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ARMY INSTITUTE OF LAW | CENTRE FOR RESEARCH IN SOCIAL SCIENCES

-Jahnvi Bainsla, 3rd Yr

FOREWORD...

Greetings!

AIL Centre for Research in Social Sciences (ACRSS) was set up with an objective to encourage study and research in Social Sciences and focuses on disseminating ideas related to various social issues and encouraging conjugation of students of law with the community at large through a large network of competent professionals such as social workers, academicians & students and activities that help young people to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world.

It engages students in thought-provoking discussions on various social issues, and contemplating solutions, resolutions.

This newsletter presents a compendium on disasters and calamities that have and continue to strike the world, or the universe for that matter. The following pages will take you through the ages on historical calamities, myths and stories told from generations bygone.

We intend to highlight through commentaries and articles on topics such as the Kedarnath flood, the link between climate change and the frequency of occurrences and the psychological impact of destruction on the human mind.

Happy reading!

MEET THE TEAM

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A LAYMAN'S GUIDE TO DISASTER MANAGEMENT

-Yashasvi Chaudhary, 1st Yr

Disasters are inevitable events that have the potential to seriously destroy the environment, human life, and property. The globe constantly faces the prospect of these catastrophic occurrences, which can range from natural catastrophes like earthquakes and hurricanes to man-made catastrophes like industrial mishaps and terrorist attacks. For disasters to have the least amount of impact, to save lives, and to speed up the recovery process, effective disaster management is essential. This article examines the likelihood of disasters as well as the numerous plans and precautions put in place to deal with them.

Although there are many different sorts of disasters, they can be essentially divided into two categories: natural and man-made. Natural disasters are the outcome of geological, climatic, or biological phenomena, and are frequently uncontrollable by humans. These consist of volcanic eruptions, earthquakes, tsunamis, storms, floods, and other natural disasters. On the other side, man-made disasters are caused by human error or action and include things like terrorist attacks, industrial mishaps, oil spills, and nuclear accidents.

Natural processes that have been going on for millions of years are usually the cause of natural disasters. For example, tectonic plate movement beneath the Earth's surface, a phenomenon that has persisted for geological periods, is what causes earthquakes. Similar atmospheric processes involving ocean warming and Earth's rotation cause hurricanes and typhoons to form. In contrast, man-made disasters are frequently avoidable and the result of mistakes committed by humans, insufficient safety precautions, or intentional actions.

Both natural and man-made disasters have the ability to do considerable damage, notwithstanding their distinctions.

Natural catastrophes can result in fatalities, community uprooting, and infrastructure destruction. Similar effects might be predicted from man-made disasters, which are occasionally exacerbated by their unforeseen or deliberate character. For instance, a terrorist assault might result in casualties, property damage, and public fear, whereas an industrial mishap may cause chemical spills, fires, and toxic exposure.

A complex strategy called disaster management aims to lessen the effects of disasters and enable a planned response to lessen their effects. The major stages of this process include mitigation, readiness, reaction, and recovery.

1. Mitigation: Proactive measures are done to avert or lessen the effects of disasters. Building infrastructure that can resist natural disasters, enacting zoning laws to limit development in high risk areas, and developing public awareness campaigns to inform people about disaster readiness are a few examples.

2. Preparedness: Preparedness involves planning and preparing for a disaster before it occurs. To make sure that people are prepared to respond appropriately in the event of a disaster, this includes developing emergency response plans, gathering necessary supplies, and holding drills and exercises.

3. Response: The response phase focuses on immediate actions taken during and immediately after a disaster.

A LAYMAN'S GUIDE TO DISASTER MANAGEMENT

-Yashasvi Chaudhary, 1st Yr

This may entail sending out first responders, evacuating impacted regions, offering medical attention, and organizing resources to take care of the most urgent need.

4. Recovery: The recovery phase is the process of rebuilding and restoring communities affected by a disaster. Rebuilding infrastructure, helping individuals who have lost their homes or means of support, and dealing with long-term health and environmental effects may all be part of it.

Coordination between government agencies, non-governmental organisations, and communities is essential for effective disaster management. Individuals must actively participate in preparedness and response efforts as well.

Effective catastrophe management requires a number of critical components, including:

1. Early Warning Systems: In order to lessen the effects of disasters, early warning systems[1] are essential. To provide early warning of potential disasters, these systems use data from a variety of sources, including meteorological agencies, seismic sensors, and satellite technologies. This allows communities to take timely action to protect lives and property.

2. Information and Communication: Coordinating disaster response[2] activities requires effective communication networks. This covers not just governmental but also non-governmental and neighborhood associations. When a disaster strikes, communication is essential for exchanging information, issuing warnings, and guaranteeing a quick response.

3. Training and Capacity Building: Training first responders, emergency personnel, and community members is crucial for effective disaster management. This involves educating people on how to react in an emergency, offering medical training, and enhancing local organizations' ability to handle crisis circumstances.

4. Infrastructure and Resilience: A crucial component of mitigation is the creation of resilient infrastructure that can resist the effects of disasters. This entails creating earthquake- and flood resistant structures, as well as taking other preventative steps. It also involves planning for the protection of critical infrastructure, such as power plants and water treatment facilities.

Disasters, whether natural or man-made, are a constant threat to human safety and well-being. While we cannot prevent all disasters, effective disaster management can significantly reduce their impact and save lives. By focusing on mitigation, preparedness, response, and recovery, and by implementing key elements like early warning systems, information and communication networks, training and capacity building, resilient infrastructure, and international cooperation, we can enhance our ability to manage and recover from disasters. In an ever-changing world, it is crucial that governments, communities, and individuals remain committed to improving disaster management strategies to protect our collective future.

