

Study and Exposure to Natural's Disaster for World Cities

S Kannadhasan¹ R.Guruprasath² M Shanmuganantham³ Dr.R.Nagarajan⁴

^{1,2}Assistant Professor ³Grade and Vice Principal ⁴Professor

^{1,2,3,4}Department of Electronics and Communication Engineering

¹Cheran College of Engineering, Karur, Tamilnadu, India ^{2,4}Gnanamani College of Technology, Namakkal, Tamilnadu, India ³Tamilnadu Government Polytechnic College, Madurai, Tamilnadu, India

Abstract— Disasters are a mixture of threats, threat factors and inadequate capability or risk-reduction measures. Disasters, particularly those that appear primarily to be caused by natural hazards, are not the greatest threat to mankind. A hazard becomes a disaster when it coincides with a vulnerable situation, when societies or communities cannot cope with its own resources and capacities. A hazard is a physical event, phenomenon or human activity that can cause loss of life or injury, damage to property, social and economic disruption or degradation to the environment. Hazards have various origins: natural (geological, hydro, meteorological, and biological) or human (environmental or technological) actions. Risk is the probability of adverse effects or predicted losses (deaths, accidents, properties, livelihoods, disrupted economic activity or damaged environment) arising from interactions between natural or man-made hazards and vulnerable populations. Climate change will create new hazards such as the melting of glaciers, sea level rise and extreme weather in proportions never seen before. A natural disaster is defined as a natural event that overwhelms local resources, and threatens the community's function and safety. Disasters are hard to plan and anticipate since they are innately different from common emergencies.

Keywords: Natural Disaster, Climate Change, Noise Pollution, Air Pollution and Microclimate

I. INTRODUCTION

The Democratic Party has accepted the stance the Intergovernmental Panel on Climate Change (IPCC) has outlined. In short, the IPCC states that fossil-based fuel combustion has contributed unparalleled levels of carbon dioxide to the environment, resulting in an increased "greenhouse" effect with an accompanying increase in ambient temperatures. This will have a wide range of deleterious effects, including loss of species diversity, rising sea levels, reduced biological productivity, displacement of indigenous crops, and disruption of our agricultural systems' hydrological cycles and reduced capacity. Climate change is an immediate danger to our time and a fundamental obstacle. This century has seen fifteen of the 16 hottest years on record [1]-[5]. The latest science shows us that all of these effects will be much greater in the future without bold, urgent steps through our economy to curb carbon emissions and other greenhouse gases. We cannot leave a world which has been seriously affected by environment and climate change to our children.

"Global warming," "climate change" and "catastrophe" pose an omnipresent danger to the 21st century. Once the physicist Dr. Stephen Hawking quoted "human should leave earth in 600 years," otherwise the human community would have a great loss. Although his comment seems very frightening and surprising, we will have to agree

with his conclusion if we consider the recent climate change and its effects worldwide [6-10]. One of the distressing news recently is that the 'economic climate' has drastically changed with unchecked development. Despite the anthropogenic emission of CO₂ into the atmosphere, the global surface temperature has increased. The main greenhouse gas CO₂ concentration in the atmosphere has now reached unprecedented levels (~409 ppm). Because of the fact, the last two decades of the 21st century have faced frequent global warming-fuelled catastrophes. Economy lost several billion dollars and millions of people around the world were killed due to extreme impacts of climate change. Notably, the first time in 111 years South Korea had experienced historic summer in 2018 [11]-[12]. The summer temperature reached over 40 °C and 42 people were killed in the nation due to the dangerous heat wave.

II. CLIMATE CHANGE

The Correlation of Seismic Activity and Recent Global Warming (CSARGW) has shown that rising seismic activity in the high geothermal flux areas (HGFA) of the globe is closely associated with global temperatures ($r=0.785$) from 1979-2015. The mechanism driving this correlation is amply documented by oceanographers and seismologists and is well understood. Increased seismic activity in the HGFA (i.e., the spreading zones of the mid-ocean) serves as a proxy indicator for higher geothermal flux in those areas. The HGFA comprises the Mid-Atlantic Ridge, East Pacific Rise, West Chile Rise, Indian Ocean Ridges, and Antarctic / Southern Ocean Ridges.

Crisis in the economy and transport sector is the very distinct issue we are facing with climate change. As described above, the global economy is often devastated by hurricanes, floods, wildfires, cyclones. Billions of dollars of damages arise each year which makes the poor countries even more devastating. Economist has clearly stated the impact of global warming on the global economy in a recent report by Keith Wade, Chief Economist and Strategist, and Marcus Jennings. Sub-Saharan Africa, South and South East Asian continents are highly vulnerable regions in the developing world according to the World Bank report.

