

A Comparative Analysis between CoVID 19 & Natural Disasters

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Disasters have been an integral part of life on Earth. There have been many disastrous events in the history of Mankind. Some has resulted in a better future and some hasn't. They can be classified as natural or man-made. Natural Disasters as can be stated from Wikipedia 'A natural disaster is a major adverse event resulting from natural processes of the Earth; examples are floods, hurricanes, tornadoes, volcanic eruptions, earthquakes, tsunamis, storms, and other geological processes.' In the context of natural disasters, either pandemics or other natural calamities may occur with due course of time. For instance, just like the one Earth is fighting currently. Compared to epidemics like COVID 19, natural disasters occur more often. In 2014, the Centre for Research on the Epidemiology of Disasters (CRED) estimated that 1, 298, 848 people were left homeless due to various natural disasters.

It can be stated that CoVID 19 is also a form of natural disasters. Unlike many, we cannot see them and like many, we cannot cure them. Human history has witnessed several such pandemics and managed to survive them all. Reasonably, for CoVID 19 – instead of declaring it as an epidemic, India has declared it as a natural disaster so

that India can act under the new comprehensive disaster management laws instead of the 123-year-old colonial legislation — the Epidemic Diseases Act, 1897.

The identification of coronavirus goes way back to 1960s. The word coronaviruses is named after the Latin for Crown which means crown-like appearances of virus. It is discovered that coronaviruses are a family of RNA viruses in the order of Nidovirales. Coronaviruses are classified into four types such as-

- i. Alpha
- ii. Beta
- iii. Gamma
- iv. Delta

Human coronaviruses are Alpha and Beta coronaviruses. So the coronaviruses we heard are in these classifications. Coronaviruses are medium-sized viruses enveloping a positive-stranded RNA. It is considered that they have the largest viral genome known. Both mammals and birds are infected by coronaviruses. But bats are the hosts to the largest numbers of the viral genotypes of coronaviruses. Because of their peculiar immune systems bats don't get easily infected but they could be the host

and transmit coronaviruses to other species. It has been hypothesised that CoVID 19 has similarly found to the human body. Respiratory and gastrointestinal tract infections are caused by human coronaviruses. And it is estimated that coronaviruses accounted for approximately 5-10% of all adult upper respiratory tract infections anywhere from a common cold to pneumonia and Acute Respiratory Distress Syndromes (ARDS). The first coronavirus that effected the human population was Severe Acute Respiratory Syndrome (SARS) that first occurred within 2002/2003. It was started in Guangdong Province of China and the coronavirus was itself a Beta coronavirus. This particular

coronavirus SARS was transmitted from bats to civets to humans. This led to a worldwide outbreak and lasted until July 2003. It was recorded more than

8000 cases, 774 deaths with a fatality rate of 9.6%. The second in line was the Middle East Respiratory Syndrome (MERS)-2012. This was started in Saudi Arabia and quickly spread to several countries. This too was a Beta coronavirus as well. It was transmitted from camels to humans. More than 2400 cases associated with 858 deaths

with a fatality rate of 34.4% was recorded. Then came the 2019 Novel Coronavirus (2019-nCoV) – 2019. The newest one has come to the light almost in November, 2019. This fire was started in Wuhan, Hubei Province of China and it is the seventh coronaviruses found to causes illness in humans. It is a beta coronavirus. This coronavirus shares an approximately 80% sequence homology with severe acute respiratory syndrome (SARS) coronaviruses. The very first patient hospitalized with the symptoms of pneumonia on December 16, 2019. But it is estimated that initial infections started in November, 2019. And after multiple cases reported in Hubei and across China this



virus is reported to WHO on December 31, 2019. It is reported that the source of the transmission of the virus from a local seafood and meat market

in Wuhan. The virus was transmitted to Italy, USA and slowly it spread to the whole world. Emergency lockdown was declared. Educational institutes, malls, gyms, every market, and almost all the places with the possibility of social gathering was closed immediately and almost all the international, national way communications

were either closed or cut short. Worldwide almost 56,48,204 people were affected. The data is taken at 27/05/2020 01.54, although almost 2.41 million people are recovered but the deaths are more than 3,50,000 including medical workers. Invention of cure or vaccine is still under process.

CoVID 19 doesn't come close when it comes to many other natural disasters. For instance, in 1931, China faced a massive flood which caused deaths in between 4,00,000 to 40,00,000. The primary reason for fear is that it can spread very quickly. The basic reproduction rate or simply the R_0 for SARS COV 2 is about 2.49 to 2.63. On the other hand, seasonal influenza has an R_0 of 1.46 to 1.48. Contrary to both measles has an R_0 of 12 – 18. Influenza and measles are quite old diseases in contrast with CoVID 19 and that is the reason that the human body across the globe are being affected with the virus at an alarming rate. It is a contagious viral infection that attacks primarily throat and lungs. The coronavirus is seemed to be occurring in respiratory droplets, exposure to sneezing and coughing. This is very similar to other respiratory viruses. For those with other respiratory diseases, or the people with a weak immune system, infants or senior citizens, fighting with coronaviruses become more challenging.

