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DISASTER MANAGEMENT IN INDIA IN 21st CENTURY.

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ABSTRACT: - The extreme events that can be harmful for man and others living society is called Disaster. But we generally described this event in the context of man and animal society. This extreme event occurred very fast and dangers (harmful) for man animal society in economical ecological and social context. Generally disaster is classified in two categories 1.Natural Disaster and 2. Man -made Disaster. India is one of the most disaster effected or hazard prone country in the world , and large number of area in nation is vulnerable for disaster risk due to natural and man- made hazard. Risk rate of harmful events by the disaster is very high in India. We generally listen in multimedia and newspaper how many people died due to natural or man –made disaster. In this paper we classified Ten types of disaster extreme events that can become harmful for man and living society.

KEY WORDS :- Hazard , Disaster , Risk , Vulnerable , Extreme Events , Crowed – Stampede , Terrorism, Mitigation, Occurrence, Multimedia , Ecology, social stigma .

INTRODUCTION: - Disaster is a sudden calamitous event bringing great damage, loss, and Destruction and devastation to life and property. ⁽¹⁾ Another we says the extreme events that can be harmful for man and other living society is called disaster. This types extreme events effected people in social, cultural, economical & ecological. such extreme events like as flood, earthquake , tsunami , landslide, (natural disaster) Terrorism , road accident , railway accident , industrial & chemical failure (leakage) etc. All this types events effected people mental & physical health status longer time. Most of the people that are vulnerable or effected by the disaster events are the poor people in development country. Capacity to bear the brunt of disaster or coping capacity is different one to another person to person and country to country. The coping capacity is determined for scientific and technical development of nation. Disaster affected completely all parts of life of man and living society and disturbs the normal (routine) day to day life cycle. All basic Amenities like as food, shelters health and income effected by disaster in long terms & short terms that are dependents in the intensity and Severity of the disaster.

TYPES OF DISASTER: - Generally disaster is divided in two categories, 1.Natural & 2.Man –made. All events that are responsible for environment degradation and losses of living (organism) society due to natural hazard or man -made event is called as a disaster.

➤ 1.	NATURAL	DISASTER	<	2. MAN-MADE DISASTER
a. ATMOSPHERIC	b. physical	c. hydrological	d. biological	-
Snow storms, thunder storms , lighting , tornado, tropical cyclone , droughts , hailstorms , snowfall , heat wave & cold wave etc.	Earthquake , volcano , landslide , soil erosion , glacier degradation etc.	Flood , tide, oceanic wave , storms surge , tsunami etc.	Bacterial infection, bird Flu, Dengue, swine Flu, Pesticide attack, epidemic etc.	War, terrorism , road accidents , railways & airways accidents , building collapse, chemical leakage , industrial failure , suicide , crowd stampede etc.

(2) Table is

There are need to define of their major concept of disaster here, hazard disaster, risk and vulnerability. Yet hazard and disaster is a different concept but they are connected to each other. All events that are responsible for upcoming disaster and potentiality for loss and effected vulnerability due to man- made or natural reasons is known as a hazard. When -ever this event is responsible for major damage & loss of life and property it turned in to a disaster. And risk is a measure of the expected losses due to a hazardous event of a particular magnitude, (occurring in a given area over a specific time period. ⁽³⁾And vulnerability is generally classified that which area is most affected due to hazard and disaster with disturbed of life and property loss.

STUDY AREA: - India is most vulnerable country for many type hazards and disaster to ancient periods till now. The geographical location of country increases its vulnerability also. India is lies include its Iceland areas between 6⁰45¹ North to 37⁰6¹ North latitude & 68⁰7¹ To 97⁰25¹ Eastern Longitudes. Tropic of cancer passes in middle part of India and divided India in two parts. Northern parts with young folded mountains called Himalaya regions and southern parts of India with undulating surface called as Deccan plateau. Northern part of India is more vulnerable for hazards and disaster events then the southern parts of India by natural & man made , Because newly folded mountains regions is near away the location of ring of fire zone, in context of earthquake & land slide activity. But Southern part of India is free from earthquake & massive land slide activity. India also vulnerable for man -made

disaster also in context of terrorism because country share their Boundary with Pakistan , Afghanistan , Bangladesh, Nepal, Bhutan, Myanmar, Tibet & china. Southern parts of nation is covered by oceanic bodies W.E.F Indian ocean, bay of Bengal and Arabic sea and vulnerable for hydrological hazards W.E.F tsunami , cyclone, and coastal floods etc.

Objective of Study: - The main objectives of the present study are: -

1. To analysis of disaster occurrence rate in 21st century in India.
2. To analysis of Difference in casualty rate between natural & man -made disaster.
3. To analysis of the cases that are responsible for increase vulnerability of people for disaster events.
4. To High-light the factors responsible for man-made disaster occurrence.
5. To analysis Disaster mitigation, management plan & policy and awareness of people in India for safety disaster events.

Hypothesis of Study: - Before this research objectives our main hypothesis are to know, what the natural disaster is more effected events that effected people rather than man-made disaster. We also know that factors increase vulnerability of people is same or not in the context of natural and man-made disaster. Can awareness of people for hazardous events play an important role for reduce occurrence rate of disaster. According to this hypothesis and literature review this study is to be tested the hypothesis.

Data Base & Methodology: - The paper is based on secondary data sources. Which we collected in many governmental and non- governmental site. Annual Reports of Ministries of India, like as Transport, Industries, & Home Affairs etc. For Suicide data is collected for ncrb.gov.in site of India, And Biological Disaster data is based on WHO data Report & Health Ministries Department government of India. For known the casualty rate and effectiveness of man-made & natural disaster we are choose explanation pattern Methodology.