CLIMATE CHANGE & THE COLLAPSE OF THE MAYANS

-Anjali Rahul Verma, 2nd Yr

Climate change has been called the existential threat of our age. But it isn't the first time a civilization has come into conflict with a shift in the natural world. The Maya are often viewed as a cautionary tale about climate change - this great civilization collapsed simply because of a drought. The ancient Maya, whose early settlements date back to about 2,000 B.C., lived in present-day southern Mexico and northern Central America. [1]
As a civilization, they are recognized for their sophisticated calendar systems and hieroglyphic writing, as well as their achievements in areas such as agriculture and architecture.

Around 250 C.E., the Maya entered what's now known as the Classic Period, an era in which they built flourishing cities with temples and palaces, and population size peaked. However, by the end of the Classic Period, around 900 C.E., almost all of the major cities in what was then the heart of Maya civilization—the southern lowlands region, in present-day northern Guatemala and neighboring portions of Mexico, Belize and Honduras—had been abandoned.

Scholars and laypeople have proposed countless theories accounting for the collapse,

Ranging (overhunting, foreign invasion, peasant revolt) to the absurd (alien invasion, supernatural forces).The collapse didn't happen all at once; instead, it's believed to have occurred over time from place to place, between about the late 8th century C.E. and 925 C.E. Exactly why any of this transpired, though, is a mystery. It's likely that a complex combination of factors was behind the collapse. In his 2005 book 'Collapse', though, Jared Diamond put forth a different sort of theory—that a prolonged drought, exacerbated by ill-advised deforestation, forced Mayan populations to abandon their cities. That hypothesis has finally been put to the test with archaeological evidence and environmental data. [1]

Elements of this theory have been around for a long time. As early as 1912, archaeologists were theorizing that climate change had contributed to the decline of the Maya, and by the 1970s, it was largely accepted that Maya lands had been

[1] https://education.nationalgeographic.org/resource/changing-climate-and-maya/, 18 Nov, 2023.

densely populated and developed. However, recent evidence across disciplines goes a long way to explaining not only how but when the problems began.

They had a huge population, a large urbanized population, and had made fundamental changes in the landscape. To support both farms and cities of 60,000 to 100,000, Arizona State University Professor Billie L. Turner explained, the Maya had cut down forests and increasingly manipulated wetlands, drawing water off into reservoirs and expanding agriculture into lowland wetlands. These moves consumed water that could not be spared during periods of drought. The Maya also unintentionally made their own agriculture less productive with their extensive deforestation. Removing trees, Turner explained, stopped the cycle by which the tree canopy would capture and return the naturally occurring nutrient phosphorus to the soil and also increased its temperature.

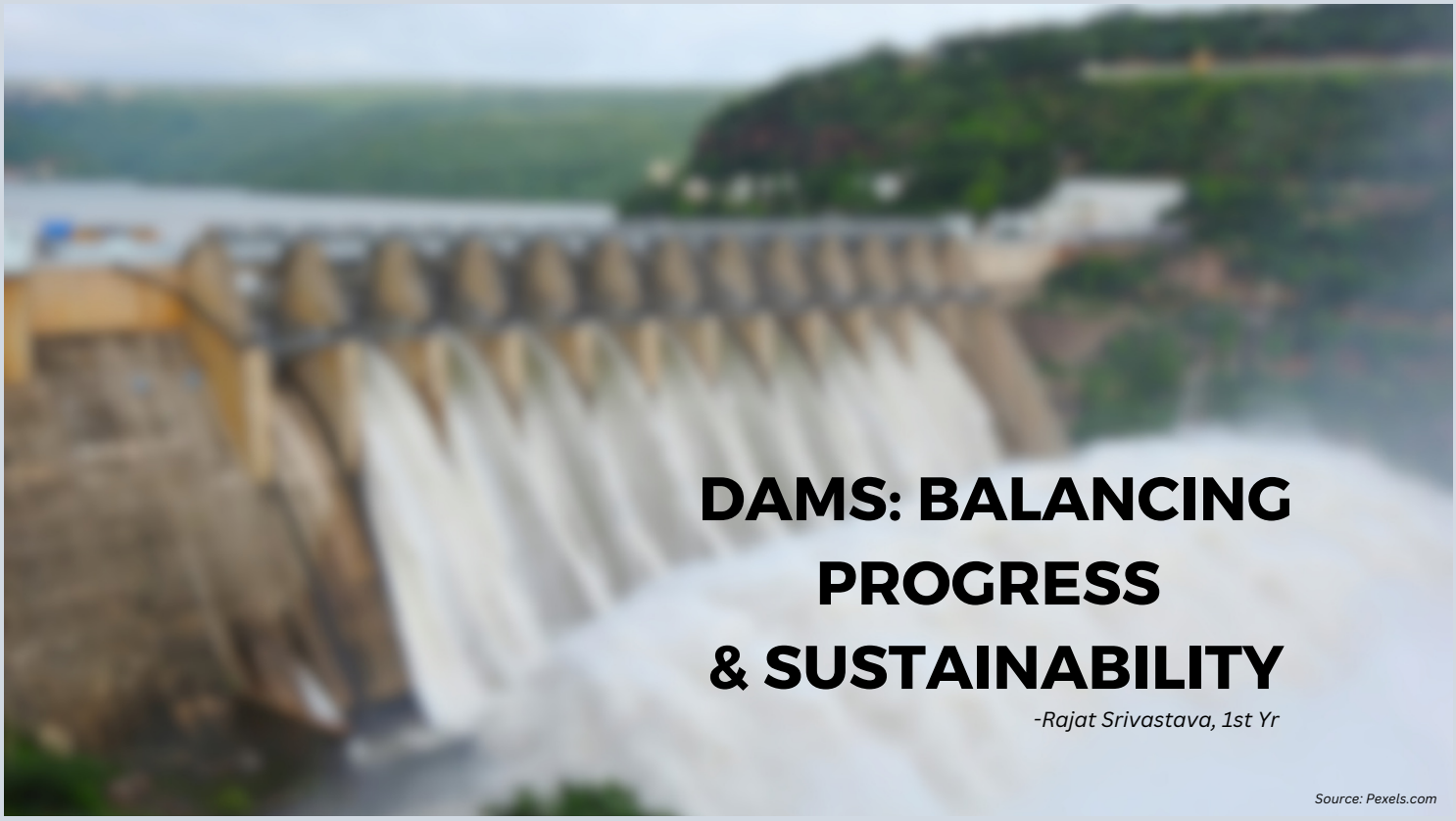
The Maya had cut down so much of that vegetation and changed it in so many ways, they were amplifying the aridity that was already present.