On the other hand, many natural disasters have a significant impact on the public health and well-being of populations affected. Negative health impacts can be direct (e.g., injuries) or indirect (e.g.,

malnutrition and an increase in infectious diseases). Earthquakes, avalanches, floods, and hurricanes have killed millions of human and animal lives, a hefty amount of public and private properties have been destroyed, as the consequence of direct impact. In the aftermaths of a natural disaster, these health issues are compounded by the damage done to health systems, water and sanitation infrastructure, and the displacement of communities affected. As the immediate consequences, the majority of the displaced population live in temporary crowded shelters with very limited access to water and food. Such living conditions are ideal for the spread of infectious diseases, an increase in mortality among the displaced populations. There are many infectious diseases known to spread in such crowded environments including diarrheal diseases, measles, bacterial meningitis, acute respiratory diseases, malaria etc. Consequently, to respond to a natural disaster, public health workers have to treat injuries that require immediate medical attention while also implementing systems to prevent and reduce the spread of infectious diseases.

Natural disasters also cause a huge economic burden and extensive loss of lives. From 2000 to 2009, natural disasters have caused 67,307 billion INR in damage worldwide (Kellet and Sparks, 2012). The high cost of natural disasters is attributed to their destruction of expensive and essential infrastructure (e.g., roads and buildings). In terms of health and economic losses, low-

income countries are disproportionately affected by natural disasters.

On the other hand, because of CoVID 19, people are required to live isolated. Maintaining that 2 meter or 6 feet distance becomes more important than to practising any kind of cultural rituals. We Indians welcome our guests or meet friends with palm touching (Namaskar) by tradition. And this welcoming culture is undoubtedly becoming the global culture because it is declared as the most primary practice of social distancing with the reason that shaking hands or hugging each other spread the virus more quickly. Mask on face and sanitizer on hand and avoid all the social gathering is our new culture.

The coronavirus has made to stay home and minimal people interaction. The COVID-19 outbreak has been affecting all levels of the population and is particularly detrimental to people living in poverty conditions, older people, and people with disabilities. Researches indicate that the health and economic impacts of the virus are being borne disproportionately by poor people. For example, homeless people, are highly exposed to the danger of the virus. People without access to running water, refugees, migrants, or displaced people also stand to suffer disproportionately both from the pandemic and its aftermath – whether due to limited movement, fewer employment opportunities, or increased nomophobia and xenophobia etc.

As part of pandemic preparedness, epidemiologists promote “containment

strategies” designed to prevent community transmission. For coronavirus disease 2019 (CoVID-19), countries like South Korea—an example of successful containment—had a coordinated governmental response, testing on a massive scale, and promotion of contact tracing and quarantine. The first cases of South Korea's COVID-19 outbreak were in mid-January, 2020 and by late February, 2020 South Korea was testing more than 10,000 people daily. Cases peaked on February 28, but by April 5, 2020, no more than 53 new cases daily have occurred nationwide.

When disease outpaces containment, countries rely on “mitigation strategies”. Heavily infected countries like China, Italy, Spain, and the US moved from containment to mitigation, albeit at differing paces. Mitigation relies on non-pharmaceutical interventions such as hand hygiene, travel restrictions, school closures, and social distancing. Social distancing has proven in pandemic influenza (in both 1918 and 2009) to reduce and delay peak attack rates and mortality. In the absence of a breakthrough treatment or vaccine, the countries must navigate from mitigation back to containment, using strategies effectively mobilized by South Korea. First, density must be limited; most of the countries affected by the disease share the common feature of either having dense urban living conditions or temporarily dense population influxes. Until and unless there is widespread protective immunity, the risk of large gatherings, festivals, conferences, and sporting events must be considered by

authorities when they determine how to proceed. On a smaller scale, businesses should consider work schedules that limit office crowding (e.g., limited in-person activity), and health care settings should reduce schedules, space out waiting rooms, and create weekend and evening timetables to accommodate backlog and care for the highest-risk patient. Infection prevention and control measures include, among others, hand hygiene, Personal Protective Equipment (PPE) and waste management materials. The PPE consists of garments to

invest in this field as this will return the profit in many possible ways.