In South Asia, cities like Kolkata and Mumbai in Indian are faced with increased flooding, warming temperatures and severe cyclones. Loss of the Himalayan snow melt will also reduce water flow into the Indus Ganges and Brahmaputra basins. Meanwhile Vietnam's Mekong Delta in South East Asia, which produces most of the country's rice, is particularly vulnerable to rising sea levels. Food stability would be a major challenge for Sub Saharan Africa due to droughts and changes in rainfall. The prediction would have a direct effect on people Economy that relies on agriculture.

As long as climate change vulnerability increases it would directly affect the availability, quality, quantity, and access to the natural resources available. Water, land, forests, food, habitat, amongst others. If the supply can not meet the required demand, this will lead to instability and even violent conflict where there are no adequate management institutions or mechanisms for dispute resolution. At worst, competition from natural resources may lead to regional instability or civil conflicts. Climate change increases the human insecurity of people who depend on their livelihoods for natural resources.

The victims would provoke the government to tackle the migration because of the lack of available resources. When there is no clear migration policy and people get rage it will have an effect on political and foreign relations. So the future of any political government depends entirely on how the current government is addressing the impacts of climate change.

Region	Decadal Trend
North Pole	+0.55
South Pole	-0.00
Northern Hemisphere	+0.28
Southern Hemisphere	+0.15
Globe	+0.20

Table 1: Climate Change in Various Pole

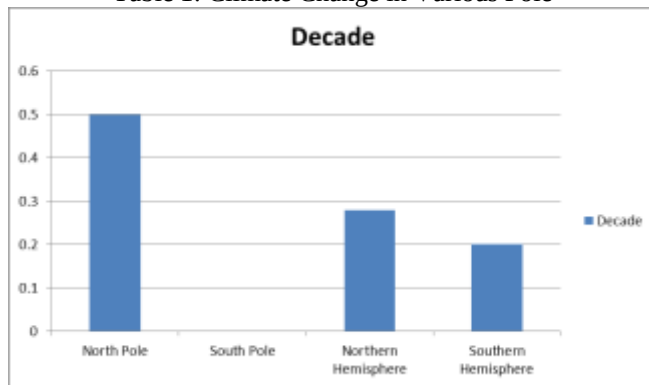


Fig. 1: Climate Change Decade

III. NOISE POLLUTION

Typical dangerous emissions are noise. Regular and long-term exposure to high noise can lead to various adverse health effects, such as hearing loss, hypertension, is chemical heart disease, irritation, and sleep disorder. For humans the maximum safe noise level (MSNL) is 70 dB(A) for 24 h exposure without harmful effects. 85 dB(A) or higher will permanently cause damage to the hearing and even cause hearing loss. The source can be divided into structure borne and airborne noise in terms of the in-vehicle noise. At a mounting point the structure-borne noise is produced by vibration. The vibration waves propagate through the structure of the vehicle, then acoustically radiate into the cab. Structural resonance and cabin acoustic modes with a predominant low frequency of 500 Hz below the noise effects. A vehicle's components, such as engine engines, fans for cooling, braking and exhaust systems, can produce the noise in the structure.

On the other hand, airborne noise is related to the noise that is transmitted directly into the cabin through air via gaps and vehicle leakage, such as tire-interface noise, wind noise, and ambient vehicles, often at the 800 frequency.

Nevertheless, the in-vehicle noise exposure during the weekday day is still lacking in studies and its risk of adverse health consequences for the public. In this regard, this research is proposed to investigate the distribution of levels of in-vehicle noise exposure, assess the risk of in-vehicle noise exposure for commuters, and simplify the estimation of hazardous highway noise exposure.

Noise derives from the Latin word "nausea" implying loud, unpleasant or unexpected 'unwanted sound.' Specialists in public health believe that environmental risks constitute 24 per cent of blame for the disease. To this contribute significant exposure to ambient noise emissions e.g. from highways, railways, airports and industrial plants. The following key noise pollution outcomes were briefly incorporated on the basis of the available scientific evidence and the findings obtained in the WHO study, with the goal of focusing on the impact of noise pollution on public health. There is scientific evidence that vehicular noise pollutions increase the danger of ischemic heart disease; there is less evidence for an association with aircraft noise but this is only because few researches on this are available; however there is increasing evidence that the road traffic and aircraft noise pollution have an important influence on hypertension. A limited amount of research is reported on the cardiovascular effects of other sources of ambient noise, including traffic by rail and high speed trains, but it is reasonable to assume the same condition.