At the same time, other factors — including changing trade routes and wars — came into play, issues that may have influenced or been instigated by a heartland already wrestling with environmental pressures. The Spanish conquistadores arrived in the early 1500s and the last independent Mayan city, Nojpeten (in present-day Guatemala), fell to Spanish troops in 1697. The ancient cities were largely forgotten until the 19th century, when their ruins started to be uncovered by explorers and archaeologists. Calling it a “chicken or egg” scenario, Turner acknowledged that we may never have complete answers. At least not until a final question is answered: A thousand years after the fall of the great Maya culture, why do the interior uplands of the Yucatan still remain scarcely populated? Although the Mayan people never entirely disappeared—their descendants still live across Central America—dozens of core urban areas in the lowlands of the Yucatan peninsula, such as Tikal, went from bustling cities to abandoned ruins over the course of roughly a hundred years. “We have to understand why people didn’t go back,” he said. “Then we may begin to have better insights about the collapse.” [2]

The Mayans were a great civilization brought low by climate change, and, no, it wasn’t us, but we may soon face the same fate. One of the lessons of these complementary studies, says climate modeler Robert Oglesby of the University of Nebraska, is that our reshaping of the environment can often have unintended consequences—and we may not have any idea of what they are until it’s too late.

Source: Pexels.com

[2] https://sites.dartmouth.edu/dujs/2013/03/08/climate-change-and-the-decline-of-mayan-civilization/, 18 Nov, 2023.



DAMS: BALANCING PROGRESS & SUSTAINABILITY

-Rajat Srivastava, 1st Yr

Source: Pexels.com

FOUNDATION

India is home to more than 6,000 dams, making them a crucial aspect of sustainable life. On one hand, dams play a pivotal role in human society, providing numerous benefits such as a reliable water supply for domestic use, irrigation, and industrial purposes. However, on the other hand, over 80% of the dams currently in existence lack proper maintenance, posing significant safety hazards.

It is imperative for us to not only focus on our progress but also prioritize sustainability. We must extend our vision beyond immediate gains and consider the long-term well-being of our environment and future generations. This involves making deliberate choices and putting into action policies that strike a balance between economic advancement and ecological equilibrium. By pursuing these actions, we can navigate a path toward a future that is comprehensive and resilient, capable of facing challenges for the benefit of all.

THE CLARICON CALL

The most recent event, where a dam in Northeastern India broke, leading to extensive devastation and the tragic loss of at least 31 lives, serves as a powerful reminder of the paramount significance of stringent dam safety protocols and comprehensive environmental evaluations. This sorrowful incident emphasizes the immediate need to prioritize and improve both the construction and assessment procedures of dams, guaranteeing they adhere to the most stringent safety and environmental sustainability criteria. [1]

Last year, Mumbai was confronted with a similar tragic incident, bearing witness to the devastating consequences of inadequate safety measures and oversight. Time and again, we witness such major incidents occurring, and regrettably, they often pass unnoticed, with no substantial improvements being implemented. This recurring pattern highlights a concerning trend, emphasizing the pressing need for

[1] https://www.thethirdpole.net/en/energy/what-is-driving-hydropower-construction-in-arunachal-pradesh/, Oct 23, 2023

proactive measures and comprehensive reforms in dam safety and oversight. It is imperative that we break this cycle of neglect and prioritize the well-being of communities and the environment by instituting meaningful and lasting changes in our approach to dam development and management. It is imperative that we learn from these heartbreaking events and take decisive action to prevent further loss of life and property in the future.

DEVELOPMENT OR DISRUPTION?

The Northeastern states, especially Arunachal Pradesh and Sikkim, have been seen as prime opportunities for proponents of large dams, often referred to as India's future powerhouse, housing more than 168 major hydroelectric projects. However, we cannot ignore the significant damage such dams have inflicted on these regions. While the government and advocates for big dams argue that these regions present a win-win situation, as they allow for the exploitation of the country's largest perennial water system with comparatively little direct displacement of the local community, they tend to overlook the major disruptions these projects can cause.

Failing to plan with due diligence can lead to significant conflicts among states, an issue we are still familiar with. Hence, it is equally crucial to carefully assess not only the environmental but also the social impacts.

A JOURNEY FROM PAPER TO PRACTICE

The Environmental Impact Assessment (EIA) is a report that signifies the possible effect of a future project on the environment. Based on this report, the government oversees the construction of dams. However, what may look good on paper does not necessarily mean it will go well in the field. The deficient nature of EIA projects has been a constant point of criticism, yet no action has been taken to improve the situation. The EIA reports are often seen as a mere formality, as a plethora of projects have been passed due to such shoddy reports.

