

May - June 2021



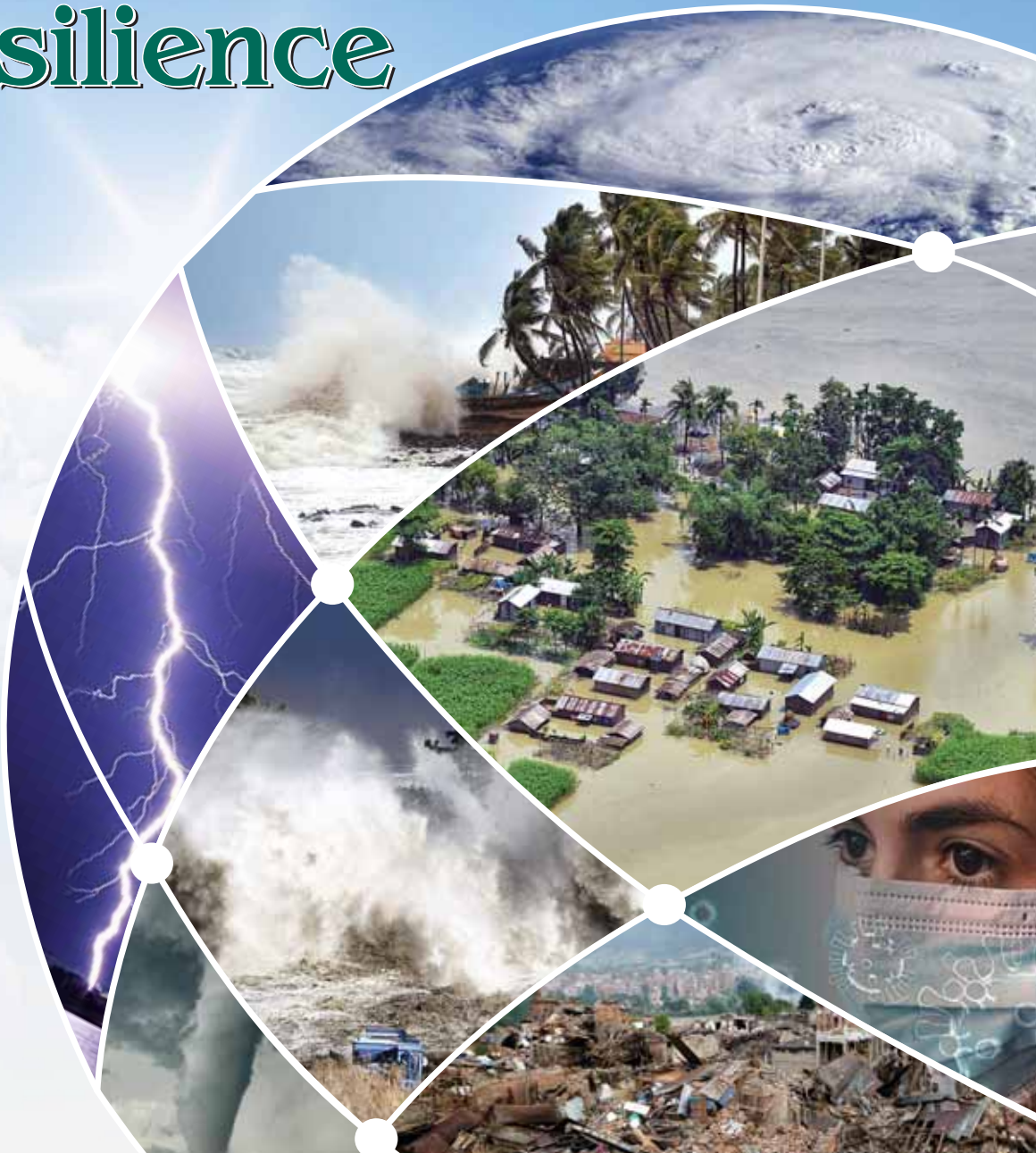
# KNOW DISASTERS

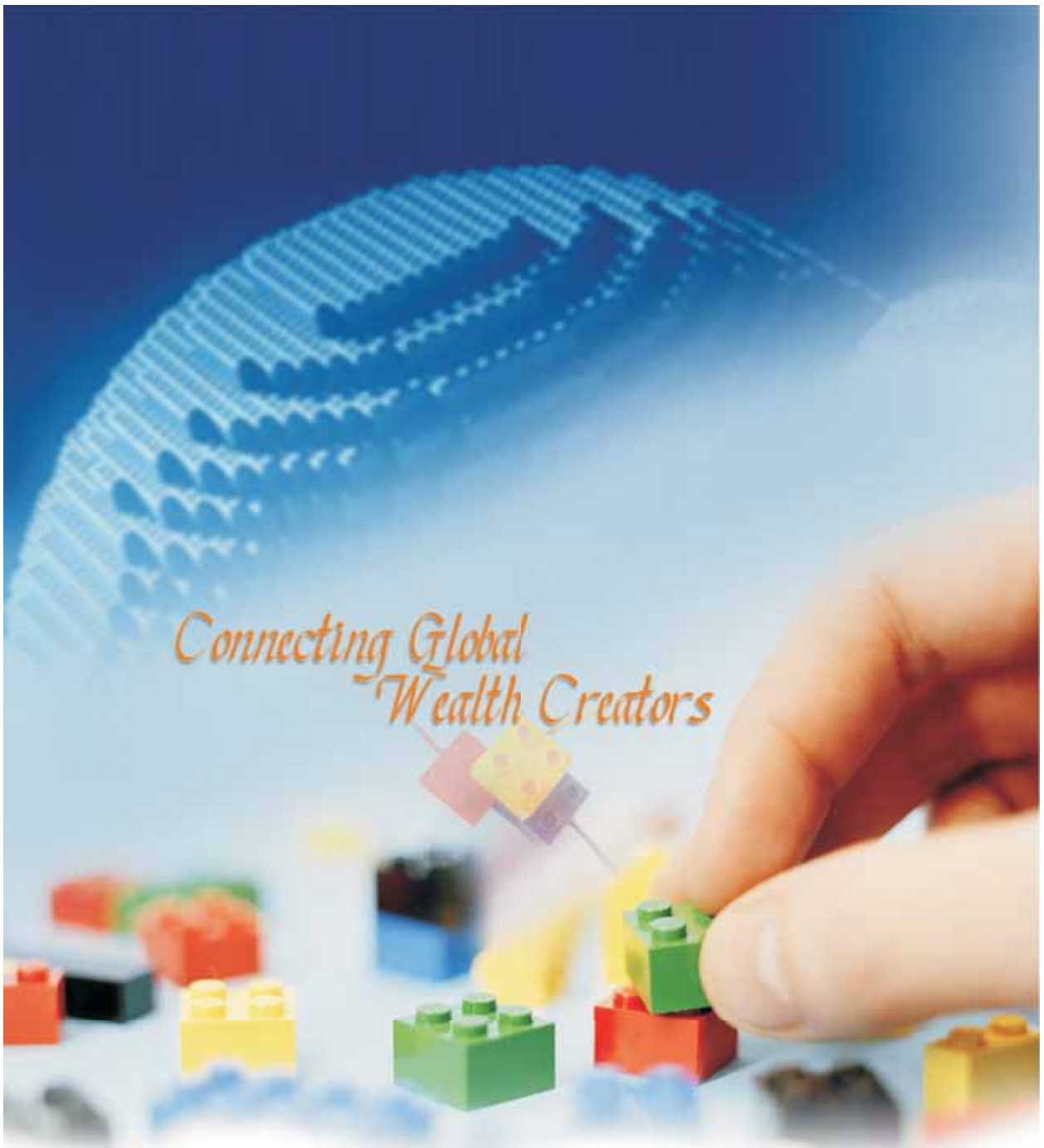


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## Building Back Resilience





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**Dear Readers,**

Greetings!

The Sendai Framework for Disaster Risk Reduction, adopted in 2015, highlights the opportunity offered by reconstruction and recovery to Build Back Better by better managing the risks and underlying factors. Beyond the traditional understanding of Build Back Better, resilience means the ability to bounce back from a disaster and move ahead towards a rapid, safer, and most importantly, inclusive society keeping in view the differential impact of disasters on various segments of society.

As disasters are becoming more frequent and destructive in India and around the world, building back resilience seems to be the only way out towards sustainable development and DRR. Creating a culture of disaster resilience for the nation and the world is a proactive rather than a reactive approach to the problems caused by disasters. Such a culture can provide a pathway for reducing vulnerability and the impacts of disasters before they occur; the potential to decrease the costs of disasters at all levels and save lives while protecting infrastructure, livelihoods, social systems and the environment.

In this regard, Know Disasters has been contributing to awareness-raising and education, and especially in bridging the gap between technical information available and information disseminated to the public. Hence, this magazine is committed to building disaster resilience by making disasters everyone's business.

Following the May issue on the theme: "Translating Words Into Actions: Implementing SFDRR", the theme for this issue is "Building Back Resilience: Exploring Different Ways of Resilience Building". We bring a range of articles such as "Keeping a Culture of Disaster Resilience" by Gerald Potutan; "An Ethics of Care Approach to Climate Change Adaptation and Disaster Resilience" by Dr Sunil Santha; the writings of Saswati Paik in "Building Resilience in Schools and Communities to Reduce Long-term Social Impacts"; "Forest Fire: A Good Servant but a Bad Master" by Dr Satendra; and, "Diversity and Inclusion in Business as a Tool to Enhance Business Continuity" by Roshni Pramanik, among others, along with a regular column in Hindi by Dinesh Mishra Ji.

Like the previous issue, we have contributions from the youth and children and news from around the world and India, followed by a section on disaster terminologies. We have a new addition starting with this issue called Book Forum, where we introduce our readers to new books based on the theme of this magazine. I hope you will like this section too.

With this, I would like to thank the authors for contributing their articles, and the readers who encourage us by sharing their feedback and suggestions. We always welcome your valuable comments and content contribution to the magazine.

Stay Informed, Safe & Healthy!

A handwritten signature in black ink, appearing to read 'Anil Sinha'.

**Anil Kumar Sinha, IAS (Rtd.)**

Hony. Editor-in-Chief, "Know Disasters"

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# Lightning Resilient India Campaign

# वज्रपात सुरक्षित भारत अभियान

1

**Lightning Early Warning**

Download **Damini App** and be always informed & alert  
[https://play.google.com/store/apps/details?id=com.lightning.live.damini&hl=en\\_IN](https://play.google.com/store/apps/details?id=com.lightning.live.damini&hl=en_IN)

2

**Lightning Do's and Don'ts**

## Staying safe during thunderstorms

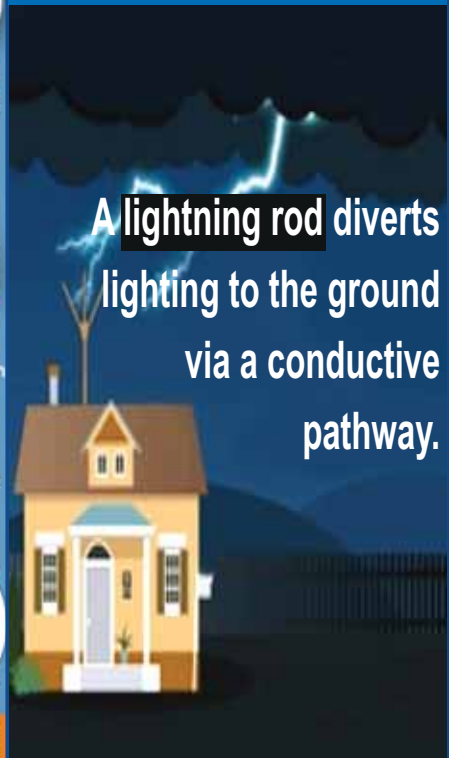
- Get inside a completely enclosed building
- If there is no enclosed building, get inside a hard-topped vehicle
- Avoid metal
  - Avoid leaning against metal vehicles. Get off bicycles and motorcycles
  - Do not hold on to metal items like fishing rods, tennis rackets or tools
- Be the lowest point, as lightning hits the tallest object
- If there is no shelter, crouch in the open
- Get out of the water and stay away from beaches
- Stay away from trees

3

**Lightning Protection System**

Is my house, school, office or field Lightning safe ?  
 Please check and install Lightning protection conductor/arrester.

A lightning rod diverts lightning to the ground via a conductive pathway.



भारत सरकार  
 पृथ्वी विज्ञान मंत्रालय  
 Govt. of India  
 Ministry of Earth Sciences



दामिनी : बिजली चेतावनी  
 DAMINI: Lightning Alert



Source: CROPC (Climate Resilient Observing Systems Promotion Council), courtesy MMD

# Keeping a Culture of Disaster Resilience

Gerald Potutan (PhD) is a Senior Researcher at the Asian Disaster Reduction Center, Kobe, Japan.

**Like the Mongolian nomads, we can build a culture of disaster resilience by integrating practical capacities for early warning, evacuation and mutual help in traditions, practices, and lifestyle. The culture of disaster resilience is not self-executing; it needs to be retained and improved, or it will gradually vanish due to a range of factors like politics, urbanisation, mining, or climate change. The experience of the nomads offers insights that any community can build a culture of resilience by integrating practical disaster risk reduction (DRR) capacities into their respective traditions, practices, and lifestyles.**

Till the present day, many rural communities in Mongolia live a nomadic life. For thousands of years, Mongolian nomads have

been moving from place to place to find fresh pasture for their animals while keeping cultural traditions and practices that build practical capacities for disaster resilience. If we look deeper into their culture, we will gain insights into what it takes to build resilience.

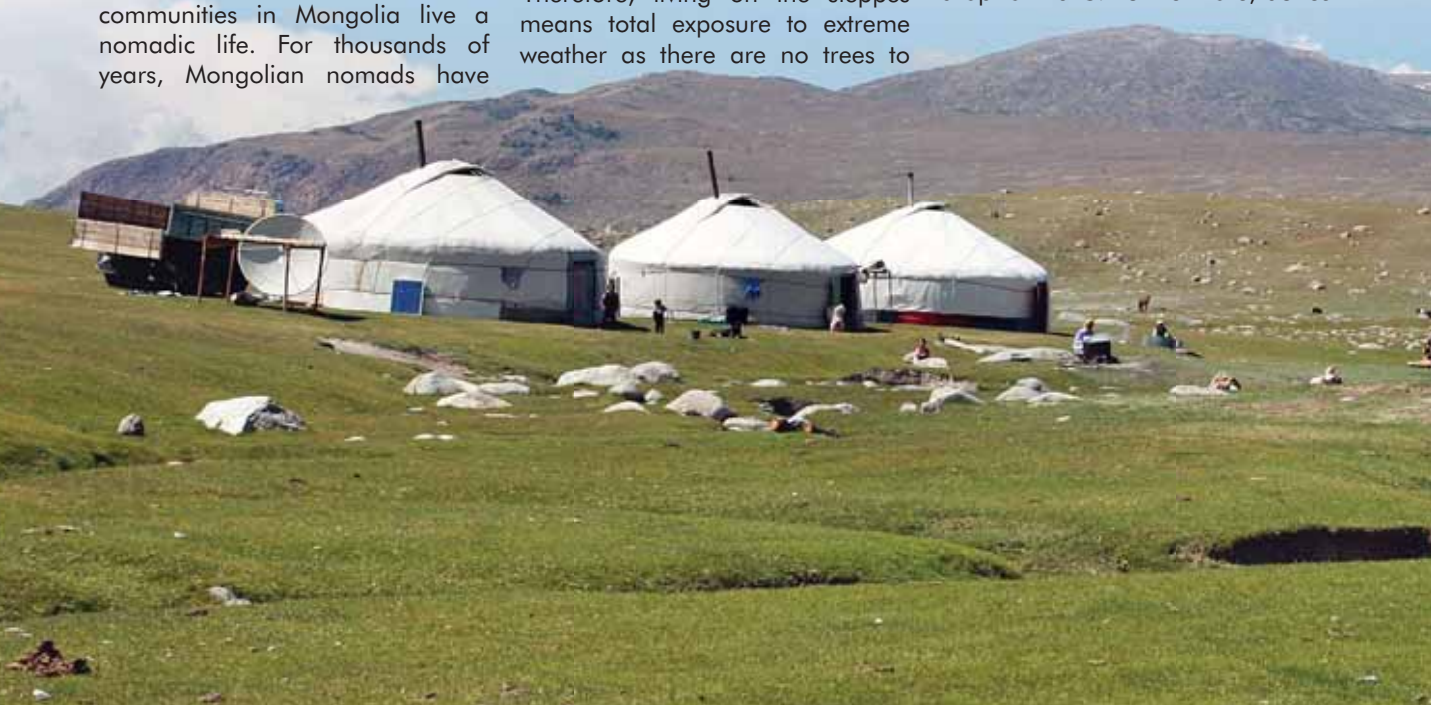
## The Mongolian Nomads

Like any other culture, the traditions, practices, knowledge systems, and lifestyles of the nomads reflect the environment they inhabit. To put it into context, Mongolia is a landlocked country with a topography that is predominantly steppe and desert. If we view the steppes from a plane, we see vast tracks of grassy land with almost no single tree visible. This range of land is semi-arid, which is too dry or too barren to support vegetation. Therefore, living on the steppes means total exposure to extreme weather as there are no trees to



Gerald Potutan

break the wind or shelter from the scorching heat of summer or the freezing winter. For instance, the heat in the Gobi Desert, which is situated in the southern part of Mongolia, could reach up to 45°C, and the cold temperature could drop to -40°C. Furthermore, dunes





(sometimes as high as 800 meters) are immense; water resources are scarce, and for many months, the land is arid. Considering these, Mongolia is known to have one of the harshest climates in the world. Therefore, the people depend on herding as their primary source of livelihood. Each family, whose nearest neighbour is about 30-40 kilometres away, usually herds sheep, goats, yaks, camels, oxen, or cows. These animals provide food (e.g., meat and dairy products) and income (e.g., cashmere from goats). Their daily activities include taming and feeding animals, preparing meat, shearing cashmere, foraging, and hunting.

If extreme heat or snow occurs in an unpopulated area of a steppe or desert, that occurrence is not a disaster since there would be no loss of life or damage to property. However, if nomads are caught up in these natural events, disaster could happen. In Mongolia, this kind of disaster is called a Dzud. It consists of a summer drought resulting in inadequate pasture and production of hay, followed by very heavy winter snow and winds. The cold would be so severe that forage becomes unavailable, preventing livestock and wildlife from accessing pasture, which then leads to mass death, basically from starvation. When hit by a dzud, herders' livestock would get weak, sick, or die. Yet the fact that nomads sustain their lifestyle for thousands of years indicates that they are resilient to dzuds. So how do nomads survive this harsh environment?

### Practical capacities

Perhaps, one of the areas to look into is culture. Let us examine the traditions, practices, and daily activities of the nomads concerning preparing, responding, and recovering from disasters vis-à-vis resilience. Like in any other disaster, resilience to dzuds could



be gleaned from the capacities of the community for early warning, evacuation, and mutual help. What we could observe from the nomads is that their culture builds practical capacities for resilience as these are integrated into their traditions and lifestyle.

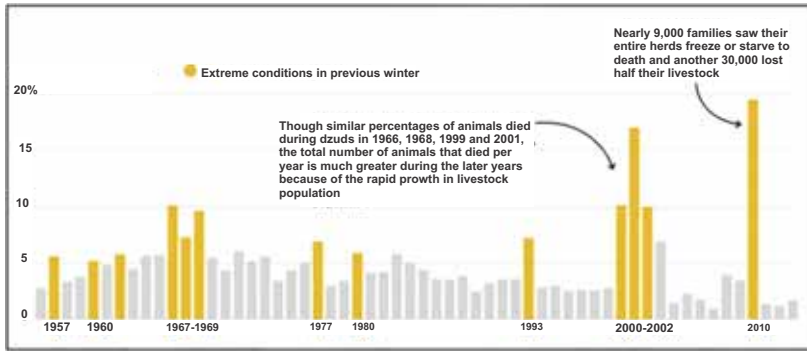
### Early warning capacity

With their long history as herders, nomads have absorbed various types of knowledge and belief systems about their environment. They understand the risks of climate variability and pastoral land use, explaining why they move from place to place. The long years of herding allow them to develop a mental map of where to move and when to move. They know exactly where the river or lake is. They know which areas are risky, and they know which direction the wind could be most destructive. Their herding practices have helped them build practical capacity to warn themselves of a forthcoming Dzud. So, when the wind starts to blow colder and the grasses start to disappear, it is time to prepare to move. This knowledge system does allow nomads to avoid disasters and also enable them to design their shelter called Ger to be resilient to weather the steppe.

Gers are designed as flat dome-like tents to allow the wind to sweep over the roof, preventing it from being blown away. Hence, the structural integrity of the ger is kept intact during strong winds. The ger coverings consist of several layers (e.g., durable synthetic felt, water repellent canvass, and cotton liner) to keep nomads warm from the harsh winter. An important feature of the ger is that it only has one door, and it should always face south to protect them from violent winds blowing from the north. With an understanding of extreme heat or extreme cold, nomads ensure that a ger adopts a circular shape to make it easy to cool and warm. The middle of the ger has a heating and cooking system that serves as a fireplace during winter. Its outer layers are easily rolled up during summer to allow the wind to get in. All these knowledge and practices build greater capacity for early warning.

### Evacuation capacity

Evacuating from risky areas is inherent to the practices of nomads. When they feel the colder winds arriving, they will prepare to move to their winter camps, which are usually situated at the foot of the mountain. Since nomads move



Livestock Mortality and Dzud (Rao, M.P., et al 2015 Environ. Res. Lett. 10 074012)

several times a year, they need to build a practical capacity of moving quickly and timely. To do this, the ger should be as portable as possible to allow nomads to pack up and reassemble easily. As swift and timely movement is part of their lifestyle, they could dismantle and reassemble the ger within 3-4 hours. Logically, from an outsider's perspective, this means that nomads own very little. However, for the nomads, the reasons might be beyond that. It appears that nomads do not feel the need for more properties as Mother Nature has provided them with the things they need, yet, to fulfil their needs, they have to move. In spring, they move closer to a river. In summer, they move next to a river or lake for water supply. In autumn, they move up to the hill to collect hay. In winter, they move to the front of a mountain for shelter. So, if we talk about lifestyle, nomads can be

essentially characterised as people who are constantly 'on the move'. As a result, the capacity to evacuate before a disaster has become an integral part of their culture.

## Mutual help

As demonstrated in their practices, nomads could be considered the most hospitable people on earth. Every nomad openly welcomes neighbours or strangers to his ger, offering food and shelter regardless of how many days they stay. Perhaps this hospitality emanates from the norm that there is no private ownership of pasture land. With this belief system embedded in their culture, every nomad respects each other's freedom to use and move everywhere on the steppe. If no one owns it, everybody owns it. Everyone belongs to one community, and everyone shall therefore help each other to survive

as one community. The advantage of practising mutual help is that it builds practical capacity to recover from dzuds. If after a harsh winter a stranger comes for help, a nomad family would welcome him knowing that the next time around, it would be them who would be needing help. Through mutual help, nomads can survive and recover from harsh environments, not individually but as a community.

## Questions

Now, what if the nomads did not develop the practical capacities for early warning a harsh winter? What if they did not develop an understanding of risks in their surroundings? What if their shelter is not a ger? What if they did not practice mutual help? Will they be resilient from dzud? For the nomads, these questions are hard to imagine. However, for many urban dwellers, these questions are fitting descriptions of themselves. Many cities are like melting pots. They lack the basic idea of community. This is a concern because urban dwellers are vulnerable to a range of risks from natural hazards (e.g., floods) and technological hazards (e.g., nuclear failure). Ironically, people in the urban areas appear to have limited awareness of disaster risks and often lack the practical capacities for early warning, evacuation, and most of all, mutual help. They do not even







know who their neighbours are. Although vaguely comparing the culture of urban dwellers with the nomads begets more questions than answers, it facilitates reflection that offers key insights on building resilience.

### Vanishing culture

It is not a remote possibility that the nomad's culture of resilience developed for thousands of years may gradually vanish due to a range of factors like politics, urbanisation, mining, or climate change.

Of the estimated three million population of Mongolia, half (about 1.5 million) live in the capital city - Ulaanbaatar; one-third (about one million) live as nomads, and the rest are scattered in the countryside. In 1921, the Soviets took control of Mongolia and changed the herding and grazing arrangements under the precepts of communism. Herds and grazing lands were transformed into 'collective farms' owned and controlled by the State. Under the collective farm's arrangement, the central government imposes a herd limit (e.g., about 25 million at that time) based on the assessment of land capacity. Additionally, government officials decide the number of animals that nomads can herd and designate which pastures

they can use. In other words, nomads became paid workers, and their numbers declined.

However, in 1990, Mongolia became a parliamentary democracy. This political change facilitated nomads to herd again, privately. During this time, people from the urban areas returned to the rural communities to live the nomadic life again. In the meantime, as Mongolia embraces progress in commerce, infrastructure, and technology, their children receive education in urban areas away from nomadic life. They become urbanised, are immersed in city life with access to smartphones, social media, cars, traffic jams, the internet, computers, and neon lights. This new experience is a huge contrast from taming horses,

feeding lambs and shearing goats for cashmere. By the time the children completed their education, many would stay and work in the city while others go abroad. If this trend continues, it will create an issue of who shall comprise the next generation of nomads.

Another concern affecting nomadic culture is the enormous boom in mining, especially in the Gobi Desert. In addition to many ongoing large-scale mines, the government is pursuing more in the name of progress and economic growth. Yet, to give way to the mining industry, open pits are dug, roads constructed, water extracted, and industrial wastes dumped in the desert. As a result, it displaces many nomads as pastures are destroyed,





water springs are inaccessible, and seasonal camps have disappeared due to large scale mining. Consequently, displaced nomads are left only with the following options: work in the mining industry, resettle in other areas, or receive compensation. Whatever they take ultimately threatens their nomadic culture.

Of course, climate change may also probably endanger their culture. If the intensifying droughts, harsh winters, and over-grazing remain unabated, younger people will probably leave the nomadic life and move to the cities. The data of intensifying risks (Figure 1) implies that climate change seems to threaten the traditional livelihoods of nomads.

### Building a culture of resilience

Whether nomadic culture will vanish or not remains to be seen. However, one key insight is clear: the experience of the Mongolian nomads shows that practical capacities for disaster resilience can be built by integrating them into traditions, practices, and lifestyles. If we look at Japan, this insight is somewhat manifested in many communities where practical

capacities for early warning, evacuation, and mutual help are integrated into people's lifestyles.

### Early warning capacity

Like the nomads who understand disaster risks by constantly observing the changes in their environment and learn the signs of harsh weather, communities in Japan develop practical capacities for early warning through 'Town Watching' [1]. It is an activity that becomes part of the lifestyle where members of the communities, including school children, constantly observe the presence of risks in their localities and report those observations to the councils to update their respective hazard maps and the corresponding early warning system.