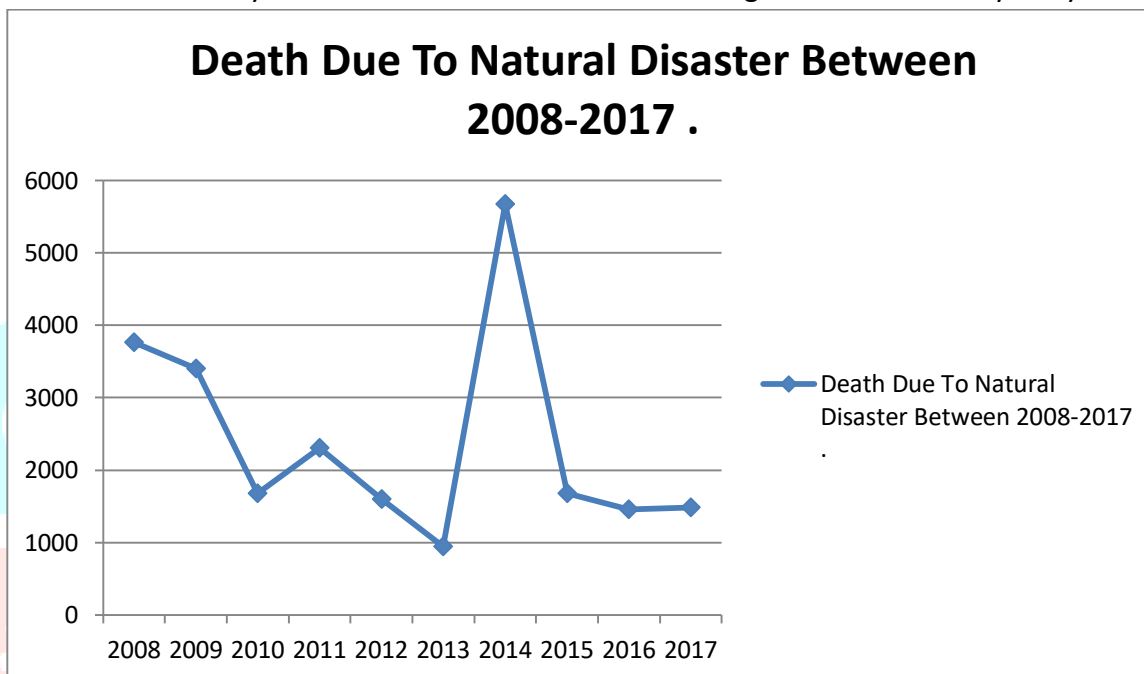
Explanation and Results of Study: - All hazardous or Disaster events we choose for known disaster effectiveness is explanation below:-

- (1.) Natural Disaster: - Natural Disaster is the case and effect relationship events that are occurring due to indogenic and exogenic power or movement of earth & atmosphere. Natural disasters include hydrological, Atmospheric & physiological hazards events like as flood, drought, tsunami, out -burst of glacial lake, earthquake, land – slide, cold and heat wave, storm surge etc. Every year many natural disaster events occurring in India in many forms like as floods, earthquake cyclone etc. And it events responsible for many thousand casualty and economical losses. If we see the table of natural of natural disaster casualty between 2008 to 2017 period, we found that in 2014 years more people die due to natural disaster, and India has been ranked top five countries in the world for economical losses due to natural disaster. The united nation disaster risk reduction (UNISDR) office report said that India is suffered economic losses of 80 billion \$ (Dollar) during the 20 years period between 1998 to 2017 due to natural disasters ⁽⁴⁾

Death Due To Natural Disaster In India Between 2008-2017 Periods.			
years	Total Casualty in year.	years	Total Casualty in years.
2008	3764	2013	946
2009	3405	2014	5677
2010	1677	2015	1674
2011	2310	2016	1460
2012	1600	2017	1487

(Source: - <https://www.statista.com/statistics/2000-2017>).

Casualty due to all natural hazardous events include in the data like as earthquake, tsunami, cyclone etc. if we table we found that in 2008 and 2009 years more hazardous events occurring in the 21st Century early Decade.



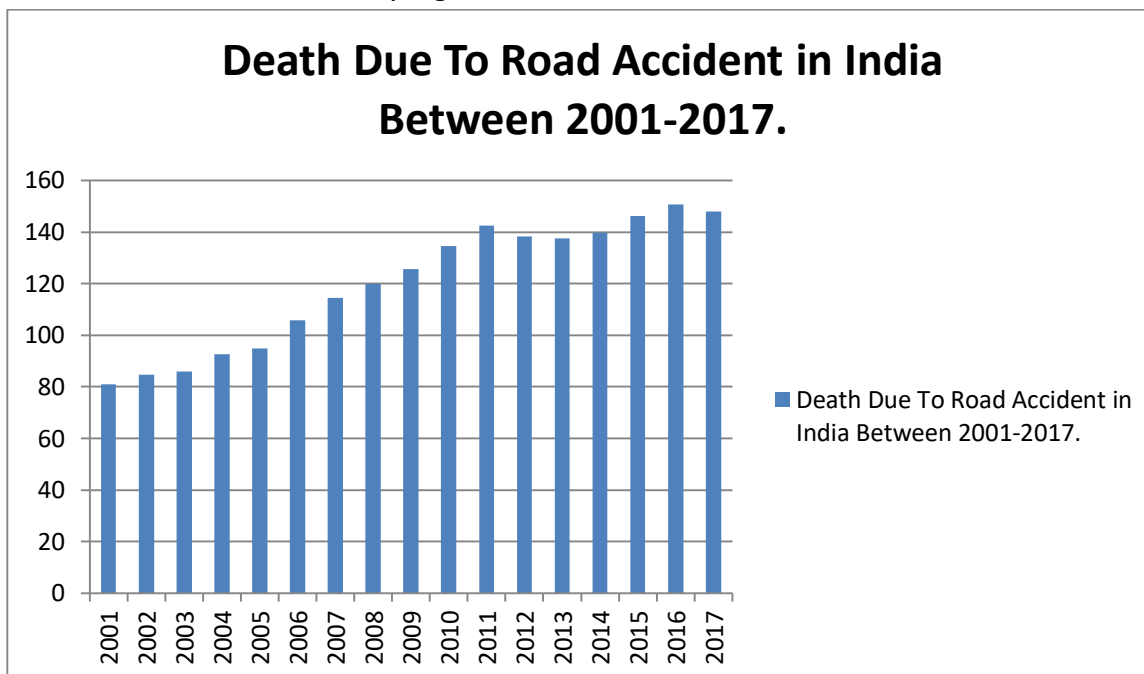
(2.) ROAD ACCIDENT DISASTER: - Road accident is a very common and popular man-made disaster. This disaster is responsible for many thousand people death & financial loss every year. According to UNO 2010 reports road accident death toll across the death due to HIV/AIDS disease into 2020 years (UNO 2010).⁽⁶⁾ Although road & railway called the life line of the nation. But this life lines also responsible for many thousand death in all over country.

