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“EMPOWERING THE NEXT GENERATION FOR A RESILIENT FUTURE”



School of Environment and Disaster Management

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GEN NEXT AND THE FUTURE OF DISASTER RISK REDUCTION

Dr P G Dhar Chakrabarti

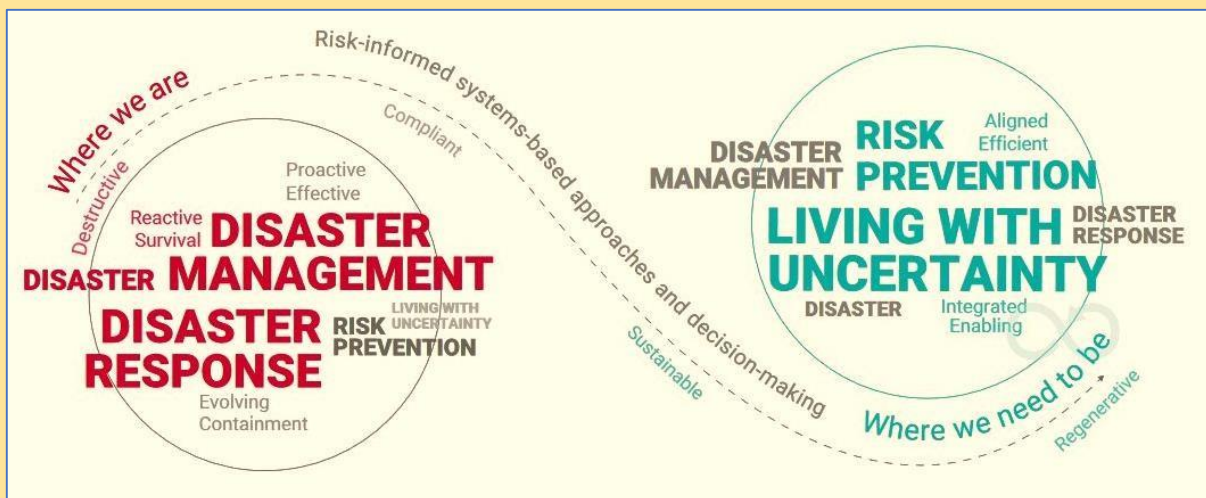
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The Planet Earth was born out of a disaster, the Big Bang, about 14 billion years back. Since then every year hundreds of disasters have been striking various regions of earth, killing men and women in millions, affecting people in billions, and causing economic losses in trillions. The catastrophic nature of many disasters have been so pervasive that many people across different faiths and culture, including the educated, still tend to perceive that disasters happen due to divine anger or bad constellation of stars, and those who are atheists or do not believe in astrology ascribe disasters to the wrath of nature.

Disaster Risk Reduction

Over the years earth scientists have unraveled the mysteries of nature's fury; meteorologists and hydrologists, aided by powerful ground, space and air based technology, developed early warning of disasters; and engineers came out with designs of disaster resilient housing and infrastructure, generating a kind of euphoria that innovative application of science and technology can significantly reduce the risks of disasters. This optimism was reflected during the International Decade of Natural Disaster Reduction (1990-1999) and in the Yokohama Strategy for a Safer World (1995-2004).

However, mounting disasters throughout the nineties and thereafter, climaxing in a devastating boxing day Indian Ocean Tsunami of 2004, brought home the realization that there cannot be any quick fix technological solution to disaster, as the root causes lie in deep rooted physical, social economic and environmental vulnerabilities. It is the exposure of these vulnerable conditions to the hazards that create risks of disasters, and therefore the risks of disasters can be meaningfully reduced only by reducing vulnerabilities and developing capacities at all levels, which will require multi-pronged strategies of disaster risk reduction involving legal, institutional, political, social, economic and educational measures, besides scientific and technological interventions.



Source: United Nations Office of Disaster Risk Reduction (2019)

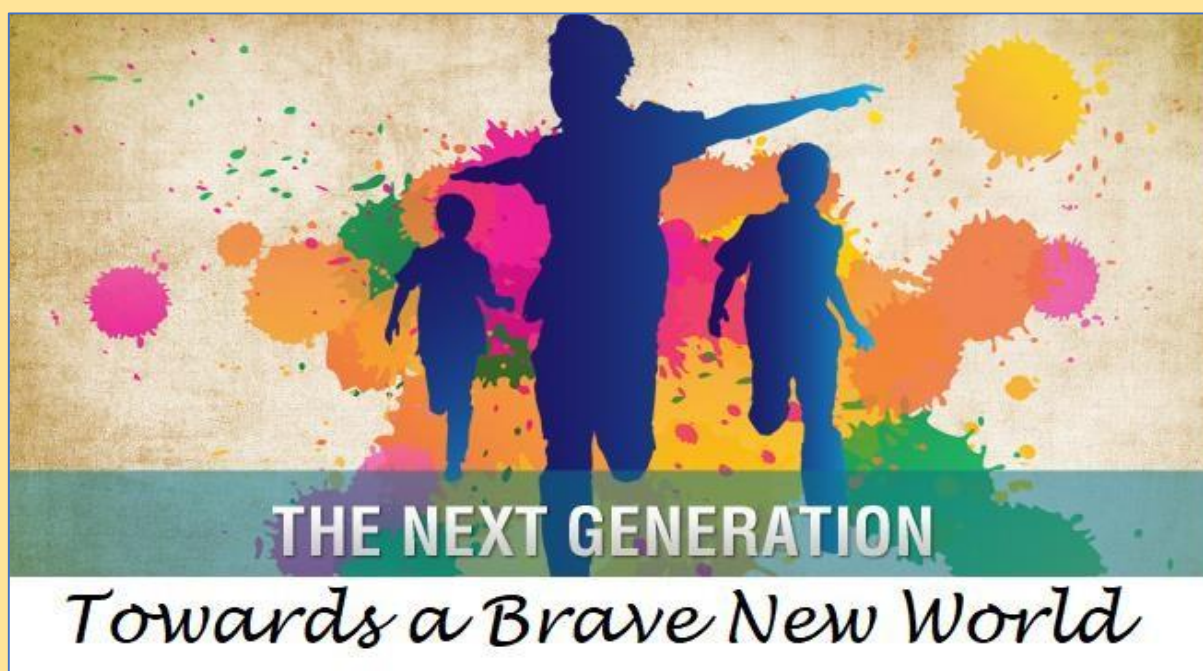
Such multi-faceted strategic measures were prescribed under the Hyogo Framework of Action (2005-2015) and the Sendai Framework of Disaster Risk Reduction that is currently under implementation since 2015 for a period of fifteen years. There has been some progress in some fronts, such as enactment of disaster management laws and institutions have facilitated preparation of plans and strategies for disaster risk reduction and improving disaster preparedness of countries and communities; early warning of hydro-meteorological disasters have helped timely evacuation of people to safe places and averted many deaths; education and awareness have developed capacities for risk reduction. However, there are still formidable challenges in the face of climate change that is increasing the intensities and frequencies of disasters, unplanned urbanization that is exposing more people to risks of disasters and globalization that are making disasters more pervasive and complex. The pandemic of Covid-19 alone caused deaths of 5 million people affecting every country and community around the world.

The biggest challenge for reducing risks of disasters is the attitude and perception of people, communities and governments about the process of creation and accumulation of risks, preventing creation of new risks, implementing various structural and non-structural measures for risk reduction, adopting innovative measures for risk transfer and

insurance and enhancing preparedness for residual risks of disasters. Governments generally have been very reluctant in long term investments for risk reduction that do not provide short term electoral gains because citizens do not demand risk reduction services from the government as they still largely perceive disasters to be the nature's fury or divine angers. Such fatalism remained the dominant philosophy of disasters, passed down from one generation to other.

Gen Next

The Gen Next refers to the emerging generation of young people, those who will soon or are currently entering adulthood. This generation is marked by their unique perspective, values, and capabilities in a rapidly evolving globalized world. They have grown up with access to technology like smartphones, the internet, and social media from an early age. This exposure to digital technology from an early age allows them to adapt quickly to emerging innovations, such as artificial intelligence, blockchain, and automation. Many young people are embracing entrepreneurship, starting tech-based businesses, and using innovation to solve critical challenges, from getting health care access to building sustainability and resilience through platforms like YouTube, TikTok, and Instagram, Gen Next is creating content that reaches global audiences, spreading new ideas, and shaping cultural trends.



This generation is particularly vocal about climate change, with global movements like Fridays for Future being led by young people. They advocate for urgent climate action, pushing governments, corporations, and societies to adopt sustainable practices. Gen Next is passionate about social justice, advocating for issues like inclusive development, racial equality, gender rights, LGBTQ+ rights, and economic fairness. They are leveraging social media as a powerful tool for awareness, activism, and organizing. Many young people are adopting sustainable practices in their daily lives, such as veganism, recycling, supporting ethical brands, and reducing plastic use. They are reshaping consumer demand toward eco-friendly products.

Unlike previous generations, Gen Next values scientific knowledge and understanding and are not guided by astrological predictions and fatalistic beliefs and perceptions about divine anger or wraths of nature. They are aware about the hazards of nature and are fully sensitive about the social and economic vulnerabilities of people and oriented towards addressing the root causes of disaster risk through proactive, inclusive and community based practices. They are the hope for the future.