Furthermore, involving local community representatives in the EIA process is crucial for incorporating their perspectives and addressing potential ecological harm. Lastly, making the reports accessible for public scrutiny before approval allows for valuable input and advice from experts and environmental advocates. Implementing punitive measures serves as a crucial deterrent against any misconduct.

THE EPILOGUE

In our pursuit of progress through dam-related development projects in India, we must not lose sight of the paramount importance of environmental preservation. Striking a harmonious balance between development and safeguarding our natural heritage is essential for a sustainable future. This requires careful planning, responsible practices, and a commitment to long-term environmental stewardship. We cannot afford to ignore the significance of development projects related to dams in India. However, it is imperative that this progress does not come at the expense of our environment. It is crucial to strike a balance between development and environmental preservation.

Source: Pexels.com

[1] https://www.thethirdpole.net/en/energy/what-is-driving-hydropower-construction-in-arunachal-pradesh/, Oct 23, 2023

DISASTERS: OCCURRENCE & MANAGEMENT

Tanshi Vaid, 1st Yr

Management can be defined as an extraordinary occurrence which causes damage to the environment, infrastructure, humans and the wildlife. It creates a catastrophic situation which causes total disruptions in the surroundings. It can be both natural as well as manmade. A disaster occurs when threats and vulnerability meet. Threat are the trigger events which includes earthquakes, volcanic eruptions, floods, drought, landslide, storm and etc. The triggering takes place because of underlying causes like poverty, limited access to powers, resources, information and dynamic pressures like lack of education, training, services and macro forces of environmental degradation, urbanization and unsafe conditions. Disasters produce a range of impacts; these include direct, secondary and indirect effects. Direct effects include deaths, injuries and physical damage. However, secondary disaster impacts such as releasing fire or hazardous material that is triggered by disasters. Finally, impacts include the ripple effect resulting from the flow of goods, services, unemployment etc.

Hazards can be identified by structural and non-structural assessment. Structural assessment compromises of the set of physical laws and mathematics required to study and predicts the behavior of structures whereas non-structural H assessment deals with seismic vulnerability assessment of the building. Availability of resources around and within the area to tackle any hazard is also important.

Disaster management broadly encompasses the management before, during and after a disaster. It simply means planning of various steps to reduce the aftermath of a disaster, planning effective response system, planning rehabilitation and also preparing disaster resilient communities. As per Disaster Management Act, 2005, “disaster management” means a continuous and integrated process of planning, organising, coordinating and implementing measures.[1] Disaster management has four phases which are closely interlinked and have its origin from the US National Governors’ Association in 1979. First phase is mitigation which means that the aim should be to reduce the risks of occurrence of disasters.[2] Second phase is preparedness which covers planning for contingencies, building organizations, creating capacity and capability for future response actions. The third phase of disaster management is response that represents the immediate reaction to an acute crisis. And the last phase is recovery which aims at returning a disaster-stricken community or society to a state of normality. Disaster management is a collective and coordinated effort. The risk of disasters can be minimized by having proper knowledge of disaster management.

[1] Section 2(d), Disaster Management Act, 2005

[2] https://www.physio-pedia.com/Disaster_Management, 13 Nov, 2023

DISASTERS & PYSCHOLOGY

Udita Samyal, 2ndYr

In the wake of disaster, it's not the broken glass that haunts us but the shattered pieces of our peace of mind.

_ Ophra Winfrey

Disasters make headlines, capturing the attention of the world with stories of destruction and perseverance. However, beneath the sensational news articles and dramatic imagery, there is an often-overlooked aspect of these devastating events: the deep psychological imprint they leave behind. The human psyche undergoes a tremendous shift in the shadow of calamity, revealing the amazing dimensions of our psychological resilience and vulnerability. The psychological impact of disasters, from hurricanes and earthquakes to pandemics and man-made disasters, is a subject of extraordinary significance and depth, providing insight into the remarkable human spirit. Disasters don't just break buildings; they break people. Healing the human spirit is as vital as rebuilding infrastructure. For many survivors, the psychological anguish continues after the occurrence. With its persistent memories and endless nightmares, Post-Traumatic Stress Disorder (PTSD) lurks like a shadow.[1] The consequences of disasters have a great impact on the socio-economic status and mental health of the victims. Along with social and economic damage, individuals and communities face mental instability that can lead to post-traumatic stress disorder (PTSD), anxiety and depression. Community Disasters are usually measured by the cost of social and economic destruction, but this cannot be compared to the emotional pain that a person suffers after a disaster. A disaster is a multifaceted phenomenon with short and long-term ecological, political, economic, developmental, psychological, and social consequences. Trauma and psychological reactions to disasters differ from person to person and disaster to disaster in terms of exposure, extent of loss, personal coping mechanism, and support system available at the time, and, more importantly, the culture of that society and the country's socioeconomic and political structure. The psychological impact of disaster demonstrates the extraordinary complexity of the human psyche.[2] It demonstrates our fragility, resilience, and ability to help one another in the most trying of circumstances. Understanding and resolving these psychological effects not only honours survivors' experiences, but also prepares us for a more compassionate, resilient future. The remarkable response to calamity clearly demonstrates the tenacious nature of the human psyche. For many survivors, disaster becomes a catalyst for personal transformation, a moment when they discover a renewed sense of strength and purpose. In the aftermath of disaster, the resilience of the human psyche shine brightest and exists forevermore, illuminating the path to recovery.