Death Due To Road Accident In India Between 2001-2017 Periods.					
Years	Death	Years	Death	Years	Death
2001	80.888	2007	114.44	2013	137.57
2002	84.674	2008	119.86	2014	139.67
2003	85.998	2009	125.66	2015	146.13
2004	92.618	2010	134.51	2016	150.79
2005	94.97	2011	142.49	2017	147.91
2006	105.75	2012	138.26	(in Thousands)	

Source: - [https://www.statista.com/statistic/road accident in india2000-17](https://www.statista.com/statistic/road%20accident%20in%20india2000-17).

If we see the data table of Road Accident Death between 2001 to 2017 more than one Lac people lost their lives every years in India, and no exist estimation that who many Lac & Crores of rupees financial loss have done due to this disaster in India every years. Data table shows that death toll or number of person died due to road accident

disaster in India increase very fast. More than one Lac people died in every year between time period of 2006 to 2017, and rate of disaster occurrence is very high.



According to UNO statement 377 people die per day in India. ⁽⁷⁾ it reality shown in 2016 death toll that more than 1.5 Lac people died in road accident disaster , and many thousand people were injuries . there are many factors that are responsible for road accident disaster high casualty rate W.E.F. density of traffic in road, over speed of vehicle, break failure, maintenance of vehicles, untrained and under age driver, intoxication and decision taken capability of drivers, length and design of vehicle, road structure & design like sharp curve cut road , blind turn, pot hole road etc, straw animal & trespassing of animal etc. according to Rajya Sabha official lecture data near about 5000 road accident caused every years in India due to pot hole in road. And most of the effected people are the travelers of two-wheelers , because balance of driver have been lost due to pot hole and 25% of all effected case is the two wheelers . Another under age and over age person driving is creating hazard vulnerability. Un educated driver increase vulnerability many times they can- not understand the proper meaning of road safety symbols and vulnerable for disaster. Although govt. passes the traffic rule time to time in India but no strongly flow the traffic rule. So many cases is not registered in police record and they have left and not actually count, that is why the data of road accident is mostly estimated by various govt. and non govt. agency. Mobile used at driving time and illiteracy of driver also create vulnerability overloaded vehicle also potential for disaster.

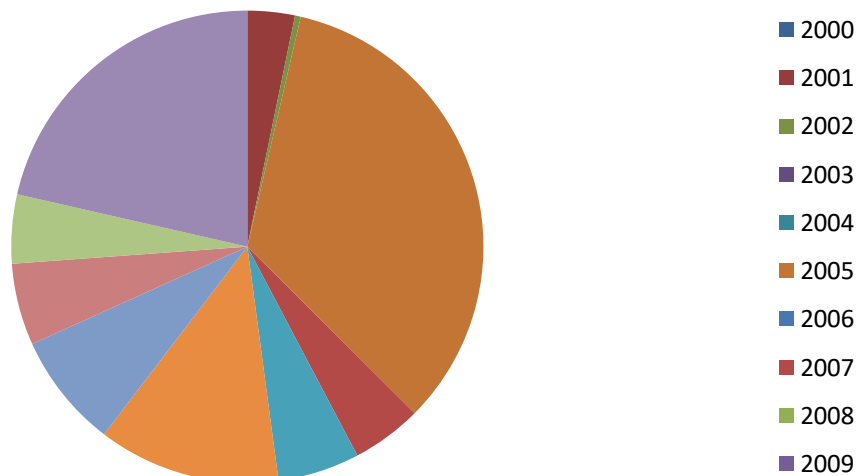
(3.) **BIOLOGICAL DISASTERS:** - Biological disaster is related to human, animal & plant health status. Because every biological hazard effect man, animal & plant health status more or less according to their severity and potentiality, so it is very important types of disaster for teach us. Biological disasters are the group of biological substances those are potential for generating fatal & severity disease for man & animal. According to D.P. COPPOLA (2011) Biological hazards are the umbrella grouping for all hazard that cause or related to disease in plants, animal and humans .⁽⁸⁾

Death Due To Biological Disaster In India Between 2000-2017.					
Years	Death	Years	Death	Years	Death
2000	NA	2006	NA	2012	80
2001	33	2007	49	2013	57
2002	4	2008	NA	2014	48
2003	NA	2009	NA	2015	218
2004	NA	2010	57	2016	NA
2005	344	2011	127	2017	NA

(Source: - world health organization (WHO)/global alert and response (GAR) Report. 2. Annual reports ministry of Health Govt. of India.)