Future of Disaster Risk Reduction

The future of disaster risk management will rely on a combination of technological advancements, grassroots engagement, climate adaptation strategies, and global cooperation. Gen Next, equipped with new tools, skills, and perspectives, will be expected to play a central role in mitigating the impacts of future disasters and building resilient societies capable of withstanding the challenges of an increasingly unpredictable world. The future of disaster risk reduction is safer and brighter with the Gen Next.

NATURE-BASED APPROACHES TO COMBAT CLIMATE CHANGE

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Mitigating climate change through natural means is crucial for addressing environmental challenges and promoting sustainability. One effective natural solution is reforestation, which involves planting trees in deforested areas to restore habitats and capture carbon dioxide. Forests act as significant carbon sinks, absorbing large amounts of CO₂ from the atmosphere and storing it in biomass and soil. Planting trees in non-forested areas, known as afforestation, can further enhance carbon capture and biodiversity. Additionally, wetland restoration is vital as wetlands act as natural buffers against flooding and provide habitats for various species. They also play a crucial role in carbon storage by limiting decomposition and enabling carbon accumulation in the soil.

Sustainable land management practices, such as agroforestry and permaculture, can significantly contribute to climate mitigation. Farmers can enhance soil health, increase biodiversity, and improve resilience to climate impacts such as droughts and floods by integrating trees and shrubs into agricultural landscapes. These practices not only reduce greenhouse gas emissions but also increase yields and provide farmers with diversified income sources. Moreover, implementing cover crops and no-till farming can improve soil structure and fertility while minimizing erosion, further promoting carbon sequestration in agricultural systems. In addition, urban areas can benefit from green infrastructure, such as parks, green roofs, and urban forests. These elements help mitigate the urban heat island effect, reduce energy consumption for cooling, and improve air quality. By incorporating vegetation into city planning, urban landscapes can support biodiversity and provide recreational spaces for communities. Additionally, green corridors can facilitate wildlife movement and enhance ecosystem connectivity, making cities more resilient to climate change. Another important natural solution is the preservation of existing ecosystems, such as grasslands and mangroves. Grasslands are often overlooked in discussions about climate change, yet they store large amounts of carbon in their root systems. It is crucial to protect these ecosystems from being converted to agriculture or urban development to maintain their carbon storage potential. Mangroves, with their unique ability to thrive in coastal environments, not only absorb carbon but also protect shorelines from erosion and provide nursery habitats for marine life. Preserving and restoring these ecosystems can significantly benefit climate mitigation and biodiversity conservation.



Community involvement and indigenous knowledge are crucial for effectively implementing natural solutions. Engaging local populations in restoration ensures that practices are culturally appropriate and tailored to specific ecosystems. Indigenous communities often possess valuable insights into sustainable land use and resource management, making their participation essential for the success of conservation efforts. Incorporating nature-based solutions into climate policies and planning requires a paradigm shift that recognizes the interconnectedness of human and environmental health. Governments and organizations can promote investments in ecosystem restoration and sustainable practices, offering incentives for landowners to adopt these methods. Additionally, integrating natural components into climate adaptation strategies enhances resilience, allowing communities to better cope with the impacts of climate change. Ultimately, mitigating climate change through natural components addresses greenhouse gas emissions and promotes a healthier planet and society. By prioritizing nature-based solutions, we can create a more sustainable future that harmonizes ecological health with economic and social well-being. Embracing this holistic approach enables us to tackle the climate crisis while fostering a deeper connection to the natural world, ensuring that both current and future generations can thrive in a balanced ecosystem.

INTEGRATING CLIMATE CHANGE ADAPTATION INTO DISASTER RISK REDUCTION FOR ENHANCED COMMUNITY RESILIENCE

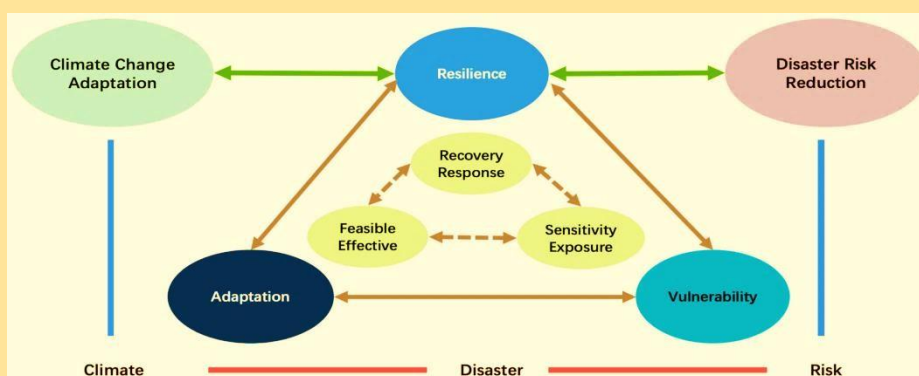
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Climate change presents a formidable challenge to communities worldwide, exacerbating the frequency and severity of disasters such as floods, hurricanes, and droughts. As these climate-related hazards become more prevalent, integrating climate change adaptation (CCA) into disaster risk reduction (DRR) strategies emerges as a critical approach to enhance community resilience. This integration can empower communities to anticipate, prepare for, respond to, and recover from disasters while adapting to the evolving impacts of climate change.

Understanding the Nexus between CCA and DRR:

Climate change adaptation and disaster risk reduction, while distinct, are interrelated fields that share a common goal: to safeguard lives, livelihoods, and ecosystems from the adverse impacts of hazards. CCA focuses on long-term strategies that enable communities to adjust to changing climate conditions, such as developing drought-resistant crops or improving water management systems. On the other hand, DRR emphasizes immediate measures to reduce disaster risk, such as early warning systems and building flood defenses. Integrating these two approaches allows for a holistic understanding of risks. For instance, a community vulnerable to flooding may benefit from both improved drainage systems (DRR) and the implementation of land-use policies that account for anticipated climate changes (CCA). This dual focus not only reduces immediate risks but also enhances the community's long-term adaptive capacity.



Strategies for Integration:

To effectively integrate CCA into DRR, several strategies can be employed:

- Risk Assessment and Mapping:** Conducting comprehensive risk assessments that incorporate climate projections can identify vulnerable areas and populations. This allows communities to prioritize interventions and allocate resources effectively. For example, mapping flood-prone areas can inform infrastructure development and emergency planning.
- Community Engagement and Empowerment:** Engaging local communities in the planning process ensures that adaptation and risk reduction measures reflect their needs and knowledge.
- Policy Coherence:** Aligning policies and regulations across sectors is crucial for effective integration. For instance, land-use planning should consider climate risks to minimize exposure to hazards. Governments can establish frameworks that facilitate collaboration between environmental, disaster management, and urban planning agencies, ensuring a unified approach.
- Investment in Sustainable Infrastructure:** Building resilient infrastructure is a key aspect of both CCA and DRR. Investments in green infrastructure, such as wetlands restoration and urban green spaces, can mitigate flooding and enhance biodiversity while providing essential ecosystem services.
- Monitoring and Evaluation:** Establishing robust monitoring and evaluation mechanisms is essential to assess the effectiveness of integrated strategies.

In summary, integrating climate change adaptation into disaster risk reduction is not merely an option; it is a necessity for building resilient communities in the face of escalating climate challenges. By recognizing the interconnectedness of these two fields and implementing comprehensive strategies, communities can enhance their capacity to withstand and recover from disasters while adapting to a changing climate. As the impacts of climate change intensify, prioritizing this integration will be essential for achieving long-term resilience and security in vulnerable communities worldwide.

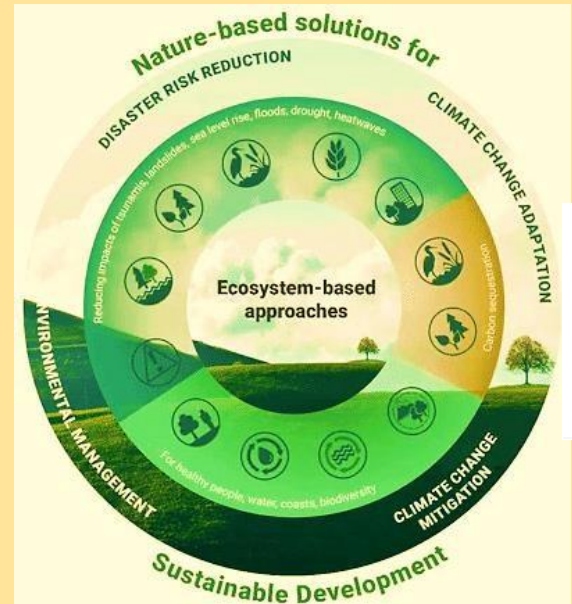
SYNERGIZING NATURE AND TECHNOLOGY: INTEGRATED SOLUTIONS FOR DISASTER RISK REDUCTION

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The increasing frequency and severity of natural disasters, exacerbated by climate change, pose significant risks to communities and ecosystems worldwide. In response to this challenge, integrated nature-based solutions (NbS) combined with technological innovations have emerged as essential strategies for disaster risk reduction (DRR). These approaches not only aim to mitigate the impacts of disasters but also promote resilience and sustainability in vulnerable regions.

Nature-based solutions refer to sustainable management and use of natural resources to address societal challenges, including disaster risks. NbS harness the power of ecosystems to provide services that reduce vulnerabilities and enhance resilience. For example, restoring mangroves and wetlands can provide natural buffers against storm surges and flooding, while reforesting watersheds can help manage stormwater and prevent landslides. These solutions are cost-effective and can deliver multiple benefits, such as enhancing biodiversity, improving air and water quality, and sequestering carbon. Incorporating NbS into disaster management frameworks involves a collaborative approach that engages local communities, stakeholders, and decision-makers. This participatory process ensures that the solutions are context-specific and tailored to the unique challenges of each region. Community engagement also fosters a sense of ownership and responsibility, empowering local populations to contribute actively to disaster preparedness and response efforts.