[1] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6857396/, 21 Nov, 2023

[2] https://www.apa.org/topics/disasters-response/recovering, 21 Nov, 2023

26/11: A CASE STUDY

-Ankit Rana, 3rd Yr

Disasters are often relegated to Earthquakes and Landslides; Floods and Droughts; or any natural calamity that claimed humans/caused substantial damage to their ability to live. Often forgotten in discussions of Disaster Management and Occurrence, are the cases and occurrences of Anthropogenic Disasters. Within this category, these exist disasters which are manufactured deliberately, by humans, ostensibly for the purpose of 'sending a message' to the rest of humanity. These man-made disasters are the atrocities which are commonly referred to as 'terrorist acts' or 'terrorism'.

Often, terrorism is propagated by certain groups which form as a result of deep unsatisfaction and simmering resentment against a perceived occupying power or government. It uses extreme violence often targeted towards civilians and destruction of pubic and private property to send a message pertaining to political, religious and/or ideological aims. The first organization to ever use these tactics was the Irish Republican Brotherhood against the British. This organization used timed explosives with the express aim of sowing fear in the very heart of metropolitan Britain, in order to achieve political gains.

Terrorism has evolved in the same direction since then, with the primary aim of drawing attention to their cause via violent activities, or as a means of retribution for perceived injustices. Often, terrorist acts and organizations are under the constant surveillance of the state and hence most attacks perpetrated are often intercepted in the preparatory case. Unfortunately, some of ese do manage to slip through the vigil, of which discussed in the article are two recent incidents, which had devastating effects on the countries on which they were inflicted.

26.11.2008 – MUMBAI ATTACKS

The reason for the selection of Mumbai by the LeT to stage an attack on was the cultural and financial significance it holds in India. Also, Mumbai's humongous population, densely packed localities, and creaking infrastructure, as well as its proximity to the sea and its large and vulnerable coastline made it even easier to wreak maximum havoc. Finally, there was the Dawood Ibrahim controlled criminal network that had spread its tentacles wide, controlled all criminal activity in the area and was known to be influential among the political, bureaucratic and police establishments. His criminal network was ideally placed to provide logistic support for terror groups planning to target Mumbai.

On the night of 26 November 2008, the city of Mumbai faced one of the worst catastrophes that it had ever faced.[1] Multiple massacres and explosions rocked different locations in Mumbai, all as a result of a coordinated attack by 10 LeT Terrorists who had infiltrated Mumbai via sea. The attack lasted 3 days and resulted in the demise of 466 Indians and Foreigners. Many of the recovered bodies showed signs of disfigurement and torture.

The reasons for this disaster spiraling out control were clearly enunciated by the Maharashtra Govt. High Level Enquiry Committee on 26/11 led by Mr. Ram Pradhan.[2] According to them, "there was ineptness and a lack of cohesion between the counter terrorist policies, infrastructure and that

[1] The Hindu, 27 November, 2008.
[2] Maharashtra Govt. High Level Enquiry Report, 2014

"nothing else could have" brought this observation out until the disaster struck. The haphazard response by police forces, mixed intelligence reports alongside a dangerous, careless attitude adopted by the security forces was reason enough for this assessment, not to mention that there was nothing done to address the early warnings passed onto the RAW by the CIA eight days before disaster struck. Evidence of complacency by the security forces can once again be witnessed when one reads reports about Marathi fishermen complaining to the police about armed men coming ashore on rubber boats, something which the police failed to act on.