This Disease is Spreads Due to pathogen in the forms of bacterial, virus & parasites infections in Human, Plant & Animal Society, and it is responsible for many death and Diversity loss. If we see the data table, shows that India effected time to time by Biological Disaster in 21st century. In year 2001 near about 33 people died due to cholera disease in India after all in years 2002, 4 persons died due to plague in India. And 2005 thousand of people effected due to Japanese encephalitis (JE) disease in the state of Uttar Pradesh and Bihar and total 296 people died due to this disease. After all the second Biological Disaster Disease in 2005 is Meningococcal Disease that are effected people and responsible for 48 persons death, that is why total 344 persons died in years 2005. In 2007 years 49 people died due to cholera Disease, and if we see the table data analysis we find that in years 2010 to 2015 a series of biological disaster death occurs due to many biological disease like as dengue fever , Malaria, cholera, Sars. Chikungunya, swine flu (H₁N₁), Avian influenza (H₅N₁), Ebola & Marburg etc. Tuberculosis (TB) and HIV/AIDS are also biological disasters disease. They are pandemic disease, those vaccine cannot generate till now. Many people in India and worlds also effected due to this disease and its responsible for many thousand people death. But, because this disease is considered as a social stigma, so many people cannot tell it for him/her doctors and they have died due to suffering from this disease and insufficient treatment. In 2017 Zika virus case also found in India but no one death/casualty case found in India due to this disease or biological disasters. Animal and plant (flora & fauna) also effected due to biological disaster, many biological disease related to animal & plant society found in the world for example locust attack, locust swarms , foot and mouth disease of animal , H₅N₁, H₁N₁, pest des petit (PPP) disease, mid cow, Glanders, Rinder pest, classical swine fever etc.

Death Due TO Biological Disaster In India Between 2000-2017 .

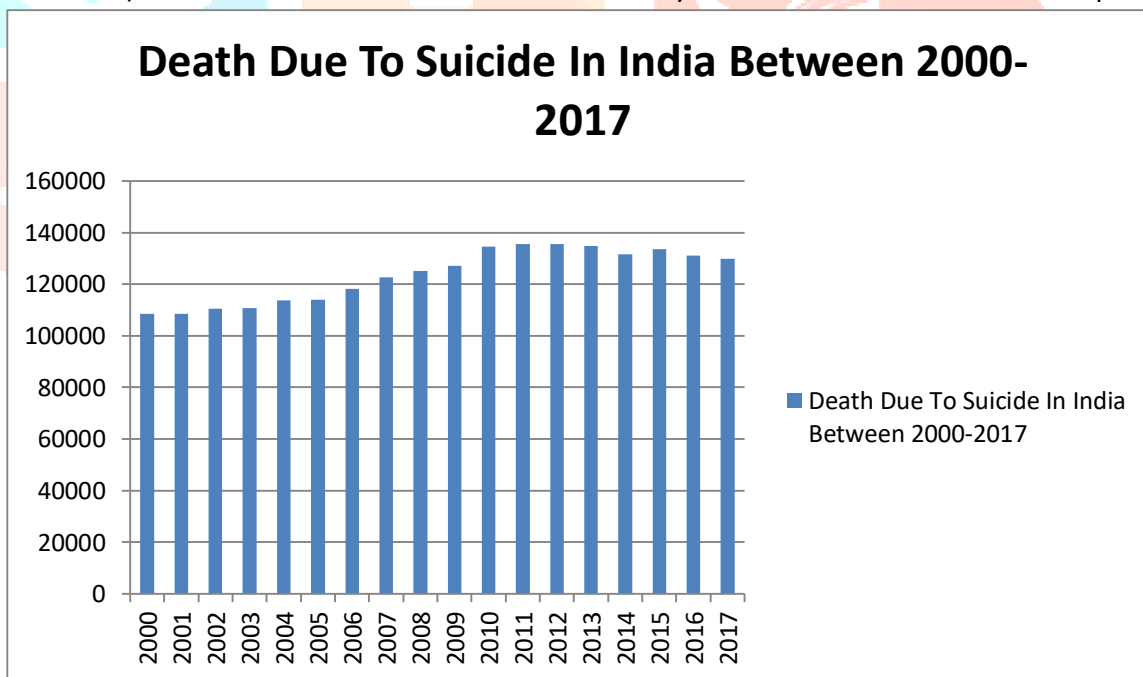


(4.) Suicide Disaster: - Suicide means ends your own life due to some unwilling reasons. Another we says when someone not want to live they committed suicide. Although suicide and suicide attempt activities in India and many country of the world is illegal. Because man is the first resource of a nation and their lives is important for nation growth and Development. But there are many reasons those are responsible for attending/commit suicide of a person, for example mantle status, illness, failure in exam, family problem, economical problem, social burden etc. when-ever someone ends their own life we says they commits suicide, but if they are tried to ends their own life, but rescue by the family members, police, law & individual person etc. we says they attempt suicide. Although suicide in many country in the world are illegal, but suicide (euthanasia) has been legal in Netherland in a specific case since April 2002 ⁽⁹⁾.

Death Due To Suicide In India Between 2000-2017					
Years	Death	Years	Death	Years	Death
2000	108590	2006	118112	2012	135445
2001	108506	2007	122637	2013	134799
2002	110417	2008	125017	2014	131666
2003	110851	2009	127151	2015	133623
2004	113697	2010	134599	2016	131008
2005	113914	2011	135585	2017	129887

(source:- ncrb.gov.in)

If we see the data table of every year suicide death rate in India, we found that it will be in increasing trends in 21st century (2000-2017). And all over between 2000-2017 casualty rate across more than one Lac people in India.



