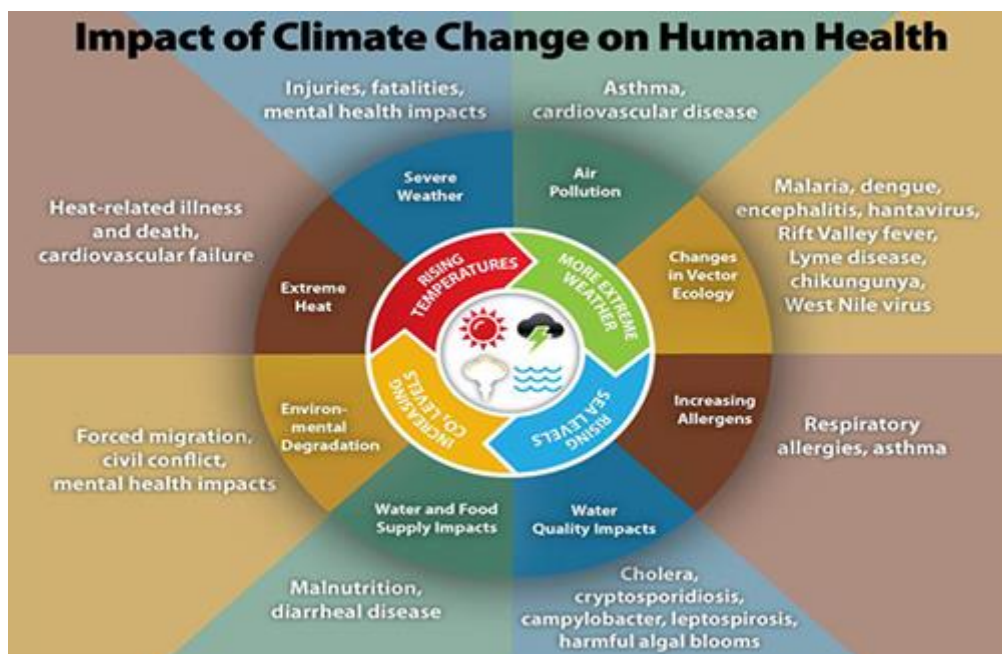
³ Kuylenstierna, Johan, et al. *Air Pollution and Its Impact on Human Health: An Important Driver for Achieving the 1.5°C Goal of the Intergovernmental Panel on Climate Change*. Stockholm Environment Institute, 2020. JSTOR, <http://www.jstor.org/stable/resrep28402>. Accessed 23 Jun. 2022.

In countries like United States of America and India researchers have found that public health has been found to have been impacted by disruption due to ecological imbalances because of which there is a disturbance in the healthy lifestyle of people⁴ in the world. such disruptions may give rise to diseases like:⁵

- ❖ *Respiratory issues*
- ❖ *Cardiovascular ailments*
- ❖ *Premature deaths*
- ❖ *Distribution of food across communities*
- ❖ *Mental health issues*⁶

Change in the climatic conditions has led to the presence of pollen seasons thereby causing people to suffer health impacts from pollen and other related allergens. So far as Pollen is concerned, it is basically an air borne allergen which may impact our health badly. it is made up of very thin seeds which are getting out of plants having flowers, trees, weeds etc. the amount of its presence in air does depend upon the session and geographic locations.⁷

Figure-1: Impact of Climate Change On Human Health



(Source: <https://www.cdc.gov/climateandhealth/effects/default.htm>)

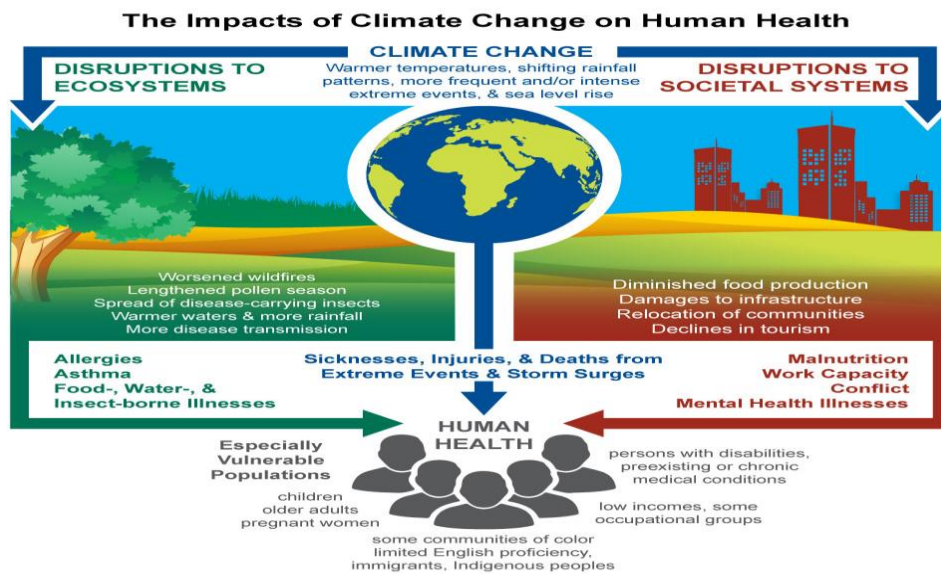
⁴ World Health Organization. “Addressing Health Risks of Climate Change: Building Climate-Resilient Health Systems.” Cop24 Special Report: Health & Climate Change, World Health Organization, 2018, pp. 36–46. JSTOR, <http://www.jstor.org/stable/resrep33057.8>. Accessed 23 Jun. 2022.