### Evacuation capacity

Like the nomads who developed the capacity to quickly move their shelter to the front of the mountain during the winter, communities in Japan periodically conducts evacuation drills at the actual evacuation sites. This activity facilitated the development of the practical capacity to evacuate during disasters by simulating real-time processes and the challenges

of evacuation. The 'Miracle of Kamaishi' is an actual evacuation story of students who survived large-scale tsunamis on March 11, 2011, by executing what they learned from the evacuation drills [2].

### Mutual Help

Like the nomads who openly welcome neighbours and strangers to stay in their gers for shelter to survive as a community, Japanese communities create neighbour associations to promote meaningful connections which are further strengthened through the celebration of local festivals and events. The 'One Nagano' initiative of Nagano Prefecture demonstrated the capacity of mutual help during the response and recovery from Typhoon Hagibis of October 2019.

### Final thoughts

We can also build a culture of resilience. However, this kind of culture needs to be protected and improved as it can also gradually vanish due to a range of factors like politics, urbanisation, mining, or climate change. The nomadic life of the Mongols offers insight that any community can build a culture of resilience by integrating practical disaster risk reduction (DRR) capacities into their traditions, practices, and lifestyle. ■

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# Adaptive Innovation for Disaster Resilience

Sunil D. Santha is an Associate Professor at the Centre for Livelihoods and Social Innovation, School of Social Work, Tata Institute of Social Sciences, Mumbai, India.

**To develop meaningful disaster resilience strategies, we have to recognise and work with knowledge systems and situated practices of local community actors. Our practice has to be, therefore, rooted in the lived experiences of diverse vulnerable groups and their everyday struggles of interacting with a complex social-ecological system.**

Building disaster resilience in a community setting is a complex phenomenon. In the past few years, at the Centre for Livelihoods and Social Innovation, we have been mentoring our postgraduate social work students specialising in Livelihoods and Social Entrepreneurship to equip themselves towards "Adaptive Innovation". We felt that such an approach was very important and the need of the hour, as currently, any livelihood context concerning the poor and vulnerable groups in our society are interfaced with the impacts of climate change and disaster situations. We believe that the approach of adaptive innovation will enable development practitioners and disaster managers to build disaster-resilient communities in specific social-ecological systems. We prefer to use the concept of the social-ecological system as it provides an integrated perspective of humans-in-nature, which recognises that humans and ecosystems are intricately interconnected, each affecting the other, and often in complex ways.

The adaptive innovation model draws inspiration from action research and reflective practice traditions. Adaptive Innovation refers to "people-centred innovation processes by which local community actors collectively analyse their situations in the context of social and ecological transitions, forge a constructive partnership with other relevant actors to dialogue, ideate and develop working models, and implement and critically observe, reflect and validate their adaptive strategies to the emergent contexts. These processes are situated, reflective, context-specific, developmental and committed to the values of care, justice and solidarity" (Santha, 2020).

The ultimate aim of adaptive innovation is to nurture caring solidarity, strengthen adaptive capacities, transform institutions as people-centred and enhance the resilience of social-ecological systems through collective decision-making and action. The goal here is to design people-centred resilience-building strategies that could have the intent and effect of our decisions and actions on the structures and processes shaping equality and justice, care and empowerment for those who are disadvantaged and vulnerable in our society (Ibid).

The core components of an adaptive innovation model are (a) the guiding values of justice, care and solidarity that are embedded within (b) the six phases of the adaptive innovation cycle and enriched by (c) reflective practice and (d) analysis of actor interfaces in adaptation. Building disaster resilience based



Sunil D. Santha

on ethical practice is only possible if we embed our thoughts and actions with the values of justice, care and solidarity. A single conceptualisation of a normative distributive justice may not help us to build disaster resilience.

We have to be aware of the nature of structural inequalities and forces shaping these structures to effectively work out strategies for disaster resilience. The poor and marginalised sections in a community often have limited access to institutions and resources, thus constraining their participation and decision-making capacities to mitigate risks or cope with them. Apart from distributive justice, aspects of procedural and structural justice also need to be given due emphasis while building disaster resilience initiatives. And the consequences of such an approach will have its impact across both intersectional and intergenerational spheres of community life.

The ethics of care emphasises



that the foundations of our practice based on love, empathy, compassion, sensitivity and responsiveness is equally important as justice to build a resilient world. These qualities enable us to build trust and mutual concern for our fellow beings. Such a perspective also provides sufficient scope to recognise that caring as a value and practice is also a way to repair and heal our worlds through rebuilding and restoring relationships of interdependence and reciprocal responsibilities. As social workers or as disaster managers, we should not only have appropriate motivations in providing care but also possess essential skills in rendering effective practices of care. As professionals in this complex field of practice, we should nurture and appreciate the qualities of mindfulness, humility and authenticity to provide and receive care in the respective community contexts. We also need to maintain the right attitude of being patient and culturally sensitive, open-minded and empathetic to the everyday lived realities of community actors.

Solidarity entails the recognition that resilience-building is a collective project. Adhering to the fairness of procedures with a sense of caring and reflexive solidarity would make the idea of disaster resilience meaningful. Vulnerable and dependent people will count on relationships and networks of solidarity to seek care as well as justice. To nurture and sustain solidarity in resilience-building projects, we have to ensure that a diversity of experiences and ideas are heard and explored together on how we could overcome differences by creating bonds of cooperation. Instead of simply providing some space for dialogue, we should aim at strengthening the processes of active citizenship such that local community actors participate as well as have collective ownership



in resilience-building projects. Towards this, we have a crucial role in enabling local community actors to identify and leverage existing strengths as a solidarity group rather than imposing them from outside. In this context, community-based innovation platforms have an important role in facilitating and strengthening disaster resilience. These innovation platforms have to be understood as collective and collaborative institutional spaces owned and governed by community actors in partnership with other relevant stakeholders to mutually share knowledge, imagine and innovate situated practices that could reduce vulnerabilities and build the resilience of social-ecological systems.

The six practice phases of the adaptive innovation cycle are (i) Situational Analysis (ii) Micro-Mobilisation (iii) Dialogic Ideation (iv) Action Framing (v) Piloting (vi) Emergence. Each phase of innovation is visualised as a process of discovering and reflecting on new ways of forging partnerships, nurturing participation and co-creating actionable solutions. The whole cycle is indicative of an iterative and reflective pathway to design diverse resilience-building strategies suiting local contexts and knowledge systems. Each phase in the adaptive innovation model can

be understood briefly as follows:

- Situational analysis is the process of understanding the vulnerability contexts, livelihood practices, adaptation trends and other key issues affecting diverse community actors in a given social-ecological system.
- Micro-mobilisation is a strategic process aimed at organising community actors to participate collectively through innovation platforms in devising suitable resilience-building strategies.
- Dialogic ideation is a process of collective imagination where community actors in partnership with other stakeholders attempt to ideate and co-create multiple resilience-building pathways through in-depth deliberations, dialogue and other forms of shared conversations and decision-making.
- Action framing refers to the collective and participatory processes that involve translating emergent ideas into meaningful sensory experiences, images or visuals of action. It allows for systematic exploration of actionable possibilities. Action framing aims to explore the feasibility and resilience of broader ideas, generate shared experiences, identify resources and foresee the nuisances of implementing the idea into an actionable model.

- Piloting refers to iterative and reflective processes aimed at implementing and testing the suitability, feasibility and effectiveness of working models.

- In a complex social-ecological system, disaster resilience-building processes can be full of surprises. Emergence refers to the emerging self-organised patterns of systemic arrangements, which are both intended and unintended consequences of a resilience-building project.

Any process of building disaster resilience can only be strengthened through reflective practice. Critical reflexivity also involves questioning our positional ties, assumptions and actions as development practitioners or disaster managers. Reflective practice can be understood as iterative cycles of action-reflection, where reflection on action taken at each phase of adaptive innovation would set the stage for the next phase. The whole process of resilience building has to be understood as a kind of collective and collaborative learning where participant actors co-evolve strategies by thinking, doing and reflecting on the doing. These actors need to be consistently involved in a process of reflection-for-action, reflection-in-action and reflection-on-action.

Community-based resilience-building strategies need to be contextualised and reflected upon as interfaces between diverse actors in different relations of power, whose outcome depends upon the capacities, tactics and rationality of respective actors in making suitable decisions. Actors in this context should not be viewed as passive recipients of resilience building interventions. Instead, they have to be recognised as active stakeholders with specific knowledge and capacity for action. The recognition that there is competing knowledge and interest in any given situation

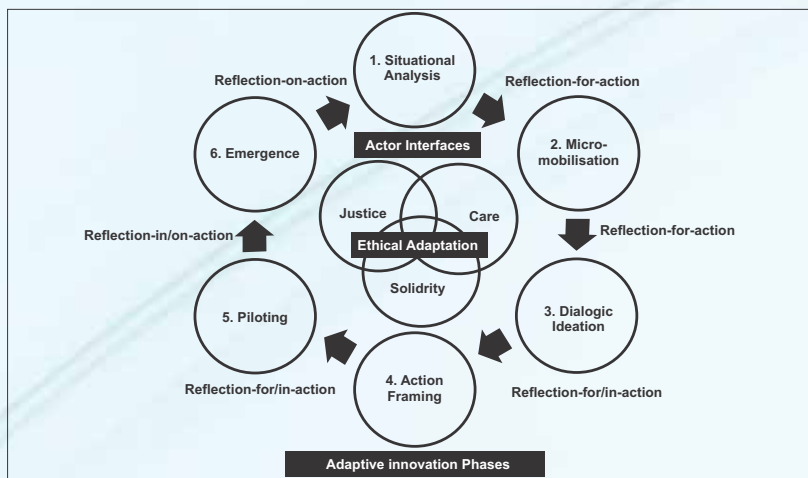


Figure 1: The Adaptive Innovation Model  
Source: Santha, 2020.

also helps us to remain alert to power relations and ideological issues interfacing with our practice. The interface approach emphasises the specifics of social contexts characterising every social encounter. If not nurtured sensitively, these social encounters can become sites of domination and spaces for the perpetuation of mere socio-technical interest.

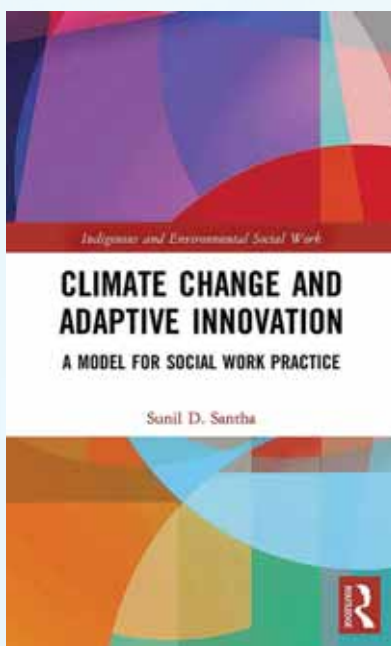
The adaptive innovation model described above is represented in Figure 1.

To develop meaningful disaster resilience strategies, we have to recognise and work with knowledge systems and situated practices of local community actors. Our practice has to be therefore rooted in the lived experiences of diverse vulnerable groups and their everyday struggles of interacting with a complex social-ecological system. Navigating collectively through shared conversations and dialogic processes, we could embark on an enduring journey where diverse actors would mutually learn, innovate and make informed choices to enhance the safety and security of their lived environment.

[Note: A detailed version of the Adaptive Innovation Model is available in my recently published book 'Climate Change and Adaptive Innovation: A Model for Social Work Practice, published by Routledge].

**References:**

Santha, S.D. 2020. *Climate Change and Adaptive Innovation: A Model for Social Work Practice*, Oxon: Routledge.





# Building Resilience in Schools and Communities in India: Needs and Possibilities



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**During the COVID -19 pandemic, when millions of children across the globe are out of the school premises almost continuously for more than a year, it is important to talk about the value of building resilience in schools and communities. This article talks about the need of building resilience in schools and a possible pathway to build it with the example of the current situation of prolonged school closure due to the pandemic.**

## Revisiting disruptions in schools

Untimely closure of schools happens every year in various parts of India. Many places

become inaccessible due to the sudden or seasonal onset of natural hazards. When schools become inaccessible, numerous children experience disruption in schooling, get detached from formal education for days, weeks, and even months. Geo-political unrests cause school closure for an unpredictable period in several parts. In India, around 17% of children get excluded silently from the school system before completing their secondary education as they start working to support the family. At least 1.5 million girls under 18 get married each year in India ([www.unicef.org](http://www.unicef.org)), and numerous children become victims of child trafficking. School disruption results in a learning gap, and over a period, young children without adequate



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parental support and guidance cannot build up their resilience to cope with the set expectations of curriculum and assessment, so they fail. Even their schools do not have any resilience plan to bring them back to their normal life and academic rhythm.



COVID-19 pandemic seems to be the most visible hazard now, reminding us of the need of building resilience among children. It shows us how it looks like when disruption in formal education happens for long periods. Only around 20%-25% of schools in India could continue the remote teaching process since March 2020, and that has added to the already existing inequality and inequity among children in society.

### What is resilience in a school and how does that matter?

Resilience describes the capacities of societies, communities and individuals or a socio-ecological system to deal with adverse consequences and the impacts of hazard events (Birkmann, 2011). Resilience consists of perseverance, reflection, and help-seeking (Poutney and Forbes, 2020).

There is a rich metaphor around this idea of resilience which links the ancient Japanese art of Kintsugi that means 'to join with gold'. It is a crafting method that consists of assembling "broken pieces of an accidentally-smashed pot" (Tocino-Smith, 2021). Symbolically, we can think of the bowl as a human, cracked by the contingency of life, the imperfections caused by the cracks represent the worth of the bowl. It is important to implant the question inside the minds at a younger age: "How can we turn our life cracks into gold?" This relates to the idea of building resilience in schools, especially for younger students while navigating the most vital years of their lives. Such a resilience talks about resilience at the individual level as well as at the organisational and systemic level. While building such resilience in a school, the role of parents and community emerges as an integral part of the entire process.



A very crucial aspect of resilience is that a child may become resilient while experiencing adversity. But resilience does not necessarily have to stem from trauma; it can grow from supportive home environments and classrooms as well. Therefore, building resilience in schools and communities may have multiple pathways.

### Relevance of resilience in schools in the pandemic context

Research on positive psychology states that school plays a huge role in the lives of children, a setting where they spend at least 15,000 hours on average (Rutter et al, 1979). Since March 2020, most of the schools are not able to function normally due to the pandemic. According to a UNICEF report, at least 1 in 3 schoolchildren were unable to access remote learning while their schools were closed, and 1.6 billion children and young people across the globe were affected by school closures (UNICEF, 2020).

In India, maximum children are studying in schools run by the State Education Department have either no academic engagement or have extremely limited academic

engagement since last year. More than 60% of children enrolled in India now study in these schools. Out of the remaining 40% of children, around 36% study in private unaided schools; the rest are in various other types of schools including residential schools run by various departments. Children studying in low-fee private schools are not getting the opportunity of virtual learning regularly because these schools are unable to afford investment (in terms of recurring material cost and cost for human resources) involved in it. The digital divide and lack of equity are now overtly exposed to all of us.

By now, many children are exposed to an uncertain future due to the livelihood crisis caused by the pandemic. Therefore, there are two possibilities: (i) a huge dropout of enrolled children (ii) numerous students will come back with a vast learning gap. Learning gaps will lead to children struggling to cope up with the syllabus, curriculum and assessments. Finally, if they cannot succeed to complete their journey in school, they will withdraw even before completing their school education. Thus, a major catastrophe for generations is predictable. This scenario could



be a little different if the majority of schools in India were better prepared to deal with such crises if they had a resilience plan to cope with such emerging situations.

The need of bridging such gaps sustainably has emerged across the globe during this pandemic. Four levels of resilience must be built up – individual level (students’ level), school level, parental and community level, and systemic level. Such resilience will not only help the schools and children to cope up with the losses but also help to turn the life cracks of children into gold like a ‘Kintsugi’.

## Perspectives and practices across the globe

UN agencies have highlighted that building resilience must become a core part of the planning and management of education systems. Such resilience can ensure the ability of prevention, preparation for and response to any possible future crises. The recommendations by them include a focus on equity and inclusion, reinforcing capacities for risk management at all levels of the system, ensuring strong leadership and coordination, and enhancing consultation and communication

mechanisms (UN, 2020). UNICEF has stated that education attainment is typically influenced by factors operating at four levels: (i) child and the family (gender, ethnicity, income, health, mobility) (ii) school (resources, teaching and learning practices, ethos, care and support) (iii) community (school-community relationships, engagement of local authorities, of civil society) (iv) national level (policies, investments, gender and social norms) (UNICEF, 2020).

The World Bank proposes that countries can build on the lessons of the pandemic. The recommendations made by the World Bank include the following: (i) Closing the digital divide (ii) aggressive investment in teachers’ professional development and use of technology to enhance their work (iii) Providing support to parents’ critical role in their children’s education (iv) building up a resilient system that requires better education conditions at home, devices, connectivity, and books ([www.worldbank.org](http://www.worldbank.org)).

Various countries have started preparing their resilience plan for protecting their citizens from the post-COVID crisis. The European Parliamentary Research Service, with the Directorates-General for

Internal Policies (IPOL) and External Policies (EXPO), has identified the capabilities and gaps in the European Union’s (EU) capacity to address structural risks. It has set out 66 potential structural risks confronting the European Union in the aftermath of the COVID-19 crisis. It considers ways in which the EU and Member States could address them, either with existing capabilities or through filling gaps in policies and instruments (European Union, 2020).

A bunch of case studies from various countries around the world is published in International Studies in Educational Administration journal by the Commonwealth Council for Educational Administration and Management (CCEAM) where ranges of practices are proposed as effective practices for building up resilience as experienced during the pandemic. Some of the important points that emerge from the articles received from 27 countries are mentioned below, indicating how a school can build up resilience:

- emphasis on local context and principal autonomy;
- mapping school community, its assets and strengths and needs to create a flexible plan that responds to unpredictable events based on a thorough understanding of, and

consideration for, all members of the school community;

- developing collegial relationships with teachers, students, and parents in such a way that most of them feel heard, appreciated, less anxious, and less alone;

- anticipating and providing the resources and training (particularly technology) that teachers and students may need if regular schooling is disrupted;

- using a variety of methods for communicating important information to all those concerned in a timely, clear, understandable, accurate and efficient manner.

Most of the points seem to be valid for numerous countries for their future planning. However, a contextualisation would make these choices better and more effective.

## Making schools and communities resilient – A possible approach

During the pandemic, the Ministry of Education, Government of India, has held several consultations with the States and Union Territories (UTs) at various levels. While national-level consultations are going on, I would like to highlight an approach to slowly build resilience in schools at the micro level to ensure that children having negligible or no formal education for more than a year can cope up with their academic needs as per the expectations set.

### Need of Resilience Building and its Prerequisites

Children having learning gaps due to school closure will need both academic and psycho-social support once they are back in school. It is already recognised by many within the system and academic experts that major revisions on curriculum and assessment patterns would be useful for each grade and

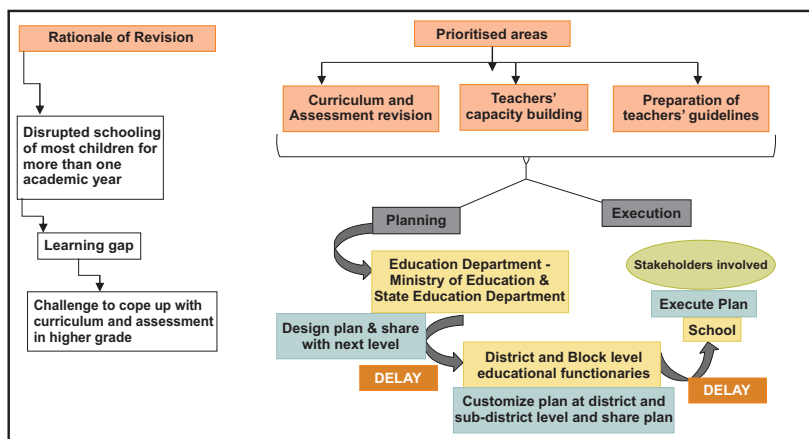


Figure 1: A possible scenario of building resilience to bring back children to schools

subject. As per the existing systemic structure of school education, grade and subject-wise revision might be done at the state and/or national level, but the execution must happen in the schools. Figure 1 presents a possible scenario of building resilience in schools post COVID-19 pandemic, for which a revision of grade and subject-wise curriculum and assessment must be made as the current thoughts and discussions suggest. At the same time, teachers' capacity building is necessary, because they ultimately execute such action plans in the schools. While planning should happen centrally to maintain the status quo, there is a risk of delay. Often, the decision-making process gets stuck at various levels of the systemic hierarchy, and due to this, important processes get unreasonably delayed. If that happens due to the existing systemic issues, there is a possibility of further delay in executing this entire resilience-building process in the schools.

To avoid systemic delay due to bureaucratic red tapes, the following possible alternatives are proposed:

- capacity building for the execution of plans at the school level.

- making a transparent accountability framework with devolved power to schools, where the district and sub-district level functionaries will play a role to facilitate the execution process and leave the modalities to school-level execution, where functionaries will provide resources and budget support as and when required.

The rationale is that if the execution process is made easy and accountability of execution is given to individual schools, the process can be made easier and faster. Figure 2 depicts the idea.

In India, there are more than 1.55 million schools. Execution of a largely uniform plan for bringing the children back to school and re-integrating them will not be an easy process. That process may need a few years given the extent of school dropouts as indicated by various reports so far. While executing this plan, it must be clearly understood by the schools' stakeholders that the resilience-building process is not a one-time affair. It needs to be sustainable because disruption of schooling is frequent in various parts of the country. A plan of action may lead to better preparedness for future unpredictable situations as well, but at the same time, starting



with a small number of schools and later scaling up by replicating some practices would be pragmatic.

The willingness of the school management and teachers to take part in the project, and the commitment of the school authority to involve parents, community members and local governing bodies will play a big role in the success of such a process. And that process must start now because the COVID-19 pandemic is not going to disappear very soon. It may remain for a couple of years in pockets as epidemics. In such a scenario, preparation must start right now using the online mode. Schools' Stakeholders can even connect with the students by using remote modes. Wherever that connection seems to be a challenge, a resource allocation initiative can be taken into consideration, using various modes of crowdfunding and resource planning.

## Few important aspects to be emphasised

While planning for a doable solution to make schools and communities resilient, attention must be paid to a few important aspects as mentioned below.

**(i) Paying attention to parental awareness and education:** The decision of schooling children is taken by their parents, and therefore, adults' conviction regarding education is very important to make that happen. Most importantly, parents need to be convinced to bring their children back to school despite the challenges in their family life.

**(ii) Identifying schools having the least resilience:** Schools with the least resilience due to existing issues of infrastructure may need more time to build up resilience. More attention and intensive works are needed in these schools. For

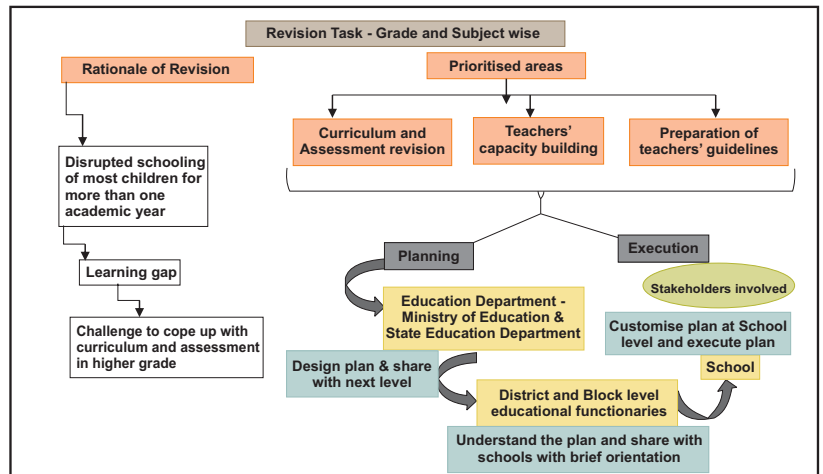


Figure 2: An alternate process of building resilience to bring back children to schools

this, identifying such schools is very important.

**(iii) Involving the community in the school's resilience-building process:** Community participation has remained as a mere policy mandate in all educational policies. Without the active engagement of the community, it is very difficult to work in schools having multiple constraints which affect the resilience-building process. According to the Right to Education (RTE) Act 2009, each school must constitute a School Management Committee (SMC) consisting of teachers, parents and guardians of children enrolled in that school, and elected representatives of the local authority. SMC is supposed to monitor the working of the school, prepare, and recommend a school development plan, monitor the utilisation of the grants received from the appropriate government or local authority or any other source. This is the time when the SMC in government schools and similar bodies in private schools (Parent-Teacher Association) must be strengthened (Government of India, 2009).

**(iv) Realistic plan for Pupil-Teacher Ratio (PTR):** In most of the

elementary schools (till Grade VIII) in India, the proposed pupil-teacher ratio is 1:30, which means schools with a smaller number of students enrolled have one or two teachers. Such schools are mostly located in small villages or hamlets, and many are in socio-economically backward areas. In such schools, teachers' attention to children's education is an unrealistic imagination because the teachers need to handle multiple grades at a time along with other official works.

**(v) School autonomy and systemic leadership to be emphasised:** Researchers often highlight the fact that schools vary in terms of their contexts and needs, and school as a "learning organisation" often responds to the outside environment. Therefore, school leadership and systemic leadership must be prioritised (Senge, 2012). In India, school leadership and systemic leadership seems to be rarely encouraged. Government schools often need to follow instructions from various higher authorities, and administrative tasks dominate over the academic engagement of teachers, more so in State Government - run elementary schools, with very few exceptions.



### (vi) Formation and strengthening of academic and support groups in schools:

It is important to engage teachers and school leaders in the task of revision of curriculum for lower grades (till Class VIII) where Central or State-level standardisation will not matter in the execution of revised curriculum set by the Central or State level.

For each school, two groups can be formed: (i) academic group and (ii) support group. Each academic group could scrutinise subject-specific areas of school subjects which can be led by two teachers, and supported by one person who will be a subject expert. If needed, there could be workshops organised for teachers online for redesigning subject-specific curriculum and assessments. The academic group could meet once a week for the initial 4-5 weeks, and later, once in a fortnight, to review the process as per the need. The support group needs to identify the areas where external support is required. That may include financial support for teachers, school and/or students. While the revised curriculum could be executed on a remote mode as decided by the respective school, there could be regular interaction with students, SMC members/PTA members and parents also which could be fixed as per the mutual convenience as a feedback

mechanism. After six months of operation, a mid-term evaluation could be done for the student's progress and teachers' challenges. There could be an end-term evaluation towards the end of the first year of the project. If needed, a similar process could continue to bridge the learning gap better in the same set of schools with a set of children that are identified requiring extra support.