This increasing trend with pick found between 2004 to 2016 year . According to NCRB report every day 28 people commits suicide in India ⁽¹⁰⁾. Most of the parts those commits suicide in India are the aged group of 15-50 years age population. It is a early warning matter for us, because this aged group population are the working population group and they play an important role in the development of the nation. Even then this aged group, students between aged 15-29 year are the pick or pioneer in commits suicide. According to NCRB report every hour in India almost one person commits Suicide ⁽¹¹⁾. If we see the data analysis by previous two year 2016 and 2017, 9478 and 9905 students every year commits suicide. This indicates that near about 500 pupils suicide increase. After an all

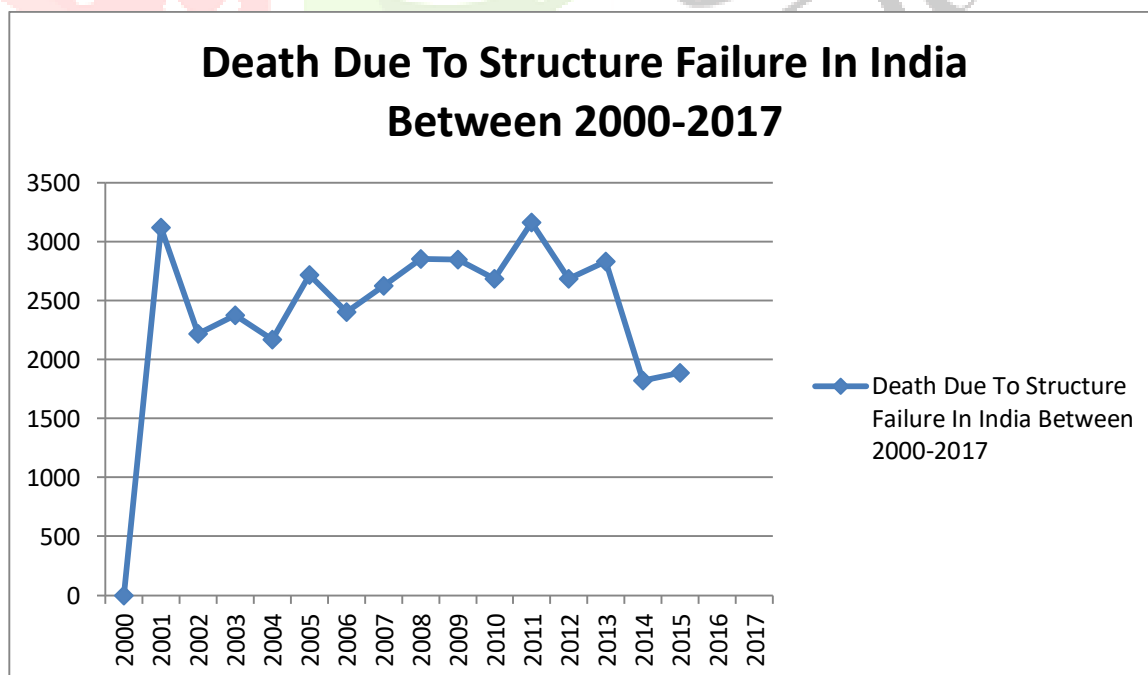
loan borrowing farmers and female suffering from domestic violence suicide commits rate are very high. But this rate of suicide is not equal to all the parts in India, there are difference between Region to Region, place to place. According to NCRB Maharashtra, Tamil Nadu & West Bengal state are the pioneer state for suicide case. There are many reasons for commits suicide of people for example , loan-borrowing or debt, exam tension & failure in exams , business loss, Domestic violence , long illness , mantel status , of a person etc.

(5.) Structure Failure Disaster: - Structure Failure is also an important man-made Disaster that are responsible for thousand of death every year in India. Here structure failure means to collapse of multilayer building or Single building, bridge, cinema hall, residential building apartment , mall , sports stadium, dams, educational institution , foot-over bridge , shops , auditorium and industrial building etc. If we see the data table more than two thousand people died due to structure failure events in every year in India.

Years	Death	Years	Death	Years	Death
2000	NA	2006	2399	2012	2682
2001	3119	2007	2623	2013	2832
2002	2216	2008	2853	2014	1821
2003	2376	2009	2847	2015	1885
2004	2169	2010	2682	2016	NA
2005	2718	2011	3161	2017	NA

(Source :- <https://en.m.wikipedia.org/structrefailuredeathinindia/> or <https://scroll.in/articlestructrefailure> .)

In year 2011 more than three thousand people died due to structure failure disasters in India, high in all 17 years in 21st century events of structure failure. There are many reasons for structure failure death in India W.E.F. climatic factors like as rain , storms, cyclone, floods, cloud burst etc, effected the foundation of the building and structural place. Geomorphology condition and seismicity of a region also responsible for structure failure incidents. Location and sites of a place that is dependent to their geomorphology for example plain area, undulating area, hilly area etc also effected building structure and responsible for increasing vulnerability of disasters .



We analysis structural pattern in all geographical region we found that in plan area construction site on smooth area but in hilly area it will found in valley area or angel of slope determine the construction work and vulnerable for multilayer building structure. Seismicity of region also destroyed building for example collapse of dams, bridge and multilayer building etc. uncontrolled height also increases vulnerability of building collapse. Another regions for example architectural defects, avoidance of building codes , used poor quality materials during building construction, poor maintenance of building , design and height of building increase vulnerability of structural failure disaster and responsible for thousand of death in India.