While NbS provide essential ecosystem services, technological innovations can enhance their effectiveness and scalability. Advances in remote sensing, geographic information systems (GIS), and data analytics are transforming disaster risk assessment and management. For instance, satellite imagery and drone technology can monitor changes in land use, vegetation cover, and hydrological conditions, providing critical information for predicting disasters like floods and landslides. Moreover, early warning systems powered by artificial intelligence (AI) and machine learning algorithms can analyze vast datasets to identify patterns and trends, enabling timely alerts for extreme weather events. These systems can help communities prepare and respond effectively, minimizing loss of life and property. Combining these technological innovations with NbS creates a robust framework for disaster risk reduction.

The integration of NbS and technological innovations is essential for creating holistic disaster risk reduction strategies. For example, a community at risk of flooding can implement green infrastructure, such as rain gardens and permeable pavements, to enhance water absorption and reduce runoff. Simultaneously, they can use predictive modeling and real-time data from weather monitoring systems to anticipate flooding events and trigger early warnings. This integrated approach not only enhances disaster preparedness but also promotes sustainable development.

Despite the clear benefits of integrating NbS and technological innovations, several challenges remain. Limited funding, lack of technical expertise, and insufficient awareness of NbS among policymakers can hinder the implementation of effective DRR strategies. To overcome these barriers, it is essential to invest in education and capacity-building initiatives that equip communities and stakeholders with the knowledge and skills needed to implement and manage integrated solutions. Furthermore, fostering collaboration among various sectors, including government agencies, non-governmental organizations, and private entities, is crucial for scaling up successful practices. Multi-stakeholder partnerships can facilitate knowledge sharing, mobilize resources, and promote innovative solutions tailored to local contexts.

In summary, integrated nature-based solutions and technological innovations represent a paradigm shift in disaster risk reduction, moving from reactive measures to proactive strategies that enhance resilience. Emphasizing collaboration, education, and capacity building will be vital to unlocking the full potential of these integrated approaches in the face of a rapidly changing climate.

DISASTER RISK REDUCTION (DRR) THROUGH COMMUNITY INVOLVEMENT

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Disaster Risk Reduction (DRR) in India focuses on the crucial role of community involvement, utilizing local knowledge and resilience to minimize the impacts of natural hazards. For instance, in the coastal regions of Odisha, the government, in partnership with various NGOs, has implemented community-based programs to improve disaster preparedness and response, especially in light of frequent cyclones. One notable initiative is the “Village Disaster Management Committee” (VDMC), which empowers residents to take responsibility for their safety. These committees are trained in early warning systems, evacuation procedures, and first aid, establishing a strong network of responders who understand the specific vulnerabilities and strengths of their communities. During the pre-monsoon season, community members engage in mock drills that simulate cyclone scenarios to enhance their preparedness. Local fishermen play a crucial role in these efforts due to their extensive knowledge of the sea and weather patterns. They provide valuable insights about changes in tidal behaviors and seasonal shifts, which can significantly improve early warning systems. This local knowledge enhances the relevance and effectiveness of the response mechanisms.

Furthermore, the program encourages the development of strong infrastructure by promoting community involvement in constructing flood-resistant homes and restoring mangrove forests. These forests act as natural barriers against storm surges. By engaging residents in these initiatives, they not only acquire skills and knowledge but also develop a sense of ownership and responsibility towards their environment and safety. For example, in some villages of Sundarban, West Bengal, community members have successfully advocated for the construction of raised platforms for homes, ensuring that their families and belongings remain safe even during flooding. One important element of disaster risk reduction (DRR) through community involvement is the combination of traditional knowledge with modern techniques. Many communities have valuable indigenous knowledge about managing disasters, such as specific types of crops that can survive flooding or drought. By combining this traditional wisdom with modern scientific approaches, programs can be more customized and effective.



Moreover, community-led initiatives include awareness campaigns that educate residents about disaster risks, promoting a culture of preparedness. For example, in Maharashtra, local schools have incorporated disaster education into their curricula, ensuring that children grow up with an understanding of risks and the importance of safety measures. This educational approach not only empowers the younger generation but also encourages families to have discussions about risk management and preparedness, creating a ripple effect throughout the community. The success of community-based disaster risk reduction (DRR) initiatives is evident in the resilience demonstrated by these areas during recent disasters. For example, during Cyclone Fani in 2019, the early warning systems and community preparedness in Odisha significantly reduced the loss of life and property. This highlights the effectiveness of localized responses. As the Indian government continues to promote a shift from top-down disaster management to a more inclusive, participatory approach, the lessons learned from these community initiatives can serve as a blueprint for other regions facing similar challenges.

In conclusion, India's approach to disaster risk reduction through community involvement not only addresses immediate safety concerns but also fosters long-term resilience. By valuing local knowledge, empowering residents, and promoting sustainable practices, communities are better equipped to face the challenges posed by natural disasters. This model illustrates the importance of a collaborative framework where the government, NGOs, and local populations work together, creating a stronger, and more prepared society capable of withstanding the impacts of disasters.

BALANCING SOIL HEALTH: THE ROLE OF ORGANIC MANURE AND CHEMICAL FERTILIZERS IN SUSTAINABLE AGRICULTURE

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Soil health refers to the soil's ability to function as a life-sustaining ecosystem that supports plants, animals, and humans. The agricultural sector is crucial for the nation's food and nutritional security. It remains the main source of livelihood for over 58% of the population and contributes 14.2% to the national GDP. Chemical fertilizers and organic manure play a significant role in meeting the nutrient needs of crops, and their increased use has been important for boosting crop production. However, the excessive and unbalanced use of chemical fertilizers has led to a slowdown in productivity and, in some cases, a decline in production. Additionally, the success of industrial agriculture and the green revolution has contributed to soil degradation, water contamination, loss of biodiversity, and impacts on human health in recent decades.

Soils enriched with organic matter have greater stability, biomass, and diversity than conventionally managed soils. Organically managed soils also exhibit higher water-holding capacity, porosity, and aggregate stability, which enhances yield, particularly under adverse weather conditions like flooding and drought. Healthy soils are essential for resilient crop production, supporting ecosystems, and contributing to global climate change mitigation. The application of organic manure has a positive impact on the physical, chemical, and biological properties of soil. It helps increase porosity, water-holding capacity, organic carbon content, and the availability of nutrients such as nitrogen (N), phosphorus (P), and potassium (K), while also boosting microbial populations in the soil. This leads to a reduction in bulk density. Organic manure improves soil physical properties such as aggregation, water retention, microporosity, and available water capacity while reducing bulk density in the top 0–30 cm of soil. Organic carbon aids in the formation of microbial biomass carbon and humic and non-humic fractions of carbon in the soil, making it a key attribute of soil quality. Soil quality is significantly impacted by the presence of flora and fauna in the soil. Soil microorganisms, as part of the living organic matter, are essential for maintaining soil productivity. Organic farming increases both microbial biomass and microbial activity by 20–30% and 30–100%, respectively. Additionally, crop rotation with diverse root systems plays a vital role in improving soil structure under organic farming, leading to increased soil pH, available phosphate, and exchangeable potassium (K) and calcium (Ca). Fertilization enhances the efficiency and quality of agricultural products. Plants absorb fertilizers through the soil, which ultimately enter the food chain. Thus, it is crucial to maintain soil health for better growth and the production of high-quality crops.

Non-organic fertilizers typically contain phosphate, nitrate, ammonium, and potassium salts. However, the use of these fertilizers can result in the accumulation of heavy metals in the soil and plants, leading to soil, water, and air pollution. High levels of nitrogen, sodium, and potassium-containing fertilizers are often used on plants grown in soils. Nitrogen fertilizers can contain carcinogenic substances such as nitrosamines, especially in crops like lettuce and spinach. Harmful accumulations of NO_3 and NO_2 can occur, and ammonia (NH_3) emissions from fertilized lands can cause damage to ecosystems and vegetation. NH_3 may oxidize and form nitric or sulfuric acid, leading to acid rain, which damages vegetation. Excessive use of sodium and potassium-based fertilizers can negatively impact soil pH, causing soil structure deterioration. This contributes to acidification and can hinder the effectiveness of agricultural operations. Additionally, high levels of nitrogen and phosphorus fertilizers can lead to an increase in nitrate and phosphate in water bodies through surface runoff, which pollutes water resources. The excessive use of chemical fertilizers during the growing season can degrade water quality and reduce both the quantity and quality of agricultural products.

Organic farming systems are highly complex and integrated biological systems that have the potential to maintain good soil health. The use of organic manure promotes better soil quality in the long term by improving soil structure, increasing microbial activity, and enhancing nutrient diversity. Organic practices have direct and indirect effects on soil properties by simultaneously affecting multiple system components. While chemical fertilizers may offer immediate benefits, they can degrade soil health and structure over time.