MANAGEMENT AND SOLUTIONS

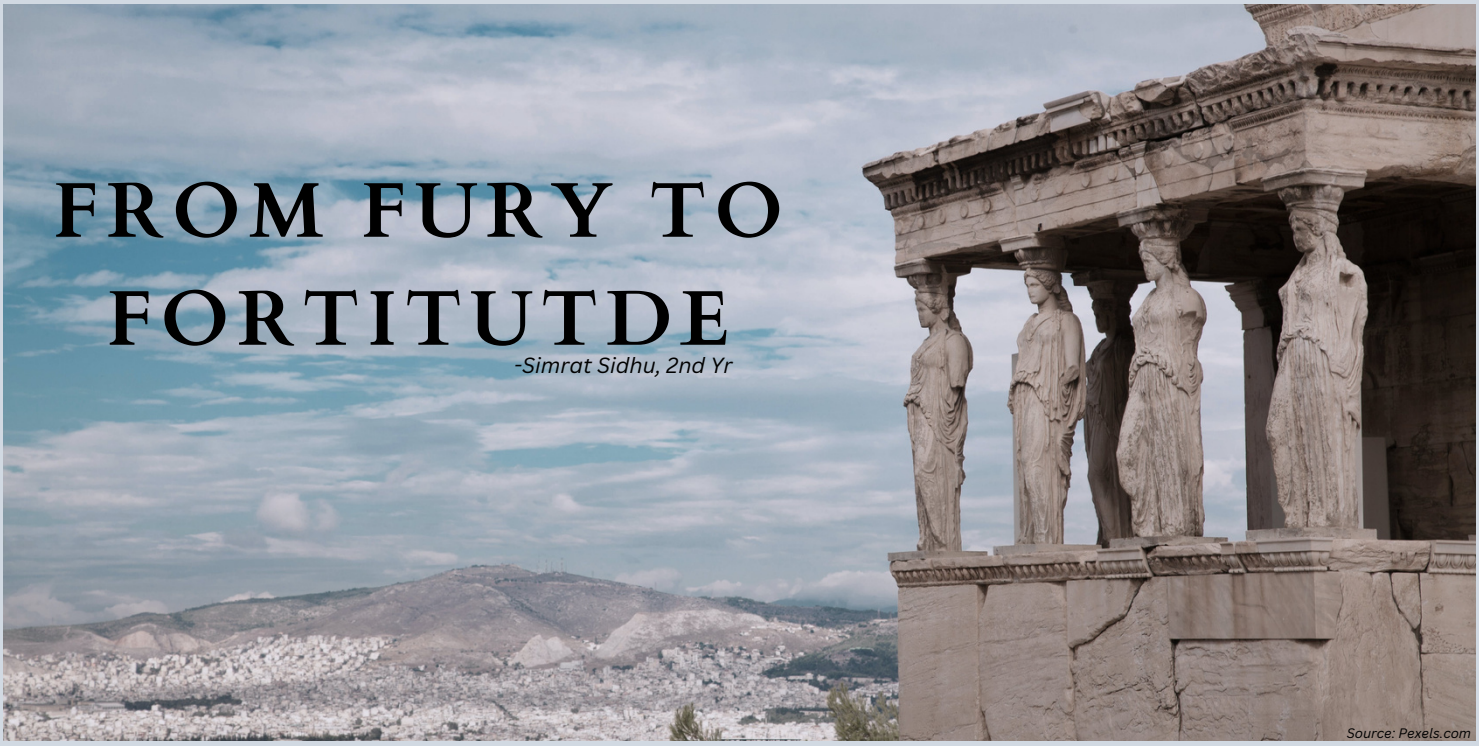
As the years have gone by after the attack, Mumbai has continued to grow and thrive in the with minimal changes in its socio-economic and political environment, it is no longer as vulnerable and soft a target as it was in 2008. This is because of the quantum enhancement of the coastal surveillance infrastructure and better integration and demarcation of responsibilities of the Navy, Coast Guard and Marine Police have been undertaken, thereby minimising the ability to avoid detection in the seas off the city. Secondly, the establishment of the integrated NSG hub in Mumbai and the enhancement of the capabilities and training of Force 'Alpha' of the Mumbai Police, its Special Weapons and Tactics (SWAT) team, will certainly impact response timings and prevent terrorists getting the time, space or flexibility to conduct open ended operations we witnessed earlier.[3] There have also been attempts to upgrade the technical capabilities, communication and training of the Police as well as put in place access control measures in vulnerable areas such as railway stations and hotels, though as per reports serious weaknesses continue to remain.

Unfortunately, the two among the three major Central Government initiatives that would have greatly enhanced our counter terrorism capabilities have not been followed through. These pertain to the establishment of the National Counter Terrorism Center (NCTC) and its intelligence data exchange architecture (NATGRID). These have not fructified due to political differences among various political parties that see it as a threat to our federal structure. However, there is little doubt that this initiative if pushed through as visualised would have been of immense utility in ensuring our counter terror establishment was able to prevent and respond to terror threats in a timely and effective manner. Their necessity has become critical in view of the way Pan-Islamic terror has evolved over the past decade with the advent of ISIS and its effective use of social media to draw recruits and plan and conduct attacks worldwide.

CONCLUSION

Perpetrators and Responders are both responsible for disasters. The former always instigates an event and the latter tries to respond to it and contain it in the best way possible with minimal destruction and damage. The efficiency of both is what causes the disaster. In almost all cases, the Responders whenever adequately prepared and equipped can deal with these disasters quite effectively. The need of the hour is to shove bureaucratic red-tapism, byzantine corruption and political differences aside to address the need to provide secure lives to the people of India. The sooner the political entities and parties understand this, sooner can we as a people attain great heights.

[3] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7479386/, 11 Nov, 2023



FROM FURY TO FORTITUTDE

-Simrat Sidhu, 2nd Yr

Source: Pexels.com

Since the dawn of civilization, religion perhaps has been the world's most potent force that grips man and influences his beliefs and actions like nothing else that the society has yet seen. Despite the onset of heavy modernisation in the beginning of the past century, which has only grown in manifolds since, no power or idea or belief seems to waver the authority that religion holds over us. In lieu of this fact, one feels compelled to gather more insight in how religion has played a role in the life of ancient man, and how his faith provided him with this very own reasoning to substantiate the causes and consequences of unprecedented events, like natural disasters.

Prominent ancient societies such as those of Greece and Rome which were scientifically more advanced than the rest of those times, were not completely alien to the concept of "God's Wrath" displayed in the most terrifying and fear inducing form of natural disasters. Earthquakes, floods, tsunamis and other potentially life-threatening natural events could all be viewed through a solely religious lens. For instance, the common perception of people in Ancient Greece was that all natural disasters springing out of the sea were a result of the anger of the God Poseidon. In line with this reasoning, the Bible too lists several catastrophes sent by God upon Earth to punish those whose lives were marred by sin.

Since archaeologists have access to only limited sources of ancient history, to decide whether this phenomenon was merely a psychological mechanism naturally adopted by the scientifically more advanced than others of those times, were not completely alien to the

concept of “God’s Wrath” displayed in the most terrifying and fear inducing form of natural disasters. Earthquakes, floods, tsunamis and other potentially life-threatening natural events could all be viewed through a solely religious lens. For instance, the common perception of people in Ancient Greece was that all natural disasters springing out of the sea were a result of the anger of the God Poseidon. In line with this reasoning, the Bible too lists several catastrophes sent by God upon Earth to punish those whose lives were marred by sin.

Since archaeologists have access to only limited sources of ancient history, to decide whether this phenomenon was merely a psychological mechanism naturally adopted by the scientifically oblivious man to validate his fear or whether some trueness exists in this form of divine retribution is a point that is hotly debated today.