### Conclusion

While we keep on talking about "bridging the digital divide" in many ways, the pandemic has made it clear that we must have to build up a mechanism to organise remote modes of learning to reassure the children to be in touch with their formal education space. The pandemic has reminded us that our current model of schooling was shaped by an industrial revolution in the 18th century and that it is now time we move on. The role of schools conceived as genuine learning organisations with resilience mechanisms becomes the need of the hour as we progress towards a post-pandemic time. ■

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# Building a Resilient South Asia by Enhancing Capacities of Youth and Children

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**South Asia experiences some of the biggest disasters in the world putting millions of people at risk. The region is highly vulnerable to a variety of hydrometeorological hazards, which are often cross-boundary in nature. It is also a hotspot for almost all types of climate-related disasters. The study focuses on building resilience in children and youth and requires an understanding of the factors that affect the generation of disaster risk. The main objective of the study is to understand the vulnerabilities of children, adolescents and young people. The methodology of the study is based on a secondary database available in the public domain i.e., research papers, reports, media reports. The study highlights policy recommendations for building the resilience of youth and children and also an emphasis on more participation of children DRR planning process bottom to the top level.**

South Asia experiences some of the biggest disasters in the world putting millions of people at risk. This is an outcome not only of its exposure to a wide range of natural hazards



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but also a result of poverty, socio-economic transformation, rapid urbanisation and political volatility. Climate change aggravates the situation by increasing the intensity, frequency and uncertainty of climate events. The region is highly vulnerable to a variety of hydrometeorological hazards, which are often cross-boundary in nature. It is also a hotspot for almost all types of climate-related disasters. The region represents 10% (186) of 1889 disasters that occurred globally between 2010 and 2015 (UNESCAP, 2016) [1]. The most prominent disaster risks are associated with floods, earthquakes, landslides, droughts, and cyclones. From 1967 to 2006, of the 784 reported disasters that caused 0.80 million deaths, 50% of



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the deaths were caused by floods and 25% by cyclones (MHA, 2011).

In the decade between 2005 and 2014, the trend was almost identical; with disaster being responsible for 1.2 million deaths in South West and South Asia, representing almost 21.2% of all global deaths and economic losses of USD 80 billion in 2005 value (UNESCAP, 2016) [2].

Climate change has also influenced many of these hazards and also increased extreme weather events and the scale of disasters. In the past years, an increasing frequency and scale of climate disasters in South Asia have been observed. There has been a growing magnitude of meteorological disasters or water-related disasters. For example, the





2018 Kerala floods had almost half of the State submerged under water; ranking it the worst ever floods in its history since 1924; Bangladesh and India saw deadly super cyclones in the last two years, including Cyclone Fani and Amphan [3].

### The problem

South Asia is home to about 627 million children under 18 years of age, which is approximately 36% of the total population of 1.82 billion. Only 62% of South Asian children under the age of five are registered and have a birth certificate. Being registered is a person's first recognition before the law. Without it may limit a person's access to protection – through the enforcement of age-related legislation or to ensure a child can be identified and remain with their families - to services, to participate in society. (UNICEF)

Twelve per cent of the children aged 5-14 in South Asia are involved in

child labour, well over 41 million children. Children are used in some severe forms of child labour such as bonded labour and as child soldiers. Economic exploitation is seen as one of the most common forms of violence in the region. Children often work long hours with little or no pay. There is a great deal of commonality across South Asian countries in the form of child labour, most notably, children in hazardous child labour, child domestic labour, children in export-oriented industries, child bonded labour particularly in agriculture, and child labour in the informal economy, particularly in urban areas. Children not only face occupational hazards like handling heavy machinery or chemicals in their workplaces but are also vulnerable and subjected to physical and sexual abuse. Additionally, these children are usually denied educational opportunities, which leads to a cycle of poverty and vulnerability. (SAARC).

In South Asia, ending child marriage by 2030 is one of the Sustainable Development Goals (SDGs), but achieving this will be difficult as the practice is deeply rooted in gender inequality. Despite clear commitments from governments in the region, for example, the Kathmandu Declaration, child marriage remains highly prevalent in six of the eight countries in the region. It was estimated that in 2013, half of all child brides worldwide were living in South Asia, which is especially high in a region that is home to about 30% of the world's adolescents [4]. (UNICEF)

South Asia is home to the largest numbers of out-of-school children and youths at 31.8 million with 8.2 million at the primary level (6 to 9 years) and 23.6 million at the secondary level (10 to 14 years). Access to early childhood education is low with only half of the children attending preschool today. This is worrying especially because preschool is crucial to

## Viewpoint

ensuring enrolment and school retention at later ages. According to UNICEF, only two-thirds of children between the ages of 36 to 59 months are developmentally on track in South Asia. The proportion of children aged 0 – 59 months old who are left in inadequate care is also alarmingly high, meaning that several young children do not receive the nurturing and responsive care they require for achieving their developmental potential. Only half the children in South Asia attend early learning programmes. This, in turn, affects their school enrolment, participation, and retention [5]. (UNICEF)

The most hidden and underreported form of violence against children and youth is sexual abuse. Sexual abuse affects both boys and girls and often happens within the family, in schools and the community, in the majority of cases (outside armed conflict zones) perpetrated by someone familiar to the child. Additionally, commercial sexual exploitation of children continues to be one of the most pervasive violations of children's rights in South Asia and includes child abuse through child prostitution, sex tourism, child pornography, internet pornography and trafficking.

In 2020, South Asia with a population of 1.8 billion has been severely affected by the COVID-19 pandemic due to poor public health infrastructure, pervasive informality and poor coverage of social protection. The economic growth has come to a grinding halt and the threat of rising incidence of poverty, hunger and inequality is real due to the pandemic; creating a long term impact on youth and children [6]. (UN ESCAP)

### Interventions needed at all levels

Resilience is commonly defined as a complex multidimensional and dynamic ability embedded in an individual or complex system that emerges at the time of shocks, stresses and trauma. Building resilience in children and youth requires an understanding of the factors that affect the generation of disaster risk. For this, the phenomena that constitute threats, whether natural or anthropogenic (from a technological or social nature), should be understood and the vulnerabilities that children, adolescents and young people are exposed to, should be identified and measured [7].

It is also essential to establish that

children, adolescents and young people are subject to rights, so the necessary conditions for their development (food, health, education, housing, recreation, etc.) must be provided. Their active participation as agents of change should be encouraged and ensured in DRR and CCA Resilient work at the national and local levels. Ensuring the participation of children and youth is also an opportunity for strengthening sustainable development and empowering the next generation of leaders to be aware of hazard risks. Indeed, children and youth see themselves as the guardians of the planet and they want to give voice and take action on DRR and CC. Children and youth provide a deeper analysis of the roles of actors and outlining their suggestions and demands regarding the climate crisis and disaster risk reduction.

Efforts to strengthen families is a priority as it is widely acknowledged that a loving and caring family is one of the key protective factors which can strengthen a child's resilience and support their healthy development despite a crisis. Effective resilience supposes a transformation, putting issues of people, power and politics at the centre of the change process. Because vulnerabilities and risks are rooted in deprivation, inequalities and human rights violation, resilience is thereby built by influencing policies that relate to power imbalances in society that encourage, create and sustain vulnerabilities. (Save the Children).

Planning is to be done knowing the target groups and various socio-economic segments. Good practices that have emerged, lessons learnt, and gaps and challenges are to be revisited for constituting a better response mechanism. Children and youth need to be aware of their rights. Constitutional Rights, JJ Act,







POCSO, etc., are well crafted for care and protection. All our institutions are expected to conform to the standards, protocols as mandated under the Laws and Acts. Awareness is of prime importance.

### International initiatives

The Sustainable Development Goals (SDG), Sendai Framework for Disaster Risk Reduction (SFDRR) and Paris Agreement on Climate Change (COP-21) are helping in reducing vulnerability and enhancing resilience in youth and children. According to the UN, more than half a billion children live in extremely high flood occurrence zones, and 340 million of them are in India. 160 million children live in drought severe zones, out of which, 27 million children are in the Indian subcontinent. Urban areas have been given importance because more than half of the world's population lives in cities. India will be 40% urbanised by 2030. Children living in informal settlements are on the rise and are exposed to hazards and disasters. Targets are reducing

the mortality, number of people affected, economic loss, damages to infrastructure and basic services [8].

**Seven important aspects to be taken care of:** (i) understanding the needs and capacities of the children and youth (ii) safe schools and education (iii) child protection in crisis (iv) children and youth access to participation in information, redress and remedy (v) safe infrastructure and adapted services based on child-centred hazard risk assessment, and (vi) reaching the most vulnerable children and youth, and (vii) children and youth-centred targets[9].

### Priorities and gaps

Children are recognised as vulnerable groups but there are limited discussions on what makes them vulnerable.

Reaching the most vulnerable. Children are highlighted in all the Agreements, but in some instances, the language on child rights are weakened.

Safe school and education. Focus on school infrastructure is present but ensuring continuity in the aftermath of a disaster is missing.

Child protection not present in the 2030 Agenda.

Strengthening agency of children in DRR. Count to care, prioritise most marginalised and deprived children, learning agility, child-friendly governance mechanism.

### NIDM's Child Centric Disaster Risk Reduction Centre

The National Institute of Disaster Management, Govt. of India, has taken a pioneering step in this area of great concern that needs focused intervention by establishing a Child Centric Disaster Risk Reduction Centre (CCDRR). The Centre is actively involved in training and capacity building of Central and State Govt officials, first responders, cross-sectoral departments of State Governments (Health, Education, Panchayati Raj, Rural Development, Revenue, Women & Child Welfare,





Police Department and other relevant departments), academia, civil society organisations, parents, teachers, students, etc. The CCDRR is also involved and working directly with various youth organisations i.e. NCC, NSS, NYKS, Scouts & Guides for their capacity building in DRR & CCA.

### [10] Key priorities to focus on

#### Recognising children's particular needs and vulnerabilities, capacities and rights

Children are recognised as vulnerable groups, but there is limited discussion on what makes them vulnerable (e.g. unique exposure, sensitivities or lack of capacities). Children as active agents are explicitly highlighted in nearly all of the Agreements. While there is a reference to human rights and child rights convention in these Agreements, in some critical instances, language on rights or climate justice is not clear.

#### Reaching the most vulnerable

These Agreements support the essential needs of the vulnerable populations and those who are

furthest behind. Girls, indigenous peoples and ethnic minorities, people with disabilities, refugees and IDPs, (particularly women/ girl migrants) have been given special focus.

#### Safe schools and education

There is a focus on school safety largely through hard infrastructure rather than school disaster mitigation planning and management. The need for environmental and DRR education is mentioned across these Agreements, but monitoring on the same is not clearly articulated.

#### Child protection

Child protection in disaster, conflict, and post-conflict contexts do not appear in the 2030 Agenda. There are commitments to ending various forms of abuse of children, social protection in times of crisis. However, the Agreements do not mention key provisions such as commitments to include protection risks in DRR assessments and interventions; strengthening existing child protection systems to prepare for and respond to disasters; promote the safeguarding of birth registration and other forms of identification; enact adequate laws and resources

to safeguard care and protection during emergencies.

#### Count to care

Disaster management and preparedness plans/Climate Action Plans (local level) have to be informed by the number of children (by age, gender, disability), their vulnerable situation and strategy to address their specific needs.

#### Prioritise most deprived and marginalised children

Children in need of care and protection (CiSS, Child Labour, Special Children, those in CCI etc) to be prioritised in preparedness planning and actions (Leave No One Behind).

#### Learning agility

School curricula and extracurricular projects to transfer knowledge on SDGs, DRR and climate change adaptation and mitigation and leveraging these frameworks to promote information on climate and disaster risks to children.

#### Child-friendly governance mechanism

Action plans targeting children should be developed together with the children, by the children

and for the children (supported by adequate resources). Monitoring and reporting on child-friendly complaint mechanisms to be reviewed from time to time and to be used in future planning and actions. Existing child protection systems should be strengthened with adequate resources and capacities that work during crises.

### Child-friendly humanitarian response

There is a need to have an actionable humanitarian response and planning with a child-friendly lens (supported by adequate resources); pre-emptive and preventive actions to be informed by past experiences.

### Policy level interventions for strengthening resilience

- Developing a Pan South Asia network of institutions and organisations involved in child and youth-centric interventions and ensuring the sharing of knowledge and resources between and amongst them.
- At national levels, country-wide assessment to identify those segments of society that are left behind and that need timely intervention from a social safety net and youth engagement programmes.
- Setting up of national high-level advisory groups/committees to devise national strategies for youth employment and a monitoring framework to support policy implementation.
- Partnering with national statistical offices and grassroots research institutes to gather disaggregated data about the impact of the crisis by age group to track inequalities and inform decision making (in addition to other variables such as sex, educational and



socio-economical background, employment status etc).

- Applying children and youth-friendly inter-generational lens in DRR & CCA and updating national strategies in collaboration with all the stakeholders to translate political commitment into actionable programmes.
- Providing targeted policies, interventions and services for the most vulnerable children and youth populations including young people not in employment, migrants and homeless youth and children; and young women, adolescents and child victims of violence and abuse. ■

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# Diversity and Inclusion in Business as a Tool to Enhance Business Continuity

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**If we appreciate the sociological complexities and interconnectedness of our 21st-century society, we will realise that the immediate challenges of business continuity can be resolved by practising diversity and inclusion. The solutions lie among us; what we need is the intent.**

## The Dichotomy: Plenty of choices from a selected few, for the selected few

Our choices drive business. The variety of consumer products we see in our markets today is a testimony of our choices and preferences. The choices we make today shall shape the future of our business. Products that sit on the shelves today shall be replaced by new ones as a result of our smarter and wiser choices. We must be better consumers who drive choices, ergo, business. Consider an example. The information that we devour daily from social media are now modified, machine-learned and optimised, based on our preferences. The algorithms have been designed to learn our choices and preferences so that we read, listen and watch things we want to. Choice! If I do not wish to see an Ad, it will not be shown. Again, choice!

Consider another example. This one is from my personal experience. The ongoing COVID-19 pandemic has restricted socialising and outdoor

activities considerably. As a result, I was curious to explore some guided physical activity that I could accomplish while staying at home. I came across a new buzzword called exergaming. Perhaps many of you are quite familiar with exergaming already, if you have active kids at home or if you are into gaming yourself. Exergaming is kinetic sensor-enabled motion gaming where you can play video games while at the same time have the possibility to train or work out. The challenge levels are completely guided by players with a wide range to choose from. The bottom line being, the more and better I know about myself, my body, my endurance and my fitness capabilities, the better possibility I have to make the best out of my exergaming experience. The onus is on me to choose. The buzzword here is choice. We simply cannot deny that choices and demands are strongly correlated. As we look around us, we realise that the multiplicity of products is the outcome of the diversity of needs and preferences that exist.

But here is the catch.

Did you know that the current global consumer preferences, choices and consumption patterns do not correspond to the global population?

Despite the multiplicity of products and the choices that demand this enriched assortment, the global consumer trends are governed by a handful. The current consumer



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practices, preferences and patterns results from the privileged 20-30%, which is a minority of the world population, according to the latest OECD statistics (Kofman, 2005; Magagna, 1986; OECD, 2020; Inequality Report, 2020). The remaining majority, which is 70-80% of the world population, is underprivileged. This means that the majority have not been able to express their preferences or consumption patterns yet to be captured in or to impact the business trends.

While on one hand we have been extremely successful in multiplying profits, digitalising markets, creating customer centricity and consumer-led retail choices, on the other hand, the disparity in terms of global wealth, social inequality, the purchasing power of an individual and savings of an individual has consistently increased and become even wider. In other words, we have created a perfect paradox by empowering the already powerful where the distribution of wealth, power, digital divide, social





and economic capital continue to be governed by a privileged minority while the gap between the privileged and unprivileged continue to widen.

### Including inclusion and diversity in our mainstream storytelling and business narratives

Neither our products, campaign narrative, storytelling nor our markets include the underprivileged and marginalised[i]. Take, for instance, our perception of the terms cosmopolitan and millennial. A cosmopolitan is someone from a cosmopolitan city (Source: Merriam-Webster). Close to the turn of the century, in the year 2000, the word cosmopolitan was popularly used in media and business as a beacon of multiculturalism, open markets, free trade. Once again, the focus continues to be around the terms cosmopolis and multicultural where the individual hails from a multicultural potboiler of a city with relentless business opportunities owing to open markets, free trade and capitalism. If we break this down further, a cosmopolitan is someone with the wealth, power, social and economic capital who can move and immigrate across borders without any limitation because of the capital owned by the individual (Kofman, 2005).

Millennials and netizens are few other examples of popular terms introduced in the urban dictionary to refer to the privileged productive youth who have the power to

generate wealth and profit (Source: Merriam-Webster, Wikipedia, Urban Dictionary). They refer to a generation that has witnessed the turn of the century, i.e. the year 2000, and therefore can grasp the unlimited power of digitalisation. Hence, they generate unlimited profit by their consumer behaviour of using the internet. Naturally, the millennials and netizens are the targets of the digitalised markets.

On the other hand, rapid urbanisation, deforestation, land acquisition, disasters due to climate change and other societal crises such as wars, financial breakdown and bankruptcy which force mass migration of communities to become refugees are never a part of our mainstream narrative and storytelling.

These examples demonstrate that nowhere in the ideation phase, narration and storytelling do we find the underprivileged and marginalised. At least not yet. This is where we need to disrupt and break the pattern. According to Sir Albert Einstein, one of the greatest minds of the twentieth century, "Insanity is doing the same thing over and over and expecting different results."

The bottom line is, we cannot talk about diversity and inclusion without including everyone in our story.

From a business point of view, the possibility of growth multiplies exponentially if we manage to include mainstream and capture this majority of the 70-80% of our world population. This is where

the true potential of diversity and inclusion in business continuity lies. The question of how to effectively capture diversity and inclusion in business continuity is a pertinent one. The first step is to understand the robustness and comprehensiveness that diversity and inclusion bring to business continuity.

Thanks to diligent advocacy, PR and advertising, the essential concepts of diversity and inclusion in business are not alien to us anymore. A lot of good solid work has been done and is ongoing in this regard. As a result, in employee testimonials or recruitment campaigns, most organisations showcase the happy image of an individual of colour among a group of whites to portray as a symbol of their solidarity and diversity at the workplace. And here we need to understand, ask, discuss and challenge: what do diversity and inclusion mean in business? Is it about that person of colour with a big smile walking confidently among her white peers? Is it about female-dominated boardrooms? Or is it about recognising every individual regardless of their sexual preference, gender, race, skin colour, ethnicity, nationality, religion, social or economic standing? Diversity and inclusion are not only about representation. It is about acknowledging the life-long discrimination and unequal opportunities that have existed for centuries and continue to exist even today. We must remember that diversity and inclusion must be disruptive ideas, policies, narratives,



stories, practices and actions, which lower the gap arising from social inequality.

### **A smaller world with larger social inequalities and widening differences**

Most of us are familiar with the term global village. We stand at the crossroads of epochal socio-technical change. Our world is becoming smaller due to the interconnectedness of the complex socio-technical systems. Right from our critical infrastructures such as electricity, water supply, traffic connectivity, mobile network, transport network, housing to the information systems, all of them are interconnected. Life without these interconnected socio-technical systems is unimaginable at present. Technology, infrastructure, business and socio-technical systems appear to be different surfaces of the same cube. We depend more and more on software, automation and artificial intelligence. The more technologically advanced we grow, the more interconnected are our socio-technical systems, and the higher is their complexity.

Even though we live in a global village; nevertheless, our society is not a monolith. The key sociological concepts that make us comprehensive, complete and robust are diversity and pluralism. It is our history, geography, anthropology and culture that diversifies us as a society. One can see why global and village must

be perceived as two sides of the same coin. Therefore, to conduct responsible and successful business in a global village, it is equally important to capture these aspects of diversity. By including them in business, we accomplish inclusion. There is now a greater need to understand diversity and practice inclusion in business. Here is why:

The farther we move from our urban spaces, the lower is the infrastructure, the overall presence of complex socio-technical systems, their interactions, interconnectedness and the lower is the availability of basic amenities. In simpler words, urban space is where the action is. Naturally, our world is becoming urbanised at an incredibly fast pace. More and more communities are driven to urban spaces for opportunities and the hope for a better quality of life. Yet, the irony is the growing disparity within urban spaces and the growing social inequalities.

### **Go bold! Why limit diversity and inclusion to HR?**

Diversity and inclusion need not be limited to human resources just because both the causality and the outcome reside in humans, human factors and human behaviour. Nevertheless, HR and the recruitment policy is a pragmatic starting point to practice diversity and inclusion. It must be highlighted that a lot of solid work is ongoing in HR compliance,

benchmarking, employee treatment and fulfilment of employees. It is no secret that companies gain from hiring a global talent pool not only in terms of diversity in talents but also in their business outcomes. While diversified talents proactively participate to achieve the business goals and vision of the companies, the companies gain from diversity with fantastic opportunities to learn, grow, impart and imbibe. Thus, companies receive better possibilities of representation of the diversified society we live in.

However, more can be done if we can diversify our perspectives, open ourselves to try new ideas and practices, replace old policies for new ones that are dynamic and bold. Going bold in ideation, experimentation and benchmarking is a popular thought in science but not so much in business. One wonders why is that, although both science and business have equal stakes in society?

A considerably bold yet realistic place to begin can be diversifying businesses to unurbanised areas. It can bring in a lot of value to business continuity alone. Last-mile connectivity through the supply chain is an area that has gained momentum and popularity lately. What we need are bold ideas that can be tested. Consider, for instance, the possibility of AD (autonomous driven) vehicles running the last miles. One big advantage of these last miles is the reduced complexity due to lower traffic, lower number of nodes, lower interruptions. An assigned route, with surveillance, and punctuated with charging stations in between can be worth a test to connect the last miles with an AD electric vehicle.

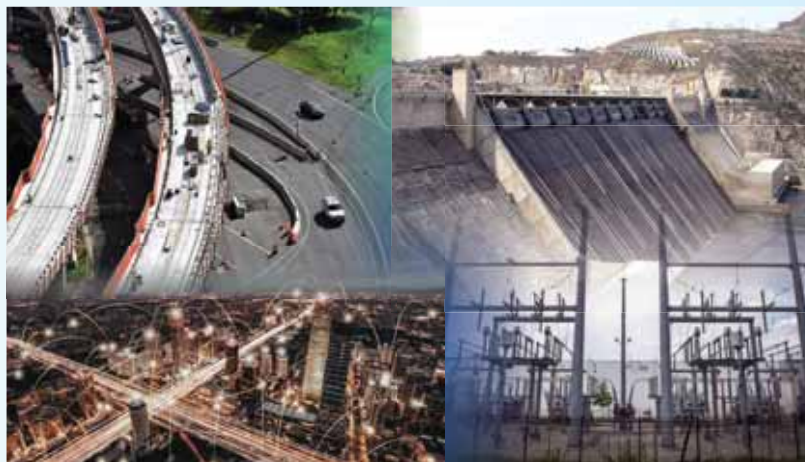
### **Why is it important to practice diversity and inclusion?**

Because business is a societal function. Business and society share a symbiotic relationship. One cannot exist without the other.



Businesses and business continuity, regardless of the sector they belong to, thrive on cooperation. It is well established that business growth can be attained only when cooperation takes place. Diversity and inclusion practices through cooperation offer opportunities to diversify businesses and gradually move towards outward-looking rather than inward, resulting in comprehensive growth. Scientific research in human resource management and organisational sciences have argued in favour of diversity-enriched teams. Teams with greater cultural and social diversity have a greater ability to solve problems, propose new solutions and accept new challenges. In a nutshell, diversity in teams makes them more efficient in their overall performance. Furthermore, business exposes companies to a wide range of partners and stakeholders with a variety of interests and cultures. Diversity in this case plays a key role to be more open-minded, appreciate and understanding of these perspectives. Once again, diversity contributes to the problem-solving capabilities of companies together with their internal and external stakeholders.

Language, cultural openness and integration, to name a few, are some low-hanging fruits that can enable diversity and inclusion practices in business continuity. Diversity and inclusion contribute to trust-building within and between teams, which is an essential fabric in business. Like our society, a business cannot sustain or continue to grow if it is monolithic. Knowledge of local and regional languages, in addition to working language, can therefore bring a lot of value in terms of diversifying businesses. The other aspect is the integration of regional talents or immigrants to practice diversity and inclusion. With labour migration and talent migration becoming a popular trend, where a whole generation of millennials is on the move in search of new opportunities, integration of



moving talents becomes essential. Not only does it attract and help to retain talents but also bring bold perspectives to branch out to new directions in trying new business ideas and diversifying businesses.

In conclusion, diversity and inclusion need not be limited to the HR policy checkbox.

If we appreciate the sociological complexities and interconnectedness of our 21st-century society, we will realise that the immediate challenges of business continuity can be resolved by practising diversity and inclusion. The solutions lie among us; what we need is the intent. Sincere efforts to diversify businesses and diversifying teams by integration can offer us a much more comprehensive solution. The bottom line is to imbibe trust and multiculturalism, not only in workspaces but in communities too. This shall contribute to long-term harmony, equality and justice, which is conducive for greater opportunities and business growth. ■

#### Read more here

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# Numerical Modelling and Geospatial Applications for Better Disaster Risk Reduction

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**This article discusses artificial intelligence-based utilisation of numerical models for better DRR.**

A disaster can be defined as a sudden, surprise catastrophic event either from natural and anthropogenic sources, resulting in widespread human losses, destruction to the infrastructure, damage to the environment, and is of such a nature as to be beyond the affected community's coping capacity.

Disaster management has come into the limelight as a discipline only after the great Sumatra-Andaman Tsunami mega disaster in 2004. Therefore, world nations formulated the plans, policies and practices for better disaster risk reduction and management only after this mega event.

The Disaster Management Act 2005, by the Govt. of India, had come out with a paradigm shift in managing disasters from a relief-centric response to a proactive, prevention and preparedness-driven approach for better conservation of developmental gains and minimisation of loss of life, livelihood and property. Even though the response stage of disaster management is as crucial as the preparedness stage, the preparedness stage has the upper hand when it comes to disaster risk reduction (DRR). The risk usually is expressed as a product of the hazard and the vulnerability and exposure components associated with it. So it is imperative to quantify the risk associated with a particular event over a community/geographical area. Risk assessment is very complex, and it needs the consideration of many hazards



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and vulnerability datasets. In this modern era, unlike before, proper utilisation of science and technology ease DRR. One such state-of-the-art technology is artificial intelligence-based utilisation of numerical models for better DRR.

A numerical model is an AI-based computer-aided representation of a natural, real phenomenon or process. They generally solve a particular set of mathematical equations associated with a particular physical phenomenon. The simulation of a real-time hazard (event) requires a proper understanding of the physical process and the various mathematical and physical expressions. When it comes to DRR, everybody is interested in identifying the hazards and the potential damage they could transmit to the community/area where it occurs. A numerical model helps create a similar situation where we can hinder or forecast and give the exact intensity and impact that are likely to



be caused by a particular event. The complexity of the numerical model depends upon the scenario datasets (hazard) and location-based information (data sets) and how this physical phenomenon represented out using a mathematical equation or formulation. A hydrodynamic model which simulates the flow (flow of water) utilises the law of conservation of energy and the momentum equations in 3D space.