Natural Hazard mitigation describes actions taken to help reduce or eliminate long-term risks caused by hazards or disasters, such as flooding, earthquakes, wildfires, landslides, or dam failure. As the costs of disasters continue to rise, governments and citizens must find ways to reduce hazard risks to our communities. “No community can prepare for every possible disaster, When it comes to protecting our nation's communities against



protect the healthcare workers or any other persons from infection. These usually consist of standard precautions and gloves, mask, gown, especially for the frontline warriors. On the other hand, a well-versed environment for online workflow should be widely implemented. This will not only cut the direct p2p relations along with other direct contacts, but also will encourage a safe and sound environment for everyone. Of course for this to sustain, a high-speed internet should be feasible to everyone along with the direct access to digital communication devices. Governments can

both the known and the unknown, the training and education of community leaders may be the most vital strategy of them all. Having a comprehensive, modern, and coordinated approach to disaster planning can save resources and lives.” – a well said verse by Captain Tiffany Danko, lecturer for North-eastern University’s Master’s in Homeland Security and Intelligence programs.

The worst effects of any disaster are the deaths and injuries caused. Understanding the way that people are

killed and injured in disasters is a prerequisite for reducing casualties. Among the sudden-onset disasters, floods and earthquakes cause the most casualties worldwide, with storms and high winds being less deadly but far more widespread. In earthquakes, over 75% of fatalities are caused by building collapse. In floods, deaths occur by drowning, mainly outdoors and in fast-flowing currents or turbulent water. Saving lives in earthquakes means focussing on the prevention of building collapse. Reducing fatalities from floods means limiting the exposure of people to rapid inundation by keeping people out of the track. The consequences of physical damage are often more important than the damage itself. A damaged factory can no longer continue to manufacture jobs. The jobless have no income to spend in their local shops and the whole local economy suffers. Damage to infrastructure and the means of production depresses the economy.

Mitigation also entails the protection of the economy from disasters. Economic activity in the more industrialized societies is complex and interdependent, with service industries dependent on manufacturing, which in turn relies on supplies of raw materials, labour, power and communications. Newly industrializing societies are most vulnerable of all. Agricultural sectors of the economy are most vulnerable to drought but also to floods and high winds, disease and pest attack and pollution. Industry is more vulnerable to earthquake damage and the

disruption of transportation and utility networks. Commerce and finance are most vulnerable to disruption of production, population migration and breakdowns in communications systems. Mitigation measures that focus on protecting the most vulnerable elements and activities—the weakest link in the different sectors of the economy will help to protect the achievements of economic development.

Quoting A S Lakshminarayanan MD & CEO, Tata Communications, “The world is still coming to terms with the impact of COVID-19 which continues to change everything about life and work as we know it. As strange as they are for many, people are learning to follow guidelines on social distancing and isolation.”

Too much stress releases the hormone named cortisol, which impairs human response to immediate surroundings and makes their body susceptible to infections; feeling constantly anxious. The best way to relieve stress is through meditation, it is a tried and tested activity to calm nerves. The stress can be relieved through proper utilisation of time. Pursuing an indoor hobby, games or reading books, writing could be the best way to keep oneself engaged.

Increased xenophobia among the people across the globe has been noticed. Uncertainty, lack of control, and lack of information are primary triggers of stress, tension. Due to coronavirus, social distancing leads to isolation, loss of our daily routines. Even at this information age,

when we say the earth is a global village, people have failed to cop up with the isolation. Laziness will be one of the major concern after COVID 19. Though people are taking this lightly, it is well established that it will take months to recover from the mental stress and laziness caused by this pandemic all over the world. Yoga is one stress management tool that we can do at our homes with little place or less or no equipment with our own, or with guidance.

Adaptation in case of natural disaster, authorities for disaster management, civil defence, and home affairs typically have responsibility for disaster risk reduction. The long historical experience in implementing disaster risk reduction can contribute greatly to adaptation, in terms of policy and institutional approaches as well as technical methods and tools.

Some examples of adapting to natural hazards-

1. India, Pune -

A city government in a highly vulnerable flood-prone area develops a climate change plan with comprehensive disaster management measures.

2. Maldives -

An island country devastated by the Indian Ocean tsunami now prepares for future climate disaster risks by strategic action planning.

3. Samoa -

A small island state prepares for disasters and climate change by integrating across sectors and stakeholders and by linking action at national and village levels.

4. South Africa -

A rapidly-growing municipality addresses the increasing risk of droughts by implementing a water resource management programme.