⁵ Singh, Brajesh K. “Climate Change and Human Health: An Environmental Perspective.” *Climate Research*, vol. 41, no. 1, 2010, pp. 41–44. JSTOR, <http://www.jstor.org/stable/24870473>. Accessed 23 Jun. 2022.

⁶ World Health Organization. *Global Climate Change and Child Health: Training for Health Care Providers*. World Health Organization, 2008. JSTOR, <http://www.jstor.org/stable/resrep33136>. Accessed 23 Jun. 2022.

⁷ Wright, Helena, et al. *Impact of Climate Change on Least Developed Countries: Are the SDGs Possible?* International Institute for Environment and Development, 2015. JSTOR, <http://www.jstor.org/stable/resrep01633>. Accessed 23 Jun. 2022.

Figure-2: Climate Change⁸ And Human Health⁹



(Source:<https://blogs.edf.org/climate411/2016/04/05/the-impacts-of-climate-change-on-human-health-a-sobering-new-report/>)

Such a change may lead to the shift in precipitation patterns seasonal temperatures¹⁰ and CO₂ in the ether. It may impact:

- ❖ *when the pollen season¹¹ starts and ends and how long it lasts each year,*
- ❖ *how much pollen plants create and how much is in the air?*
- ❖ *how pollen affects our health (the “allergenicity” of pollen),*
- ❖ *how much pollen we’re exposed to, and?*
- ❖ *our risk of experiencing allergy symptoms.*

The exposure to Pollen may give rise to different allergic health issues which may include hay fever. It occurs when allergens like pollen do enter once mortal coil and immune system may assume it as a threat. Body may respond in terms of releasing chemicals thereby causing nose related issues. Such symptoms may occur in the presence of certain sessions yearly. In countries like USA, it may impact more than sixty million people on yearly basis. Pollen may trigger highly inflammable health issues like conjunctivitis. Such issue is found 30/40 percent of the people. It may give rise to itching into the eyes.¹²

⁸ Onzivu, William. “Tackling the Public Health Impact of Climate Change: The Role of Domestic Environmental Health Governance In Developing Countries.” *The International Lawyer*, vol. 43, no. 3, 2009, pp. 1311–35. JSTOR, <http://www.jstor.org/stable/40708208>. Accessed 23 Jun. 2022.

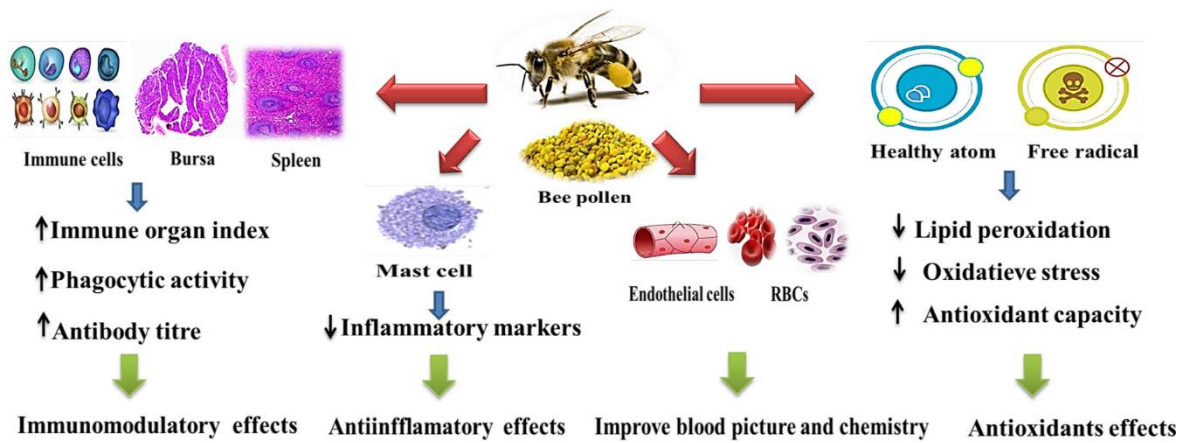
⁹ Vagg, Xander. *American Security: The Impact of Climate Change*. American Security Project, 2012. JSTOR, <http://www.jstor.org/stable/resrep05955>. Accessed 23 Jun. 2022.

