

## **IMPACT OF WEATHER CHANGE AND POSSIBLE SOLUTIONS TO BUILDING CONSTRUCTION**

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***Abstract— With frequent changes in weather and possible outcome of global warming there are drastic changes in the weather and this may affect the buildings and future constructions. Most of the habitats situated on coastal areas are most likely to be exposed to storms and worst scenario of Tsunami. In this paper I am discussing about the recent catastrophic damages due to natural calamities and possible solutions to escape this kind of disasters.***

***Keywords— Global warming, Climate changes, Earthquake, Tsunami, heavy rainfall.***

### **I. INTRODUCTION**

Global warming is threatening the planet earth with threatening storms, extreme heat, triggering of earth quakes and tsunami. There is decrease in ice shield at the poles. Increase in Volcanic activities. The intensity of rainfall has increased, causing flash floods. Damage to buildings due to above mentioned factors is increasing. There is great loss of lives and property due to this extreme weather changes. There is urgent need of Pollution control policy to decrease or stop global warming. To decrease loss of lives and properties a policy is needed for whole world.

### **II. EARTHQUAKE AND TSUNAMI**

The frequency of earthquakes and tsunami has increased drastically. World has seen big earthquake triggered tsunamis in the recent past. In 2004 India along with Indonesia, Srilanka, Thailand and other countries have seen one of the biggest tsunami caused by earthquake with its epicentre in Sumatra, with a magnitude of 9.3. There were waves upto 30m high, causing large scale damage. Most of the cities located on coastal areas are vulnerable to this kind of damage. We need to think of construction policies in these areas.

Restriction on habitual construction very close to seashores should be implemented. The road levels with reference to sea levels to be increased and plinth level of buildings should be on higher side. We can restrict construction work upto 2km away from seashores to reduce immediate damage.

There should be a stricter checking and implementation of earthquake resisting buildings designs by the authorities. There should be a review of all codes related to earthquake resistant buildings from time to time and should be upgraded keeping the frequency of seismic activities in the region.

### **III. EXTREME HEAT**

The earth temperature is rising at an alarming rate. The National Oceanic and Atmospheric Administration (NOAA) say average temperature on earth rose by 0.95 degrees Celsius between 1880 and 2016. In 2017, 159 countries ratified the Paris agreement to halt the rise in temperature to 1.5 degree Celsius of average earth temperature.

Its duty of Engineers to minimize the emission of Co2. More focus should be given for construction of Green Buildings. Lot of trees should be planted. On construction perspective, the outer walls and roof slab should be insulated against transfer of outside heat.

### **IV. INTENSE RAINFALL**

Warmer air can contain more water vapour than cooler air. Analysis of various agencies throughout world show that amount of water vapour in the atmosphere has increased due to global warming. This extra moisture causes storms and heavy rain falls. Heavy rainfall and storms causes flash flooding.

There should be well a organized storm drain system. Plinth level of houses should be atleast one metre above the road level. The external walls and roofs have to be protected against extreme rainfall. The roof should have proper slope enabling early discharge of rainwater through pipes.

All the rainwater should be allowed to enter rain water harvesting pits. The external walls should be protected by rain resistant paints. All the elements like doors, windows, railings, walls etc. Should have weather resistant paints.

With haphazard construction there is no room for planned storm drain system which can be interlinked and

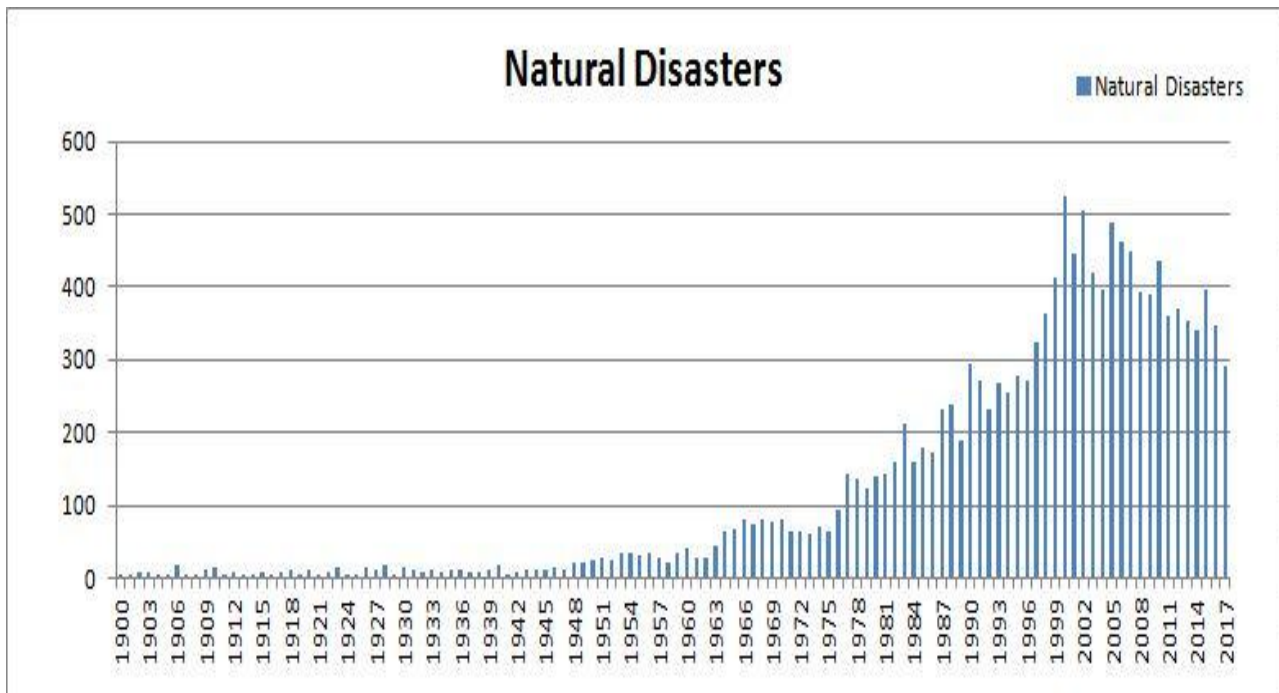
discharged into a canal or river. Engineers should plan to conserve the rain water by creating lakes, create more rain harvesting pits to improve ground water table.

#### V. AIR POLLUTION

Air pollution is the major cause of global warming. Source of air pollution may be industries, vehicles, appliances, burning of waste etc. Industries should be located away from residential areas. All most all the countries in the world are making initiative for having electricity run vehicles.

Building constructed near the industrial zones should have external shield of cladding or special paint. All windows and ventilators should have screens for pollution control.

#### VI. NATURAL DISASTER REVIEW FROM 1900 TO 2017



#### VII. CONCLUSIONS

- It's high time that proper policies and guidelines should be framed to prevent more damages due to extreme weather conditions.
- Engineering fraternity plays a crucial role in minimizing the disasters by careful planning and selection of materials.
- More research should be done on safe materials which have required strength, durability and will cause less harm during the natural calamities.

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