In contrast, an earthquake ground-shaking model uses the focal mechanism solution tensor equation for the simulation. The algorithms used in the urban flood model are much more complicated and sophisticated as they involve extensive satellite products and services. A good amount of socio-economic data sets are also required to simulate this type of urban model. Numerical Weather Prediction (NWP) uses mathematical models of the atmosphere and oceans to predict the weather based on current weather conditions. The Weather Research and Forecasting model (WRF) is one of the meteorological Limited Area Models (LAMs) widely used in numerical weather prediction. The model is capable of capturing short-lived weather phenomena such as tropical storms, tornados, dust storms, thunderstorms, hailstorms, wind storms, and cloud bursts, from their genesis to dissipation stages. Since most of the models are AI-based, they can be involved in the other aspects of disaster management also, like locating evacuation routes, database management solutions in relief camps, supply and management of essential goods and services in the relief camps, etc. The best part of the numerical models is that anybody with sound knowledge in mathematics and computer programming can generate scenario and location-based models for better DRR strategies.



Site-specific numerical models also help in understanding the impact and the intensity of a particular hazard. For example, the maximum wind speeds associated with a tropical cyclone when it crosses a particular location and the sea state are simulated by a cyclone model. Experts use numerical simulations, especially in association with large scale hydro-meteorological events such as tropical cyclones. In recent years, numerical modelling techniques have arrived as the best and robust solution for understanding these hydro-meteorological large scale events.

The availability of high-performance computers and advanced satellite techniques has enabled us to recreate a particular hazard and draft contingency plans accordingly. A well simulated numerical model will tell the policymakers the exact location, which has to be given importance in the wake of a disaster. The plugins generated using the artificial intelligence algorithm of the model can help identify suitable areas for shelters and camps. The forecasting of a particular hazard can be done quickly using these models, and they help understand the vulnerability and risk.

The numerical models are usually employed in mainly three aspects of Disaster Risk Reduction.

(1) Hazard Scenario Generation

(2) Vulnerability Assessment, and

(3) Risk Assessment. Hazard scenario generation includes the simulation of a particular hazard using the exact mathematical equation associated with the event. For example, offshore and nearshore hydrodynamics (tides and currents) of a sea are simulated using simple flow model physical equations. Then if the user wanted to simulate a tropical cyclone, the existing parameters like cyclone track data include the lat/long information, pressure drop of the system, radius of the eye of the cyclone, and the maximum sustained wind speed are added to the model system. Thus, an exact representation of a cyclonic system is achieved. In the vulnerability analysis of the former case, the sea state (rise in sea level and changes in the wave climate) during the particular cyclone is created. From this simulated scenario, it is easy to understand or locate the places with high wave activity, and mitigation measures can be taken accordingly. Some of the significant models used worldwide are:

(1) SWAN (Simulation of Waves Nearshore)

(2) ARDCIRC (Advanced Circulation Model)

(3) TUNAMIN2 (Tsunami Simulation)

(4) GEM (Global Earthquake Model)



Geospatial Applications viz., Geographical Information System (GIS) and remote sensing techniques also are vital in the disaster management process. A GIS is defined as a map+database that employs high-power graphic and digitising tools to analyse various complicated spatial and non-spatial information. These tools are essential in dealing with disasters like cyclones, floods, and earthquakes. They provide high-resolution user-friendly information to the common public in a more trustworthy and artless mode. The severity and the impact of the hazards can be quickly made by employing GIS along with remote sensing techniques, which helps in the identification of safe routes during a crisis, better traffic and logistics management, information related to relief camps and suitability studies, etc. The vulnerability and risk assessment are also done using the GIS technique which employs multiple tools embedded within the software environment like raster calculator tools, overlay analysis tools, etc.

GIS is used in the management of data required for vulnerability analysis and hazard assessment during the disaster prevention stage. It is useful mainly because of its capacity to build models or

representations of the real world from information in databases. Therefore, it is crucial for aiding hazard prevention and simulating the damage caused during a natural disaster. GIS can also be used to interpret information by creating thematic maps that show the spatial distribution of the information. These maps that are generated show various trends and patterns that will be easier to interpret and analyse. In the preparedness stage of disaster management, GIS is used as a tool for planning evacuation routes, designation of emergency operating centres, camps and safe places where people can be relocated. In the rehabilitation phase of disaster management, GIS can be employed to assess the damage and organisation of post-disaster information and database management. Thus, it will be finally employed as a database management system (DBMS) in the whole process of disaster management and disaster risk reduction. The primary application of GIS can be summed up as (i) Disaster Mapping (mapping the disaster-prone area) (ii) Damage Assessment (iii) Database Management. The best part of using GIS is that it integrates various spatial and non-spatial information and makes the work more accessible

for the administration and other stakeholders involved in DRR.

Coming to the remote sensing part, various GPS-based aerial surveys and location-based ground surveys are essential in the surveillance and monitoring of particular hazards. These techniques mostly involve processing and digitising various satellite products and their associated data sets primarily valuable for the supervised and unsupervised classification of land use and land cover patterns of a specific geographical area. Even though the accuracy of the result will depend upon the resolution of the satellite products used for the study, GIS software enhances the output in better quality.

Thus, using the latest sophisticated numerical models, and with the appropriate usage of geospatial applications, high-resolution hazard scenarios can be generated and integrated with vulnerability components and exposure layers to develop real-time and significant risk assessment. In addition, these high-resolution models can act as a robust database and input for governments and disaster authorities, which can help them develop disaster management plans, mitigation plans and emergency contingency plans. ■



# Forest Fires: A Good Servant, But a Bad Master

Dr. Satendra Singh (IFS) is an International Disaster Risk Reduction Expert for Food and Agriculture Organisation (FAO), United Nations.

**Investing in fire risk reduction for resilience would require research and development in the field of fire detection, strengthening early warning and response mechanism, knowledge management and capacity building through training and awareness generation, and if possible, establish a national-level forest fire management research and training institute for foresters and public agencies to provide knowledge and skill for forest fire managers, along with equipping forest departments with modern firefighting equipment and technology.**

During the current year, India experienced several major forest fires in different parts of the country. Since the beginning of 2021, there have been a series of forest fires reported from Himachal Pradesh, Nagaland-Manipur border, Odisha, Gujarat, and Madhya Pradesh. In Himachal Pradesh, forest fires spread in the Kullu and Shimla forests, which continued for days and damaged many trees and other vegetation. During the same period, fires were also noticed on the Nagaland-Manipur border, devastating valuable forest cover and other natural habitats. In March 2021, devastating fires in the Similipal National Park in Odisha continued for weeks, engulfing several forests areas, mainly in the Karanjia Forest

Division, destroyed valuable forest habitation, and killing many wild animals, resulting in a massive loss to the ecology and the environment. Later in March-end in Uttarakhand, several districts, including Nainital, Almora, Tehri and Pauri, witnessed unprecedented forest fires even when the temperature was still at normal levels. As reported, 1290 hectares of forest in the State was affected by the disaster.

Experts have given many reasons for these unprecedented forest fires; these include less rainfall and not clearing forest fire lines due to the COVID-19 lockdown. However, increasing frequencies of forest fires have posed a serious question mark on our forest fire management capacity and gaps in the system, which need to be reviewed and revamped to minimise the risks and save our green gold treasure from such hazards.



Dr. Satendra Singh

Forest fires are not new. They have been an integral part of the ecosystem since the origin of forests on the earth. "Fire is a good servant but a bad master." This saying is true for forest fires too. Limited forest fires are beneficial and essential for good natural forest development and regeneration, and they serve as an important

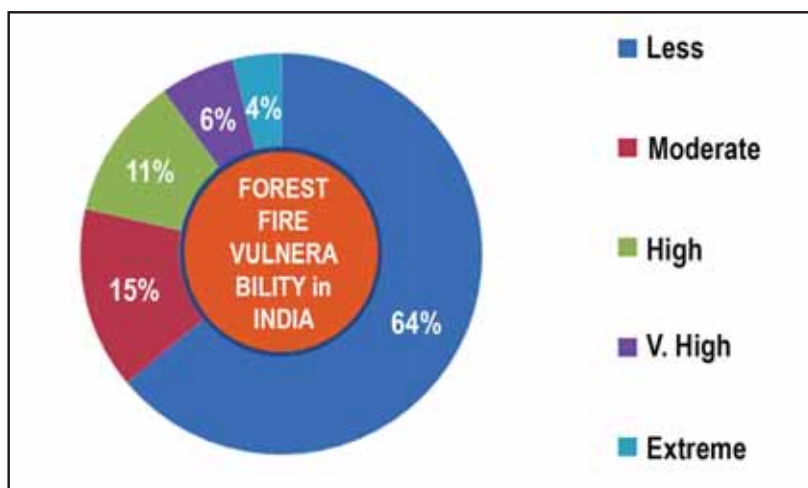


Figure 1: Forest fires vulnerability to Indian forests (Source: India State Forest Fire Report)

## Forest Vulnerability to Fire in India:

- North East and Central India forests are the MOST VULNERABLE to fire.
- Assam, Mizoram, and Tripura forests are EXTREMELY PRONE to fire.
- Large areas in AP, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Maharashtra, Bihar and UP are VERY HIGH PRONE to fire.
- Areas HIGHLY, VERY HIGHLY, and EXTREMELY PRONE, constitute around 21% of the forest cover in India.

function in maintaining the health of the ecosystem. But uncontrolled fires in the forest have devastating impacts on vegetation, wildlife and its habitat, forest regeneration, fuel-wood and fodder, land surface organic matter, air, water and soil quality, life and property, the livelihood of forest dwellers and others working for the forest department, and tourism. Such fires, in many cases, loosen the surface soil and reduce its water-retaining capacity leading to floods, flash floods, land and mudslides, etc. They are also one of the major causes of global warming and climate change. With the burning of vegetation, stored carbon dioxide is released into the atmosphere leading to more warming, and more warming again causing more fire.

According to the Forest Survey of India report, around 64% of forests in India are less vulnerable to fires, 15% are moderate, 11% are high, 6% are very high, and 4% are extremely vulnerable to forest fires. The North Eastern States, Garhwal Himalaya, and Central Region, mainly the Deccan Plateau, are comparatively more prone to forest fires.

More than 90% of forest fires are human-induced, mainly caused by negligence, intentional or unknowingly. The natural causes of fires in forests include lightning, extreme temperature rise, rubbing

of dry bamboo clumps, volcanic explosion, etc. The anthropogenic causes of forest fires are numerous, such as shifting cultivation, tendu leaves collection, illicit felling, cleaning forest paths, poaching, collection of minor forest produce, burning farm residues, campfires, uncontrolled prescribed forest burning, resin tapping, charcoal making, wine extraction, heating coal for road construction, etc.

The effective forest fire response in Odisha in March-April 2021, and controlling the fire on time is appreciated. It proves that an effective response can certainly reduce forest fire damage and losses. Early detection of forest fire is the most effective tool to manage and suppress it before it turns into an inferno. The Forest Survey of India is engaged in collecting forest fire data different parts of the country and disseminating forest fire alerts to State Forest Departments and other stakeholders by the Moderate Resolution Imaging Spectroscopy diameter (MODIS) sensor onboard the Aqua and Terra satellites of NASA. Since 1971, FSI had been sharing alerts, making use of Visible Infrared Imaging Radiometer Suite (VIIRS) onboard the Suomi NPP satellite for getting higher resolution images of the fire-hit areas. Monitoring of forest fire is further upgraded during 2019 by the Forest Survey of India using NASA and ISRO-gathered information. Real-time information identifying

fire spots is disseminated after proper dovetailing and refinement. At present, it is shared with more than 70,000 users all over India through SMS and email.

Similar to Odisha, several other States in India have extensively improved their response mechanism against forest fires. But, we still lack effective mitigation, preventive and preparedness measures to reduce the forest fire risks in the country. Like other disasters, effective management of forest fire needs a holistic and comprehensive approach, preferably based on a global strategy such as Sendai Framework for Disaster Risk Reduction (SFDRR), adopted by 187 countries during the Third World Conference on Disaster Risk Reduction, organised at Sendai, in Japan in 2015. The four priorities for action to reduce disaster risk in line with SFDRR are: understanding disaster risk, strengthening disaster management governance, investing in disaster reduction for resilience and preparedness for effective response.

Like other disasters, the first and foremost action required to manage forest fires effectively is assessing the risk of fire in different forest areas of the country to ultimately decide the further plan of action to manage the fires. Fire risk to a forest depends on its vegetation types, the climatic and/or weather scenario, the socio-economic conditions, including the population density of the people living in the forest and nearby area, etc. Identifying fire-prone or vulnerable areas and mapping them will help in better preparedness and timely response.

Strengthening forest fire management governance at different levels, starting from local to the national level, is the second most important priority action for reducing forest fire risks.



Figure 2: Forest fire risk reduction: Priority areas for action

At present, there is no separate institutional setup to manage forest fires in the country. The Forest Protection Division in the Ministry of Environment, Forest and Climate Change (MoEFCC) is responsible for forest fire and its management. Considering the increasing threat, there is an urgent need to have a separate division/wing to look after forest fire management, which needs to be established in the Ministry. The abolished Air Operation Wing of the MoEFCC can be activated again to deal with mega forest fires. The ten regional

offices of the Ministry spread all over the country may be used to regulate forest fire management activities.

At State levels, forest fire management is looked after by regular forest staff, which is already overburdened and not fully trained and equipped to deal with the problem effectively. It will be appropriate if a separate wing is established at the State forest headquarter, preferably headed by a chief conservator of a forest-level officer. This wing at the State

level may work in collaboration with its national counterpart so it can provide all necessary guidance and support. As far as policy and planning are concerned, the MoEFCC has already developed a National Action Plan for Forest Fire (NAPFF), outlining actions at the national and State-level forest departments and other related institutions to prevent, mitigate and respond to forest fires. Based on the action plan, State Governments can develop strategic planning to deal with forest fire disasters effectively, have Standard Operating Procedures (SOPs), and indicate clear cut responsibilities of various stakeholders and role players in dealing with the menace of forest fires.

Investing in fire risk reduction for resilience will cover research and development in the field of fire detection, strengthening early warning and response mechanism, knowledge management and capacity building through training and awareness generation, and if possible, establish a national-level forest fire management research and training institute for foresters and public agencies to provide knowledge and skill for forest fire managers. This, along with equipping forest departments with modern fire fighting equipment and technology, will be very effective when a forest fire erupts in one or other parts of the country.

Being mindful of the increasing threat posed by forest fires to forest vegetation and the entire ecosystem, immediate actions need to be taken based on suggestions made above to capacitate the national and State-level forest departments and other stakeholders to reduce forest fire risks in the country and safeguard our environment and ecology. ■



Figure 3: Forest fire monitoring (based on the Forest Survey of India (FSI) Report)



# Cyclones in India – Changing Equations between the Bay of Bengal and the Arabian Sea

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India is a tropical country flanked by two seas with a vast coastline of more than 7600 kilometres. It is home to periodic cyclones. The eastern coast, which has the Bay of Bengal, occupies just 0.6% of the global ocean area is responsible for four of the five cyclone-related deaths in the world. It has recorded 26 out of the 35 world’s deadliest cyclones. It has to its credit three deadliest cyclones - Bhola in 1970, which killed five lakhs in Bangladesh, Super Cyclone 1999 in Odisha, which killed more than 10,000 people, and Nargis in 2008, where more than 1,40,000 people in Myanmar lost their lives. The western coast has a relatively calm sea called the Arabian Sea surrounding the landmass of India, Pakistan and Yemen. As per Dr K.S. Hosalikar, Head SID, Climate Research and Services, Indian Institute of Tropical Meteorology, Pune, for the past 150-200 years, the Bay of Bengal has given birth to four times more cyclones than

the Arabian Sea. But this may soon change, thanks to global warming. For every four cyclones in the Bay of Bengal, there is one in the Arabian Sea. We have data of more than 150-200 years. When we look at this data and calculate, a ratio of 1 is to 4 is established.

However, the recent trend of cyclones tends to differ from the fact there are more instances of cyclones in the Bay of Bengal than in the Arabian Sea. The trend given below in Figure 1 reflects the brewing of more cyclones in the Arabian Sea too.

When we look at the map of Asia, we find that the Bay of Bengal is enclosed by land on three sides. We also find that there is no major landmass between the Bay of Bengal and the Pacific Ocean. Peninsular India lies between the Bay of Bengal and the Arabian Sea. Considering these facts, we can conclude the following:

1. The Bay of Bengal gets intensely heated up compared to the Arabian



Col Sanjay Srivastava

Sea thus, giving rise to a low-pressure zone ideal for cyclone formation.

2. Cyclones, called typhoons in the Pacific, travel to the Bay of Bengal without losing much of their energy.
3. Cyclones in the Bay of Bengal lose their energy on reaching the Arabian Sea due to the large landmass present between them.

Due to the above reasons, the Bay of Bengal witnesses more cyclones than the Arabian Sea. Making matters worse are high sea surface temperatures in the Bay of Bengal that further trigger extremely strong cyclones. On the contrary, the Arabian Sea is far calmer. If 58% cyclones are formed in the Bay of Bengal, only 25% are formed in the Arabian Sea. Since sea surface temperatures and humidity both increase chances of cyclone formation, the Bay of Bengal is a more likely target because it gets higher rainfall with sluggish winds around it, keeping temperatures



Figure 1: List of cyclones in India from 2016 to 2021

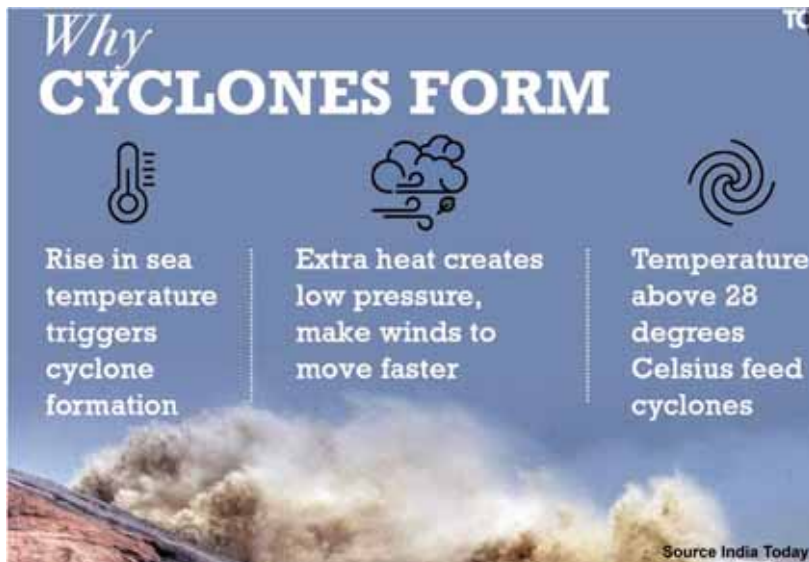


Figure 2: Why cyclones form

relatively high all year. Warm air currents enhance this surface temperature and aid the formation of cyclones.

The Bay of Bengal also welcomes cyclones formed far away in the Pacific Ocean. Cyclones usually weaken over a landmass, but due to the lack of any such land between the Pacific Ocean and the Bay of Bengal, cyclonic winds move easily into the bay. Once here, the winds encounter the Western Ghats and the Himalayas and weaken before reaching the Arabian Sea. No wonder the Bay of Bengal faces the brunt while the Arabian Sea enjoys

a locational advantage. Hence in 2021, within one week, the western coast had two cyclones - Tauktae, followed by Yaas. In 2020, within a gap of just two weeks, Cyclone Amphan ravaged South Bengal, while Cyclone Nisarga spared Maharashtra to a large extent.

There are two most significant developments observed in recent times – (i) Rise in frequency and intensity of cyclones (ii) The Arabian Sea receiving more cyclones. The rise in cyclones is attributed to climate change impacts and global warming, thus the rise in sea surface temperatures (SST). The SST of the

Bay of Bengal used to be 27-28°C has now risen to 30°C, whereas the SST of the Arabian Sea has a steeper rise, from 26-27°C to 32-34°C. This steep rise is the main reason for an increase in the number of cyclones in the Arabian Sea.

India has a flagship National Cyclone Risk Mitigation Programme (NCRMP). Phase I has been completed in West Bengal and Odisha. Phase II is ongoing in the remaining States. There have been commendable achievements regarding cyclone shelters, roads, flood/storm surge bandhs, early warning dissemination systems and capacity building. Yet, with seven to eight cyclones every year, the cost of evacuation and disruption of routine activity for seven to eight weeks amounts to almost two months. There is a need to change the concept of evacuation-based response to a more robust response system where there is minimum disturbance to routine life and livelihood.

Similarly, power and communication network need to be underground to avoid frequent uprooting and damages. The supply chain management, transport system, education, healthcare and the earliest return to routine life have to be ensured. We need to develop a robust detection and warning system to minimise the loss of lives and property. Landfall has been deviating from the forecasted path keeping responders guessing the critical hour when the cyclone's fury is at its maximum. Similarly, there was a sudden surge of Cyclone Okchi where early warning and dissemination had failed, causing the loss of lives of many fishermen.

Though there has been phenomenal progress made regarding loss of life - from 10,000 to single or double-digit figures, there is a need to focus on infrastructural and economic losses. A proactive and robust mechanism is the only resort to ensure sustainable development. ■

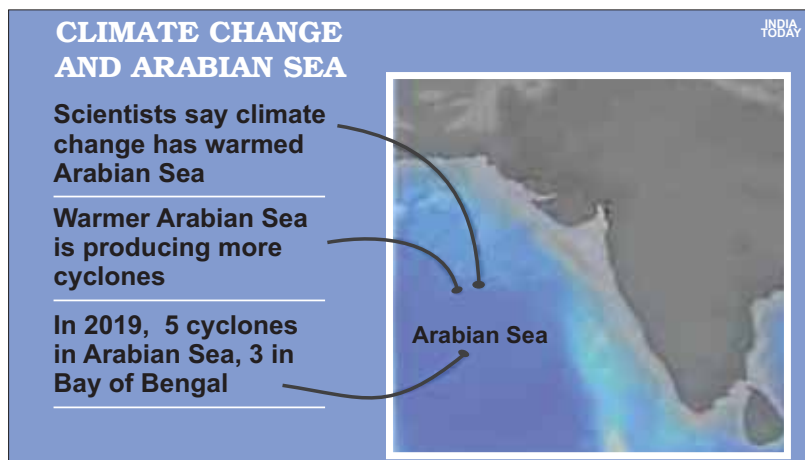


Figure 3: Climate Change and the Arabian Sea

# Impact of Anthropogenic Activities on Landslide Occurrences in the Uttarakhand Region

Dr Sangeeta Prajapati, PhD., Centre of Excellence in Disaster Mitigation & Management, Indian Institute of Technology, Roorkee; and IRDR Young Scientist

**Built structures and the population density on potentially unstable locations substantially increase the risk pertaining to geotechnical hazards. This case study explores the potential driving factors responsible for human-induced landslides and recommendations for better landslide risk reduction.**

Landslide is a movement of a mass of soil (earth or debris) or rock down a slope (Couture, 2011). They can be initiated in slopes by natural causes (rainfall, snowmelt, changes in water level, stream erosion, changes in groundwater, earthquakes, volcanic activity) and man-made (disturbance by human activities like mining, construction),

or any combination of these factors.

Landslides are severe geohazards and frequently occur in countries including China, Italy, Indonesia, Japan, the Philippines, United States and Switzerland. They also occur in many countries that straddle the Himalayas, like Nepal, Pakistan, and India. Statistics and spatial distribution of landslides at the worldwide level are given in Fig. 1. In the last two decades, approximately 4.8 million people were affected, and more than 18,000 casualties have been reported due to landslides worldwide (Wallemacq et al., 2018). More landslides are expected to trigger in the high mountain region due to climate change (Merzdorf, 2020).

People living in hilly or mountainous terrains should understand the nature of their potential exposure



Sangeeta Prajapati

to landslide hazards and how cities/government/development authorities can mitigate the costs of landslides through better land use, sustainably designed projects and infrastructure. Natural causes of landslides like rainfall, snowmelt, changes in water level, stream erosion, changes in groundwater, earthquakes and volcanic activity cannot be controlled, but human-induced landslides could be reduced by risk-informed development planning, good engineering practices, and effective enforcement of land-use management regulations.

Landslides account for a considerable loss of life and damage to communication routes, human settlements, agricultural fields and forest lands in India. In India, about 0.42 million km<sup>2</sup>, or 12.6% of the land area is prone to landslide hazards (NIDM, 2019). Out of this, 43% falls in North East

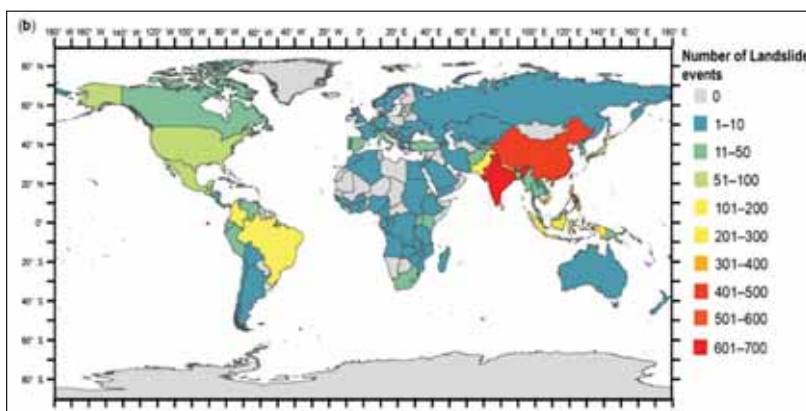


Fig.1: Number of non-seismically triggered fatal landslide events from 2004 to 2016 by country

Source: (Froude and Petley, 2018)



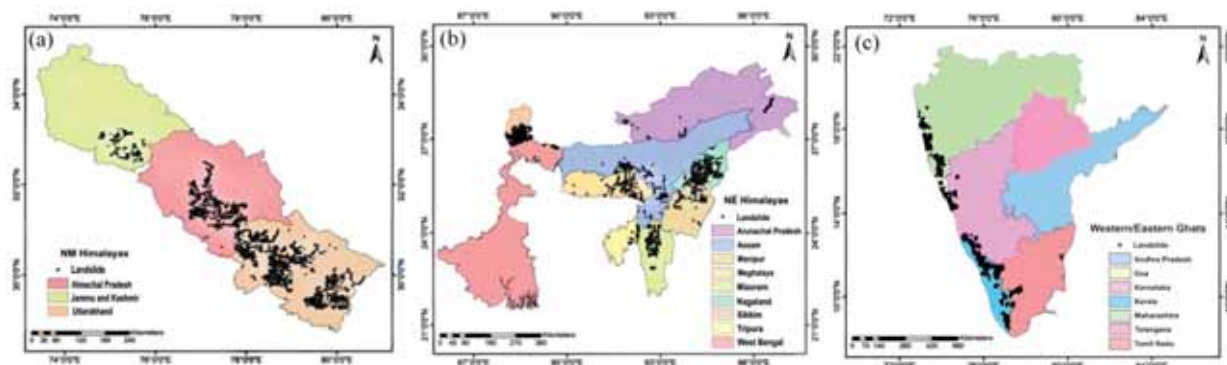


Fig. 2: Major landslide-prone areas of India: Landslide spatial distribution (a) North West Himalaya (b) North East Himalaya and (c) Western/Eastern Ghats

(NE) Himalayas, 33% falls in North West (NW) Himalayas and 24% in the Western and Eastern Ghats (Fig. 2).