¹⁰ Kovats, Sari & Andrew Haines. “The Potential Health Impacts of Climate Change: An Overview.” *Medicine and War*, vol. 11, no. 4, 1995, pp. 168–78. JSTOR, <http://www.jstor.org/stable/45354788>. Accessed 23 Jun. 2022.

¹¹ Radke, Vince. “PRESIDENT’S MESSAGE: The Impacts of Climate Change Are at Our Doorstep.” *Journal of Environmental Health*, vol. 81, no. 4, 2018, pp. 6–7. JSTOR, <https://www.jstor.org/stable/26530742>. Accessed 23 Jun. 2022.

¹² Hassan, Noor Artika, et al. “Impact of Climate Change on Air Quality and Public Health in Urban Areas.” *Asia Pacific Journal of Public Health*, vol. 28, no. 2, 2016, pp. 38S-48S. JSTOR, <https://www.jstor.org/stable/26686241>. Accessed 23 Jun. 2022.

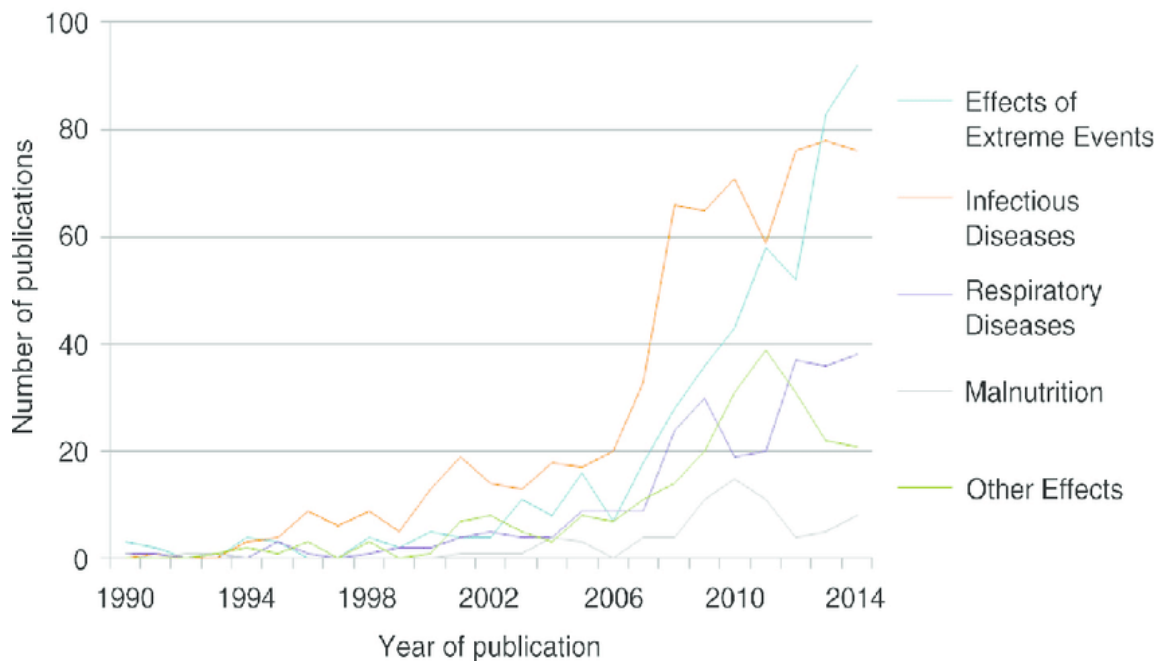
Figure-3: Impact of Pollen on Health



(Source: <https://onlinelibrary.wiley.com/doi/full/10.1111/jpn.13049>)

Table-1: Climate Variations and Impact on Health (1990-2014)

Health impact studied with climate change in PubMed, 1990–2014



(Source: https://www.researchgate.net/figure/Climate-change-and-health-publications-according-to-health-impact-studied-in-PubMed_fig3_306404138¹³)

People having issues like asthma may be more prone to pollen. In the US, the total cure cost for pollen disease is almost found to be USD 3 billion on yearly basis.¹⁴ The areas having more presence of pollen in air may impact communities together to a great extent. Accordingly, the

¹³ Diaz, James H. “The Public Health Impact of Global Climate Change.” Family and Community Health, vol. 27, no. 3, 2004, pp. 218–29. JSTOR, <http://www.jstor.org/stable/44954316>. Accessed 23 Jun. 2022.