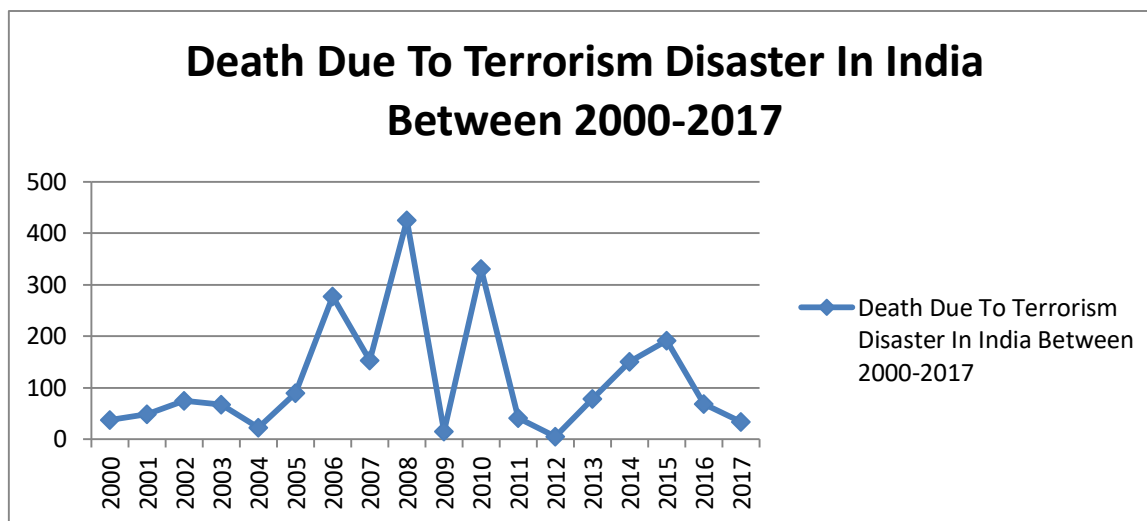
(6.) Terrorism Disaster: - India is most effected country for terrorism activity since their ancient periods. A long terrorism History of India in world. If we see our past there are many Invader in our history that attack India for the purpose of plunder (loot) and slaughter. Although All the world today face the problem of internal and external terrorism disaster in their territory, but it is not a new disaster in India. Here we need to understand the meaning of terrorism, According to Global Security organization “ Terrorism is defined as the unlawful use or threatened use of force or violence against people or property to coerce or intimidate governments or society offense to achieve political, refugee or ideological objectives “ by D.P. Coppola (2001)⁽¹²⁾.

Death Due To Terrorism Disaster In India Between 2000-2017					
Years	Death	Years	Death	Years	Death
2000	38	2006	277	2012	05 (injury)
2001	49	2007	153	2013	78
2002	75	2008	425	2014	151
2003	67	2009	15	2015	192
2004	22	2010	331	2016	68
2005	90	2011	41	2017	34

(Source: - [https://en.m.wikipedia.org / death due to terrorism disaster in India between2000-2017.](https://en.m.wikipedia.org/death%20due%20to%20terrorism%20disaster%20in%20India%20between%202000-2017))

If we see the casualty data table due to terrorism disaster, we found that every many terrorist attack have been commits in India by terrorist, and more or less hundreds of people died in India due to Terrorism. India Suffered both external and internal terrorism activity. The location of country with share boundary Pakistan, Afghanistan, Myanmar, Bangladesh, Nepal, Bhutan and China also increase their vulnerability of terrorism Disaster. If we see the major terrorism activity in India, we found that in 2000 year Tripura terrorist attack 25 persons have been killed and many were injuries. After, 2001 J&K attacked 38 persons or army mans were died. And in 2002 Gujarat terrorism events 31 persons or army man were died. In 2006 year 209 people were died due to Mumbai local train bomb blasting terrorist activity. And most popular terrorist attack in 2008 Mumbai Taj Hotel 175 persons have been killed by terrorist. All this activity is the external terrorism example, but India suffering also internal terrorism like as Naxalism in the middle- east state & eastern state of India (Chhattisgarh, Madhya Pradesh, Nagaland, Manipur, Mizoram, Assam, Arunachal Pradesh & Jammu and Kashmir, Tripura & Orissa etc.

Jammu and Kashmir is the most vulnerable state for external and internal terrorism disaster in India. But Chhattisgarh and Madhya Pradesh is the most vulnerable state for internal terrorism disaster in India. Due to Naxalism terror activity in central state of India many persons including Defense staff, media persons, local resident etc, lost their lives. Main Common factors that are responsible for internal and external terrorism are religious factors or counter terrorism, nationalism & segregationist ideas of some people , left wing and right wing ideology, anarchist ideas , political and social argument (benefit) etc.



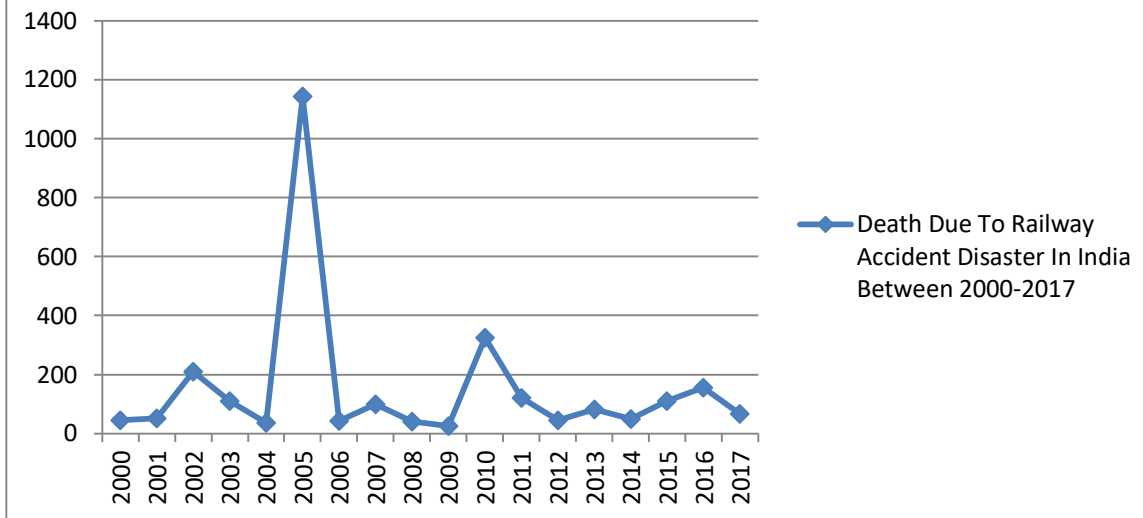
(7.) Railway Accident Disaster: - Railway Accident is also an important man-made Disaster, that is occurring due to some mistake and technical error in rail & railway transport. More than hundred people died and million rupees economical loss due to this disaster in India. This Disaster is unpredictable and occurring sudden.