(All the examples cited above are taken from International Strategy for Disaster Reduction, ISDR)

Locally, especially within Assam, CoVID 19 has disrupted the whole scenario of the state. From the health department to the education department, there have been many ups and downs that can be seen clearly. Health sector is improvising enormously. Around 500 people are infected by the virus 4 people died the stage of communal spread hasn't reached yet (27/05/2020). The education sector has seen largely a negative impact except for two facts that students are getting a head start for their real-life to gain different skillsets and the older generation is getting used to digital education. On a different note, a particular scenario is coming out. Along with other effects of lockdown, there has been a ban on GUTHKA products along with the tobacco packets. But, in reality, the scenario has been a completely different one. In the village of Kolabari – 784178 within the subdivision Gohpur, Biswanath district, from the data collected with the help of 7 GUTKHA shop owners, found that out of

total 221 boxes of GUTKHA pouches each containing 20 -25 packets and the price ranging from 10 – 25 rupees have been sold within the 1st 22 days of lockdown, even with a high selling price of average at 30 rupees. This outcome is scary. Even with the least possible approximations, the mentality and addiction of not only the young generation but the people with the age group from 15 – 38 can be found out easily. GUTHKHA and tobacco packets have become an integral part for more than 50% of people. This will play a crucial role in shaping the future of the country as well as defining economic and education structure along with the mental – physical fitness of the population as a whole.

Once and a lifetime solution for abolishing all social evils, myths, misconceptions, superstitions etc. is the popularization of science. A healthy scientific temper helps to effectively raise awareness against superstitions, blind beliefs and to nourish scientific reasons behind every phenomenon that happens in our surroundings. Scientists are reviewing, editing, analysing and publishing manuscripts and data at record speeds and in large numbers. Using latest technologies up to date informations can be provided in no time. In case of COVID 19 with the help of upgraded technologies, many research papers have been published containing various pieces of information. And the process of inventing cure or vaccine is ongoing in effective speed. This pace can be seen for the first time in the history of mankind. The collaborations, the effort to

bring everything under the umbrella of science and knowledge is fascinating. The mere imagination of this kind of collaboration among the scientists of all the countries to tackle different natural disasters is overwhelming.

It's not the first time for a pandemic to hit the human race. Nor this will be the last time. But it sure has taught man a lot, more than it was imaginable a few months ago. We cannot nullify the fact that there will be no natural disasters. But we can make it sure that when they come, and of course they will, it will be us who will be ready to fight them. This sure cannot happen without the proper advancement in science and technology. So, it is us who needs to decide whether we need to spend time on certificates or skills, it is us who have to decide whether we should visit the religious places or the places to experiment science more often, and of course, it is us who needs to take up actions against the fact the mere theoretical knowledge to score in the exams is not acceptable but to learn the theory and to learn to test the learned theory in the practical field is what required most along with a scientifically nurtured mind.

Natural disasters are a vital part of our human environment. Natural disasters do not discriminate between people of a society and other communities. It teaches to survive. That is the beauty to be human. That we can be adopted to every situation. We always find a way of survival. Nature gives birth to live. But she can also be cruel, nature can be destructive, surviving in

nature is challenging. But it always comes with hope, maybe in another way! But nature and human crisis is the matter to be concerned about. Being the most civilised within the known universe (!), we should always protect the nature, try to find a mutual way to live with.

References

1. What happens when you get coronavirus (28/03/2020)
<https://www.youtube.com/watch?v=5DGwOJXSxqg&t=229s>
2. Introduction to Coronavirus (SARS, MERS, COVID- 19) Symptoms , History of SARS,MERS
<https://www.youtube.com/watch?v=aFPyYoGViZs>
3. Wikipedia, Natural Disaster
https://en.wikipedia.org/wiki/Natural_disaster
4. Lakshminarayan, AS 16/04/2020 Key learning from COVID-19: Adapting to a changing world
<https://www.financialexpress.com/industry/kve-learning-from-covid-19-adapting-to-a-changing-world/1929608/>
5. Codburn, Andrew & Spence , Robins & Pomonis, Antonios . Disaster Mitigation
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uqct=8&ved=2ahUKEwjlt-GG39npAhVMxjgGHbLrCAoQFjAAegQIARAB&url=https%3A%2F%2Fwww.researchgate.net%2Fpublication%2F292655874_Disaster_Mitigation&usq=AOvVaw17w8ryuLMn0gL8Hr1bkOIE

6. ISDR, Adaptation to Climate Change by Reducing Disaster Risks: Country Practices and Lessons <chrome-extension://mhjfbmdgcfjbbpaeojofohoefg:iehjai/index.html>
7. A multimedia Guide for Mass awareness by Natural Council for Science & Technology Communication Department of Science and Technology , Govt of India ,Dr Anamika Ray Memorial Trust, COVID KATHA
8. WHO Timeline – COVID - 19
<https://www.who.int/news-room/detail/27-04-2020-who-timeline---covid-19>