¹⁴ World Health Organization. “WHO’s Role and Leadership in Global Health.” WHO Global Strategy on Health, Environment and Climate Change: The Transformation Needed to Improve Lives and Wellbeing Sustainably through Healthy Environments, World Health Organization, 2020, pp. 19–27. JSTOR, <http://www.jstor.org/stable/resrep32997.9>. Accessed 23 Jun. 2022.

respiratory ailments may be on the rise.¹⁵ In some countries because of the climate change there have been extreme rainfalls which have also contributed the most for the presence of indoor air borne ailments. India, US, China, and Japan have had such issues to a great extent in the past.

Vulnerability of People Due to Climate Change¹⁶:

Kids have been found to be more vulnerable for various reasons. They are more prone to heat stress and dehydration issues and may be more prone to air borne pollution and smoke coming out of bush fires. As their immunity is not fully developed therefore such weather conditions may put their lives in danger. Pregnant women have more risk of such heat stress during summer season.¹⁷ As they and their child in their womb are prone to such pollutions and related atmospheric imbalances. The old, aged people can have also worse impact on their health due to such unprecedented changes in the climate. Pre existing ailments in people may also be problematic to face such climatic imbalances.¹⁸ Community of people who are living in countryside or vulnerable class of people or people living by the sides of sea have more dangers to their health as they may be in face to face to such big tide, draughts, bush fires or typhoons.

Figure-4: Climate Change and Its Impact on Kids



(Source:<https://below2c.org/2018/10/children-face-unique-health-risks-due-to-climate-change/>)

¹⁵ Kabubo-Mariara, Jane, et al. The Impact of Climate Change on Food Calorie Production and Nutritional Poverty: Evidence from Kenya. Environment for Development Initiative, 2016. JSTOR, <http://www.jstor.org/stable/resrep15061>. Accessed 23 Jun. 2022.

¹⁶ Mills, David M. "Climate Change, Extreme Weather Events, and US Health Impacts: What Can We Say?" Journal of Occupational and Environmental Medicine, vol. 51, no. 1, 2009, pp. 26–32. JSTOR, <http://www.jstor.org/stable/45009460>. Accessed 23 Jun. 2022.

¹⁷ Harley, David, et al. "Climate Change and Infectious Diseases in Australia: Future Prospects, Adaptation Options, and Research Priorities." Asia Pacific Journal of Public Health, vol. 23, no. 2, 2011, pp. 54S-66S. JSTOR, <http://www.jstor.org/stable/26723791>. Accessed 23 Jun. 2022.

¹⁸ Tacoli, Cecilia, et al. "The Impacts of Climate Change on Food Systems." Urban Poverty, Food Security and Climate Change, International Institute for Environment and Development, 2013, pp. 4–6. JSTOR, <http://www.jstor.org/stable/resrep01286.9>. Accessed 23 Jun. 2022.

Waterborne Ailments¹⁹:

The world at large has been facing issues of health hazards coming out of waterborne ailments. There is an exposure of pathogens in water bases and food which give rise to diarrheal issue. Air/water temperature high end rain fall and seasonal changes act as catalyst to increase such transmission. In the States like USA, especially kids and old aged people do succumb to such ailments.

Such ailments may include:

- ❖ *Diarrheal diseases*
- ❖ *Salmonellosis*
- ❖ *Campylobacteriosis*

Such ailments come to the fore because of the changes in water treatment. Such risks are expected to go up in the lakes regions because of such adverse climate change. Nations at large have been facing such challenges.

Climate change has given rise to the increase in ground level ozone. It is associated with many health hazards such as lung issues asthmatic attacks and premature deaths. There are factors that factors into the deformation of ozone layer they are:

- ❖ *Extreme heat*²⁰
- ❖ *Concentrated chemicals*
- ❖ *Methene emissions*
- ❖ *Wildfire emissions*
- ❖ *Air stagnation episodes*²¹

Accordingly, such change in atmosphere may create imbalances which may result into different kinds of climatic changes which may be faced by the inhabitants on earth.²² Drastic rise in global temperature could lead to increase in pre matured deaths by the year 2050 there is an estimation of near about 4300 added pre matured deaths which may be reported in countries like USA,²³ India, and China.²⁴ Health-related costs of the current effects of ozone air pollution exceeding national standards have been estimated at \$6.5 billion (in 2008 U.S. dollars) nationwide, based on a U.S. assessment of health impacts from ozone levels during 2000–2002.