Death Due To Railway Accident In India Between Year 2000-2017					
Years	Death	Years	Death	Years	Death
2000	45	2006	42	2012	45
2001	52	2007	100	2013	82
2002	210	2008	40	2014	49
2003	109	2009	25	2015	110
2004	37	2010	324	2016	155
2005	1143	2011	121	2017	67

(Source: - Ministry of Railway govt. of India / or <https://en.m.wikipedia.org.in>)

If we see the data table of railway transport accident disaster casualty in India between 2000-2017, we found increasing trend in railway accident casualty. It will be dependents on intensity and density of railway network in the country. We found that every year more or less hundred persons and animal died due to railway accident disaster in India.

Death Due To Railway Accident Disaster In India Between 2000-2017



And if we generalize data, we found that in 2002 year Godhra railway station Gujarat 58 persons were died, and in 2002 also Gaya- Delhi train accident 140 persons were died. In 2004 Hoshiarpur Punjab train accident more than 37 persons were died. In 2005 Nagpur railway crossing 55 persons were died. And 2005 also in Andhra Pradesh Nalgonda Dist. Valigonda railway station Repalle -Secunderabad train accident more than 1000 persons died. In 2006 Mumbai rail serial bomb blasting accident more or less 200 persons were died. And in 2007 Delhi – Lahore train accident 68 persons died. In 2008 kesamudram Andhra- Pradesh 40 persons were died. In 2009 Mathura UP 21 persons, in 2010 Sadiya west Bengal more or less 170 persons and in 2011 Fatehpur 70 persons were died in railway accident. In 2013 Bangalore rail accident 26 persons, In 2015 Rae – Bareli 58 persons in 2016 Kanpur 152 persons were died due to railway accident disaster in India. There are many reasons for this railway accident disaster for example overshooting of red signal , trespassing of animal, sabotage, terrorism activity like as serial bomb blasting, railway track maintenance , visibility factors and climatic condition, driver health status, and intoxication, driver capability of decision, rail engine & coach maintenance , length of railway track and density of railway network, poor signal system or skill of railway employee , stop less railway crossing , Derailment accident and head on & rear – end collision of trains etc.

(8.) Crowded Stampede Disaster: - Although crowded stampede Disaster is a rear occurring events, but it will be potential for disaster risk in India. Because India is, The largest country with 2nd rank in population in the world. And many types of diversity found in India for example religious, caste, cultural, regional and climatic etc. And all religious and cultural is own rituals, who possessing gathering of people or crowded in a place, another political rally , big bazaar, and sports activity are the factors for crowd Ness or people gathering . But all people gathering is not converted in a crowded stampede disaster.

Death Due To Crowed Stampede Disaster In India Between 2000-2017					
Years	Death	Years	Death	Years	Death
2000	NA	2006	NA	2012	18
2001	NA	2007	NA	2013	152
2002	NA	2008	386	2014	NA
2003	39	2009	NA	2015	NA
2004	NA	2010	63	2016	NA
2005	598	2011	104	2017	NA

(Source: - <https://en.m.wikipedia.org>)

If we see the data table of casualty due to crowed stampede disaster in India, we found that there are only few years when large number of death due to crowed stampede disaster. If we see the most popular crowed stampede accident in India, we found that almost all events occurring in a Religious place. Mostly crowed stampede events in India occurring when people gathering for a devotional pray full travelling of god. Political rally & sports activity are Another factors in India for a large numbers of people gathering. But there stampede events are rare. In data table we found that in year 2005 more than 500 hundred people died due to crowed stampede in a religious gathering in Maharashtra. And in 2008 years 386 people were died due to crowed stampede in Himachal Pradesh and Maharashtra state in India. 104 people died in Kerala Sabarimala temple in 2011. And after all in 2013 year 152 people were died due to crowed stampede in Allahabad Kumbh gathering & MP Ratangarh temple.

(9.) Industrial Disaster: - Industrial Disaster is the most popular man-made disaster. Every year we listen and reading many death due to Industrial disaster in the world. Here industrial disaster means disasters due to the industries location, site and their products for example chemical leakage, fire due to short circuit, explosive in factory, nuclear and thermal power failure etc. this disaster effected to the local people or nearby residents persons in industrial unit or worker of industrial unit. But if this disaster occurring due to chemical and nuclear or gas leakage etc, than it effected the large number of people in a large area. If we see the casualty data table due to industrial accident disaster, we found that in 2014-2016 more people were died rather than other years of 21st century. In 2014-2016 three year periods about 3562 people were died. And if we see our past scenario in 1984 Bhopal gas tragedy is the major industrial disaster when leakage of methyl Isocyanate gas is responsible for near about 2500 people death and many thousand people injury.