Human-Induced Landslides (HIL) are defined as landslides that are directly or partially triggered by anthropogenic activities like modification of the topography, change of the water circulations, land-use changes and aging of infrastructure (Jaboyedoff et al., 2018).

With this background, there is a need to critically examine the present situation of anthropogenic influence in the Himalayas. The main objective of the study is to improve our knowledge about the impact of human activities and the different driving factors for human-induced landslides. This study presents preliminary observations of human activities in three districts, namely Chamoli, Bageshwar and Pithoragarh of Uttarakhand, India, responsible for landslide occurrences. In the study area, a majority of the accountable landslides were triggered by rainfall. However, the landslide inventory prepared by the Geological Survey (GSI) of India also identified more than 80 events that had a human fingerprint. This study suggests that inadequate consideration of geology and geomorphology during road alignment and faulty

engineering techniques were major factors responsible for the recent landslides. The study findings highlight that we need to refocus our efforts globally on preventable slope accidents.

### Uttarakhand and landslides

Uttarakhand is a State in the northern part of India. It is located at the foothills of the Himalayas. It has a mountainous topography and is seismically very active. It shares an international boundary with China in the north and Nepal in the east. It covers an area of 53483 Km<sup>2</sup> and falls between latitude 28°43' to 31°27' N and longitude 77°34' to 81°02' E. Nanda Devi

(Chamoli district) is the highest point in Uttarakhand with an elevation of 7816 metres above mean sea level (MSL) while Sharda Sagar Reservoir is the lowest land point at 190 metres above mean sea level (MSL). And Sharda Sagar Reservoir is the lowest land point in Uttarakhand.

Fig 3(a) shows the location of Uttarakhand in India. From Fig. 3(b), it is observed that the two divisions of the State, i.e., Garhwal and Kumaun consists of seven and six districts, respectively.

Uttarakhand is popularly known as Devbhumi (Land of the Gods) due to numerous Hindu pilgrimage sites. As a result, religious tourism forms a significant portion of tourism in the State. In 2019,

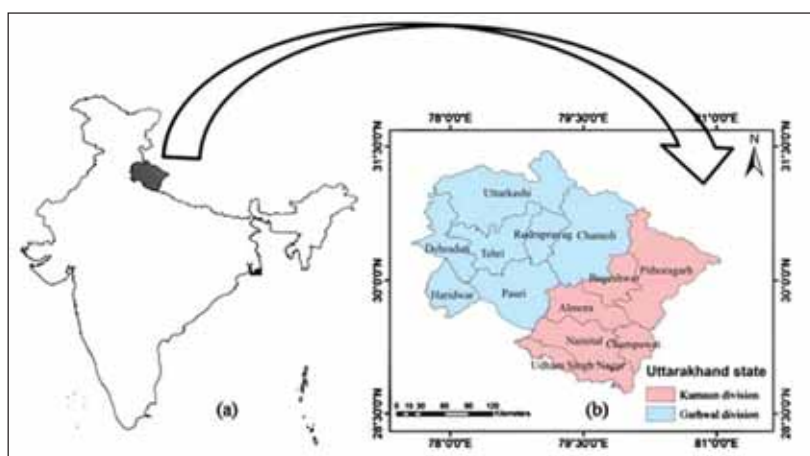


Fig. 3: Location map (a) Location of Uttarakhand in India (b) Divisions of Uttarakhand State

## Case Study

Date	Location	Damage and Casualties
19th June 2021	Tehri Garhwal	Rishikesh-Srinagar National Highway has been closed temporarily
24th August 2020	Rishikesh-Badrinath National Highway-58	Three construction workers died
7th March 2019	Rishikesh-Chamba-Gangotri National Highway	Two construction workers died
7th September 2019	Govindghat	More than six vehicles came under the debris
29th August 2018	Tehri Garhwal	Four people died
23rd March 2016	Dehradun	Ten people, including women and children, died

Table 1: Recent landslide events in Uttarakhand (2016-2021)

domestic tourist arrivals were 37.58 million, while foreign tourist arrivals crossed over 0.15 million. As a result, the Government focused on more infrastructure development projects to cater to the booming tourism economy. Infrastructure development projects require river diversion, large-scale excavation of rock by blasting, tunnelling and dumping loose rock debris/soil. These anthropogenic activities created unstable landforms prone to slope instability. However, as the developmental activities in the State were not operationalised and conducted in an unsustainable manner, the pitfalls of such developmental activities are being felt everywhere (Maikhuri et al., 2017).

### Case Study: Driving factors for human-induced landslides

The Himalayan region is inherently unstable, fragile and prone to natural hazards. The unstable nature of the area is further aggravated due to various infrastructure development projects. During the last decade, extensive expansions of roads and settlements have taken place in this catchment. The length of the national highway

(NH) in Uttarakhand was increased from 91,287 km to 1,26,350 km from 2014 to 2018. It is evident from past literature that landslide

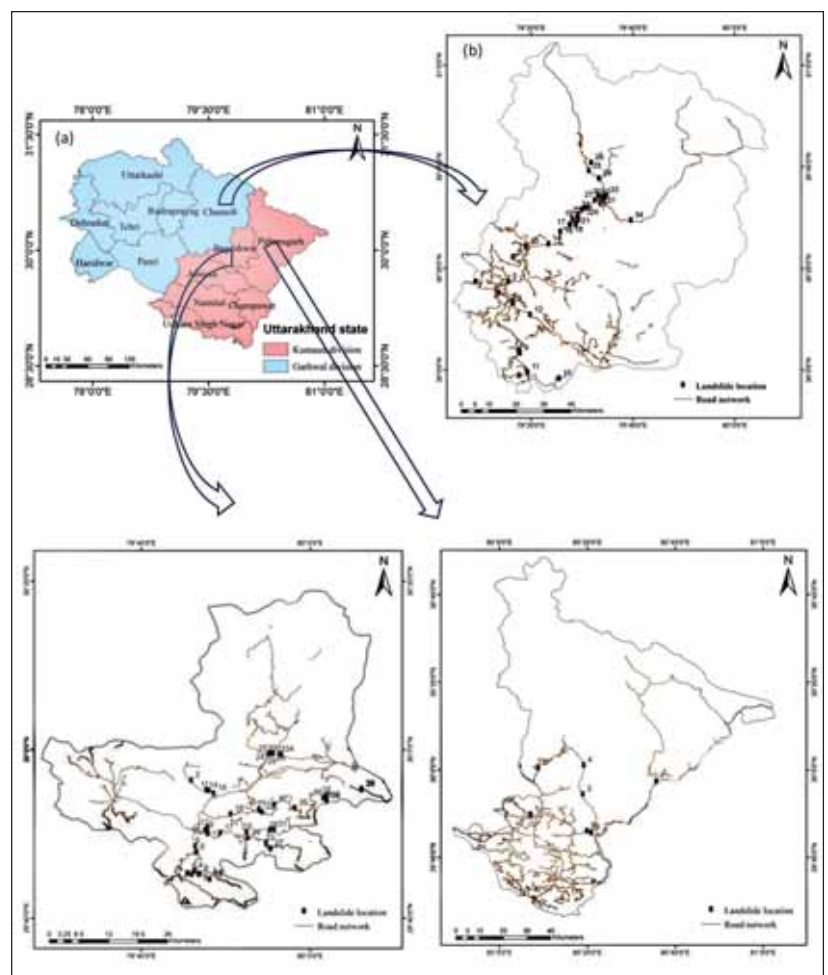


Fig.4: Human-induced landslides distribution (a) Uttarakhand Map (b) Chamoli District (c) Bageshwar District (d) Pithoragarh District

Driving factors	Category	Human-induced changes or actions
Road Widening Slope re-profiling	Type 1	Toe cutting at a steeper angle
	Type 2	Hill slope cut and remained unsupported
	Type 3	Slope cut at a steep angle leaving the back slope vulnerable
	Type 4	Removal of the toe due to road widening Road constructed on slope wash/slope debris material
Road construction	Type 5	
	Type 6	Disturbed natural stabilised slope material
	Type 7	Anthropogenic activity, i.e., unscientific road cutting
Land-use changes and land degradation	Type 8	Houses were constructed on the edge of the steep slope and the natural slope was modified
	Type 9	De-stressed the rock mass of the folded strata causing the opening of the folia
Vibration and explosive Blasting for road cutting	Type 10	Affected highly jointed and deeply weathered rocks
	Type 11	Fracturing and shattering of the dolomitic rock mass
	Type 12	Created instability of slope along with the road cut

Table 2: Driving factors for Human-Induced Landslides (HIL)

risk is connected with roads in the hilly region (Barnard et al., 2001; Singh et al., 2014). Sometimes, these projects are not guided by the geology of the area, and therefore, trigger several landslides. Rockfall along the roadside is also a standard feature. Further, climate change also adds to the problem through glacial melting, the creation of glacial lakes, and increased cloudburst incidents. Therefore, besides the current vulnerability of the region, there is a lot more risk building in the Himalayan State.

While multiple issues exist in the State, this particular research has simplified the problem statement by analysing road infrastructure development and associated problems. Few selective routes in Chamoli, Bageshwar and Pithoragarh districts are taken into consideration to understand the frequency of human-induced landslides and driving factors.

In the recent past, due to extensive road construction and other

developmental activities, the frequency of human-induced landslides has increased manifold in Uttarakhand. Landslides are prevalent features in the fragile environment of the Himalayan region. They are often triggered by rains on the slopes, which are modified by anthropogenic activities such as the construction of roads, buildings and unsystematic use of blasting practices during the clearing of the blockages along the roads and construction of new roads.

Three districts in Uttarakhand, namely Chamoli, Bageshwar and Pithoragarh, have been selected to study the frequency of human-induced landslides and the driving factors responsible for these landslides. A total of 80 landslides have been identified through the GSI repository. (Fig. 4 [b-d]) show the HIL distribution in Chamoli, Bageshwar and Pithoragarh districts.

Driving factors are defined as

the changes or actions which are responsible for human-induced landslides. In this study, driving factors are divided into two groups, namely slope re-profiling, vibration and explosive. In addition, based on the mode of actions, driving factors are further subcategorised into 12 different types. The classification proposed here is based on changes created by human actions. Table 2 shows the human-induced changes which caused the landslides.

The first driving factor is slope re-profiling which is related to road construction and widening projects. Road cut and toe cutting at a steeper angle are the most common reasons for HIL. Road cut often leads to a degradation of the stability because the new slope can be affected by an increasing number of stress variations induced by rainfall or freezing and thawing or vibrations (Baillifard et al., 2003). These kinds of failures are prevalent in the Indian Himalayan region, where road construction



## Case Study

Type	Landslide No.			Total landslide
	Chamoli	Bageshwar	Pithoragarh	
Type 1	3, 18, 25, 26, 27, 28,	1, 3, 7, 9, 10, 11, 13, 17, 19, 20, 21, 22, 23, 27 & 29, 30, 31, 32, 33 & 34 32	7	28
Type 2	1, 2, 12, 13, 14, 15, 17, 20, 21 & 22	35 & 36	1, 2 & 3	15
Type 3	4, 5, 6, 7, 8, 9 & 11	2, 33, 34 & 39		11
Type 4	19, 23 & 24			3
Type 5	16			1
Type 6		18, 26 & 31	4	4
Type 7			5 & 6	2
Type 8	1			1
Type 9		4, 5, 6, 24, 25 & 38		6
Type 10		12 & 16		2
Type 11		14, 15 & 37		3
Type 12		8, 28, 29 & 30		4

\* For landslide number, refer to Fig. 4

\* For type, refer to Table 2

Table 3: Detailed classification of driving factors for human-induced landslides district-wise

and widening projects are rising rapidly. The land-use modifications related to urbanisation are the causes of many disturbances for slope stabilities. For example, in the hilly region, houses are built on the edge of the steep slope, and the natural slopes were modified. This affects the surface and groundwater circulation, which leads to slope failure. The second driving factor, blasting, is also prevalent in the hilly region. Blasting operations create instability in rock mass by fracturing and shattering, and trigger landslides.

A total of 34 landslides are identified in the Chamoli district. Most of the landslides fall along NH7 and NH109. In Chamoli

district, 94% of landslides are induced due to road widening activities. In the Bageshwar district, landslides are clustered along NH 309A. In addition, 15 landslides were induced due to blasting for road cutting. In the Pithoragarh district, all seven landslides were triggered due to road construction and widening projects. Table 3 shows that overall, most of the slopes were destabilised due to road construction and widening projects and triggered during the rainfall. 81% of landslides were induced due to slope re-profiling and the rest due to blasting.

Human-induced changes and causes have initiated slope instabilities which are further

accelerated by the rainfall in this region. These instabilities are primarily via the undercutting and removal of the toe of slopes for the cutting of roads and paths (cluster of landslides mapped along the highways, Fig. 4). Toe cutting effectively disturbs shear strength parameters of the slope and contributes to slope failure.

### Discussions and recommendations

As part of this work, several major human-induced landslides were studied in detail to identify why they happened and the lessons that could be learned. The results show the importance and also



the degree of impact of human activities on the occurrence of landslides in the Indian Himalayan region. Furthermore, it serves as a fundamental data to establish the legal rules for managing the mountain area.

Transport infrastructure is one of the most critical factors for a country's progress. Road development in high mountain areas is essential, especially from a tourism dependency and strategic perspective. Fatal landslides triggered by road construction indicate that excavation may not always be undertaken with due care and appropriate slope engineering. This highlights the need to demonstrate best practices in the hilly terrain.

Population growth is also directly related to increased infrastructure and settlements (Gardner and Dekens, 2007). India is on a trajectory to expand their national road networks further. The natural landscape will be modified due

to the increase in population. These activities influence slope geometries, soil moisture levels and the hydrological cycle, which could lead to increased levels of slope instability.

With human interference, the number of disastrous events will increase and become frequent in the Himalayan region. This puts a heavy burden upon the public exchequer and hampers the pace of development. Particular emphasis will have to be given to non-structural measures, regulate tourism, better vehicle movement, enforcing zones, policies, rules, etc.

According to UNDRR, Build Back Better (BBB) has been defined as "The use of the recovery, rehabilitation and reconstruction phases after a disaster to increase the resilience of nations and communities through integrating disaster risk reduction measures into the restoration of physical infrastructure and societal systems and into the revitalisation

of livelihoods, economies and the environment." Lessons learned from these case studies would help to develop a better understanding of the BBB concept.

India is an emerging economy; so infrastructure development cannot be stopped or reduced in the Himalayas. However, it needs to include a more systematic, scientific and sustainable procedure. Given this, the following recommendations are proposed:

- Road construction without proper route choice, engineering design and management of soil should be avoided.
- During infrastructure development activities, the fragility and geology of the Himalayas have to be factored in.
- Non-structural measures such as streamlining tourist inflow to the hills and incentivising environmentally-friendly, eco-livelihood activities are a way to sustainable development.



# Resilience and Mental Health - Paving a Way through the Pandemic

*Bindiya H Palan has 16 years of experience as a psychologist. She is currently associated with TATA Institute of Social Sciences (TISS). She is a Counsellor for an online counselling platform - Juno Clinic., as a Counsellor. Her earlier work includes affiliation with NGOs like CCDT and St. Catherine's. She also worked as a Child Life Specialist for national and international programmes for Operation Smile.*

**Resilience is the process of recovering from or adapting to adversities. It has a huge role to play in the current period. Each of us has had an extensive demand on many of our resources, mostly our mental and emotional resources to help pave our way through this exceptionally challenging life experience. This article discusses multiple techniques to build resilience and looks at the pandemic with a new and positive lens.**

## The Unexpected Entry

Something small and seemingly insignificant, in no time, was spreading all around like wildfire. It has been more than a year now that we are living through this extremely difficult period. When it initially started, some of us chose to take an ignorant approach whereas, many were up and about preparing and stocking up for the one full day of being within the four walls of their home (Janta Curfew). Little

did we know that planning and not hoarding was to become our way of life. There was no clue of what was in store, and how it would impact our lives so deeply and for so long.

This was just the beginning of the uncalled entry of COVID-19 into our lives - an experience that each one alive would remember forever. The virus seems to have a very subtle entry either through fever, dry cough or fatigue. It is easy to confuse it with flu, therefore, easy to overlook the damage it is capable of causing. This infectious epidemic made its way and earned the title of a pandemic with its consistent spread over multiple countries. Pandemics before COVID-19 seemed like a thing from the past. The belief that science can handle anything thrown towards the human race, and control it before substantial damage, was shaken.

## Impact on mental health

The pandemic has increased the element of anxiety in everyone's life. It has almost taken us back to the primitive period where, to



Bindiya H Palan

be alive, alertness played a key role. Today, the "always around but unable to see" enemy has put us back in the same spot. It is like fighting a war with an invisible enemy that can only be seen once it has found its way inside you. This need to always be alert, coupled with the fear of the virus, has generated anxiety in many. Anxiety became even more intense for those who were living with it even before COVID times. People who were living alone were experiencing a disconnect with the outside world,



and also the inside world, in some cases. Excessive media exposure is adding to anxiety and fear. In trying to maintain social distancing, many have felt emotionally disconnected from each other. Lack of human contact is making it difficult to process emotions. The level of frustration tolerance is dropping like never before. Many people are experiencing depressive symptoms. The pandemic has majorly impacted our daily routines, thereby causing a shift in our sleep patterns. We are experiencing loss and grief due to losing a loved one. Restrictions on travel and gatherings have hampered many from grieving along with loved ones and bring about closure through religious rituals to bid farewell to the departed souls. These have impacted many on so several levels that those exposed to these experiences at close quarters, for example, front liners, are suffering traumatic stress symptoms.

## Mental health - A resource

The current pandemic might have caused an increase in awareness and importance towards mental health. It is slowly starting to create a space for itself in the country. The stigma and discrimination attached to mental health have been slowly reducing; schools and organisations are starting to recognise and acknowledge its importance. The ones who were aware of its existence but were wary of approaching a therapist or a counsellor are taking a step and reaching out to one. Many, who might not be aware of the concept of mental health and ways to take care of it, are struggling with their situations and conditions silently.

In the given situation, as much as it is about finding ways to ensure survival, it is also important to recognise that in periods like the current one, it is highly possible to



run out of one's resources to handle oneself and the situation. Identifying ways to recognise both internal and external resources along with finding means to replenish them are crucial for survival. It is here that resilience comes to our rescue.

## Building resilience in the pandemic period

Resilience is the ability to handle stress when it arises and also protect oneself from future stress. It is also commonly referred to as the ability to bounce back after experiencing adversity. The current pandemic seems like prolonged exposure to a series of adversities for most of us. Resilience is a skill that could be developed for those who might need it and further strengthened others who already have it. It is important to note that resilience is not a never-ending resource available to us, but it is a resource that needs to be constantly replenished to be able to keep drawing from it.

COVID-19 made us reconsider our belief of "we can handle everything". It made us realise that having all the possible resources might not be enough to handle this situation. Each of us, despite our status or power, has been equally vulnerable to this health condition. Let us look at some ways to build resilience

during this current pandemic.

### Limit media consumption -

Currently, the stressor, "the virus" is real, but constantly exposing ourselves to its minute-by-minute development is not aiding in any way. It might, in the bargain, contribute to building stress. Gaining information is imperative. A healthy approach might be to limit media consumption. Deciding on a time limit and also choosing authentic sources could help in dealing with this stressor.

### Be creative and resourceful -

Apart from the many limitations, the pandemic has also created multiple opportunities. We would have never imagined that we would be undertaking certain things. Thanks to the given situation, we have the opportunities to explore them. It could be giving a haircut to a family member or trying different recipes to satiate our taste buds. These could be ways in which we are resourceful to ourselves and others.

### Constructive engagements -

Certain chores and tasks need to be completed daily, irrespective of our wishes, like preparing meals or maintaining basic hygiene. Identifying meaningful engagements could help in building resilience. It could be something

## Motivation



as simple as organising things at home or learning a new skill.

**Manage emotions** - Throughout this period, we were required to stay indoors to ensure our safety. The originally separate living space and workspace all seem to have merged. Children's playtime was restricted within the bounds of their homes. Everyone had to look at the same set of faces 24x7. Being restricted in multiple ways could be frustrating and that could make it more difficult to manage our emotions. Engaging in mindfulness practice, yoga and meditation could be some of the tools to manage emotions and building calm. Journaling and sharing with supportive individuals could help process our emotions. It is important to regulate emotions rather than trying to repress them.

**Engage in self-care** - Some of the above-mentioned practises could be helpful during this journey, along with a focus on the bare basics of providing our body with enough food, sleep and water. Spend time

alone to reflect. Engaging in multiple ways to soothe the five senses, like listening to calming music to relax or using some soothing fragrances to calm our nerves, could be helpful self-care techniques.

**Support system** - Family and friends might be the most important support system to many. Generally, a health condition that would have brought close ones nearer for moral support has created an even greater distance due to the fear of contracting the virus. Neighbours staying across our homes are also out of bounds. Even greeting someone with a handshake or soothing an ailing heart with a warm hug is now unacceptable. Safety now meant keeping distance between each other physically.

In these trying times, staying in touch with our support system, even despite the physical distance, could do wonders in building resilience. Identify people who provide us strength. It can be a motivational speaker or our faith and utilising

them to edify us. We could find a mentor in an acquaintance or a teacher. Many internal and external supports could contribute to shaping our resilience. Someone's positive story might work as an inspiration for other struggling souls. Seeking and sharing such stories would be helpful.

**Build healthy qualities** - As tough as it seems, finding ways to build optimism, humour, self-esteem and adaptability are some of the qualities that could be acquired or enhanced.

**Engage in healthy practices** - When life seemed to have taken a sharp turn, it is difficult to look for the silver lining. It would be commendable to take note of the daily positive experiences, showing gratitude towards all that we have, whether it is the gifts from nature or the fact that we have managed to come so far. Being kind to ourselves by using positive self-talk and being mindful of self-criticism are effective tools for a peaceful life.





from kind neighbours. Technology seemed to have been the biggest boon to all. It came in handy to make the work from home phenomena possible for many people. Schools were able to reach their students through technology. We saw a paradigm shift in the preconceived notion that stepping out is the only way to earn a living. Teachers were able to connect with their students. Connecting to dear ones during these difficult times became possible through technology. Video calls made it one level better as we can see close ones who are miles away in real-time. People who were out of touch for a long time started connecting. Technology also aided in learning for many - whether it was courses to upskill or YouTube videos to learn new meals to cook. Nature used this quiet time to heal itself; air and water are cleaner, and forests are denser. Old perspectives changed, and many heroes emerged during this unprecedented time. Creativity became a tool for discovering self and the different sides of self in unexpected ways.

It is important to remember that building resilience is like building a muscle - you need to keep working on it if you want to keep it strong. When it is weak, it cannot support as much as when it is toned and sturdy.

Resilience building might not be the same for all. We have the capacity for resilience, and we could explore it at multiple levels – individually and in the larger community. This pandemic might have affected and continues to affect many more lives. We should aim to build our resilience and improve our functioning. It will help us develop an attitude and the willpower to come out stronger on the other side of the pandemic. Let us continue to press on. ■

**Take back control** - At such times when everything seems beyond our control, it seems easy to give up. A healthy approach to deal with this would be to identify the things within and beyond our control. Once this distinction is clear, focus and work with the former, and learn to accept the latter.

**Plan for the future** - Use this time to create plans that can be useful post-pandemic. These could be travel plans or activities. This could work to build hope.

**Exercise** - Physical exercise has tremendous health benefits for all age groups. That could be a good enough reason to engage in it. Physical exercise is also scientifically proven to have tremendous benefits for our mental health.

**Maintain a routine** – It is natural to feel helpless when things seem to be out of control during this period. Building a routine for ourselves is one way to exercise control in our day-to-day life. Having a fixed schedule to start and end the day aids the process of knowing there are still things that are manageable and within our control.

## Positives of the pandemic

Numerous people had to change their means of livelihood to ensure some form of income to keep their families afloat. Daily wagers, who form a major part of the population, were deeply impacted during this crisis. Migrants were left in the lurch and had to leave as their source of income had dried up due to the suddenly imposed lockdown. With no source of earning a livelihood, survival was hanging by a thread. At such times of difficulties, angels in disguise came to the rescue. Some were from within the country, while others showed their solidarity and sent financial aid from distant lands. Such deeds of reaching out have saved many families and many lives.

People are becoming more resourceful. During this period of social distancing, home delivery of various required items is seen as a boon, whether it was medicines for the ailing or grocery items for survival. Many small shops as well as renowned groups took the step and started to deliver at the doorstep. The elderly received help



## आजादी के बाद बिहार की पहली बाढ़-१९४८

डॉ. दिनेश कुमार मिश्र,

श्री दिनेश कुमार मिश्र ने आई.आई.टी खड़गपुर से सिविल इंजीनियरिंग (1968) तथा एम. टेक (1970) की डिग्री प्राप्त की. दक्षिण गुजरात यूनिवर्सिटी से पीएचडी के आलावा वे निरंतर 3 वर्ष अशोक फेलो भी रहे हैं. नदी कार्यकर्ता के रूप में विख्यात मिश्र जी अपने प्रभावी लेखन कार्य, शोध व्याख्यानों व जन जागरण के माध्यम से सखिता संरक्षण को प्रमुखता दे रहे हैं. उन्होंने बिहार की लगभग सभी प्रमुख नदियों पर गहन शोध किया है, जिसके आधार पर तटीय जीवन से जुड़े तमाम पहलुओं को उन्होंने दृष्टिगोचर किया..