¹⁹ Khan, Shaheen Rafi. "The Impacts of Climate Change: Adaptation Strategies." Does Climate Change Matter?, Sustainable Development Policy Institute, 2001, pp. 7–13. JSTOR, <http://www.jstor.org/stable/resrep00636.5>. Accessed 23 Jun. 2022.

²⁰ Gerardi, Daniel A., and Roy A. Kellerman. "Climate Change and Respiratory Health." JOUR. OF OCC. AND ENV. MED., vol. 56, no. 10S, 2014, pp. S49–54. JSTOR, <https://www.jstor.org/stable/48500442>. Accessed 23 Jun. 2022.

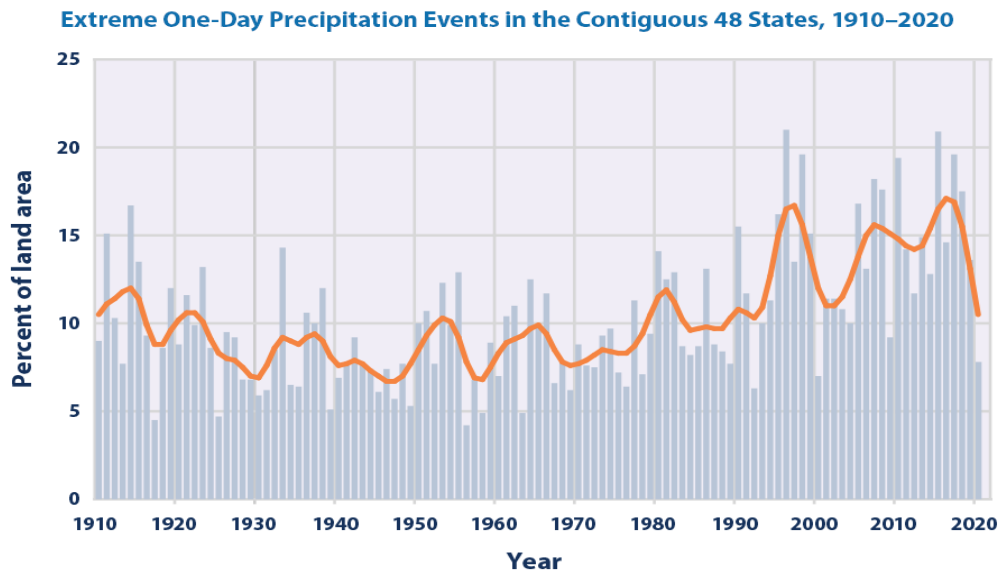
²¹ POPESCU, Andrei-Laurentiu, and Oana LUCA. "Built Environment and Climate Change." Theoretical and Empirical Researches in Urban Management, vol. 12, no. 4, 2017, pp. 52–66. JSTOR, <http://www.jstor.org/stable/26234014>. Accessed 23 Jun. 2022.

²² Weinhold, Bob. "Health Disparities. Climate Change and Health: A Native American Perspective." Environmental Health Perspectives, vol. 118, no. 2, 2010, pp. A64–65. JSTOR, <http://www.jstor.org/stable/25614968>. Accessed 23 Jun. 2022.

²³ Promphakping, Buapun, et al. "Proposed Community Strategies for Coping with Climate and Health Impacts." Climate Change and Urban Health Vulnerability, International Institute for Environment and Development, 2016, pp. 28–30. JSTOR, <http://www.jstor.org/stable/resrep28992.12>. Accessed 23 Jun. 2022.

²⁴ Martens, W. J. M. "Health Impacts of Climate Change and Ozone Depletion: An Ecoepidemiologic Modeling Approach." Environmental Health Perspectives, vol. 106, 1998, pp. 241–51. JSTOR, <https://doi.org/10.2307/3433924>. Accessed 23 Jun. 2022.

Table-2: Precipitation Levels and Climate Change (1910-2020)



Data source: NOAA (National Oceanic and Atmospheric Administration). 2021. U.S. Climate Extremes Index. Accessed January 2021. www.ncdc.noaa.gov/extremes/cei.

For more information, visit U.S. EPA's "Climate Change Indicators in the United States" at www.epa.gov/climate-indicators.

(source: <https://www.c2es.org/content/extreme-precipitation-and-climate-change/>)

Unprecedented rise in temperature²⁵:

In almost all parts of the world, heat wave has also created threats to the wellbeing of living beings. Such heat waves due to the climate change have resulted into the death of millions of people across the globe. Cardiovascular disease, Attacks and Cerebrovascular ailments have erupted like volcano. Such an increase in temperature have made people land in hospitals for kidney failure or heart related ailments. Moreover, some extreme heat related ailments and risks have been noticed in the western hemisphere. Urban heat islands having old-aged people become scapegoats to such weather conditions thereby having health issues. In case of winter weather, urban population may get affected by such heat waves. There could also be possibilities of getting dehydrated and accordingly, the nervous system can get affected of millions of people. Climate change has also given rise to the increase in uncertainty regarding life expectancy in colder regions.