BUILDING DISASTER-RESILIENT SMART CITIES: BALANCING INNOVATION AND SAFETY

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The rapid urbanization of cities raises concerns about sustainability, safety, and the quality of life for citizens. In response, smart cities are emerging, integrating digital technology with urban infrastructure and services to address these issues. However, a critical question remains: How can these cities ensure resilience in the face of disasters such as flooding, hurricanes, heat waves, cyber-attacks, or infrastructure failures? It's clear that innovation and safety must be intertwined for the cities of the future. Smart cities leverage information and communication technologies (ICT) to enhance urban services like transportation, energy management, water systems, healthcare, and governance without depleting city resources. These services are further optimized using Internet of Things (IoT) devices, sensors, big data analytics, and AI-powered solutions to improve efficiency and residents' quality of life. Nevertheless, without a robust disaster response vision, smart cities will struggle to stay ahead. In essence, smart cities are also disaster-resilient cities.

Urban infrastructure that can withstand disasters is crucial for the resilience of cities exposed to natural or man-made risks. Every structure, bridge, and mode of transportation in a smart city should utilize disaster-proof construction materials and engineering practices. Therefore, adaptive urban planning reduces exposure to high-risk areas, and land use (zoning) regulations should be adjusted based on the latest knowledge of risks. When disasters occur, distributed energy systems can operate independently of centralized grids and function as micro grids powered by various renewable energy sources. In case you missed it: Functional digital and communication networks, including blockchain and decentralized systems, are vital for disaster response and data security. Holistic risk assessment, community engagement, government, business, and academia collaboration, as well as scalable solutions, are essential for building disaster-resilient smart city proposals. Cyber resilience should be an inherent component of disaster planning for smart cities.

The development of disaster-resilient smart cities presents several common challenges, including cost and financing, interoperability, data privacy, and unequal access. One of the hurdles is the investment in disaster-resilient infrastructure and smart technologies, particularly for countries requiring development. Simply having aggregated data is not sufficient. It is essential to deliver data in formats that can enhance pre-response digital tools, along with establishing better joint protocols for procuring technology and services. Disaster-resilient strategies demand more than just technological innovation. When cities prioritize resilient infrastructure, adopt new technologies, and implement a coordinated approach to disaster management, they not only become smarter but also demonstrate that intelligence can be equally focused on safety and sustainability for future generations.

The importance of disaster-proof infrastructure for cities to battle against natural and human-induced disasters is undeniable. This includes using disaster-resistant materials and engineering strategies, such as fabricated shelters made of recycled honeycombed durable bricks in smart cities. Additionally, spreading urban planning and designing with adapted architecture, and decentralized grids rather than a centralized grid in the case of emergencies is crucial. The use of technology in making cities smarter is also essential in their ability to resist disasters. Nowadays, this can be achieved through IoT sensors providing data speedily along with meteorological information, artificial intelligence, and predictive analytics. Allowing for early warning systems in earthquakes, resilient structures (including infrastructure), drones and robots deployed in disaster response initiatives, and digital twin technology to assist authorities in making informed decisions on infrastructure investments, relief response methods, and risk mitigation. Creating a risk-informed smart city involves taking an overall view of the activity, involving citizens throughout, cross-team participation in government, with private sector involvement too, and considering fast and slow solutions, all backed up by mature data security and privacy. It covers natural hazards, technical risks, and also socio-economic determinants in disaster preparedness, including the engagement and education of the public. An essential question that arises is the cost and financing of designing a disaster-resilient smart city, along with the interoperability between systems concerning data privacy or equitable access. Especially in poor nations, it is important to invest in disaster-resilient infrastructure and smart technology. Disaster-resilient interventions will not be successful if communities do not have the same access to technology and services.

INNOVATING SUSTAINABLE DEVELOPMENT STRATEGIES IN THE INDIAN SUNDARBANS

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The Indian Sundarbans, a UNESCO World Heritage Site, is a unique ecosystem that houses the world's largest mangrove forest. It provides a critical habitat for diverse species, including the Bengal tiger, and supports the livelihoods of millions of people. However, the region is highly vulnerable to climate change, rising sea levels, salinity intrusion, and frequent cyclones, which have led to environmental degradation and social challenges. To ensure a sustainable future for the Sundarbans, innovative development strategies are crucial. These strategies should focus on balancing ecological preservation, economic growth, and community resilience. However, the Sundarbans face significant climatic problems and vulnerabilities due to factors like sea level rise, tropical cyclones, storm surges, and natural calamities resulting in coastal erosion, flooding, salinity increase, and mangrove degradation impact on livelihoods and infrastructure in coastal communities, which can lead to the displacement of populations, creating environmental refugees.

Innovating Sustainable Development:

Innovating sustainable development involves integrating social, economic, and environmental dimensions to create measurable progress. Ultimately, these innovative approaches aim to address the challenges posed by natural hazards and climate change, ensuring a more sustainable future for all. Here are some ideas for innovating sustainable development in the Indian Sundarbans Delta:

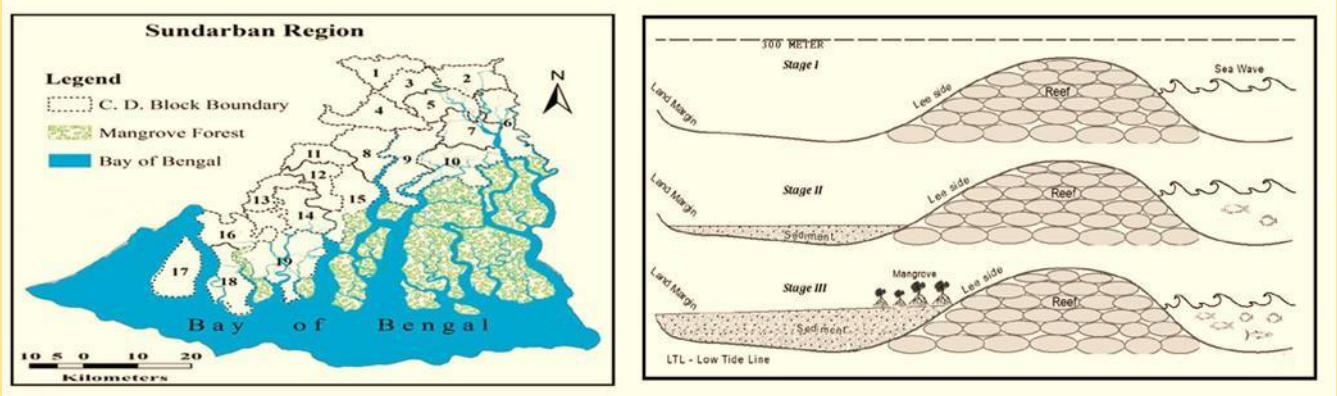


Fig.: The Sundarbans region (Left); Oyster breakwater reefs promote adjacent mudflat stability and salt marsh growth (Right)

Eco-Tourism Initiatives: Develop sustainable tourism practices that minimize ecological impact while providing economic opportunities for local communities. **Mangrove Restoration Projects:** Mangroves play a crucial role in protecting coastlines, mitigating climate change, and providing habitat for wildlife. **Aquaculture Innovation:** integrated aquaculture systems that combine fish farming with mangrove conservation, as well as the development of sustainable seafood supply chains. **Climate-Resilient Agriculture:** This could involve promoting salt-tolerant crop varieties, agroforestry techniques, and water management strategies to cope with increasing salinity and extreme weather events. **Water Management and Flood Mitigation:** The construction of flood-resistant infrastructure, the restoration of natural drainage channels, and the implementation of early warning systems for cyclones and floods. **Education and Capacity Building:** This could involve providing training in sustainable livelihood skills, environmental education programs in schools, and workshops on climate change adaptation. **Sustainable Fisheries Management:** This could include the establishment of marine protected areas, the regulation of fishing practices, and the promotion of sustainable fishing gear. The key is to engage with local stakeholders, build partnerships, and tailor solutions to the unique social, economic, and environmental context of the region.

Overall, innovating sustainable development strategies in the Indian Sundarbans requires a multifaceted approach that addresses environmental, social, and economic challenges. By focusing on mangrove conservation, climate-resilient agriculture, community resilience, and sustainable fisheries, the region can move toward a future that balances development with ecological preservation. Collaborative efforts between government agencies, NGOs, research institutions, and local communities are essential to ensure the long-term sustainability of the Sundarbans.

AR/VR: AN INNOVATIVE TECHNOLOGY IN DISASTER PREPAREDNESS, RESPONSE AND RECOVERY

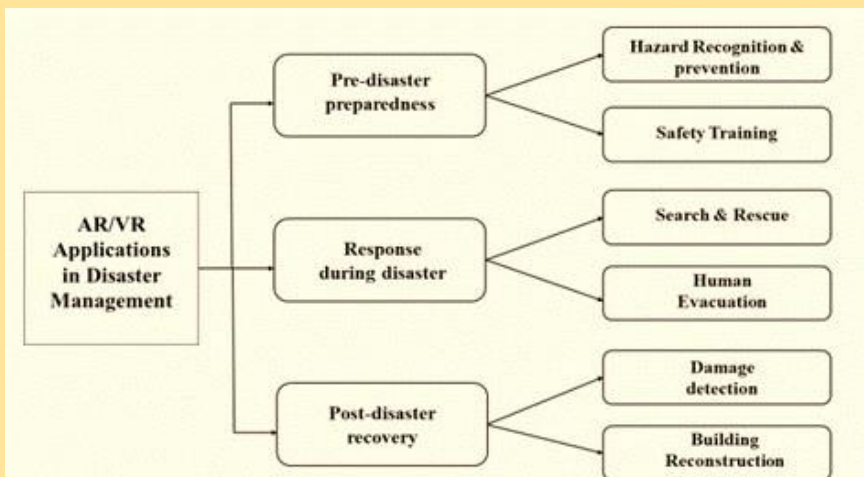
Diksha Kar

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Augmented Reality (AR) and Virtual Reality (VR) have redefined the field of disaster management by improving preparedness, response, and recovery efforts. These engaging technologies could significantly aid in improving efficiency of disaster operations by providing unique solution based approach.