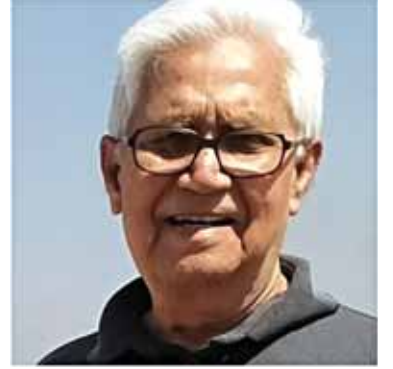
(भाग - २)

### बिहार लेजिस्लेटिव असेम्बली में बाढ़ पर चर्चा.

इस साल की बिहार की बाढ़ और सूखे के सवाल पर बिहार लेजिस्लेटिव असेम्बली में 28 से 30 सितम्बर तक जोरदार बहस हुई जिसकी शुरुआत करते हुए दीप नारायण सिंह ने अफसोस जाहिर करते हुए कहा कि जिस समय बाढ़ आती है उस समय नावों का प्रबन्ध क्यों नहीं हो पाता है? उस समय सारे अफसर और कर्मचारी किर्कटव्यविमूढ़ हो जाते हैं और उन्हें मालूम ही नहीं होता है कि वह क्या करें। उन्हें अगर इसका अंदाजा होता तो बाढ़ की आशंका होने के साथ-साथ नावों का प्रबन्ध हो गया होता और लोगों की रक्षा की जा सकती थी। बाढ़ पीड़ित इलाकों में सस्ते गल्ले की दुकान खोलने की जरूरत के साथ-साथ उन्होंने इस बात पर भी जोर दिया कि बाढ़ में अधिकांश मकानों के ढह जाने की वजह से अनाज और बीज मलबे में दब गया। इसलिये जहाँ लोगों को दो

वक्त की रोटी के लाले पड़ गये वहीं रब्बी की फसल के लिये उपयोग में लाया जाने वाला बीज भी खत्म हो गया। इसलिये युद्ध स्तर पर बीज की व्यवस्था उन इलाकों से करनी पड़ेगी जहाँ इस साल बाढ़ नहीं आयी थी। यह काम समय रहते पूरा कर लिया जाना चाहिए। कुछ लोग दोबारा मकान बनाने के लिये कर्ज की व्यवस्था चाहेंगे, उन्हें इस कर्ज को दिलाने में सरकार को आगे आना होगा। कुछ कर्ज ऐसा भी होगा जिसकी वसूली करना उचित नहीं होगा, इसका इन्तजाम होना चाहिए।<sup>8</sup>

मुरली मनोहर प्रसाद ने बाढ़ को लम्बी अवधि की समस्या मानते हुए अपने विचार रखे उनका कहना था कि दुर्भाग्यवश सारण जिले की जमीन की बनावट बड़ी विचित्र है यहाँ गंडक नदी का लेवल अपने आसपास के मैदानी क्षेत्र के ऊपर है यह नदी बहुत सी धाराओं में बहती है जो कि मुख्यधारा से अलग अलग



दिनेश कुमार मिश्र

जगहों पर निकलती है इन धाराओं का लेवल भी आसपास की जमीन के ऊपर है जिसकी वजह से उन पर भी तटबन्ध बना दिए गये हैं। पारम्परिक व्यवस्था का जिक्र करते हुए उन्होंने कहा कि यहाँ चौर बहुत हैं जिनको किसानों ने बहुत से नाले नालियों का निर्माण कर के वहाँ की नदियों का सम्पर्क बना रखा था। तटबन्ध के प्राइस समानांतर चलने वाले इन नालों को चौरों से जोड़ कर उन्होंने एक ऐसी व्यवस्था विकसित कर ली थी कि जिससे वह नदी और चौरों के पानी को अपनी इच्छा के अनुसार कोई भी दिशा दे सकते थे। और लगभग पूरा का पूरा जिला उसे तीन तरफ से गिरने वाली किसी न किसी नदी के संपर्क में रहता था। दुर्भाग्यवश सिंचाई और जल निकासी का यह नया तरीका धीरे-धीरे अपनी मौत मर गया। १८९८ से गंडक पर बने हुए स्लूइस लगभग बन्द हो गये क्योंकि नील की खेती करने वाले किसानों ने सरकार को इस योजना पर हुए खर्च के मुताबिक जो टैक्स बनता था उसे देने से मना कर दिया जो वह अब तक दे रहे थे।<sup>८</sup>



प्रभुनाथ सिंह का कहना था कि सोनपुर से दरौली तक की जो जमीन है वह बहुत उपजाऊ है। सारण जिला डेफिसिट इसलिये नहीं कहलाता है कि वहाँ की जमीन उपजाऊ नहीं है बल्कि इसका कारण यह है कि वहाँ की आबादी ज्यादा है और जमीन बहुत कम है... यदि सर्वे सेंटिलमेंट रिपोर्ट को देखें तो पता चलेगा कि बाढ़ के कारण जो बर्बादी होती है उसी के कारण हमारा जिला तबाह रहता है। सोनपुर से दरौली तक जो बाँध बना है उसका इन्तजाम वहाँ के जमींदार लोग किया करते थे लेकिन जैसे-जैसे जमींदार लोग ढीले पढते गये इस बाँध की हालत बिगड़ती गयी। अगर इस बाँध को सरकार अपने हाथ में ले ले तो मैं समझता हूँ कि सारण जिले की बहुत बड़ी समस्या हल हो जायेगी। सोनपुर से कस्मर तक घाघरा के किनारे पहले से ही एक मजबूत बाँध था जिसकी मरम्मत कर देने से बहुत कुछ काम चल जायेगा। इस पर अगर उत्तर प्रदेश की सरकार ऐतराज करती है तो हम लोग कह सकते हैं कि यह बाँध पहले से ही मौजूद था और अब उसके सिर्फ मरम्मत की जा रही है।

रेलवे के अधिकारी अगर समझते हैं कि बाँध को मजबूत कर दिया गया तो उसका असर रेलवे पर पड़ेगा और इस वजह से यह जिला बर्बाद होता रहा है। उन्होंने सरकार को सुझाव दिया कि मकान बनाने और बीज के लिये इन्तजाम कर दीजिए। अगर कर्ज देंगे तो सिर्फ सारण में साढ़े तीन करोड़ रुपए लग जायेगे। इससे अच्छा होगा कि इतना रुपया खर्च करके ऐसा इन्तजाम कीजिए कि सारण सब दिनों के लिये बाढ़ से बच जाये। मैं यह नहीं कहता कि आप अपने पास से रुपया खर्च कीजिये, आप जो खर्च कीजिए उसे बेनेफिशियरी से वसूल कीजिये। इसमें अगर कानूनी अड़चन हैं तो उन्हें दूर कीजिये। उचित मूल्य की दुकान खोलने से 40 प्रतिशत लोगों की मदद हो जायेगी केवल 20 प्रतिशत लोगों को मुफ्त सहायता की जरूरत होगी। 50 प्रतिशत



लोग ऐसे निकलेंगे जो अनुदान स्वीकार ही नहीं करेंगे। हमारे यहाँ देहाती इलाकों में बढ़िया और सुंदर गाँव हैं तथा अच्छी संस्कृति के लोग बसते हैं और हमारे यहाँ अभी बहुत से लोगों में आत्माभिमान है, इसलिये जहाँ ग्रेच्युट्स रिलीफ की जरूरत हो वही दीजिये। हमारे यहाँ तो ऐसे लोग हैं कि मर जायेंगे लेकिन रिलीफ नहीं लेंगे।<sup>9</sup> गिरीश तिवारी का कहना था कि दरौली के सामने से लेकर सोनपुर के सामने तक बड़े-बड़े दियारे हैं जिनका नुकसान हुआ है। सिताबदियारा यह लोकनायक जयप्रकाश नारायण का गाँव है जिस का कुछ भाग अब घाघरा के पश्चिम उत्तर प्रदेश की ओर चला गया है। इसके बहुत से लोग बलिया जिले में चले गये, कुछ लोग रिविलगंज में आये हैं। केवल नगर दियारे के लोग बेचैन हैं कि उनको कहीं बसने की जगह नहीं है उनके लिये आप जमीन देने की कोशिश करें ताकि वह बस जायें।<sup>10</sup>

बाढ़ की समस्या से निपटने के लिये बताये गये समाधान में अधिकांश सदस्यों का इशारा था कि अब तक जो नदियों के किनारे तटबन्ध बनाये जाने की नीति के खिलाफ सरकार काम कर रही थी उसमें बदलाव किया जाये और जहाँ भी जरूरत या माँग हो वहाँ तटबन्धों का निर्माण किया जाये। सरकार को ऊहापोह की

स्थिति में थी। वह तटबन्ध अगर बना भी रही थी तो उसकी जिम्मेदारी विशेषज्ञों पर डाल कर अपना दामन साफ रखना चाहती थी क्योंकि तटबन्धों की वजह से होने वाली तबाही से वह अच्छी तरह से परिचित थी और अंग्रेजों के समय सरकार की नीति भी वही थी।

लेजिस्लेटिव असेम्बली में पूरी बहस का जवाब सरकार की तरफ से सिंचाई मंत्री रामचरित्र सिंह और राजस्व मंत्री कृष्ण बल्लभ सहाय ने दिया जो गौर करने लायक है। रामचरित्र सिंह ने गंगा घाटी में हिमालय से आने वाली नदियों की गाद से किस तरह भूमि का निर्माण हुआ है उसके बारे में बताते हुए कहा कि उसके बाद लोगों ने इन नदियों के साथ अपने फायदे के लिये छेड़-छाड़ करना शुरू किया। इस बहस में जो अभी हुई है उससे भी पता चला है कि हम लोग अभी भी उसी दलदल में फँसे हैं। परिणाम यह हुआ है कि अनेकों बाँध बाँधे गये, बहुत से बाँध बन रहे हैं और आज की बहस में भी बहुत से मित्रों ने ख्वाहिश की है कि बड़े-बड़े बाँध बना दिये जायें और वह समझते हैं कि इससे उनकी हालत सुधर जायेगी। मैं कह सकता हूँ कि विज्ञान की दृष्टि से यह बाँध नहीं रहते तो इतनी तकलीफ लोगों को नहीं होती मगर अब जो बात हो गयी



और अब जो हो रहा है उस पर खयाल करना ही मुनासिब है। हमारी नीति है बाँध के निर्माण को कन्ट्रोल करना। जहाँ कहीं लोगों ने बाँध बना दिया है वह तो गैर-मुनासिब है ही, उन पर नियंत्रण रखना होगा।, बहुत जगह मजबूरन बाँध बनाना पड़ा हालांकि इससे कठिनाई बढ़ जाती है। उन्होंने अपना बयान जारी रखते हुए कहा कि मैं समझता हूँ कि अगर फिर हमारे इंजीनियर कहेंगे कि बाँधों का होना जरूरी है तो मैं उनको फिर से बनवाने का उपाय करूंगा। उन्होंने इतना जरूर कहा कि इस साल की बाढ़ में जितना नुकसान सारण जिले में हुआ उतना किसी दूसरे जिले में नहीं हुआ और इस जिले को हर तरह की मदद का आश्वासन दिया। छपरा से पानी निकाले जाने को प्राथमिकता देते हुए सिंचाई विभाग के चीफ इंजीनियर, जिलाधीश और स्पेशल अफसर को उन्होंने हिदायत दी कि वह लोग जिला परिषद के अध्यक्ष को साथ लेकर सड़क और रेलवे लाइन को कटवा कर जिले से पानी निकालने का काम फौरन शुरू करें क्योंकि यह पानी अगर नहीं निकाला जायेगा तो खरीफ की फसल तो मारी ही गयी, रब्बी की फसल भी नहीं लगायी जा सकेगी।११

उधर राजस्व मंत्री कृष्ण बल्लभ सहाय का बहस का जवाब देते हुए मानना था कि बाढ़ की समस्या का मामला बहुत टेढ़ा है। अगर हम सारण में बाँध बाँध देते हैं तो इसका असर दूसरे जिलों पर क्या पड़ेगा? यदि सारण में गंगा को कंट्रोल करते हैं तो इसका असर यूपी के दूसरे जिलों पर क्या पड़ेगा? यह सब सामने रखकर मैं कहना चाहता हूँ कि इसके लिये सरकार एक कमीशन मुकर्रर करेगी जिसका काम होगा कि मुजफ्फरपुर में बाँध बाँधा जाये तो कैसे और कहाँ, पटने में बाँधा जाये तो कहाँ, सारण में गंगा को बाँधा जाये तो कहाँ और कैसे? पटने में ज्यादा बाढ़ आने

का कारण है छोटानागपुर के जंगलों का कटना और उससे नदी के वेग का बढ़ना। इसे रोकने की जरूरत है तो उसे भी रोकना है। नदियों को गहरा किया जाये, इसकी मिट्टी को निकाला जाये तो इसका सम्बन्ध केवल बिहार से ही नहीं बल्कि यूपी से भी है, इसका सम्बन्ध पश्चिम बंगाल से भी है। इसलिये मेरा खयाल है कि भारत सरकार की ओर से एक कमीशन आना चाहिये जो इसकी जाँच करे। उन्होंने आगे कहा कि सदन के करीब 20 से 25 लोग लोगों का भाषण हुआ होगा सब ने इसी पर जोर दिया कि भविष्य में क्या किया जाये। उन्होंने स्थायी उपायों पर जोर दिया। यह शिकायत नहीं की कि डिस्ट्रिक्ट अफसर अपना काम नहीं कर रहे हैं। उन्होंने ऐसे उपायों को करने पर जोर दिया कि आगे बाढ़ न आये। हमारा दुर्भाग्य है कि आज भी हम यही बातें दुहरा भर रहे हैं।१२

बाढ़ राहत कार्यक्रम के बारे में चर्चा करते हुए 16 नवम्बर को राज्य के राजस्व मंत्री ने दावा किया कि सरकार ने बाढ़ पीड़ितों के बीच राहत सामग्री का वितरण कर दिया है ताकि उनकी जीवन रक्षा हो सके। रब्बी फसल के लिये बीज की व्यवस्था हो चुकी है या उसके लिये नकद अनुदान दे दिया गया है और बड़े और सक्षम किसानों के लिये ऋण की व्यवस्था कर दी गयी है







जिससे रब्बी की खेती में व्यवधान न पड़े। गरीबों के बीच भवन निर्माण सामग्री का वितरण भी कर दिया गया है। उन्होंने सन्तोष व्यक्त किया कि खेती वापस अपने ढर्रे पर आ जायेगी और सरकार ने वह सब कर दिया है जो इन विपरीत परिस्थितियों में सम्भव है।<sup>13</sup>

देश की आजादी के बाद यह राज्य की यह पहली बाढ़ थी जिसका मुकाबला करने के लिये राज्य के अमला तंत्र को विशेष रूप से तैयार रहना था जो शायद हुआ नहीं था और इसकी झलक लेजिस्लेटिव असेम्बली में हुई बहस में बार-बार सुनाई पड़ती थी। नदियों के किनारे प्रस्तावित तटबन्धों के निर्माण पर भी सरकार में स्पष्टता का अभाव था पर इतना जरूर था कि सरकार आजादी के बाद की बदली परिस्थितियों में इंजीनियरों की भूमिका और तटबन्धों की उपयोगिता को लेकर सभी सम्बद्ध पक्षों का मन्तव्य सुनने के लिये अपने आप को तैयार कर रही थी। नावों की कमी और रिलीफ वितरण में विलम्ब के प्रति सभी की चिन्ता साफ तौर पर दिखाई पड़ती थी और उसके साथ ही स्वाभिमानि लोग मर जायेंगे मगर खैरात नहीं लेंगे जैसी बातें उस समय सुनने को मिलती थीं। बाढ़ से मुकाबले का यह विवरण भविष्य के लिये एक आधार बनने वाला था जिसकी एक

झलक भी इस वर्ष की बहस में सामने आयी।

### सरकार के दस्तावेजों से

1948 की इस बाढ़ के बारे में सारण डिस्ट्रिक्ट गजेटियर (1960) केवल इतना ही कहता है कि सदर और सिवान सब-डिवीजन में भदई की फसल पर बुरा असर पड़ा था लेकिन सारण जिले में 1948 में बाढ़ से जो कुछ भी नुकसान हुआ था। इसकी कुछ चर्चा सारण के गजेटियर में उस समय होती है जब वह 1953 की बाढ़ के बारे में बात करता है।<sup>14</sup>

बिहार के द्वितीय सिंचाई आयोग की रिपोर्ट (1994) इस साल सारण की बाढ़ के बारे में चर्चा करते हुए घाघरा और गंडक का नाम तो नहीं लेती लेकिन गंगा की चर्चा जरूर करती है। आयोग का कहना है कि इस साल गंगा में बाढ़ दो-दो बार आयी। पहली बार अगस्त में और दूसरी बार सितम्बर में। सारण जिले का सब्बलपुर दियारा तथा सोनपुर थाने के बहुत से गाँव इस बाढ़ की चपेट में आ गये थे। शीतलपुर और दिघवारा रेलवे स्टेशन के बीच का पूरा क्षेत्र पानी में डूबा हुआ था और एक महत्वपूर्ण में मेहुवा बाँध के बह जाने से सोनपुर गाँव हर तरफ पानी से घिर गया था। इसके अलावा इस रिपोर्ट में कोई और विवरण नहीं मिलता।<sup>15</sup>

### सामयिकी

यह वह समय था जब कोसी नदी पर नेपाल में प्रस्तावित बराहक्षेत्र बाँध का अध्ययन और अनुसंधान चल रहा था और गंडक प्रोजेक्ट भी चर्चा में आ चुका था जिससे सभी की उत्सुकता इन योजनाओं के प्रति बनी हुई थी। मगर जो इलाका इन योजनाओं से लाभान्वित नहीं होने वाला था वहाँ के लोग अपने क्षेत्र में प्रस्तावित योजनाओं के आकार को लेकर चिन्तित थे और लगभग सभी को आशा थी कि देश के आजाद होने के बाद सिंचाई विभाग और सरकार के क्रियाकलाप में गुणात्मक परिवर्तन आयेगा और उनकी भी सुधि सरकार लेगी। दुर्भाग्यवश, उस समय ऐसा होता दिखाई नहीं पड़ रहा था।

### चलते-चलते

1948 के वर्ष का एक बहुत ही दुःखद अन्त 18 नवम्बर को हुआ जब पटना के पास रानी घाट में 700 यात्रियों को ले जाता हुआ एक नारायणी नाम का स्टीमर किनारे से मात्र 38 फुट की दूरी पर दुर्घटनाग्रस्त हो गया था जिसमें 300 के करीब लोगों की जल समाधि हो गयी थी।<sup>16</sup>

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# जीत ही जाएंगे हम अगर संग है

शमा परवीन

होममेकर, दिल्ली

देश में 27 जनवरी 2020 में पहला कोविड-19 का मरीज सामने आया। पूरी दुनिया के साथ-साथ भारत सरकार को भी ये एहसास हो गया के बहुत बड़ी आफत गले पड़ने वाली है। दूसरे देशों से अपने लोगों को वापस बुलाया जाने लगा, साथ-साथ कोरोना वायरस भी हवाई जहाज़ से भारत की धरती पर उतरने लगा। 10 मार्च 2020 में होली हर्षो उल्लास के साथ पूरे देश में मनाई गई। जबतक सरकार और जनता को गंभीरता का एहसास होता तब तक तो भारत की धरती को कोरोना वायरस ने जकड़ लिया था और त्योहार भी मनाया जा चुका था। आखिरकार मार्च के आखिर में कोरोना वारियर्स को प्रोत्साहित करने के लिए थाली और ताली के शोर के साथ कोरोना वाइरस को देश से भगाने का मिशन शुरू हुआ। मगर लगता है कोविड-19 को गलत फहमी हो गई। उसने इसे अपना स्वागत समझ लिया। आज एक साल हो गया 2021 आ गया मगर उसका कहर चरम पर है। पिछले साल अचानक बिना प्लानिंग के 25 मार्च को पूरे देश में तालाबंदी कर दी गई। रेलगाड़िया, बसे, मेट्रो आदि बंद कर दी गयीं। बाज़ार बंद हो गये, ऑफिस बंद, स्कूल-कॉलेज सब बंद हो गये। मास्क और सैनिटाइज़र्स अनिवार्य हो गये। 15-15 दिन करके 3 महीने तक चली यह

तालाबंदी। लोगों के सामने रोज़ी रोटी का मसला पहाड़ से भी बड़ा हो गया। रोज़ कमाने वाले मजदूर सबसे ज़्यादा परेशान हुए। जमा-जोड़ सब खतम हो गया, चारों तरफ त्राहि-त्राहि मच गई। सरकार के साथ साथ बहुत से हाथ मदद को आगे आये, मगर 15 दिन बाद ही काम न होने की वजह से लोगों की उम्मीद टूटने लगी और अपने अपने घर जाने की कोशिशें शुरू हो गई। गाड़ियां न मिलने पर लोग पैदल ही निकल पड़े। उस वक्त रास्ते पर मजदूर ही मजदूर दिखा करते थे। कुछ के लिए यह सफर आखिरी सफर बन गया। मुंबई से निकला मजदूरों का एक ग्रुप ट्रेन से कट गया। सफर के लिए लाई वो रोटिया और उनके बेजान शरीर ट्रेन की पटरी पर बिखरे पड़े थे तो कहीं स्टेशन पर बेजान मां के शरीर के पास बैठे मासुम बच्चे। न जाने ऐसी कितनी ही दर्दनाक तस्वीरें सामने आयीं। जब मजदूरों से पलायन की वजह पूछी जाती, सबका एक ही जवाब होता, “यहाँ रहें तो कोरोना से मरे न मरे, भूख से ज़रूर मर जाएंगे, अपने घर आधी रोटी खा लेंगे” यह टूटी वो उम्मीद थी जो उन्हें घर की तरफ जाने के लिए हिम्मत दे रही थी। अमीरों की लाई बीमारी गरीबों के परिवार उजाड़ रही थी। तालाबन्दी के दिनों में मोहल्ले और सड़को पे मौत का सा सनाटा रहता था। मरीज़ों



शमा परवीन

को लाती-ले जाती एम्बुलेंस की ड्रावनी आवाज़ सन्नाटे को तोड़ती दिलों में खौफ भर जाती थी। हर बार लगता हममें से एक और चला गया। कोई घर नहीं बचा शायद जिसपे कोरोना ने दस्तक न दी हो। दो महीने में मेरे चार रिश्तेदारों की मौत की खबर ने दिलों-दिमाग को हिला कर रख दिया। अब तो बुजुर्गों से मौत की खबर छुपाने लगे थे कि कही सदमा लागने से दिल का दौरा न पड़ जाए। अगस्त आते-आते तालाबंदी सावधानी के साथ खुलने लगी और धीरे-धीरे ज़िंदगी पटरी पर आने लगी। कोरोना की पहली लहर कमजोर होने लगी। पहली लहर में मरने वाले ज़्यादातर बुजुर्ग थे। बहुत लोग अपने माँ-बाप को खोकर अनाथ हो गए। जैसे ही हमें लगा हमने मिलकर कोरोना का हरा दिया वैसे ही लापरवाही और बेवक़्फिया शुरू हो गयीं। कही इलेक्शन की रैलियां, तो कहीं कुम्भ का मेला, तो कही बड़े-बड़े समारोहों में भीड़ इकट्ठी होने लगी। हमारी बेवक़्फी और लापरवाही ने कोरोना को दूसरा हमला करने का मौका दे दिया। फिर क्या था? मार्च 2021 में कोरोना अपना जन्मदिन मनाने आ गया। और इस तरह देश भर में दूसरी लहर का ऐलान हो



गया। घर-घर में मरीज बढ़ने लगे, हॉस्पिटल में खाली बेड खत्म होने लगे, और एम्बुलेंसों के शोर और ज्यादा डराने लगे, ऑक्सीजन की कमी से सासें उखड़ने लगीं। चारों तरफ त्राहि-त्राहि मचने लगी। इस बार मौत के आंकड़ों ने पिछली लहर का रेकॉर्ड तोड़ दिया। शमशान और कब्रिस्तानों में जनाजों की लाइन लग गई। हाय रे बदनसीबी ! जिंदा तो जिंदा, मरने के बाद भी लाइन ने पीछा नहीं छोड़ा। सबसे खौफनाक मंज़र यह था कि जगह न मिलने के कारण रिश्तेदारों ने अपनों की लाशें नदी में बहाना शुरू कर दिया। लावारिश लाशें नदियों में तैरनें लगीं। इस खौफनाक मंज़र की गवाह हमारी पीढ़ी भी बन गई। ऐसा मंज़र हमने सिर्फ अपने दादा परदादा से ही सुना था। 1920 की महामारी में घर-घर से जनाज़े उठे थे, नदियों और समुद्रों में लाशें तैरती थी या एक क़ब्र में एक साथ दफन होती थीं। जिस पर हमें यकीन नहीं होता था मगर आज इतिहाज ने फिर करवट लेकर 100 साल पुरानी सबसे भयानक तस्वीर को फिर जिंदा कर दिया। दूसरी लहर ने बहुत से घरों के चिराग बुझा दिये। इस बार कोरोना का कहर हज़ारों युवाओं को मौत की नींद सुला गया, हज़ारों मासूम अनाथ हो गए। बहुत से घर ऐसे हैं जिस में सिर्फ बच्चे ही बचे हैं, और कुछ घर ऐसे भी हैं जहां बुजुर्गों ने अपने सहारे खो दिये। आपदा में आनाथ हुए बच्चों और बे-



सहारा बुजुर्गों को दोबारा जिंदगी की तरफ लौटाना ही सरकारों की पहली प्राथमिकता होनी चाहिये। इसीलिए सुप्रीम कोर्ट की आदेश के अनुसार केंद्र और राज्य सरकारों ने महामारी में बेसहारा हुए लोगों की मदद का ऐलान और उनकी देखभाल करने का वादा किया है।

एनसीपीसीआर के द्वारा सुप्रीम कोर्ट को बताया गया की अब तक देश में कोविड-19 की वजह से अनाथ हुई बच्चों की तादात तकरीबन 30,071 है, जिस में एक माह से लेकर 18 साल तक के बच्चे हैं, जिसमें 15,620 लड़के और 14,447 लड़कियां हैं। यह आंकड़ा और भी बड़ा हो सकता है। इन बच्चों को अवैध तरीके से गोद लेने वाली एनजीओ से बचाने के लिए

सुप्रीम कोर्ट के जस्टिस एल नागेश्वर राव की पीठ ने राज्य सरकारों को आदेश दिया। इस आदेश के अनुसार जेजे एक्ट 2015 के प्रावधानों के अनुसार ही गोद ले सकते हैं, और एनसीपीसीआर के बनाए बाल स्वराज पोर्टल पर मार्च 2020 से अबतक अनाथ हुए बच्चों की जानकारी डालने का आदेश कोर्ट ने सरकारों को दिया है। बच्चों को कारा ( सेंट्रल अडोप्शन कंट्रोल अथॉरिटी) के अनुसार ही गोद लिया जा सकता है। यह आदेश बच्चों को गलत हाथों से बचाने की दिशा में बेहद सराहनीय कदम है।

दुनिया में हमदर्द लोगों और अच्छाई की कमी नहीं है, इसी लिए तो यह दुनिया टिकी है। बड़ी-बड़ी आपदाओं से उभर कर हम वापस खड़े हो जाते हैं। एक शायर ने क्या खूब ही कहा है-

“ना जाने किस के सहारे रुका हुआ है फ़लक,

हमें तो फरशे ज़मीन पर कोई सुकून ना मिला”

उम्मीद करते हैं हर बार की तरह हम सब सरकारों के साथ मिलकर सदी की इस महामारी से बिखरी जिंदगियों को इकट्ठा करने में कामयाब हो जाएंगे। आपनों को खोने का जखम भरने में समय लगेगा। मगर फिर भी आनाथ बच्चों और बेसहारा लोगों के कल को संवारना और दोबारा खड़ा करना हमारा और सरकारों का पहला फर्ज़ है। जीत ही जाएंगे जब हम साथ हैं।





# UN Report: Pandemic Year Marked by Spike in World Hunger

According to the United Nations, there was a dramatic worsening of world hunger in 2020 – much of it likely related to the fallout of COVID-19. While the pandemic’s impact is still to be fully mapped, a multi-agency report estimates that around a tenth of the global population – up to 811 million people – were undernourished last year. The number suggests it will take a tremendous effort for the world to honour its pledge to end hunger by 2030.