Precipitation Extremes: American Perspective

It has also been noticed that precipitation issues have also increased in the nations like USA. Such increase has given rise to floods in some parts of US region. As we know that floods are supposed to be the deadliest danger which has accounted for the loss of ninety-eight deaths /year on an average in the US.²⁶ The presence of such floods also has invited storms, sand winds or tropical storms which has resulted into the deaths of millions of people in the western hemisphere. Such situations give rise to waterborne ailments. People living in Tempest prone

²⁵ Viveros-Uehara & Thalia. "Health Care in a Changing Climate: A Review of Climate Change Laws and National Adaptation Plans in Latin America." Health and Human Rights, vol. 23, no. 2, 2021, pp. 139–52. JSTOR, <https://www.jstor.org/stable/48636261>. Accessed 23 Jun. 2022.

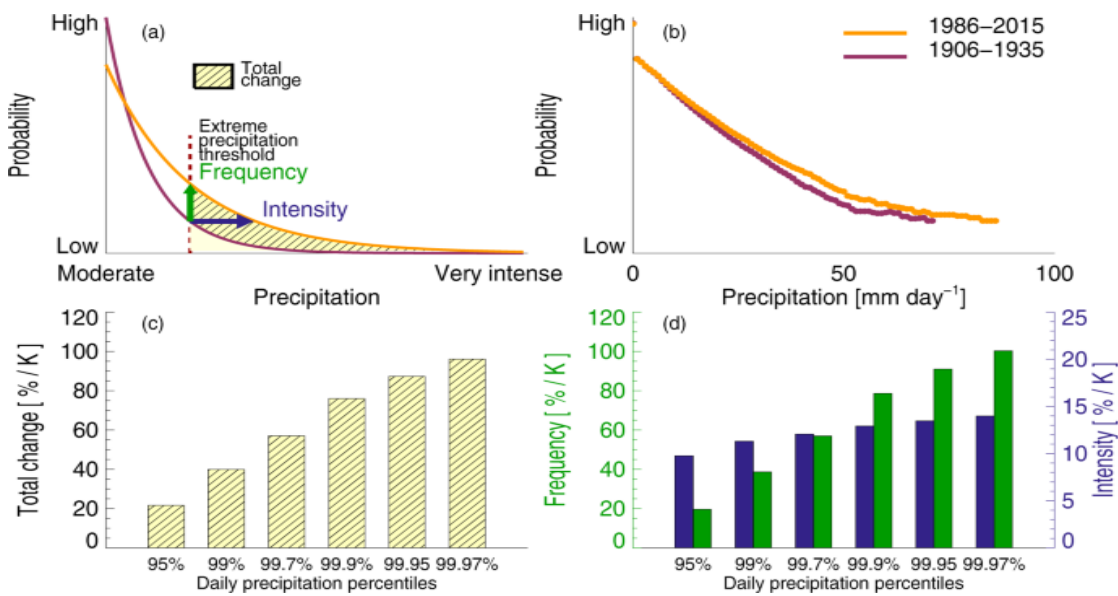
²⁶ American Security Project. Part One: *Climate Change & Security*. American Security Project, 2012. JSTOR, <http://www.jstor.org/stable/resrep05974>. Accessed 23 Jun. 2022.

areas may get impacted to a great extent.²⁷ The health issues which such people may come across are:

- ❖ Asthma
- ❖ Wheezing
- ❖ Pneumonia
- ❖ RSV (*Respiratory syncytial virus*)

On the other side, droughts²⁸ can also create imbalances to the health of the people across the globe. Such conditions may be on the upgrade if wildfires haze storms, heat waves floods, contaminated water issues crop up. There could be a degradation in the air quality post such storms which may endanger the lives of people. It could be anticipated that there could be an increase in valley fever and fungal issues.

Figure-5: Extreme Precipitation Scenarios (1986-2015)



(Source: <https://www.nature.com/articles/s41598-019-52277-4>)

Climate Change and Mental Health:

The worst impact which could be made on humans is mental illness. It can cause severe mental health issues to kids, youngsters, old, aged people also. In US, tornados like hurricane and Katrina caused so much of mental stress and anxieties to people. So much so wildfires can also give rise to similar impairments.²⁹ All this has happened due to the change in the weather. Even pre matured births, low birth weights, maternal issues, pre matured deaths have risen to a great extent. Suicidal tendencies have also been reported amongst masses. Dementia has been found

²⁷ Major, David C & Sirku Juhola. "Impacts and Vulnerabilities of Climate Change on Coastal Cities." *Climate Change Adaptation in Coastal Cities: A Guidebook for Citizens, Public Officials and Planners*, Helsinki University Press, 2021, pp. 31–50. JSTOR, <https://doi.org/10.2307/j.ctv1qp9hcs.8>. Accessed 23 Jun. 2022.