However, man even in his most primitive form, possessed some intelligence. As he lived through these events, he began to understand and gather signs of small instances that meant the coming of a bigger, more devastating catastrophe. For instance, the ancient Greek city Helike was wiped out due to an earthquake accompanied subsequently by a tsunami. A traveller to the city, wrote that only a few days before the Earthquake struck, all rodents of the city had fled, leaving the inhabitants greatly puzzled.

Archaeologists have indeed confirmed that this ancient city was struck by these events and surviving records of information like such serve as a testimony to the fact that man indeed was not heedless to these signs.

As times passed, the world saw a significant shift take place from this stance of divine retribution to attaching more scientifically accurate explanations to these events. Ancient Greece, which is one of the world’s most seismically active regions, attracted the attention of many thinkers who each gave their own reasonings for these events. It was not until the 18th century that the most notable scientific advances took place in the sphere of understanding natural disasters.

However, religion is here to stay and given that man’s faith remains unaffected despite the influence of science, some are still quick to attach divine meanings to natural disasters. But, to our relief, to prevent contemporary cities from being wiped out, we possess not only the knowledge but also tools to ensure that damage suffered is mitigated. A greater awareness of natural disasters and widespread propagation of preventive measures to be taken in light of these cataclysmic events is what that contributes to this. Through knowledge and preparedness, we pave the way for resilience and fortitude in the face of nature's fury, ensuring that our cities and civilizations stand strong.

Uttarakhand Tunnel Collapse: A Mountain Moved

-Anjali Verma, 2nd Yr

Source: Pexels.com

Who could have thought that the banned practice of rat hole mining would come to the rescue of the labourers trapped inside the collapsed tunnel of Uttarkashi district of Uttarakhand, especially after sophisticated equipment such as the Auger drilling machine failed to create a rescue passage.

On November 12, 2023,[1] following a landslide at the Silkyara- Dandalgaon tunnel on the Brahmkal- Yamunotri Highway in Uttarakhand's Uttarkashi, 41 labourers got trapped. A rescue operation was initiated to free them. Efforts involved bringing in 800 and 900 millimetre steel pipes for horizontal digging using an auger machine. However, further rubble caused minor injuries to two workers, hindering progress. Supplies of essential items like food, water, and medicine were ensured for the trapped workers.[2] Ultimately, a group of 12 rat-hole mining specialists arrived at the site, initiating the manual drilling and excavation process to clear the final 10- to 12-metre stretch of debris.

What is Rat Hole Mining?

Rat hole mining is largely prevalent in Meghalaya, particularly West Jaintia Hills, East Jaintia Hills and West Khasi Hills. It involves manually digging up small tunnels, around 3-4 feet, through which workers enter and extract coal. Considered dangerous, it involves miners going deep inside horizontal tunnels, which are generally constructed using primitive equipment. It is called rat hole

[1] The Hindu, November 12, 2023.
[2] https://www.drishtiias.com/daily-updates/daily-news-analysis/rat-hole-mining-1, November 12, 2023.

as the pit which is dug is large enough for one person to pass through and extract coal from the seams. Such practices frequently result in accidents leading to loss of life in some cases. The National Green Tribunal (NGT) banned rat hole mining in 2014 as it causes environmental degradation and is a threat to the life of miners. The Tribunal termed it as unscientific.

Rat miners, as they are often called, use the side-cutting technique, in which they dig narrow tunnels on hill slopes through which miners go inside to reach the coal seam. This technique came in handy while manually digging the last 15 metres of the collapsed tunnel at Silkyara on 28th November, to create the evacuation passage.

Usually, miners first dig a vertical hole to descend down in the mine. Once they hit the coal seam, the miners start digging horizontally to extract as much coal as possible.