The 2021 edition of “The State of Food Security and Nutrition in the World” is the first global assessment of its kind in the pandemic era. The report is jointly published by the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural



Development (IFAD), the United Nations Children’s Fund (UNICEF), the UN World Food Programme (WFP) and the World Health Organization (WHO).

Previous editions had already put the world on notice that the food security of millions – many children among them – was at

stake. “Unfortunately, the pandemic continues to expose weaknesses in our food systems, which threaten the lives and livelihoods of people around the world,” the heads of the five UN agencies write in this year’s Foreword. ■

Source:  
[who.int](http://who.int)

## Landslides and Floods Kill 18 in Nepal

In June 2021, at least 18 people were killed due to landslides and floods triggered by heavy rain across

Nepal, according to the Nepal Police headquarters sources. Four people were killed in landslides and

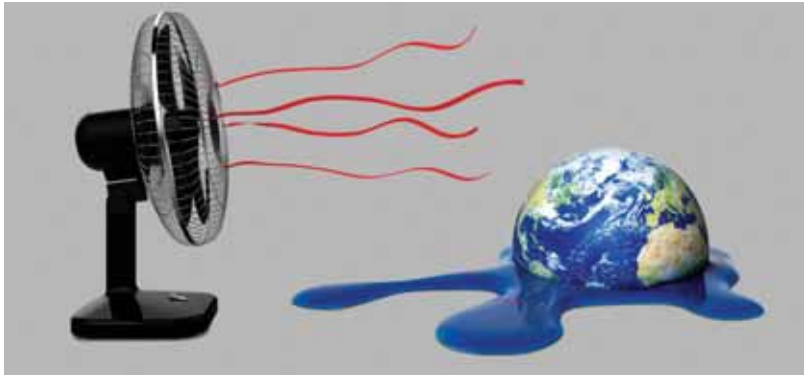
floods in Sindhupal Chowk district, 30km east of Kathmandu, three in Doti and one each in Saptari, Kavre, Gorkha, Kaski, Arghakhachi, Palpa, Pyuthan, Jumla, Kalikot, Bajhang and Bajura districts, they said. Twenty-one others went missing.

Torrential rains battered Nepal, causing widespread floods and damage to critical infrastructure. Officials said the excess rains had led to the rivers overflowing, which resulted in widespread destruction. Rescue and relief operations were carried out by the Nepal Police, the Army, and the Armed Police Force. ■

Source:  
[thehindu.com](http://thehindu.com)



## Air Conditioning Unnecessary in Majority of Heatwave Conditions Globally



the researchers developed a model to determine the humidity-dependent temperature thresholds at which fans could become detrimental, providing conditions that exacerbate heat stress.

“The effectiveness of a fan depends on temperature and relative humidity and our previous human studies have shown that it is only when the air temperature is very high and humidity is extremely low that fans can be detrimental,” said senior author Professor Ollie Jay, Professor of Heat and Health at the University of Sydney’s Faculty of Medicine and Health and Charles Perkins Centre. ■

Source:  
[sydney.edu.au](http://sydney.edu.au)

Most of Asia, Europe, North America and South America have never experienced heatwave conditions that would prohibit electric fans from being a safe, effective and clean alternative to air conditioning, finds a new study.

The biophysical modelling study,

published in *The Lancet Planetary Health*, challenges outdated public health guidance that discourages fan use in temperatures higher than 35° C/ 95° F.

Based on human studies carried out at the University of Sydney’s Thermal Ergonomics Laboratory,

## Threat of Receding Glaciers Gives Pakistan Communities Sleepless Nights

A flood from a lake at the base of the Shishper glacier has left the Himalayan community in fear. Though the damage was curtailed through timely mitigation efforts, research suggests these events will become more frequent.

The cool summer nights in the scenic Hunza valley of Pakistan’s Gilgit-Baltistan province turned unpleasant. In late May, a lake at the base of the Shishper glacier flooded, displacing at least 20 residents in the downstream village of Hassanabad and damaging a half-built power station.

Since 2018, the advancing Shishper glacier has moved down the slope and blocked the outlet of the nearby Muchuhur glacier, resulting in the creation of an ice-dammed glacial



lake. High temperatures accelerate glacial melt, swelling the lake. A breach would result in a glacial lake outburst flood (GLOF) that could damage thousands of homes in the Hunza valley. In October last year, the Shishper glacier surged again. The freezing temperature then

slowed down the flow of the water. But as the temperature rose in the spring, glacial melt accelerated, and water started flowing, leading to the GLOF. ■

Source:  
[thethirdpole.net](http://thethirdpole.net)

### Global

# Rohingya Refugees Live in Fear of Cyclones on Bangladesh Island

Around 18,500 Rohingya refugees on Bhashan Char heaved a sigh of relief as Cyclone Yaas veered in the Bay of Bengal and hit the Odisha-West Bengal coast on May 26, 2021. But they know they are living on the most cyclone-vulnerable spot of the world's most cyclone-prone sea: an island at the mouth of an estuary whose funnelling effect magnifies the impacts of the deadly storms.

The refugees who fled ethnic cleansing in Myanmar did not go to Bhashan Char, which was previously uninhabited, by choice. In December 2020, they were relocated from refugee camps in mainland south-eastern Bangladesh, despite warnings from international agencies about the vulnerability of the island to cyclones, erosion and sea-level



rise. The island is between Sandwip and Hatia islands, close to the small town of Bhola – all infamous names in the history of cyclones. They are at the northern end of the Bay of

Bengal, which occupies 0.6% of the global ocean area but accounts for 80% of all cyclone deaths. ■

Source:  
[thethirdpole.net](https://thethirdpole.net)

## World Climate and Security Report 2021



The Expert Group of the International Military Council on Climate and Security (IMCCS) released its

second annual World Climate and Security Report, which warns of the compound security threats posed by

the convergence of climate change with other global risks, such as COVID-19. The report reveals that the increasing pace and intensity of climate hazards will strain military and security services around the world as they are called on to respond to climate-driven crises, while also facing direct climate threats to their infrastructure and readiness. The report also calls on security institutions around the globe to act as “leading voices urging significantly reduced greenhouse gas emissions, given recent warnings about the catastrophic security implications of climate change under plausible climate scenarios.” ■

Source:  
<https://gouvernement.lu/>



# Cyclones Tauktae and Yaas Wreak Havoc in India

Cyclone Tauktae hit the western coast on May 17, 2021, affecting five States: Kerala, Karnataka, Goa, Maharashtra and Gujarat, along with two Union Territories — Lakshadweep and Daman & Diu. An estimated 169 people lost their lives, far more than the toll of any cyclone rising out of the Arabian Sea. Power lines were torn down, hundreds of hectares of agricultural fields were damaged, and thousands of trees were uprooted.

Nine days later, Cyclone Yaas battered the coast of the eastern States of Odisha and West Bengal, causing extensive damage to livelihoods and property. The loss of lives was minimised due to better planning in the affected States prone to natural disasters. The West Bengal Government alone has pegged total losses at around 200 billion rupees (2,800 million US dollars) in a review report submitted to the Indian Prime Minister, Narendra Modi, on May 28. Chief Minister Mamata Banerjee also estimated a loss of around 221,000 hectares of crops and 71,560 hectares of land used for horticulture.



Farmers in Odisha faced a similar predicament when several hectares of fields were destroyed by Yaas. “We’ve been living in coastal areas for generations, and natural disasters are common here, but I never witnessed anything like Cyclone Yaas before,” says 73-year-old Umakanat Das, a farmer from the Balasore district. ■

Source:  
[Lifegate.com](https://www.lifegate.com)

## Why Cyclones are Picking Up on India’s West Coast

The 1976 Arabian Sea cyclone made landfall in Saurashtra on June 3. The coast was lashed by winds of up to 175 km/ph, damaging 51 villages, killing 70 persons and causing damage worth Rs 3 Crore. That was the last major cyclone in over four decades. Since then, cyclones have returned to India’s west coast with a vengeance. Since 2019, India has recorded eight cyclones, five in the Arabian Sea alone.

Cyclone Tauktae, which made landfall in Goa on May 13, 2021, in Maharashtra on May 15, and in Gujarat on May 17, devastated these three coastal States. Cyclones have traditionally been a phenomenon reserved for the Bay of Bengal because of the low air pressure. The most devastating one in history, Bholia in 1970, killed over five lakh people in erstwhile East Pakistan (now Bangladesh) and West Bengal. The most recent one, Nargis, which hit Myanmar in 2008, was the fifth deadliest cyclone in history.

Researchers at the Pune-based Indian Institute of



Tropical Meteorology (IITM) say that the Arabian Sea, previously known as cyclone-shy, is changing its nature because of the rising greenhouse gas emissions and warming water. The IITM has been analysing the west coast cyclone landfall data available since 1891. ■

Source:  
[indiatoday.in](https://www.indiatoday.in)

# Lightning the Biggest Natural Disaster-Linked Killer in India



With the monsoon making a slow revival over several parts of India, except the northwest region, there is a rise in lightning-linked deaths. Nearly 68 were reportedly struck dead by lightning on a single day in Uttar Pradesh, Rajasthan and Madhya Pradesh, according to reports from these States on July 11, 2021.

Over the years, statistics from the Home Ministry consistently cited lightning as the biggest natural disaster-linked killer in India. The most recent statistics from the National Crime Records Bureau from 2019 said that during that year, there were 8,145 deaths in the country attributable to forces of nature. Of these, 35.3% deaths were reported due to lightning, 15.6% deaths due to heat/sunstroke, and 11.6% deaths due to flood. Most of those who died due to accidents caused by the forces of nature were reported to belong to the age group of 30-45 (25.3%) and 45-60 (24.9%) together.

Under lightning, Bihar (400), Madhya Pradesh (400), Jharkhand (334) and Uttar Pradesh (321) reported the maximum number of victims. Experts have warned of a rise in lightning disasters partly due to the cascading effects of global warming. ■

Source:  
[thehindu.com](http://thehindu.com)

# Extreme Rainfall in June May Lead to Longer Flood Duration in India, Warn Experts

In June, a weak monsoon cycle, coupled with extreme and excessive rainfall, has caused flash floods in India.

The arrival of the monsoon — marked by extreme and untimely rainfall in June — has flooded major rivers like the Ganga and Yamuna and their tributaries, causing floods in several States such as Bihar and Uttar Pradesh.

Uttarakhand experienced cloudbursts and floods in 2013. This is the first time since then that North India is seeing heavy rainfall in June. The rains have led to severe flood-like conditions in the region.

Global warming, urbanisation and loss of traditional flood control reservoirs may be among the reasons behind the anomaly, according to experts and researchers.

Himalayan rivers of Uttarakhand, Uttar Pradesh and Bihar reached the near danger mark in mid-June. States such as Gujarat and Goa in the western region,



and Assam in the northeastern region, are already experiencing floods. Several villages situated on the banks of the gushing rivers have experienced loss of life and property. ■

Source:  
[downtoearth.org](http://downtoearth.org)

## India Faced 117 Cyclones from 1970-2019, Over 40,000 Lives Lost: Study

As many as 117 cyclones hit India in 50 years from 1970-2019, claiming over 40,000 lives, according to a study on extreme weather events, which also states the mortality rate due to tropical cyclones has come down significantly over the past ten years.

A total of 7,063 extreme weather events killed 1,41,308 people during the period in the country, which included 40,358 (or 28 per cent) due to cyclones and 65,130 (a little over 46 per cent) due to floods, the study says. This study published earlier this year has been authored by M Rajeevan, Secretary of Ministry of Earth Sciences, along with scientists Kamaljit Ray, S S Ray, R K Giri, and A P Dimri. Kamaljit Ray is the lead author of the paper.

The study states that the number of deaths due to cyclones has come down significantly in the last two decades, whose latter years have witnessed much improvement in the IMD's weather forecast abilities. ■

Source:  
[newindianexpress.com](http://newindianexpress.com)

## Monsoon Wreaks Havoc with Flash Floods in Himachal Pradesh, Landslide in Uttarakhand

As the southwest monsoon continues to elude Delhi, Punjab and Haryana, it is wreaking havoc in parts of Himachal Pradesh and Uttarakhand. In Himachal Pradesh's Dharamshala, floodwaters swept through the streets of Bhagsu Nag village, damaging parked vehicles. The district administration has instructed tourists to postpone their visit to Dharamshala given the heavy rains. States such as Uttarakhand and Jammu & Kashmir, too, witnessed torrential rain. ■

Source:  
[indianexpress.com](http://indianexpress.com)

## CM Reviews Coordination between Government Agencies in Tamil Nadu



Chief Minister M.K. Stalin chaired a meeting of the State Disaster Management Authority (SDMA) at the Secretariat on July 5, 2021, to review inter-departmental

coordination between government agencies to face possible disasters.

An official release said Mr Stalin instructed authorities to employ all available techniques to reduce the loss of humans and other lives and loss and damage to property during disasters. Tamil Nadu should be made an expert in managing any disaster, he said.

"In recent times, disasters have not been natural. Humankind has had to take responsibility for them. The change in climatic conditions has not been normal. We should understand the change," an official release quoted Mr Stalin as saying during the meeting. ■

Source:  
[thehindu.com](http://thehindu.com)



# Serving with Diligence and Humility

*Champion of Disaster Risk Reduction (DRR) - Johnny Ruangmei, Officer on Special Duty (OSD), Nagaland State Disaster Management Authority (NSDMA).*

**Know Disasters is starting a series highlighting Champions of Disaster Risk Reduction (DRR). These DRR champions are the force behind their States and organisations in making them resilient. It is of utmost importance to identify such champions and their contributions as an example and also motivate others to emulate such role models in this field. We start this series with Johnny Ruangmei, a leading DRR professional, who through his diligence, has equipped himself with knowledge and immense experience in this field. Johnny is a performer and a source of multi-sectoral knowledge. He currently serves as Officer on Special Duty (OSD), Nagaland State Disaster Management Authority (NSDMA).**

Institutions are made great by efficient professionals. The Nagaland State Disaster Management Authority (NSDMA) and Johnny Ruangmei are living proof of this proverb. Nagaland is a State in North East India. Its population of about 20 lakhs comprises many tribes and sub-tribes. It is a hilly area, with over 70% population dependent on agriculture for their livelihood. Communication network still requires a lot of improvement. It is extremely vulnerable to multi-hazards risks. It lies in seismic Zone V, which means it is under a very high damage risk zone. It is affected by geo-met hazards like heavy rain, flash flood, lightning

and thunderstorms. The latest crisis - the COVID-19 pandemic has also hit the State hard. The State is confident that it will overcome the latest challenge. And there is a valid reason for this confidence. They have the right man behind the machine. NSDMA, with Johnny Ruangmei at the helm, matters. Under his leadership, NSDMA has reframed Nagaland as a champion in resilience - climate change, disaster risks or the pandemic.

The Editorial Team of Know Disasters magazine, comprising of Shri Anil Kumar Sinha, IAS (Retd), Col Sanjay Srivastava, and Akanksha Pandey, spoke to the man of the hour - Johnny Ruangmei. Here is an excerpt from the interview.

**Kindly share your journey in the field of Disaster Management, with special reference to NSDMA.**

My journey in Disaster Management started at the professional level during the Tsunami of 2004 when I was part of a relief team under UNDP in Tamil Nadu and Andaman Nicobar Islands. Post-tsunami, we were involved in various processes and workshops during the formation of NDMA and DM Acts. I had the opportunity to work in active disaster scenarios in Odisha and other parts of India. Since I was also actively involved and associated with the Church and was a student of Sociology, community service is embedded in my DNA.

My professional journey in DRR



Johnny Ruangmei

has been highly educative and rewarding. In the early stage of my career, I realised that it is a multi-sectoral field, and as a DRR professional, I have to learn many subjects and technology to respond to disasters. Hence, continuous learning is part and parcel of my life. I learned the science of DRR, information technology, communication, satellite imagery, socio-economic-psycho dimensions of disasters, community engagements, COVID-19, genome sequencing and many such complexities. I did many courses in India, some specialised courses in the U.S.A and other countries that gave me exposure, knowledge and vision to resolve the vast and complex challenges I encounter.

As a member of various professional bodies in India and abroad, I am kept abreast with the latest advancements in these respective fields. I regularly interact with organisations like International Science Council, UNDRR, India Meteorological Society, Red R, Climate Resilient Observing Systems Promotion Council, to name a few. In addition, I had the privilege of attending many conferences in India like AMCDR 2015 and

international events like GP (Global Platform) 2019 in Switzerland, where professional knowledge sharing refines your acumen. Well-respected personalities like General Robert B. Brown from the US Army have taught and helped in shaping my professional growth.

I joined Nagaland State Disaster Management Authority as Officer on Special Duty (OSD) in 2011. In the past ten years, I have had the opportunity of being actively involved in planning, preparation, prevention, mitigation, community engagement, equipping and modernising NSDMA and many new areas with the latest technology. There has been tremendous support from the leadership, bureaucrats and team members, binding NSDMA as a professional entity of excellence. I feel blessed to serve my State.

### **According to you, how relevant is the Sendai Framework in Disaster Risk Reduction (SFDRR) in the context of disasters? Where do you find NSDMA in its implementation?**

SFDRR is the bible of DRR. It is a landmark document for DRR with one goal, four priorities for action at four levels - local, national, regional and global, and its seven targets form the foundation of any DRR system. Nagaland has adopted and is implementing all four priorities.

Due to the compliance with SFDRR, there has been a significant reduction in mortality, number of affected people, damage to critical infrastructure, economic losses, and increase in local strategies for DRR, international and national co-operations and outreach and access to early warning systems up to the last mile.



With General Robert B. Brown, the 4-Star General, Department of Defence, USA.

### **Please describe the challenges faced during the implementation of each target and priorities of SFDRR.**

The biggest challenge is the fund and resource crunch. The allotment under SDMRF by MHA is too little for a highly vulnerable State like Nagaland. Allotment of funds should be based on the disaster profile and vulnerability of the State and not just the population. Due to this, skilled human resource, mitigation and resilient infrastructures for DRR are found wanting. However, NSDMA has prioritised the SFDRR Implementation Plan in phases and implemented it.

Nagaland, with its geography, difficult hilly terrain and sparse population face unique hazards like forest fires, flash floods in the Dhansiri river, landslides, etc. Resources that are not available

are brought from outside the State, and the delay costs loss of life, infrastructure and ecosystem.

### **How do you find SFDRR and its correlation with SDGs and CoP Paris 2015?**

SFDRR has a very intimate relationship with SDGs and CoP Paris 2015. They are the backbone of our developmental aspirations and disaster risk reduction. It calls for mainstreaming of DRR in all developmental activities. Environment and climate change are two main factors for disasters. I feel that the Climate Change Action Plan should be run under one head, that is, DRR.

### **The AMCDRR Resolution and the PM's Ten-Point Agenda cover all international guidelines.**



Response to COVID-19 by SDRF demanded special Personal Protective Equipment (PPE) which was specially designed and provisioned by NSDMA.

### How relevant is it to adapt SFDRR along with these guidelines at the State level?

The PM's Ten-Point Agenda is a visionary document. It is a summary of SFDRR, SDG and CoP Paris 2015. Each point is a project in itself and need resources and mainstreaming for implementation. Adequate resources, including funds and participation by other stakeholders, are necessary for implementation. A proper committee should be formed at the national and State level to study, prepare projects/schemes and implement them. If implemented successfully at each level, it will have rich dividends and far-reaching implications.

### Share with us NSDMA's achievements so far.

NSDMA's biggest achievement is a proactive Disaster Risk Reduction, and hence, there have been minimum losses even during the pandemic. The authority has set

up disaster management systems including organisations like SDMA, DDMA, integrated NGOs, CSOs and the community with highly skilled human resources, technology, community engagement, and overall, a prepared State ready to face any disaster. NSDMA acts as a platform for the leadership, bureaucrats, responders and DRR professionals to collectively put their DRR strategies and efforts into action.

NSDMA is not only a coveted professional institution of Nagaland, but it has international collaborations and national partnerships, making it a vibrant SDMA. NSDMA has many best practices that are a matter of research and development for academia in India and abroad.

NSDMA strength is visible through the intimate management of COVID-19 and other disasters. Proper logistic procurement and grass-root level COVID management in hills, villages and urban hutments have paid

rich dividends. Innovations like prefabricated hospitals on a war footing, setting up PSA Oxygen Plants, and the NSDMA COVID Home Care kits are a few timely initiatives that have kept the State resilient and progressive.

### What were the challenges you faced while implementing SFDRR? How does one overcome the challenges faced during their implementation?

SFDRR's priorities and targets are excellent concepts. However, its implementation needs proper planning and customisation to local disasters, infrastructure, socio-economic conditions and technology. Fund and resource crunch are the main challenges. The absence of resources, lack of detailed planning, and mainstreaming with other programmes and schemes are the major challenges.

Each priority should be taken as a mission mode. The dimension and nature of each disaster is changing. Pandemics like COVID-19 are unprecedented disasters. However, implementing SFDRR needs putting it into an organisational design and needs to be facilitated by rules, guidelines, funds and resources for its sustenance.

### NSDMA is one of the most proactive DM authorities in India. What do you feel are its strengths?

NSDMA is a team of professionals, and that is its biggest strength. The team is highly educated, multi-skilled, dynamic and youthful. This has been possible because of the blessings of the leadership and the



bureaucracy. Disaster Management is a priority and is a respected entity in Nagaland.

NSDMA has all the required organisations like SEOC, Engineering Cell, SDRF, Civil Defence, social scientists, first responders, the community, a highly qualified panel of experts from within and outside the State and from other countries. This gives NSDMA knowledge and strategic inputs with the latest in the world, well customised to the requirements of the State. In addition, its website is a state-of-the-art, pro-active and citizen-centric interactive platform, well connected to the various social media apps.

NSDMA has very intimate and smooth procedural coordination with the State Executive Committee headed by the Chief Secretary and the Home Department, making it prompt and efficient.

In addition, regular update of DM plans, upgrading and upskilling the staff, the addition of best rescue equipment to SDRF and the zeal to serve is the key to the success of NSDMA.

**What is your message to other Disaster Management professionals?**

Disaster is dynamic, and hence, its solutions. Therefore, learning and continuous upgrading of your skills is the way the only way to survive. Technology, especially basic technology like Information Technology (IT), modern communication, Geographical Information Systems (GIS), to disruptive technology like Artificial intelligence (AI), drones and IT-enabled devices are part of any DM system. I would like to encourage the young generation of professionals to empower themselves with knowledge and experience. The



Briefing Shri Narendra Modi, Hon'ble PM of India, and Dr Jitendra Singh, DONER Minister, about flash floods in Nagaland.

rest will follow and fall in place at the right time. Therefore, as a professional, one must practise as well as continue his learning.

I have a passion for science and learning. I could pursue this through the Disaster Risk Reduction platform. Since Disaster Management is related to many fields, it gives me access to learnings like space technology, aviation, drones and many disruptive technologies. Disaster management offers a huge scope of versatile learning and professional growth.

**What is your message to Know Disasters magazine?**

There is no other magazine like Know Disasters available in the disaster management sector. It is what society needs. It fills that gap. Its content is enriching. Another good point about the magazine is its global reach - its articles range from the common man to renowned professionals. I like the motto of the magazine – Making Disasters Everyone's Business. I am sanguine that it will establish itself as a reputed treasury of knowledge

in the years ahead. I wish the magazine a bright future.

**Is there any other aspect you would like to highlight?**

Disaster Management is a versatile field that is highly demanding and dynamic. It provides opportunities to interact right at the highest levels and also with the common man. Therefore, a sense of service, humility and hunger to learn and adopt new technology is a must. Learning comes with experience and an open mindset.

I have been fortunate to have been recognised and felicitated at national and international forums for my hard work. Most dear to me is the Meritorious Governor's Award in Public Service from the Honourable Governor of Nagaland, Shri R. N. Ravi, in 2019. I thank the Almighty for all His blessings, and to the people who believe and have faith in me. My immediate goal is to work for a COVID-resilient Nagaland, and my sole purpose is to continue serving the people with humility, always. ■

# Bouncing Forward Better – Moving Ahead Mindfully

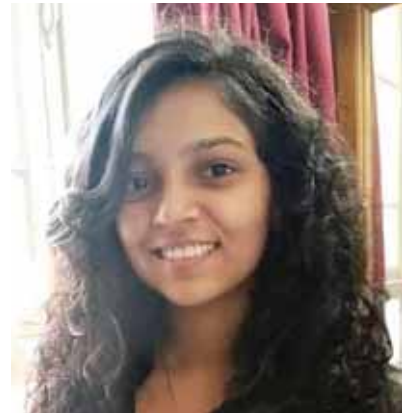
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**It is never too late to shoulder the responsibility of how and what profile our present and future hold – the one of being vulnerable or of being resilient. And the first step in doing so is by accepting that disasters are not natural.**

Antonio Guterres, Secretary-General of the United Nations, while delivering the 2020 Nelson Mandela Annual Lecture [1], said: “The COVID-19 pandemic has played an important role in highlighting growing inequalities. It exposed the myth that everyone is in the same boat. While we are all floating in the same sea, it is clear that some are in superyachts, while others are clinging to the drifting debris.”

Does this not echo a rather uncomfortable truth that most natural disasters are created or escalated by human choices? As of June 29, 2021, the world has recorded 39,31,874 COVID-19 deaths[2] (and counting). Post-COVID health complications, families destroyed, and we still have a long way to go in this struggle. This has become an era of COVID-19 already, especially in India, as we heaved a sigh a relief too soon with one variant of the virus mellowing down, yet another one rising furiously to slow down our otherwise fast-paced world.

The question at this point is - was it a natural disaster, or was it all a result of several preventable errors in dealing when the crisis fell upon us?



D. Saran Prakash

The novel coronavirus COVID-19, which unleashed its terror on the world in 2019[3] and in January 2020 in India[4], should make it clear and loud for one and all that the very term ‘natural disaster’ is not only a misnomer but is also utterly



misleading and mythical. The entire saga about ‘strongly immune ones survive and the ones with weaker immunity succumb’ is incomplete. While that may hold truth up to some extent, we all need to understand that disasters are not natural. In a country like India, the answer to why some X person survived despite all the comorbidities and why some completely healthy Z person succumbed is: ‘disaster’.