²⁸ Cooney, Catherine M. "Preparing a People: Climate Change and Public Health." *Environmental Health Perspectives*, vol. 119, no. 4, 2011, pp. A166–71. JSTOR, <http://www.jstor.org/stable/41203242>. Accessed 23 Jun. 2022.

²⁹ Giorgi, F., and N. Diffenbaugh. "Developing Regional Climate Change Scenarios for Use in Assessment of Effects on Human Health and Disease." *Climate Research*, vol. 36, no. 2, 2008, pp. 141–51. JSTOR, <http://www.jstor.org/stable/24869446>. Accessed 23 Jun. 2022.

to be a risk factor causing deaths.³⁰ People having schizophrenia have been at risk during very hot weather.³¹ Accordingly environmental degradation has made the lives of people very challenging and uncertain.³² Added potential mental health impacts, less well understood, include the possible distress associated with environmental degradation and displacement and the anxiety³³ and despair that knowledge of climate change might elicit in some people.³⁴ In countries like India, such degradation has led to so many uncertainties³⁵ in terms of high temperatures in the northern parts of India and floods being faced by north-eastern part of India.³⁶

Conclusion:

Having given due regard to the pros and cons of the topic concerned³⁷, it could be said that climate on earth³⁸ has been on the upgrade rapidly accordingly such changes may give rise to uncertain threat to our survival. We may no longer ignore the adverse impacts of such changes on ourselves. ³⁹It could be said that the next generation must get better to address such issues of climate change and its impact on living species. Stake holders⁴⁰ including law makers,

³⁰ Ziska, Lewis H., et al. "Rising CO₂, Climate Change, and Public Health: Exploring the Links to Plant Biology." *Environmental Health Perspectives*, vol. 117, no. 2, 2009, pp. 155–58. JSTOR, <http://www.jstor.org/stable/25434918>. Accessed 23 Jun. 2022.

³¹ Mori, Naoki & Yohei Chiba. *Impact of Climate Change –Transforming Business Behaviour in Favour of Sustainable Development*. Institute for Global Environmental Strategies, 2017. JSTOR, <http://www.jstor.org/stable/resrep02904>. Accessed 23 Jun. 2022.

³² Ebi, Kristie L., et al. "Climate Variability and Change and Their Potential Health Effects in Small Island States: Information for Adaptation Planning in the Health Sector." *Environmental Health Perspectives*, vol. 114, no. 12, 2006, pp. 1957–63. JSTOR, <http://www.jstor.org/stable/4119613>. Accessed 23 Jun. 2022.

³³ Onzivu, William. "Health in Global Climate Change Law: The Long Road to an Effective Legal Regime Protecting Both Public Health and the Climate." *Carbon & Climate Law Review*, vol. 4, no. 4, 2010, pp. 364–82. JSTOR, <http://www.jstor.org/stable/24324254>. Accessed 23 Jun. 2022.

³⁴ Tacoli Cecilia, et al. "The Health Impacts of Urban Food Insecurity." *Urban Poverty, Food Security and Climate Change*, International Institute for Environment and Development, 2013, pp. 11–14. JSTOR, <http://www.jstor.org/stable/resrep01286.13>. Accessed 23 Jun. 2022.

³⁵ World Health Organization. "The Paris Agreement: The Strongest Public Health Agreement Of The Century." *Cop24 Special Report: Health & Climate Change*, World Health Organization, 2018, pp. 12–25. JSTOR, <http://www.jstor.org/stable/resrep33057.6>. Accessed 23 Jun. 2022.

³⁶ Sending, Ole Jacob, et al. "Climate Change and International Relations: A Five-Pronged Research Agenda." *Journal of International Affairs*, vol. 73, no. 1, 2019, pp. 183–94. JSTOR, <https://www.jstor.org/stable/26872788>. Accessed 23 Jun. 2022.

³⁷ Lake, Iain R., et al. "Climate Change and Food Security: Health Impacts in Developed Countries." *Environmental Health Perspectives*, vol. 120, no. 11, 2012, pp. 1520–26. JSTOR, <http://www.jstor.org/stable/23322387>. Accessed 23 Jun. 2022.

³⁸ Fry, James D & Inna Amesheva. "Cleaved International Law: Exploring the Dynamic Relationship between International Climate Change Law and International Health Law." *The Fletcher Forum of World Affairs*, vol. 40, no. 1, 2016, pp. 73–98. JSTOR, <http://www.jstor.org/stable/45290061>. Accessed 23 Jun. 2022.