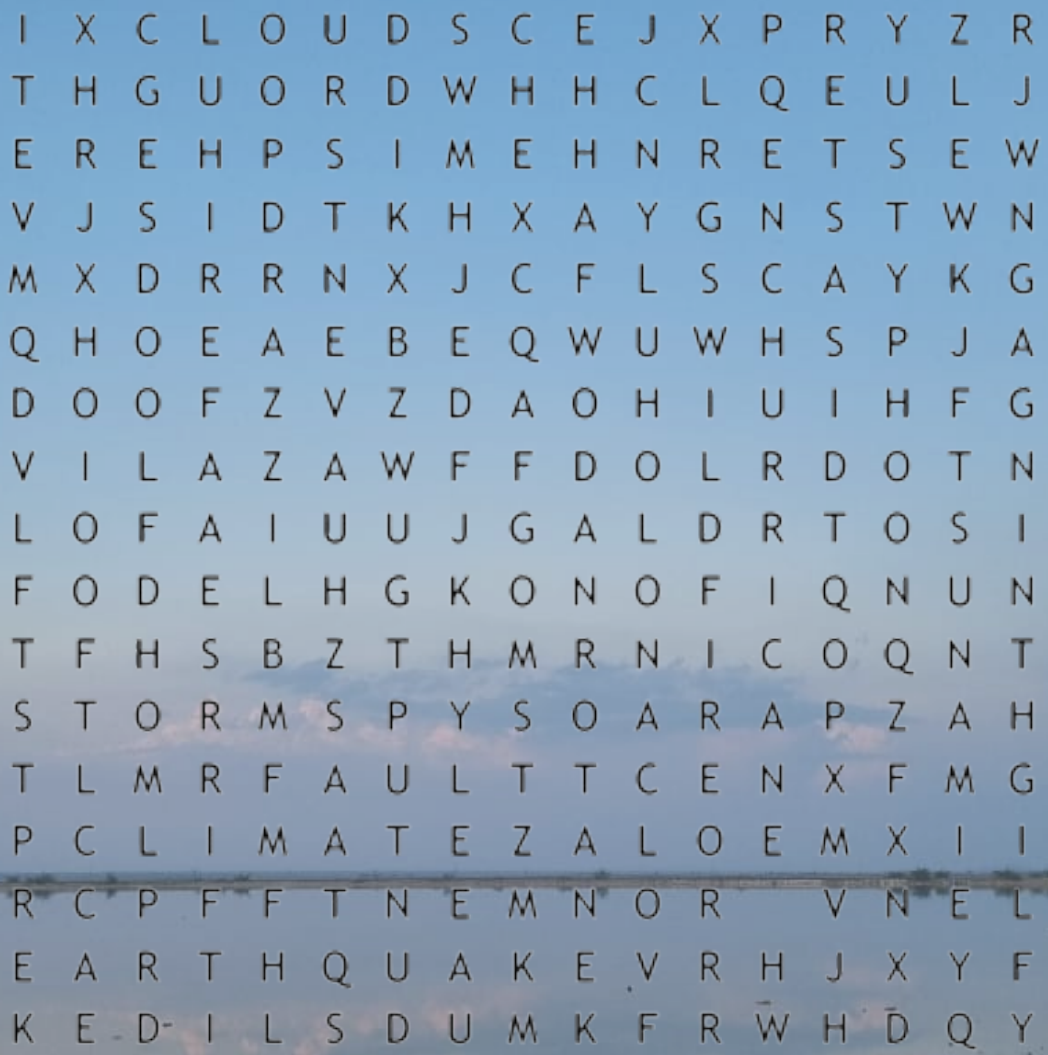
The holes can be as much as 200 feet in some cases. Their experience under high altitude as well as in cramped and closed spaces came in handy during the rescue exercise in Uttarakhand.

Conclusion

Following the manual drilling, rescuers inserted a pipe into the tunnel, reaching the breakthrough point at 57 meters. This enabled the evacuation of the first worker with all the other trapped workers emerging in good health. It was a test of resolve, grit and perseverance— for those on both sides of the 57 metres of debris — as the rescue operation suffered one setback after another. In the final lap over the weekend, the drilling machine gave way, and, in the end, it was the 12 “rat-hole miners” who dug through the last 12 metres and reached the trapped men.

The grit of man can break all barriers. It was, literally, moving the mountain.

WORD MAZE



WESTERN HEMISPHERE
STORMS
DISASTER
LIGHTNING
VOLCANO

HURRICANE
EARTHQUAKE
FLOODS
FAULT
TYPHOON

CLOUDS
TSUNAMI
BLIZZARD
ENVIRONMENT
WILDFIRE

MUDSLIDE
TORNADO
DROUGHT
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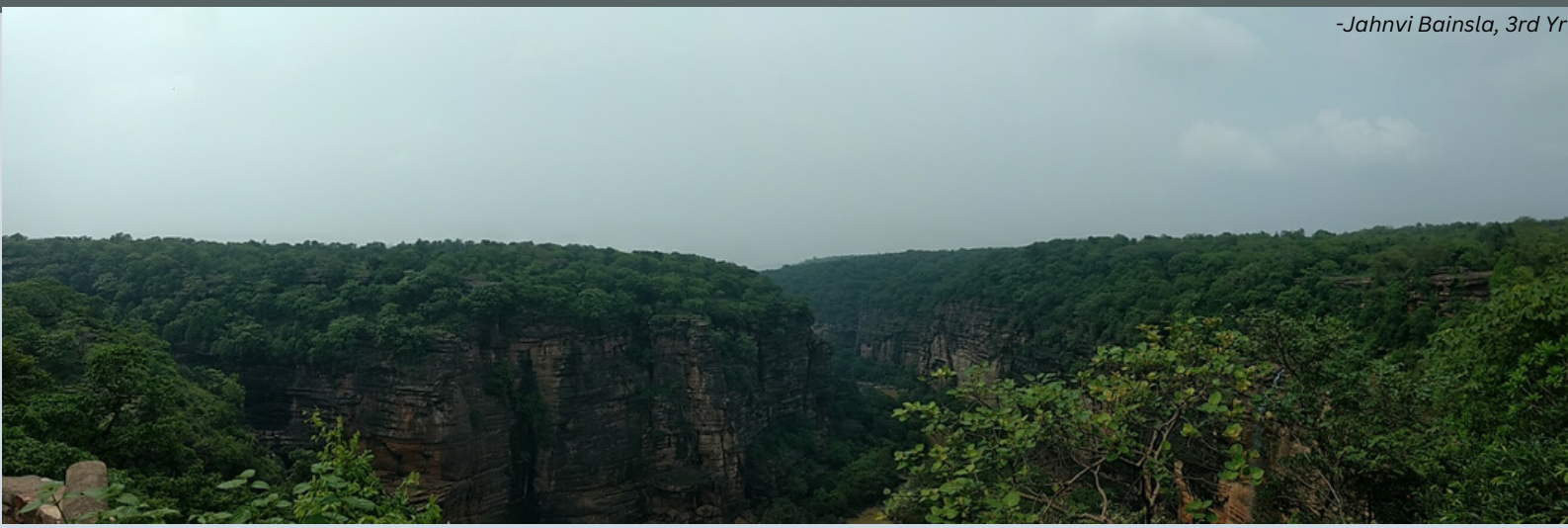

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