Preparedness:

Comprehensive training for the trainee and the community members could be facilitated through AR and VR. Using VR simulation, trainees could experience real world disasters such as, earthquakes, floods, or fires-without any risks. In addition, AR could help in community awareness, during disaster drills by guiding participants through emergency process, demonstrating evacuation routes or displaying the locations of safety equipment. This improves public understanding on disaster risks and increases readiness.

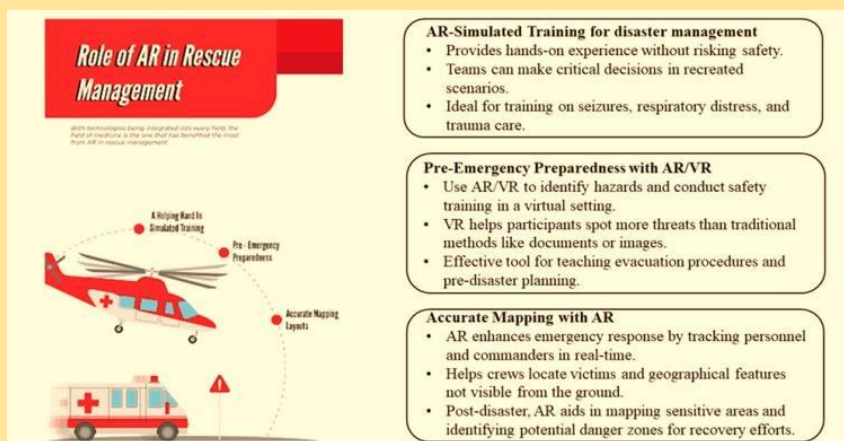


Response:

During a disaster AR-equipped device through overlays maps, building schematics, GPS information could assist responders with timely, accurate data to visualize extent of damage, location of the survivors in an affected area. This enhances navigation and resource allocation process efficiently. In crisis management centres, VR with the immersive simulation helps decision-makers to visualize the impact of various response strategies and making informed decisions. The predictive models could help in situational awareness, supporting agencies to predict challenge and adapt response strategies accordingly.

Recovery:

Also, AR and VR could benefit in recovery phase. By overlaying and visualization of historical data and models of building, accurate assessment of on-site damage could be carried out efficiently. This could facilitate the processes as rebuilding and efficient resource allocation in the insurance claim. Using Virtual town hall, in a simulated environment, residents could voice their concern in rebuilding efforts. This inclusion strengthens the development of community resilience and social ties during recovery phase.



Although, a few challenges such as; technological accessibility, training requirements, data privacy should be acknowledged, however, with continuous advancement these technologies improve training, situational awareness and facilitate community engagement, resilience, and save lives. Hence, these technologies stand out as promising with its significant contribution in disaster preparedness, response, and recovery through building safer, prepared world.

ENGAGING YOUTH IN DISASTER RISK REDUCTION POLICY MAKING

Suchismita Roy

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Disaster Risk Reduction (DRR) is one of the global priorities to reduce the risks and impacts of natural and human-made disasters. Effective DRR needs to be more inclusive and involve specific perspectives, above all the voices of young people. Youth has been narrowly defined in most of the countries as the period between childhood and adult age or more specifically the age group of 15-24. In some countries, such as in India youth is defined more broadly to include the age group of 15-29 which comprises 27.2% of the population of the country, which is the largest in the world.

The youth represent the most dynamic and vibrant segment of the population. They are the leaders and change-makers of tomorrow and play an important role in influencing policies that help reduce disaster risks, strengthen preparedness measures and also create more sustainable and resilient societies. Youths are not directly involved in policy making, but they can always be involved in providing feedback on the realities on the ground and the needs and aspirations of communities for inclusive and sustainable development.

Why Youth Engagement Matters?

Youth people bring innovation, technical understanding and fresh thinking to Disaster Risk Reduction (DRR) efforts.



The development and organization of resources that need to reach the adolescents and youths as well as more disseminated awareness generations is possible through digital solutions or support from social media initiatives than other traditional modalities. Young people are among the most vulnerable populations affected by crises, but they also have an impressive ability to adjust. People's participation in decision-making ensures that the policies address their unique vulnerabilities while allowing them to build resilience across the communities.

This is why youth engagement ensures that disaster risk reduction measures can last for generations to come. Including young people in the decision-making process only promotes long-term leadership development; Their role today secures that such a policy is followed in the future, as well as, potentially shifting old policies when the trends in society move beyond it.

Strategies for Effective Youth Engagement

Disaster management education is crucial for young people to enhance their awareness, critical thinking skills, and disaster preparedness. Implementing Disaster Risk Reduction courses in schools can raise awareness and improve critical thinking skills. Additionally, youth can learn about risk assessments and climate change training. Decision-making with input from young people is essential. The UN Youth Advisory Board and National Disaster Risk Reduction Councils should incorporate youth voices into their agendas to create more responsive policies for 21st-century challenges. Community-based disaster risk reduction projects can be developed and managed through youth empowerment, ranging from erosion control strategies to social media campaigns. Engaging children in disaster risk reduction processes through technology, such as real-time communication and crisis notifications, can effectively engage a larger number of younger people. Governments and organizations should use social media, smartphone apps, and virtual learning platforms to involve and educate adolescents about current disaster risk functioning.

Challenges to Youth Engagement

Adolescent participation in disaster risk reduction is known to bring benefits, on the other hand, several challenges exist that warrant attention. As a matter of course in most of the policy-making situations youth are left out or have too little representation. Often enough, they are not taken that seriously and the reason could be an impression of them having too little experience. Limited financial and technological resources hinder youth-led actions, particularly in disaster-prone and underdeveloped regions. There are institutional barriers in the participation of youths in policy making bodies. Traditional governance frameworks may not have institutional protocols for inclusion of youth to be part of the decision making systems.

The involvement of youth in disaster risk reduction policymaking is pertinent to the development of resilient and sustainable societies. Especially, given the growing number of climate-change-linked disasters, wars and other crises, young volunteers can partially mitigate these risks and facilitate better preparedness early on. Youth should be brought to the forefront as key actors, supported with the necessary tools and channels by governments, non-governmental organizations (NGOs) and international agencies for strengthening their role in disaster risk reduction efforts.

THE FUTURE FORECAST OF CLIMATE CHANGE IMPACT ON RICE CULTIVATION

Sushanta Sarkar

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Over the few past decades, global warming has already been seen. It is expected that rice yields will be significantly impacted worldwide due to rising global temperatures, more unpredictable weather patterns, and an increase in the frequency of catastrophic weather events. Rice is the staple food for 3.5 billion people, which is half of the world's population, and it is grown in more than 90% in Asian countries like China, India, Bangladesh, Indonesia, Vietnam, Thailand etc. The IPCC Utilizes the climate models to simulate the hypothetical Future of the climate change based on different greenhouse gas emission and concentration scenarios. According to the IPCC, AR5 report in 2014, there are different **RCPs (Representative Concentration Pathways)** to predict climate change in the year 2100.

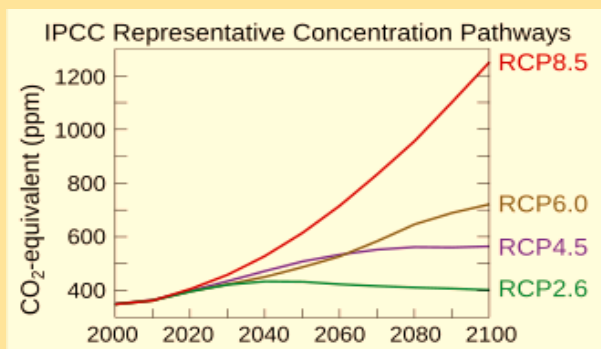


Fig. 1.1 IPCC RCPs in 2100

Source: Wikipedia

RCP 2.6: It is a “very stringent” pathway. To achieve the RCP 2.6 required, CO₂ emissions begin to decrease by 2020 and reach zero by 2100. By 2100, RCP 2.6 will likely restrict the rise in global temperature below 2 °C, and rice productivity could be maintained as present by practicing climate-smart agriculture methods, creation of heat tolerance rice, and sustainable irrigation methods.

RCP4.5: In the year 2100, the global temperature will rise by 2 to 3 degrees Celsius and rice productivity will drastically decline if no climate policy is implemented regarding the use of non-renewable fuels.

RCP 8.5: It is the worst condition of climate change, if the emission of CO₂ continuously increases than the year 2100 temperature will be increase above 4 °C and rice productivity will be highly decreased.

A 1 °C increase of temperature May decrease 3.2% global rice productivity. According to FAOSTAT (2022) data, the share of world rice production is about in China 28%, India 24% and Vietnam 6%. Asian country are most vulnerable due to climate change so rice cultivation of Asian country will highly negative productivity. The expected negative productivity of rice in year 2100 shown in the figure 1.2.