The Oxfam International India supplement of the 2021 annual report titled ‘The Inequality Virus’ noted that “India’s wealthiest people escaped the worst impact of the pandemic while the majority of India suffered”. How long will this suffering take for us humans to accept that the real pandemic of this civilisation is not COVID-19? It is the inequality that has been brought to the fore by a virus.

To cite an example here, the COVID-19 imposed restrictions in India limited us all, including children, to stay indoors. This meant shifting their tools of education from blackboards to computer screens. While it was the need of the hour, accessing education via this mode was not as convenient for everyone alike, given the critical digital divide that rests in several folds of our society. For children from poorer backgrounds, it became increasingly challenging to access education[5]. On this note, we should highlight that according to the Remote Learning Reachability Report brought out by UNICEF[6], only 24 per cent of Indian households have an internet connection. That is followed by gender-based discrimination, with girls getting even more limited access to continue their studies. This indicates that for most Indians, digital platforms of learning are still not a workable option.

As the second wave of COVID-19 swept across India mercilessly, it

drew the world’s attention due to its alarming situation. What led to such an unacceptable surge in the cases was not the virus itself. It was the existing frail healthcare system. Several hundred and thousands of COVID-infected patients muddled here and there to secure a hospital bed or oxygen cylinder as an acute shortage of medical backup reeled in the country. Not just that, we could also witness a recap of migrant exodus that was witnessed last

year (in 2020) when the pandemic arrived in India.

As the country struggled to deal with the buckling situation, the following articles show glimpses of how the international media reported India’s health crisis:

How was all this not foreseen? Or was it but ignored? We knew everything that could have helped in minimising the scale of the second wave, given that we had

INDIA’S DEVASTATING new wave of the pandemic was as avoidable as it is tragic, brought on by relaxing restrictions too soon. It should remind us once again that pandemic danger in one place is a danger to all. The explosion in new cases has been accompanied by the emergence of yet another variant of the coronavirus, B.1.617, that may be more infectious.

Any transmission or infection anywhere is a spin of the roulette wheel for a possible new, more dangerous variant. Most such mutations are insignificant and disappear. But as the past few months have demonstrated with the variant first detected in Britain, a significant change in the genome can lead to rapid spread and more severe disease. India’s out-of-control catastrophe — by its sheer scale — is a potential pressure cooker for still more variants. The one that is already taking off, B.1.617, includes two mutations seen separately in earlier variants but never together in the same one. The mutations are in key parts of the virus genetic code forming the spike protein and the mechanism it uses to infect a human cell. This variant appears to be one factor powering the massive increase in daily new cases. It is not yet clear how well vaccines protect against it, or whether it will spread beyond India. But it is worth recalling that when the British variant first showed up in London and Kent, it was almost nonexistent in the United States; in a matter of months it has gained a major foothold. A South African variant has been less so. Can India, population 1.3 billion, be isolated? Not easily. Almost certainly, vaccines will have to be tweaked to adapt.

India’s predicament is staggering. In mid-February its daily new infections were about 10,000, and it seemed to have brought the pandemic almost to a close. The health minister, Harsh Vardhan, said in March that the country had entered the “endgame.” This week, the outbreak has topped 300,000 new cases a day, and the growth shows no signs of slowing. On Thursday, India’s 332,518 new cases accounted for 37 percent of the world’s total 894,043 new cases.

Figure 1: The Washington Post: India’s sudden coronavirus wave is not a far-away problem: The article highlights that the primary cause behind the sudden surge of second wave in India was the untimely and premature relaxation of restrictions. (link: [https://www.washingtonpost.com/opinions/global-opinions/indias-sudden-coronavirus-wave-is-not-a-far-away-problem/2021/04/23/f363bda2-a3a3-11eb-85fc-06664ff4489d\\_story.html](https://www.washingtonpost.com/opinions/global-opinions/indias-sudden-coronavirus-wave-is-not-a-far-away-problem/2021/04/23/f363bda2-a3a3-11eb-85fc-06664ff4489d_story.html))



Why was India caught unprepared as the second wave ravaged a cross-section of Indian society? The responsibility lies with a strongman regime that has ignored all caution.

It lies with the sycophantic cabinet ministers who praised Modi for successfully dealing with COVID-19 in India even as testing slowed down and allowed people to become more complacent about the virus.

**Figure 2: TIME: 'This is Hell!' Prime Minister Modi's Failure to Lead Is Deepening India's COVID-19 Crisis:**

The article lays the responsibility of the deadly second wave on the people in power who blindly turned complacent about the virus; and instead focused on playing power games, while the virus made a comeback. (link: <https://time.com/5957118/india-covid-19-modi/>)

at least some takeaways from the challenges faced in the first wave. But, in India and several other countries, international organisations, governments and people in power with choices somehow failed to apply this knowledge.

The aim of recalling all this is not only to remind us of the preventable measures that we missed out on due to our ignorance, but it is primarily to establish that COVID-19 in itself was merely a virus - a hazard - the spread of which could have been limited once its possible intensity was known. All that was required was focus on preparedness, quickness in taking the necessary measures and stability in actions. But what made it a disaster was the underlying cracks and crevices that give the society the profile of being 'vulnerable' and expose it to the risks surrounding it.

In this context, Professor Ilan Kelman rightly notes in his work 'Disasters by Choice': "We put ourselves in harm's way; we fail to take measures which we know would prevent disasters, no matter what the environment does. This can be both hard to accept, and hard to unravel. A complex of factors shape disasters."

Now that we have noted where we flawed, looking ahead for better recovery and more efficient and effective disaster management will

help us improve our resilience. The following discussion sheds light on some points that may help us step forward with more clarity about our situation and also about what considerations to keep in our focus:

### **Improvement. Bouncing forward mindfully**

The Cambridge English Dictionary defines 'resilience' as the 'ability to be happy, successful again after something difficult or bad has happened'. In that case, does the standard idea of bouncing back better or restoring to normalcy align with the definition when that would mean going back to the same old cracked healthcare system with its flaws and shortcomings that led us to the second wave in the first place?

Therefore, one suggestion worth considering in this regard is - bouncing forward mindfully. Taking due note of the failures, the systems, governments, and people in power can direct their efforts towards facilitating international disease surveillance like the International Health Regulations (IHR) so that it can serve its primary purpose of preventing and managing public health risks arising from international spread of diseases while avoiding unnecessary interference from international traffic and trade. This can help the concerned national governments

to enable preventive measures, warnings and preparedness in a timelier manner, thus enhancing a rapid response system.

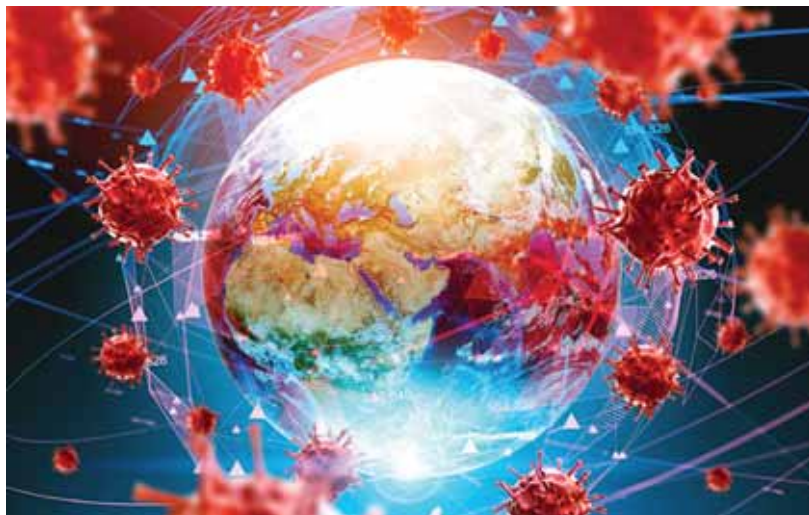
### **Expanding our reach**

In 2015, the United Nations introduced 17 goals called the Sustainable Development Goals (SDGs), which recognise the significance of resilience as a fundamental element for sustainable development. Further, the implicit conviction of these SDGs is that health is not a matter of just biology but also a product of societal architecture and is, therefore, amenable to human intervention.

The guiding principle of SDGs is 'leave no one behind'. In this context, as long as even one person is infected with the virus and is struggling to live a normal day, the enemy is still lurking. This means that we need to consider resilience not as a destination or an outcome, but as a process - continual, continuous and more importantly, an inclusive one. In the process of making decisions and implementing them, it is required that the last mile sections are reached out to, which include the farmers, the general public via Residents' Welfare Association (RWAs), for example, other than the political and business leaders in a country. This will help us execute a localised response and resilience process, which is a critical step in bridging the gaps that exist in disaster governance between decision making and decision implementation.

### **Preparedness for resilience**

As we attempt to include more and larger sections of people in disaster management and disaster governance, bridging the gaps will require analysing and comprehending the needs of people



and its need and significance. They can then help in disseminating this knowledge in the community.

### Hurry, but hurry not!

There is a need to hurry with the preventive and preparedness measures to be taken before the third wave comes in if it is inevitable. This means that the concerned decision-making authorities should remain wary of not relaxing restrictions, especially on public gatherings, at least until the predicted possible month.

### Building back resilience

Finally, post-pandemic (which can be sooner or later - depending on what choice we make) should mean not accepting a complacent narrative that humans are helpless in the face of natural occurrences. It is never too late to shoulder the responsibility of how and what profile our present and future hold – the one of being vulnerable or the one of being resilient. And the first step in doing so is by accepting that disasters are not natural. They are the result of ill-conceived social, political and economic measures and structures. We can only hope that we deal with such extreme event situations in future in a more efficient manner. ■

#### Source:

- [1] <https://news.un.org/en/story/2020/07/1068611>
- [2] <https://coronavirus.jhu.edu/>
- [3] <https://www.livescience.com/first-case-coronavirus-found.html>
- [4] <https://www.thehindu.com/news/national/indias-first-coronavirus-infection-confirmed-in-kerala/article30691004.ece>
- [5] <https://theprint.in/opinion/only-1-in-3-students-in-class-v-to-xii-had-online-access-in-6-states-shows-survey/686140/>
- [6] <https://www.indiatoday.in/india/story/just-24-of-indian-households-have-internet-facility-to-access-e-e-education-unicef-report-1715827-2020-08-27>

for resilience. This may include measures like identifying areas and sections of people facing food or water shortage. That is what makes resilience a continuous process. These are the factors requiring to be taken care of when the pandemic or any other form of disaster has not even begun yet so that when it does take place (because natural hazards cannot be prevented), it does not become a disaster.

### Prevention is better than cure - but is it affordable?

One of the ways of preventing the further spread of COVID-19 is physical distancing. However, is it practically possible for people using public transportation to make their way home from work via crowded spaces? For people who hardly make their ends meet under their roofs amidst crowded settlements with interrupted water supply, how do they ensure washing hands regularly? Or how do they pay for fresh and untouched face masks? Thus, this too requires support like work-from-home, ensuring the availability of clean WASH (Water, Sanitation and Hygiene) facilities, including distribution of hand washes.

### Vaccination to maximum people

The considerations mentioned above would yield the desired results only when the maximum number of people are vaccinated. In this process, one significant concern that has come to the fore in recent times is that introducing vaccines in the country (especially in a country like India with diverse cultural and traditional beliefs and practices) is not enough. There is a dire requirement for open scientific knowledge sharing to avoid the spread of misinformation and myths. For instance, while the educated lot in the urban spaces is reaching their nearest health centre for vaccination, the rural populace is still grappling with myths and misbeliefs like a vaccine would make one sterile, or worse, would kill them instead.

In a country like India with a large and diverse population, the approach to dealing with such situations has to be localised and a bottom-up one. One measure that may be considered is by reaching out to those persons or popular personalities in rural regions that the residents of the area trust. These people should be counselled by the local medical counsellors/professionals about the vaccination

# Vision for an Inclusive Society: A Transgender Community Perspective

*Komal Priya Singh*  
*Field Correspondent*

The world has recently acknowledged gender equality as an important consideration in international law and policy-making on disaster risk reduction. Social stigma and our assumptions regarding a particular community in the society is the main reason behind the social disparity. The transgender community, one of the vulnerable communities, is hard hit during disasters. Not only the unfortunate event affect them, but society makes it even worse for them. The lesbian, gay, bisexual, transgender, and queer (LGBTQ+) communities experience the impacts of disasters differently than heterosexual and cisgender individuals.

While lesbian, gay, bisexual, and queer refers to the sexual orientation of individuals, transgender is connected to gender identity and expression. According to United Nations Human Rights, LGBTQ+ people are less able to protect themselves. It is recognised that the number is highly underreported due to lack of inclusion in census data and the fear of admitting sexual orientation or gender in surveys.

In India, the Supreme Court, in its landmark verdict on April 15,

2015, recognised the transgender community as a third sex. The 2011 census estimated that 4.8 million Indians identified as transgender. But due to denied visibility in official data, millions of transgender Indians cannot access benefits, services, and social protection.

Several factors increase vulnerabilities for these people during or after a disaster, such as isolation. High rates of isolation mean they are more likely to be alone and less likely to have familial resources to support receiving emergency messages and accessing assistance. Due to past experiences of discrimination against them, these people have a significant lack of trust in emergency responders and the healthcare system. Non-traditional structures of families can frequently be disrespected by emergency or recovery services resulting in families becoming separated or unable to access appropriate resources. Shelter accommodations are often not compliant with appropriately affirming gender identity. Access to bathrooms or safe sleeping places is a problem in shelters. Congregate showers can reveal a trans person's biological sex. People may be forced to stay in shelter areas that match their ID even if it does not match



Komal Priya Singh

their gender presentation. The cases of harassment of LGBTQ+ people often occur in congregate living environments. This includes physical violence. They are often victims of gender-based violence after disasters, particularly among trans women. There is no denying that because of poverty, stigma, and lack of resources, trans people are forced to engage in survival sex. A situation like a disaster makes them more vulnerable. There is a need for a better understanding of the deep-rooted obstacles. We need to understand that trans people have equal rights like other sections of society to live and thrive.

Empowerment and participation of transgenders in the development process are very much necessary. The question now is how to make the concept of social inclusion operational even in the face of resistance to change. The vision is to promote a practical yet inspirational tool to encourage a society for all. It requires a paradigm shift to recognise that the dignity, value, and importance of each person is not only an ethical norm and moral imperative, but also a legal principle, a societal goal, and ultimately, practice. ■





Children and youth are our future. It is, therefore, crucial that they are included in decision-making, designing and implementing policies, plans, and standards, as emphasised by the Sendai Framework for Disaster Risk Reduction 2015-2030. We dedicate this page to them to express creatively regarding issues related to disasters and ways to mitigate their impact.

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# Government Financial Assistance Gives the Orphan the Resilience Power to Move Forward

Fariha Ali  
Field Correspondent

This pandemic has caused many ups and downs in our lives, but more so in the lives of children, women and the elderly as it has drastically turned their lives upside down. Many children lost either parents or both. The word 'orphaned'

- (b) 30,371 children orphaned, lost a parent or have been abandoned.
- (c) 26,176 children have lost a parent.
- (d) 3621 have been orphaned and 274 have been abandoned.



Fariha Ali

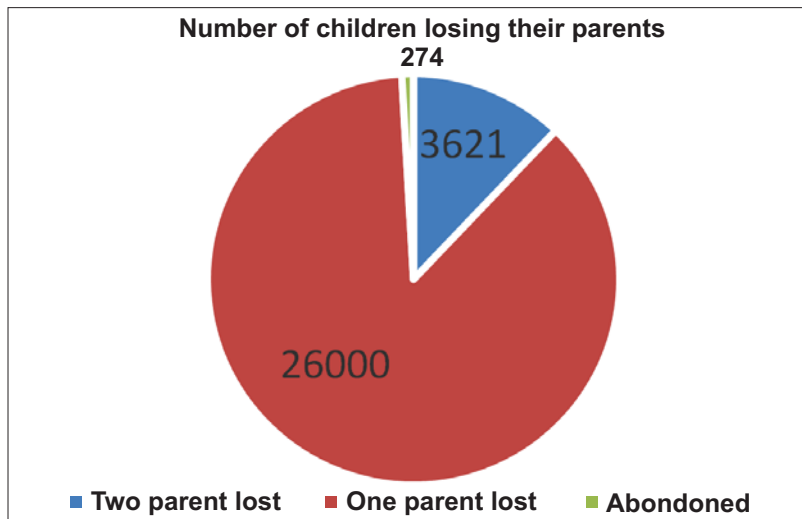


Figure 1

seems like a normal word, but the 'orphaned feeling' is much scarier. This pandemic has stories of how lives and livelihoods have been deeply impacted by it.

## Figure 1

According to the National Commission for Protection of Child Rights (NCPCR):

(a) 3621 children have been orphaned while over 26,000 have lost both their parents.

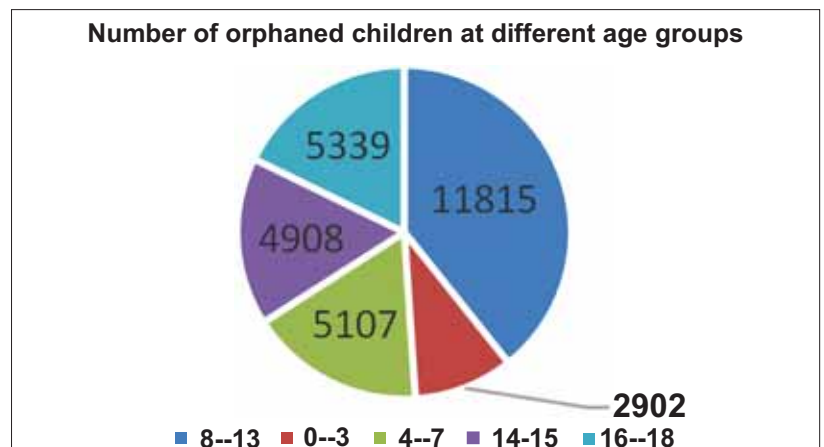


Figure 2

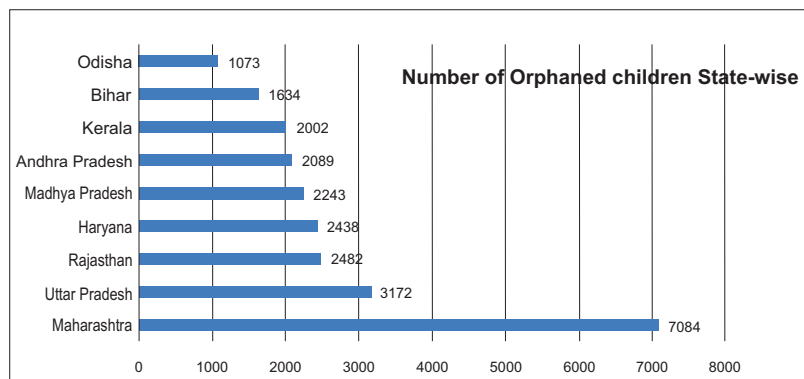
## Figure 2

Figure 2 shows the number of orphaned children in different age groups. As we see here, the highest number of orphaned children -11,815 - are under the 8-13 age group. These children are at a delicate age where they do not

understand the feeling of loss. It is a mentally distracting situation for these innocent children.

**Figure 3**

The graph above shows the State-wise number of orphaned children.



These numbers include those who lost one parent or both.

For those who lost their parents during the pandemic, the State and Central Government have come up with initiatives to provide them security. Each State has come up with financial assistance schemes for children and widowed women.

The database on Table 1 shows the financial assistance each State will provide each month. Some States have come up with a fixed deposit amount of Rs 10-30 Lakhs for their future. There are special provisions and fixed deposits for girls' education and their marriage. Each State has set up a society or a department to handle and manage financial assistance to the beneficiaries. Most of the money comes from the PM-CARES Fund or the Chief Minister's Fund. Each State has allotted a monthly disbursement of funds for these children. The funds will be given to their guardians, and if a child has no guardian, he/she is sent to a government care centre or shelter home.

Some States have come with educational advancement packages and government job priorities.

Each State and district has a username and password for the BAL SWARAJ portal, provided by

NCPCR, to update their data. On 18th June 2021, the Supreme Court has ordered each State to identify the number of orphans in their respective States. They are also directed to register those numbers and details at the portal on a priority basis and provide the

Table 1

States	Per Month
Arunachal Pradesh	5000
Kerala	2000
Tamil Nadu	3000
Punjab	1500
Uttar Pradesh	4000
New Delhi	2500
Assam	3500
Chattisgarh	500-1000
Himachal Pradesh	2500
Jharkhand	
Karnataka	3500
Madhya Pradesh	5000
Rajasthan	1000+500
Uttarakhand	3000
Maharashtra	1125

beneficiaries with the relief fund as early as possible to ease their living. The Bench of Justice L.N Rao and Aniruddha Bose directed this instruction.

Human trafficking cases and illegal adoption rose during the pandemic. To counter these counterfeits, the Central Adoption Resource Authority has come up with advanced tools. Children who have lost both parents should be provided shelter by the Government. People looking to adopt should go through these concerned authorities and not by advertisements on social media or by an anonymous person or NGO. People need to know the rules of adoption and procedures to follow. They should not be swayed by unregistered NGOs who advertises adoptions on various social media platforms.

Resilience is the power to move forward. It is a push to move for the future. Children need something to stand and support them as an assurance. The Government's various schemes empower them and help them move forward confidently and with resilience. These schemes and funds also help the guardians not to feel overburdened, but to take proper care of them.

Apart from education, marriage and job priorities are still a long way for these children, but the Government's long term plans for them will provide them security just as the way their parents would do for them to secure their lives. Trying to bring things back to normal through such relief packages for these orphaned children will help them overcome the hindrances and smoothen things out for them as they journey through life. ■



**We are expanding the range of our magazine by introducing this new section – Book Forum – to review some of the latest and most relevant books.**

### **An Interdisciplinary Approach for Disaster Resilience and Sustainability**

Editors: Pal, I., von Meding, J., Shrestha, S., Ahmed, I., Gajendran, T.

The main purpose of this book is to capture the multidisciplinary and multisectoral nature of disaster risk reduction, and to gather existing data, research, conceptual work, and practical cases regarding risk reduction and its ties to sustainable development under a single “umbrella.” This book includes selected papers presented at the international expert forum on “Mainstreaming Resilience and Disaster Risk Reduction in Education” held at the Asian Institute of Technology, Thailand on 1–2 December, 2017.



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### **Disaster Resilience and Sustainability: Adaptation for Sustainable Development**

Editors: Sangam Shrestha, Riyanti Djalante, Rajib Shaw, Indrajit Pal

This book offers evidence-based, problem-solving techniques from social, natural, engineering and other disciplinary perspectives. It connects data, research, conceptual work with practical cases on disaster risk management, capturing the multi-sectoral aspects of disaster resilience, adaptation strategy and sustainability. The book links disaster risk management with sustainable development under a common umbrella, showing that effective disaster resilience strategies and practices lead to achieving broader sustainable development goals.



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### **Climate Change and Adaptive Innovation: A Model for Social Work Practice**

Author: Sunil D. Santha

Climate Change and Adaptive Innovation introduces an adaptive innovation model that has its premise on core values of justice, care and solidarity. This book explores multiple and iterative pathways of adapting to climate change and its impacts. This book has eight chapters, and will be of interest to social workers, social scientists and development practitioners who are engaged in the field of climate justice, adaptation, social innovation and sustainable livelihoods.



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### **Disaster Resilience in South Asia Tackling the Odds in the Sub-Continental Fringes**

Authors: Iftekhhar Ahmed, Kim Maund, Thayaparan Gajendran

This book considers the challenges of building disaster resilience in South Asia – a region that frequently experiences some of the most severe and devastating



impacts of disasters. Drawing on examples from Bangladesh, Bhutan, Maldives, Nepal and Sri Lanka, the book offers rich insights and narratives on disaster resilience policy and practice. It considers the possibilities for advancing community resilience and capacity building through an exploration of different aspects of governance and policy. Given the diversity of these countries and recent disasters, a variety of perspectives are considered: institutional and policy frameworks, risk management governance, recovery operations, building codes, and policy and media discourse. The book offers a collective understanding of practice, which can offer global lessons to a world increasingly beset by disasters and with uncertain environmental futures.

This book will be a valuable resource for scholars, practitioners and students in the fields of disaster risk reduction and management, climate change adaptation, public policy and sustainable development.

You can purchase it at: <https://www.routledge.com>

We are delighted to share a few insightful views received as feedback about the previous issues from different sections of society. We take note of these suggestions and will try to ensure that they are incorporated in the forthcoming issues.



**Yasmin Ara**  
M.Phil student,  
Dhaka, Bangladesh

It is remarkable to read research papers, case studies, opinion pieces from various experts and professionals and even see the contributions of youth and children beautifully entwined in a single magazine. I particularly liked the articles on Issues of Logistics during Disasters, Human Dignity during Disasters, and Business Continuity Management in the May issue. This magazine is a genuine effort towards making the general masses realise that disaster management is everyone's business.

The Know Disasters magazine is a one-of-a-kind publication that methodically documents a variety of national and international knowledge. The engaging and informative articles are beneficial to stakeholders involved in disaster management and to the general public. I look forward to contributing to the upcoming issues.



**Abhinav Walia**  
Disaster Management Professional  
and Researcher  
Newcastle, Australia

## Reader's Response



**Majid Alam**

Journalist, New Delhi.

Know Disaster is the first of its kind magazine providing us insights about different disasters. Despite being relatively new, I find the articles very scholarly yet simplified and enlightening. The magazine covers a wide range of issues, and the contribution of authors and researchers covering topics from India and abroad is impressive. I anticipate reading the upcoming issues of this valuable magazine.

मैगजीन बहुत ही अच्छे आर्टिकल के साथ आई है। हिन्दी के भी आर्टिकल पढ़ कर बहुत अच्छा लगा। दिनेश मिश्रा जी कि बाढ़ की समस्या पर एनालिसिस, और कहानियों के जरिए बेहद सच्ची और ज्ञानपूर्वक बातें कही गई हैं। आपकी पूरी मैगजीन टीम को बधाई हो। उम्मीद करते हैं इसे ही ज्ञानपूर्वक आर्टिकल हमें हिन्दी सेक्शन में मिलते रहेंगे।



**बुनियाद खान**  
रेलवे कर्मी

## Terminology

### Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.

### Risk transfer

The process of formally or informally shifting the financial consequences of particular risks from one party to another, whereby a household, community, enterprise or State authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.

### Residual risk

The disaster risk that remains in unmanaged form, even when effective disaster risk reduction measures are in place, and for which, emergency response and recovery capacities must be maintained.

### Extensive disaster risk

The risk of low-severity, high-frequency hazardous events and disasters, mainly but not exclusively associated with highly localised hazards.

### Source:

<https://www.undrr.org/>





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