³⁹ Ebi, Kristie L., and Glenn McGregor. "Climate Change, Tropospheric Ozone and Particulate Matter, and Health Impacts." *Environmental Health Perspectives*, vol. 116, no. 11, 2008, pp. 1449–55. JSTOR, <http://www.jstor.org/stable/25148444>. Accessed 23 Jun. 2022.

⁴⁰ Hall, Margaux J. "Advancing Climate Justice and the Right to Health Through Procedural Rights." *Health and Human Rights*, vol. 16, no. 1, 2014, pp. 8–18. JSTOR, <http://www.jstor.org/stable/healhumarigh.16.1.8>. Accessed 23 Jun. 2022.

enforcement agencies,⁴¹ health personnel's⁴², non-governmental organizations⁴³, pharmaceutical sector,⁴⁴ Environmentalists can play a very important role thereby rolling out plan of action to save environment⁴⁵ from all such dangers as far as possible.⁴⁶ Physicians can also render their services in climate change⁴⁷ scenarios and health adaptation⁴⁸ to get prepared for uncalled for challenges. The ecological balance must not be challenged. The nature per se must not be tapped brutally.⁴⁹

“समुद्र वसने देवी पर्वत स्तन मंडिते । विष्णु पत्नी नमस्तुभ्यं पाद स्पर्श क्षमश्चमेव”⁵⁰

⁴¹ Estrada, Francisco & Richard S. J. Tol. “*Toward Impact Functions For Stochastic Climate Change.*” *Climate Change Economics*, vol. 6, no. 4, 2015, pp. 1–13. JSTOR, <https://www.jstor.org/stable/climchanecon.6.4.01>. Accessed 23 Jun. 2022.

⁴² Shimamoto, Mark M., and Sabrina McCormick. “*The Role of Health in Urban Climate Adaptation: An Analysis of Six U.S. Cities.*” *Weather, Climate, and Society*, vol. 9, no. 4, 2017, pp. 777–85. JSTOR, <https://www.jstor.org/stable/26389004>. Accessed 23 Jun. 2022.

⁴³ von Schorlemer, Sabine, and Sylvia Maus. “*Reflections on Climate Change, Heritage and Peace.*” *Climate Change as a Threat to Peace: Impacts on Cultural Heritage and Cultural Diversity*, edited by Sabine von Schorlemer and Sylvia Maus, Peter Lang AG, 2014, pp. 9–24. JSTOR, <http://www.jstor.org/stable/j.ctv2t4cyp.4>. Accessed 23 Jun. 2022.

⁴⁴ Bedsworth, Louise. “*Preparing for Climate Change: A Perspective from Local Public Health Officers in California.*” *Environmental Health Perspectives*, vol. 117, no. 4, 2009, pp. 617–23. JSTOR, <http://www.jstor.org/stable/25478167>. Accessed 23 Jun. 2022.

⁴⁵ Cutler, Matthew J., et al. “*The Influence of Political Ideology and Socioeconomic Vulnerability on Perceived Health Risks of Heat Waves in the Context of Climate Change.*” *Weather, Climate, and Society*, vol. 10, no. 4, 2018, pp. 731–46.

⁴⁶ Huq, Saleemul. *Adaptation to Climate Change: A Paper for the International Climate Change Taskforce. Institute for Public Policy Research (IPPR)*, 2005. JSTOR, <http://www.jstor.org/stable/resrep16058>. Accessed 23 Jun. 2022.

⁴⁷ Wilkinson, Paul. “*Climate Change & Health: The Case for Sustainable Development.*” *Medicine, Conflict and Survival*, vol. 24, no. S1, 2008, pp. S26–35. JSTOR, <https://www.jstor.org/stable/27017460>. Accessed 23 Jun. 2022.

⁴⁸ Kinney, Patrick L. “*From Air Pollution to the Climate Crisis: Leaving the Comfort Zone.*” *Daedalus*, vol. 149, no. 4, 2020, pp. 108–17. JSTOR, <https://www.jstor.org/stable/48592030>. Accessed 23 Jun. 2022.

⁴⁹ Sauerborn, Rainer. “*Climate Change: An Agenda for Research and Teaching in Public Health.*” *SCAN. JOUR. OF PUB. H.*, vol. 35, no. 6, 2007, pp. 561–63. JSTOR, <http://www.jstor.org/stable/45149901>. Accessed 23 Jun. 2022.

⁵⁰Source: <http://ravislibrary.blogspot.com/2016/11/morning-mantra-samudre-vasne-devi.htm> Meaning: o ocean-draped, o adorned with mountain breasts, o consort of Vishnu, forgive me for stepping on you.