Suggested mitigation of climate change and rice cultivation:

The Paris Agreement (2015) are aims to limiting the global temperature 2 °C but current mitigation policies have failed to achieve, as it is now 2.7 °C. UNFCCC (2023 NDC Synthesis Report) Secretariat suggested countries to increase own ambition of a country to reduce the carbon emission to achieve the goal. The IPCC in AR-6 report highlighted urgency of climate actions and will have need to 43% decreasing of emission from 2019 to 2030. There are some ways to control the climate change of future as well as now, using renewal energy, improving energy efficiency, promoting sustainable transport, conserved forest, protecting eco system, changing agriculture practices etc. In order to cultivate rice sustainably both now and in the future, a number of measures are required, including integrated rice farming, the sustainable use of pesticides and fertilizers, the development of new renewable energy machinery, the conversion of agro-waste into organic fertilizer, the adjustment of planting and cropping dates, use drought resilient seeds, climate forecasting etc. Rice is water intensive and climate sensitive crops, so it needs to manage within the climate and in changing climate conditions.



Fig. 1.2 Expected change of overall rice yield under future climate scenario by 2100

Source: (Mukherjee et al., 2022)

THE ROLE OF YOUTH IN ADVOCATING FOR CLIMATE CHANGE MITIGATION POLICIES

Sravana Chanda

The role of youth in advocating for climate change mitigation policies has become increasingly vital. Youths worldwide are now taking the leading roles in demanding urgent action on climate change. They represent the generation most likely to experience the impact of the current climate crisis in the long term, and their activism is born from a sense of responsibility regarding the future. Figures like Greta Thunberg have spearheaded youth activism, resulting in the mobilization of millions of young people across the globe. This unprecedented wave of action has caught the attention of policymakers, businesses, and international organizations.

These events indicate that the role of youths is far beyond being merely spectators of the climate debate; they are drivers for systematic change toward environments sustainable for future generations and just in their own time. The increased involvement of youth in the struggle against climate change partially originates from the realization that they will not be living to witness the reversibility of the changes in the climate. Current generations are witnessing the firsthand effects of rising global temperatures, torrents of rain and flooding, and dwindling biodiversity, but still, they call for transformative policies to stop further damage.

Young people today have greater access to sources and tools that inform them about the science of climate change and enable the dissemination of that knowledge to a global audience. Social media sites connect millions of youthful climate activists in their fight for climate action across cultural, geographic, and socioeconomic borders. Digital literacy has empowered youth activists to play a critical role in reshaping the climate debate. Their messages often focus on the urgency of the situation with an appeal for immediate policy changes that are ambitious enough to limit global warming. Climate-change issues are very often presented as a cause of moral and ethical dimensions, focusing on the fact that today's decisions of leaders place the burden incomparably more heavily on future generations. For this reason, youth have every reason to demand influence in the decision-making process as one of the conditions for their support in implementing the policy.

Youth climate change advocacy involves not only awareness campaigns and protests but also scientific research, policy development, and grassroots management. Organizations like the Sunrise Movement in the US advocate for comprehensive climate policies like the Green New Deal, rising from economic inequality to focus on climate crisis issues. Young activists are making their voices heard at international events such as the UN Climate Change Conference, or COP, demanding more responsibility from world leaders. They aim to shape policies that support renewable energy, carbon neutrality, and climate sustainability. These activists bridge science and politics by offering evidence-based solutions to combat climate change. Many start by collaborating with scientists and environmentalists to raise awareness about the root causes of climate change and possible solutions. They advocate for policies that prioritize a shift to renewable energy, carbon pricing, forestry, and sustainable agriculture. Importantly, youth movements often centre on broader themes of social justice, highlighting the disproportionate impact of climate change on small communities both locally and globally. They connect climate justice with civil and human rights causes, broadening the scope of the climate movement. Youth-led innovation also plays a significant role in efforts to mitigate global warming. Start-ups and environmentally friendly products are being pursued to reduce carbon emissions and promote a just environment. These young activists have succeeded in drawing the world's attention to the climate crisis, reframing the debate from a focus solely on climate change to one that encompasses justice, pace, and sustainability. Through digital platforms, participation in scientific research, and a commitment to new solutions, they are shaping policies that will impact the world. Their work serves as a reminder that the fight against climate change must be intergenerational, calling on governments and companies to take the environment seriously in their operations. Through perseverance, creativity, and a commitment to justice, young people are actively involved in the global campaign to reduce climate change.

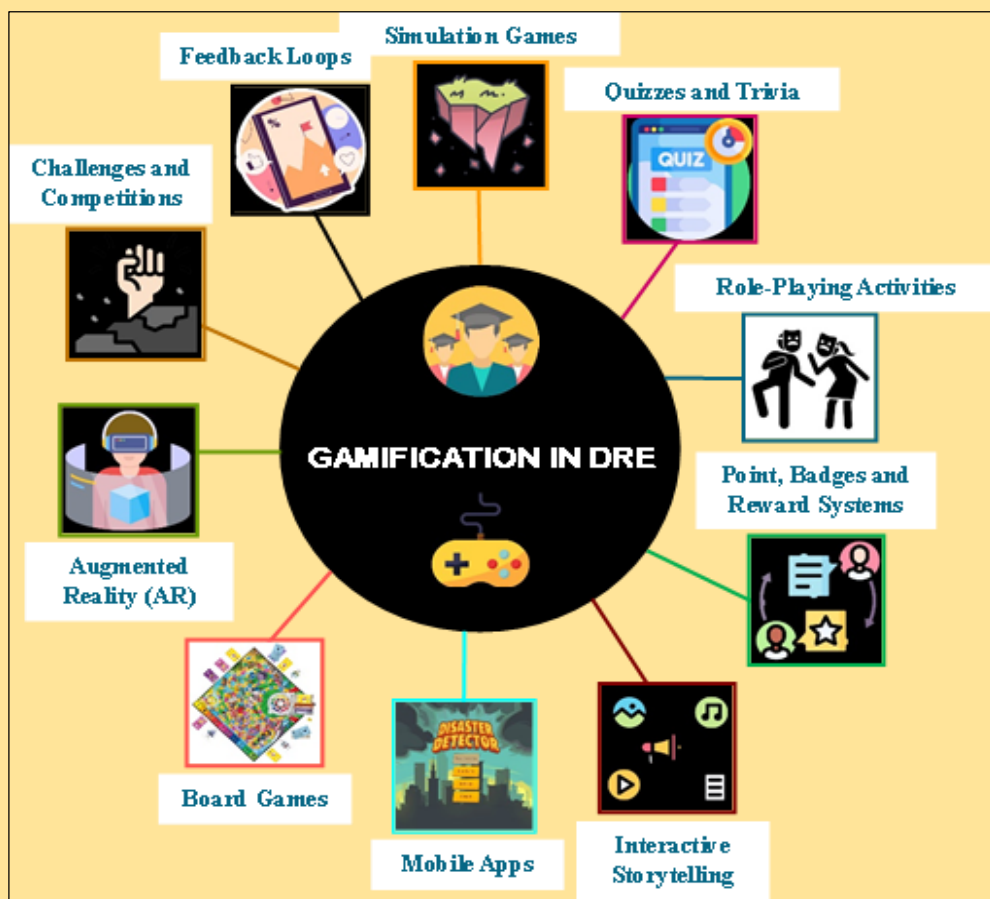


LEVERAGING GAMIFICATION FOR DISASTER RISK EDUCATION AMONG YOUTH

Shreya Mitra

Catastrophes involving either natural or anthropogenic processes represent major hazards to communities all over the world. Risk disaster education for the youth is a vital component for the community to be able to withstand and survive the hazards and the recently emerged innovative method of approach is the use of gamification game design elements in non-game contexts to enhance disaster risk education among youth.

Gamification, an approach helpful in education, uses elements like point scoring, leader boards, challenges, and storytelling to attract young people to learn about disaster risk. By this method, the intrinsic motivations like achievement, competition, and exploration are utilized, which makes complex issues like `Disaster Risk Reduction` clearer and easier to understand. Conventional methods are not able to keep the attention of gamification traditional ones. Hence, the gamification approach is a stand-alone solution to the disaster risk education problem while gamification is an innovatively interactive approach to disaster risk education that brings in engagement and accessibility by simplifying complex topics and making them relatable.



For instance, simulation sports that mimic the uncertainty of disasters can assist students in grasping the principles of natural disasters. Participants are allowed to take on different roles which might include emergency responders, community leaders, or victims, thus enhancing their real-life experience of the various challenges and decision-making processes during disasters. Such simulations give young people the chance to acquire knowledge about disasters and the importance of preparedness and resilience through experiential learning.

Some successful examples of gamification in disaster education are:

- "**Stop Disasters!**" is a game by UNISDR that allows players to play the role of disaster managers, focusing on preparedness and potential consequences of inadequate planning.
- FEMA's "**Disaster Master**" game educates children on disaster preparation, allowing them to navigate various scenarios and make decisions that impact their virtual community's safety.
- The "**Earthquake Preparedness Game**" simulates an earthquake, requiring players to quickly act on safety protocols and protect themselves and others during an emergency.

Gamification is an effective education process in the education of the children making the education very exciting, it offers safe experimenting, and also it can be adapted to different age groups and cultural contexts. It is a tool that can help in retention of information, internalization, and flexible content, thereby making disaster risk education more accessible. On the other hand, it is not only very costly but also needs to be well balanced so that the content is accurate, culturally relevant, and sensitive. Working together between the teachers, the game developers, and the disaster management professionals is very important for the creation of the effective gamified learning experiences.