IV. MICROCLIMATE

The popular theory of greenhouse was crucially debunked although the anthropogenic effect of global climate change was not explicitly denied. Instead of the CO₂ in the air, however, exhibiting a concentration of only 0.04%, the reduced solar reflective behavior of the Earth's surface or reversely the enlarged albedo must be assumed to be the governing factor for climate change. Consequently, global warming is predominantly caused by the darkening of the Earth's surface, not least of the walls, facades and pavements, resulting in a greater degree of sunlight absorption and, as a consequence, an increased warming up of the near ground atmosphere layer. In addition, incident solar radiation causes a direct warming up of the atmosphere, but it is independent of the carbon dioxide content of the air or other trace gases. Convection, heat conduction, and thermal radiation cause the transfer of heat from the Earth's surface to air. During the recent period of civilization this phase of fortified warming up through darkened Earth surface has taken place at a progressive pace. But it was not dispersed homogeneously over the surface of the Earth but erratically, leading to higher temperature gradients and hence to more storms.

However, this statement is valid only for stationary equilibrium reached after a certain time, during which the solar irradiation intensity must be constant. Then the intensity of the absorbed solar radiation which depends on the coloring of the surface is equal to the power emitted which does not depend on the coloring of the surface. But in fact, this is rarely the case because the strength of the solar radiation continually changes due to the constant variation of the solar altitude. In addition, the absorbed heat must be spread within the entire material involved, which depends on both its heat capacity

and its heat conductivity. Hence, the absorbed heat is temporarily stored within this material, emitted retarded, particularly at night. In convenient atmospheric theory this dimension is routinely disregarded. It lets any modeling appear as very difficult, if not impossible, particularly when it involves thick surface layers. The weathering of building materials, particularly brick-tiles, is likely to be accelerated by acidified rain resulting from high CO₂ emissions in the atmosphere. So CO₂ has an indirect, but not a direct, effect on the climate. However, this phenomenon should be a warning to the fact that CO₂ emitted in large quantities, combined with soot, fine dust and other waste gasses such as nitrous gasses as a result of fossil fuel combustion, still represents a significant part of environmental pollution that implies hardly assessable consequences such as ocean acidification.

V. DISASTER MANAGEMENT

Disaster management is the discipline of both coping with natural and manmade disasters and preventing them. It involves preparation, response and recovery to minimize the impact of disasters. All aspects of emergency management are concerned with processes used to protect populations or organizations from the effects of disasters, wars and terrorist acts. Disaster management does not necessarily prevent or eliminate the threats itself, though the study does and threat forecasting is an important part of the industry. The basic levels of emergency management are the different types of search and rescue operations. Disaster management can be described as coordinating and managing resources and responsibilities to deal with all humanitarian aspects of emergencies, in particular preparedness, response and recovery to mitigate the impact of disasters.

Disaster is an event or series of events that result in casualties and destruction or loss of property, facilities, climate, critical services or livelihoods on such a scale that is beyond the usual capacity of the community concerned. Such disasters include floods, hurricanes, earthquakes and volcanic eruptions which can have immediate effects on human health, as well as secondary impacts causing more death and destruction from floods causing landslides, earthquakes resulting in explosions, tsunamis causing severe flooding and typhoons sinking ferries. Such emergencies involve incidents involving technology or manufacturing, typically involving hazardous material, which occur where these materials are made, used or transported. In this description major forest fires are usually included as they appear to be caused by humans. Disasters caused by chemical or industrial accidents, pollution of the environment, transport accidents and political unrest are classified as "human-made" or "human-induced" disasters, since they are the direct result of human action. The task of emergency management in India falls to India's National Disaster Management Authority, a government agency subordinated to the home affairs ministry. In recent years, focus has changed from reaction and recovery to strategic risk management and mitigation and from a government-centered approach to decentralized group involvement.

Ecological contamination alludes to various types of toxins (chemicals and energies) defilementing the biological

system and the encompassing environment. The environmental change alludes to the variation caused by pollution in traditional climate designs. The issue of natural contamination and changes in the environment has become a worldwide concern because of their unpositive effects on earth's physical and organic substances. Condition Pollution and Climate Change' is a global, open-access research diary that covers a few issues, related dangers, remediation strategies, and methods relating to air, water, soil, commotion, warm, radioactive, and light contaminations, and environmental change. This companion examined unique and novel perceptions of exploration related to ecological contamination and environmental change in the diary reports and subsequently added to the new field information option.

VI. ISSUE OF VARIOUS DISASTERS

The Atmosphere is a mixture of nitrogen (78%), oxygen (21%), and diverse gasses (1%) that incorporates earth. The atmosphere, high above the earth, gets a chance to be increasingly slim before it enters space. It is divided into five strata. The chief layer contains most atmosphere and fog. Weather is the earth fundamental shield that protects it from hurtful radiation from the sun. The environment could be characterized as a natural network in which a gathering of living things live in connection with the non-living portions of their environmental factors (things such as air, water, and mineral soil), partner as a framework. Through cycles of enhancement and streams of imperativeness these biotic and abiotic parts are seen to be associated together. The biological system is portrayed by the arrangement and conditioning of connections between living creatures and living things.