Death Due To Industrial Disaster In India Between 2000-2017					
Years	Death	Years	Death	Years	Death
2000	NA	2006	06	2012	42
2001	NA	2007	NA	2013	NA
2002	NA	2008	NA	2014	3562
2003	NA	2009	41	2015	
2004	NA	2010	13	2016	
2005	14	2011	20	2017	

(Source: - <https://en.m.wikipedia.org> or Ministry of Industry and Infrastructure govt. of India)

The main reasons of industrial disasters are the location of industries near the residential area. Fire in industries due to short circuit and poor proper maintenance of Machines etc. Licensing problem of industries is a big problem in India. Behalf of the license many industries un flows the safety manner for workers and nearby resident. There are many factories and company that are potential for disaster, but they are working in burglaries near residence area. But in new industrial policy 1991 play an important role for controlling the license problem and safety manners for workers and near away resident population in industrial unit. At time five major industries W.E.F. chemical, alcohol,

tobacco, fire work and crackers, explosive item, air sky, and defense and electronic need compulsory license to start new unit of this industries⁽¹³⁾. This is a big step for prevention measures of this disaster.

(10.) Aviation Accidents Disaster: - Casualty rate due to aviation accident in India is very low rather than other transport disaster medium, rail, road & waterway in 21st century (2000-2017). Here aviation accidents include, airplane, chopper, helicopter, pilot training plane, army plane & helicopter & personal jet etc. Because no barrier in Sky for transport, so probability of occurring disaster is very low. But if accident occurs in sky no chance for survive.

Death Due To Aviation Accidents Disaster In India Between 2000-2017					
Years	Death	Years	Death	Years	Death
2000	60	2006	NA	2012	NA
2001	NA	2007	NA	2013	NA
2002	08	2008	NA	2014	NA
2003	NA	2009	05	2015	10
2004	NA	2010	158	2016	29
2005	NA	2011	17	2017	NA

(Source: - Department of civil aviation govt. of India / or <https://en.m.wikipedia.org>)

The data table of aviation accident disaster shows that occurring rate of aviation accident in India is very low. Only 2010 year, when casualty across the hundred persons due to disaster. But if we see the previous 20th century last decade, in 1996 Haryana Bhiwani district place Charkhi - Dadri Airplane crash of Kazakhstan flight and Saudi Arabian flight 763, were the famous aviation accident in India, when near about 400 persons were died. The main factors that are responsible for aviation accident disasters is technical failure in plane, pilot mistake, bad climate condition and visibility, hijack by terrorist, explosion in plane, head to head collision of plane due to bad signal & flight height. Plane crash by percussion in hilly area or mountain due to bad climatic condition or low altitude flying, disconnecting of signal & missing the plane and bad condition of air runway are the common factors that are responsible for aviation accidents disaster.

Conclusion of Study: - After analysis of all data table include this research work, we found that man-made disaster is most effected disaster for man & animal society rather than natural disaster. There is Thousands of Death Due to Natural Disaster in India, but if we see the scenario of man – made disaster casualty rate across the Lac or more than one Lac persons died due to this disaster severity in every year in India. Natural Disaster is occurring due to routine equilibrium process of nature, and mostly they are predictable, like as landslide, floods, drought, cyclone, Tsunami and storms etc. But some natural disaster are occurring sudden like as earthquake, volcano, landslide & lightning and they are not early predictable. But Man –made disaster are more dangers then the natural disaster, because they are occurring sudden due to some mistakes of man and not early predictable. Because man-made disaster is not proper predictable, only taken some preventive and safety measures we reduce the vulnerability of this disaster. For reduce the vulnerability of both disaster (man-made and natural) we should taken two phase or three phase disaster prevention action plan. Our pre disaster plan for reduce vulnerability or risk of disaster is early preparedness for disaster, reduce intensity of disaster if possible, issue the advisory and proper guidelines for safety of people. After disasters occurrence over main work is to rescue the people, relief, rehabilitation and recovery of people and economical losses. In India NDMA (National Disaster Management Authority) play a very important role for safety action plan, mitigation, prevention and advisory of disaster in public in India for reduce the vulnerability of disaster. Under NDMA a special task force established called National Disaster Response Force (NDRF) in 2005 that is under the Ministry of Home Affairs Govt. of India. NDRF handle and operate all types disaster rescue, recovery and rehabilitation programs in India and outside India.⁽¹⁴⁾ Although our country is suffering from external

and internal terrorism disaster, after all India is the first nation in the world to introduce Panchshill sidhanta in 1954 of the world.⁽¹⁵⁾ And India include all time peace, safety of others and brotherhood plan I our foreign policy.

References: -

1. An overview of disaster management in India by A.J Shah.
2. Natural hazards and disaster/Geography of India book by Dr. Ashok Divakar.
3. An overview of disaster management in India by A.J Shah.
4. Natural disaster coast India/times of India. India Times.com
5. <https://www.statista.com/statistics>.
6. Disaster management/man-made disaster book by Dr. Savindra Singh. Page no. 282.
7. Natural crime records bureau (ncrb), / ministry of road transport & highway, law commission of India report 2013.
8. Disaster management / biological disasters book by Dr. Savindra Singh page no. 236.
9. <https://en.m.wikipedia.org/euthanasia>.
10. <https://en.m.wikipedia.org/suicide> rate in India.
11. <https://en.m.wikipedia.org/student.suicide> rate in India.
12. Disaster management/Man-Made disaster book by Dr. Savindra Singh page no. 294.
13. Indian economic book by Ramesh Singh/Indian Industry and Infrastructure page no. 9.11
14. Ndrf.gov.in
15. History and polity/collaboration,entity and pieties (panchshill) old ncert book class 8th page no. 94.