EMPOWERING MARGINALIZED YOUTH FOR INCLUSIVE DISASTER RISK REDUCTION

Sneha Mistri

Marginalized youth, particularly from low-income backgrounds, minority groups, and rural areas, often lack access to resources, education, and decision-making platforms. They frequently bear the brunt of disaster effects because of their distinct understanding of their communities' vulnerabilities. Despite their potential to enhance disaster risk reduction (DRR) efforts, they are often excluded from decision-making processes. Involving marginalized youth in DRR can offer critical information on local risks, foster community-driven solutions, and empower future generations to be more informed, knowledgeable, responsible, and better equipped to manage disasters effectively. It emphasizes the role of marginalized youth in building resilient communities and implementing equitable disaster risk reduction strategies. It underscores their potential to mitigate risks despite facing social, economic, and geographic challenges. Disaster preparedness training, skill development programs, and access to technology improve their active participation during disasters, while also promoting informed decision-making and effectiveness.

Marginalized individuals face limited protection, high health risks, poor self-esteem, and lack of self-efficacy, stigmatization, and homelessness due to their social exclusion. Empowering marginalized youth is essential for a more inclusive disaster risk reduction framework. This includes enhancing education and capacity building, creating inclusive decision-making platforms, fostering youth leadership and participation, leveraging technology for DRR, and collaborating with civil society organizations. Education equips marginalized youth with the knowledge and tools needed to understand and address disaster risks. Schools, community centres, and NGOs can provide these resources. Inclusive DRR planning requires active involvement of marginalized youth in decision-making processes, such as youth councils, participatory workshops, and community forums. Governments and local authorities should ensure youth voices are heard and integrated into DRR policies and strategies. Fostering youth leadership involves developing their leadership potential, building confidence, and taking active roles in disaster preparedness, response, and recovery efforts. Technology can be leveraged for DRR by using digital platforms, social media, and mobile apps to share critical information, monitor hazards, and coordinate community responses in real-time. Collaboration with civil society organizations is essential for supporting youth-led DRR initiatives and advocating for youth involvement in disaster management policies. Resilience-building programs can address immediate need and long-term recovery. Collaboration between governments, international organizations, and local communities could play significant role to remove barriers and provide necessary resources and platforms for youth participation.

Governments and organizations could help in providing targeted educational programs to equip marginalized youth with knowledge on disaster preparedness, climate change, and risk management. This can include formal and informal training in schools and communities. Youth should be actively involved in decision-making processes related to disaster risk reduction (DRR), creating spaces where their voices are heard and valued. Access to essential resources, such as technology and early warning systems, is crucial for their engagement in DRR initiatives. Skill development and capacity-building workshops can help build leadership and technical skills among marginalized youth. Inclusive policies should be designed and implemented to address the specific vulnerabilities of marginalized youth, considering gender, disability, and cultural factors. Community engagement can encourage marginalized youth leading in risk assessments, mitigation projects, and awareness campaigns.



Fig. 1: A representation of Marginalized youth

YOUTH AND THE FUTURE OF DISASTER RISK REDUCTION IN SMART CITIES

Soheli Saha

“The youth, with their curiosity and willingness to learn, are the key to unlocking innovative solutions in disaster risk reduction within smart cities.” ~ Albert Einstein

In the world that is experiencing urbanization at a very rapid pace, the development of smart cities is seen as the progress of humanity. These cities capitalize on technology and advancement to get optimum value for the people dwelling in them. However, while discussing technological advancements and smart infrastructure, it is important to remember that natural disasters remain a major concern. For this reason, the engagement of young population in disaster risk management within smart cities is often critical.

Today’s youths form a large part of the people’s population especially in many urban areas around the globe. Their enthusiasm, innovation, and flexibility are essential in disaster preparedness and response, especially in organizations. It is therefore shown that if smart cities involve the youth directly in the DRM activities, the outcomes of their efforts can help in transformation of such urban centres and foster positive change within amid complex natural disaster risk contexts.

A blind spot for many, but one of the attributes common with the young population is how well and creatively come up with innovative solutions to problems. Because of their innate skills, youth can also bring advanced technologies to disaster risk management measures, such as creating new encouraging tools for the dissemination of alerts, improving communication in crisis situations, and coordinating evacuations using Crowdsourcing, IoT (Internet of Things), Drones, and some mobile applications e.g., M-Kavach, Rescue Buddy etc.

Community involvement and participation are yet other essential ingredients of any effective disaster risk management. Young and socially aware, with an inherent connectedness, young people have immense potential to contribute to creating a preparedness culture and building resilience within their communities. The youth can organize workshops and training sessions on disaster management apart from various other awareness campaigns for their peers and neighbours regarding preparedness for disasters and involve them in proactive steps.

In modern time, characterized by rapid digital media coverage, adolescents easily operate social media and online communication tools with great proficiency. This technology literacy can be gauged to spread accurate and timely information during disaster scenarios, offset misinformation, and quickly coordinates relief effort. Young volunteers mobilize resources, coordinate rescue operations, and provide assistance to stranded people through access to social media networks. Movements that genuinely lead and support environmental sustainability, social fairness, and disaster resilience have emerged from all around the world in recent years. Smart cities can support and build upon such initiatives by harnessing the energy and dedication of diverse young leaders who can create a better future for all. Grassroots campaigns, advocacy drives, or community projects carried out by young people can thus inject desirable change and influence resilience strategies in smart cities.

In brief, smart city youth are definitely capable of much potential in developing completely new methodologies of disaster risk management and enabling the growth of resilient urban areas. A smart city can effectively capitalize on the combined strengths of its younger population, in reducing risks and responding promptly in any emergency toward the goal of making the community safer and more sustainable, by engaging young people in the processes of decision making, investing in developing their skills and competencies, and encouraging collaboration and innovation. Assisting the upcoming generation of leaders to take initiative and spearhead constructive change is the first step towards a future that is more resilient. Regarding the mitigation of catastrophe risk, the younger generation not only represents the wave of the future, but also the designers of a more secure and environmentally friendly society.

DIGITAL LITERACY FOR YOUTH IN ENHANCING DISASTER RESILIENCE

Ashis Sarkar

Disasters are becoming more frequent and intense due to climate change, urbanization, and unscientific development practices. Disaster resilience is a critical global concern, and digital literacy, especially among youth, is crucial for building such resilient communities. As digital natives, they can leverage technology to enhance disaster preparedness, response, and recovery. Digital literacy equips youth with the skills to use digital tools like smartphones, the internet, and social media for disaster preparedness, response, and recovery. It enables access to real-time information, early warnings, crowd-sourcing participation, and community education. By fostering digital competence, youth can play a crucial role in reducing disaster risks and building resilient, informed communities. Disaster resilience is the capacity of individuals, communities, and systems to withstand, adapt, and recover from disasters, focusing on preparedness, mitigation, response, and recovery, reducing vulnerabilities and strengthening capacities to deal with disaster risks.

Disaster resilience relies on effective communication before, during, and after a disaster. Digital platforms like mobile apps, social media, and SMS-based alert systems are crucial for disseminating early warnings and real-time information. Young people, as tech-savvy individuals, can quickly adapt to these systems and share information with their peers, families, and communities. They can also participate in crowdsourcing initiatives, contributing data about disaster-affected areas using tools like GIS, OpenStreetMap, and mobile applications. Digital platforms also offer opportunities for youth to engage with their communities on disaster preparedness and resilience education through blogs, webinars, and social media campaigns. Post-disaster recovery and mental health support can be facilitated by digital tools like GoFundMe.

The Nepal Earthquake (2015) underscored the significance of digital literacy among youth in disaster response and recovery. Young volunteers used OpenStreetMap to crowdsource data, map damaged infrastructure, and share real-time information about rescue efforts. Social media platforms like Facebook and Twitter provided real-time updates, enabling faster and coordinated disaster management, saving lives and resources.

During Hurricane Maria in Puerto Rico, digitally literate youth utilized platforms like WhatsApp and Zello to communicate despite power outages and phone lines. They also participated in crowdfunding campaigns for relief supplies and mapped flood-prone areas using GIS tools, enhancing the community's disaster resilience and aiding rescue and relief operations.

Digital literacy is crucial for youth to enhance disaster resilience. Access to technology, education, and training is necessary for effective use of digital tools in disaster preparedness, response, and recovery. Addressing issues like the digital divide, misinformation, and inclusivity will strengthen youth's potential. Empowering youth with digital skills can reduce disaster impact by improving communication, data collection, education, and recovery efforts. As disaster frequency and intensity increase, digitally literate youth play a critical role in disaster risk management.