An Earth-wide temperature rise is the creation of the Earth's ordinary surface temperature due to the impact of nursery gasses, such as carbon dioxide outpourings from seething fossil forces or deforestation, trapping heat that would otherwise escape out of the Planet. It is more of an influence on the nursery. Environmental sully is so much the ruin of the earth / air frame's physical and normal areas that traditional standard techniques are affected antagonistically. Light emissions, heat emissions, toxic waste, soil sully, visual sully, plastic tainting, etc. The pesticides' biological influence involves the effects of pesticides on non-target animals. More than 98 percent of showered bug splashes and 95 percent of herbicides accomplish an goal other than their target species as they are sprayed or transversally distributed over entire cultivating fields. Spill over can transmit pesticides into maritime circumstances, while wind can transmit them to different fields, eating ranges, human settlements, and lacking domains, which could possibly affect different species.

Environmental contaminations have different antagonistic effects on well-being from early life perhaps the most important harmful effects are prenatal issues, newborn child mortality, respiratory issues, allergies, malignancies, cardiovascular problems, increased oxidative stress, endothelial brokenness, behavioral disorders and various other unhealthy results. Momentary impacts of natural contaminants are typically highlighted; however, wide range of early-life hazards of air pollution and their possible effects on incessant non-transmittable adult infections should be

emphasized. Various examinations have found that the natural presentation of particulate matter has been linked to the expanded danger of horror and mortality from numerous diseases, organ aggravations, malignancies and other constant infections. The time has come, then, to make a move and control the contamination. The waste items from usage, heating, horticulture, mining, assembly, transportation, and other human exercises will debase the earth.

Due to the quality of the logical information regarding the antagonistic effects of ecological contamination on well-being and the extent of their overall well-being, different kinds of intercessions should be considered. Despite modern viewpoints, open-mindedness should be broadened in this way. In addition, wellness experts have a selective ability to help predict and reduce the disruptive impacts of ecological factors; this limit should be stressed in their daily practice. This exceptional issue is committed to extending the scope of research in all areas of well-being toxin impacts in air, water, and soil situations, as well as emerging methods for measuring and expelling them. The aim of the uncommon issue is to acclimatize the Journal of Environmental and Public Health readership with the potential for different parts of natural contamination.

VII. CONCLUSION

The climate change effects have a number of vulnerabilities on earth. Few have been registered and very some are unknown. Natural disasters, aside from the loss of human lives, cause serious harm on a region's environment and economy. Installing new technologies and adopting space technology as INSAT and IRS series of satellites, India has developed a disaster warning mechanism, in particular cyclone and drought, and their monitoring and mitigation. Predicting certain events, however, like earthquake, volcanic eruption, and flooding is still at experimental level.

REFERENCES

- [1] Hualou, L. (2011). Disaster Prevention and Management: A Geographical Perspective. *Disaster Advances* 4(1), 3-5.
- [2] Hyogo Framework for Action 2005–2015 (2005). Building the resilience of nations and communities to disasters.
- [3] Campbell, J. & Yates, R. (2006). Lessons for life - Building a culture of safety and resilience to disasters through schools - A briefing paper
- [4] Technical report on Geotechnical / Geophysical Investigations for Seismic Microzonation Studies of Urban Centers in India by National Disaster Management Authority Government of India August 2011.
- [5] Disaster management. (2006). In *BUSINESS: The Ultimate Resource – Dictionary of Business and Management*
- [6] http://www.credoreference.com/entry/ultimatebusiness/disaster_management.
- [7] Shankar, K. (2008). Wind, water, and Wi-Fi: New trends in community informatics and disaster management. *The Information Society*, 24(2), 116-120. Retrieved from www.emeraldinsight.com/10.1108/01435120210697216
- [8] Introduction to Disaster Management Virtual University for Small States of the Commonwealth (VUSSC) Disaster Management Version 1.0
- [9] <http://ndma.gov.in/ndma/>
- [10] <http://nidm.gov.in/default.asp>
- [11] Stoltman, J. P., Lidstone, J. & DeChano L. M. (2007). Natural Disasters: Raising Public Understanding About Risk, Occurrence, Mitigation, and Preparedness In:
- [12] Stoltman, J. P., Lidstone, J., Dechano, L. M. (eds.). International Perspectives on Natural Disasters: Occurrence, Mitigation, and Consequences. Introduction, 1-10. Dordrecht: Springer.
- [13] Finnis, K., Stranding, S., Johnston, D. & Ronan, K. 2004: Children's understanding of natural hazards in Christchurch, New Zealand, *Australian Journal of Emergency Management* 19 (2), 11-20.
- [14] Fuchs, S., Kuhlicke, C. & Meyer, V. (2011). Editorial for the special issue: vulnerability to natural hazards—the challenge of integration. *Natural Hazards* 58, 609–619.