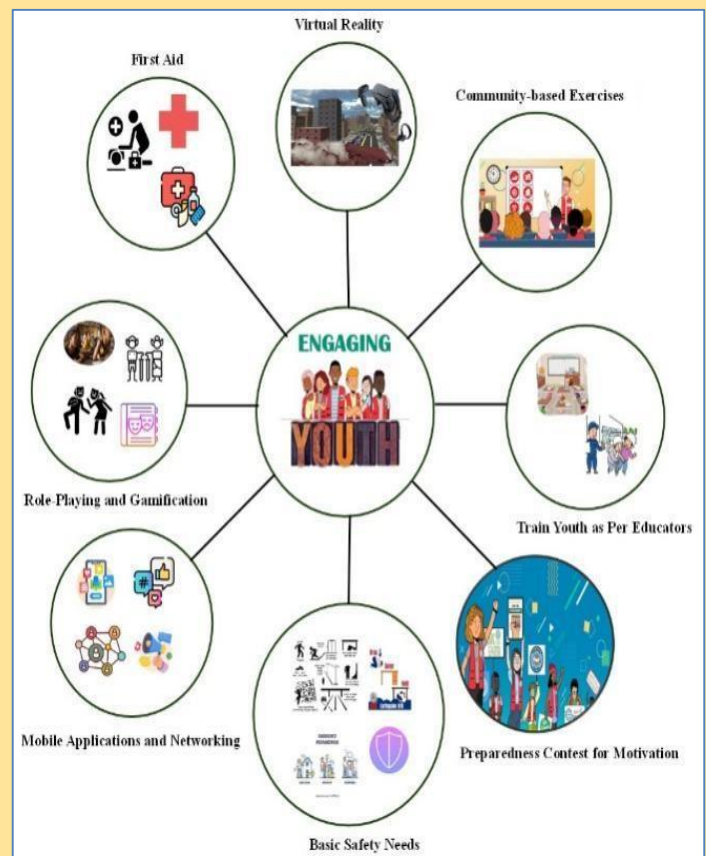
ENGAGING YOUTH IN DISASTER PREPAREDNESS DRILLS AND SIMULATIONS

Dipayan Laha

Natural and man-made disasters are on the rise all over the world today. Frequencies and intensities of various hydro meteorological disasters such as floods, droughts, cyclones, hurricanes, and wildfires increasing due to the impacts of climate change. Hence, the communities at the grassroots level should be prepared to combat this disaster for building their resilience. Youth disaster preparedness exercises and simulations are among the most effective strategies to foster resilience. A culture of readiness can be greatly aided by the youth, who are both the future and the present. We can ensure safer communities by equipping them with the skills and knowledge to respond to emergencies. So over here the question arises that why involve youth in disaster preparedness?

Young people, with their ability to quickly grasp new information and their increasing involvement in social activism and can serve as champions for disaster preparedness. They can learn the dangers posed by different types of disasters and the best responses through drills and simulations. They can prepare a trained cadre of volunteers who can take charge during emergencies. Once the youths and adolescents are trained in disaster preparedness, they can share knowledge with their peer and relatives thereby raising awareness about the significance of being well prepared in advance for any circumstances. Disaster preparedness simulations teach youth valuable skills like first aid, search and rescue techniques, and emergency communication, which are beneficial not only during disasters but also in everyday situations.

Schools are used as the base to practice disaster drills. Fire, earthquake or flood drills with alerts at least once a week can be programmed. Points made by the teacher can be illustrated through physically involving students in certain activities like mapping of evacuation routes or practicing Cardio Pulmonary Resuscitation can make the exercises both informative and fun. Local government or non-governmental organizations can involve youths in organizing workshops or camps on disaster preparedness. Such workshops and camps can provide excellent opportunities to witness handy practical demonstrations of skills which include, fire fighting, emergency medical operations and disaster communication. The youth are generally tech savvy and proficient with technological devices and gadgets. By using techniques of mobile applications, games or virtual simulations the training on disaster preparedness becomes more effective. Many FM radio channels being operated by young professionals help to disseminate information on disaster risks, preparedness measures and recovery programs to the large community. Through simulations in virtual reality (VR) youth will be able to face different disasters and they can learn to respond in an effective way. A few highly motivated and proactive young people can educate other young people on disaster preparedness. It helps in enhancing learning through the provision of a practical way of ensuring that the youth educate other people and also helps in the development of team work. Scouting programmes may focus on the issues of service delivery and gaining of social skills. Applying disaster drills to these programs will also give the youth knowledge on emergency preparedness and at the same time, serve their community needs.



Youth are the change-makers of tomorrow, and their engagement today is key to building a disaster-resilient world.

PROMOTING YOUTH ENTREPRENEURSHIP IN DISASTER RESILIENCE

Akash Chakraborty

Disaster resilience is essentially the ability of a system, community, or organization to withstand the impacts of disaster, adapt to them, and recover while retaining its core characteristics and functions. There is a broad consensus that long-term adaptive capacity and resilience of people and communities must be enhanced to deal with growing challenges of climate change and disasters. Intergovernmental, national, and regional governments are seeking opportunities to increase public involvement and design new technologies and investments that can reduce disaster risks and enhance climate change adaptation as the associated costs and risks of climate change and disasters continue to grow. In this context, young people represent an underutilized demographic dividend that may be harnessed to advance disaster resilience.



A wide range of people with different economic, cultural, social, political, and other demographic traits are included under the umbrella word "youth". Youth are considered to be generally more receptive to modern technologies and innovation. They are significant stakeholders in the discovery and development of solutions on disaster preparedness and response. Their engagement may empower the most vulnerable population to effectively respond to and recover from disasters. Entrepreneurship among the youths as future leaders is the key factor that would hugely benefit in the long term to the building up of community resilience. Equipment of youths with required skills, resources and support would help them to build enterprises that not only address the needs of the communities affected by disasters but also provide sustainable livelihoods in affected communities.

Young entrepreneurs can also play a vital role in disaster recovery and resilience, by creating innovative solutions, generating employment, and supporting community needs. Young entrepreneurs are able to quickly and effectively organize and use the resources at their grasp, and they may modify their business plans and tactics in response to opportunities and market conditions that change over time. Entrepreneurs must identify possible risks and vulnerabilities that might affect their business, like natural disasters such as flooding, earthquakes, fires, cyber-attacks, or pandemics. Concurrently, they will need to assess the probability and potential impact of such events because they will have to formulate strategies for reducing vulnerabilities to such threats, for example, in flood prone area they can make plans, collaborations and investments in flood insurance that can motivate the local authorities. Some of the shining examples of youth entrepreneurship in disaster recovery are the companies like *Gojek*, a Indonesian ride-hailing and delivery platform, that launched *GoHeroes* which provides incentives and benefits to partners volunteer in disaster relief and also *GoGive* that enables user to donate in various causes. Another is an American-based drone company *Zipline* founded in 2014 that delivers quick and dependable access to medical supplies in remote and difficult-to-reach places.

Despite these potentials, youth entrepreneurship for disaster resilience has not thrived as there are several barriers, especially for mobilizing finance for such services. Most young entrepreneurs fail to start their businesses because they do not have funding. At times, traditional financing institutions may consider disaster-related entrepreneurship as high-risk. Surely national governments should consider fiscal incentives, financial institutions should advance credit in easy terms, and corporate houses offer helping hands in supporting and sponsoring youth start-ups on disaster recovery and climate change adaptation.

INCORPORATING INDIGENOUS KNOWLEDGE IN DISASTER EDUCATION FOR YOUTH

Ditsa Maity

Different Research have shown that the success and sustainability of community-level interventions depend on local culture, knowledge, and indigenous practices. Indigenous knowledge is crucial for innovation and long-term sustainability. It is essential to involve and integrate indigenous communities in disaster-related processes, as emphasized in the Hyogo Framework for Action. The 2004 Indian Ocean Tsunami demonstrated the importance of indigenous knowledge in surviving disasters. For example, the Simeulueans and Moken communities off the coast of Sumatra, Indonesia, used oral knowledge to survive the tsunami. Other communities, like the Moken of the Surin Islands, also utilized indigenous knowledge to cope with environmental challenges. These examples highlight the value of indigenous knowledge in disaster risk reduction and offer valuable lessons for practitioners and policymakers. Indigenous knowledge refers to the techniques and customs that a community has developed from a deep understanding of the surrounding environment over many generations. It is distinct from other types of knowledge in that it comes from within the community, is informally distributed, is collectively owned, evolves over generations, and is ingrained in the community's way of life as a survival strategy. Indigenous knowledge is primarily owned by communities and is passed down through specific standards. It requires extensive training in the environment and close interaction with nature. Information experts are necessary to manage indigenous knowledge, especially in the modern era. In the 21st century, technology should be utilized to organize indigenous knowledge for sustainability, given the increasing interest in technology among the current generation.



The world's population is made up of half children and youth, who are often considered vulnerable due to lack of resources and socioeconomic conditions. However, they can play a crucial role in building a resilient society and changing perceptions. They are valuable resources for implementing the Sendai Framework and can act as agents of change. With the right support and training, they can be critical agents for emergency preparedness and disaster risk reduction, benefiting wider society. Children and youth are now major stakeholders on a global scale, actively participating in and contributing to the creation of bottom-up disaster risk reduction (DRR) policies. They are also helping to integrate DRR into intergovernmental processes related to climate change and sustainable development. Additionally, young scientists are combining scientific and local expertise to create new DRR knowledge, which is influencing current and future DRR practices and policies.

The leaders of tomorrow are today's kids. The youth of the sinking islands of Kiribati are taking action now to confront the effects of climate change on their communities and island; they are not waiting for better times. They conveyed their message on the third day of the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change, stating that the youth of Kiribati are rising with resilience. The Kiribati Family Health Association (KFHA) is providing training on humanitarian preparedness and response in anticipation of climate-related calamities. The Humanitarian Young Club, which meets frequently to organize rapid solutions for Kiribati's youth after climate-related crises, is a vital component of KFHA's activities.

THE ROLE OF YOUTH IN ENHANCING EARLY WARNING SYSTEM

Riyanka Das

The involvement of young people in disaster management and early warning systems (EWS) is increasingly recognized as essential for enhancing community resilience. Young individuals can significantly contribute to disaster preparedness by participating in identifying risks, planning for emergencies, and implementing response strategies (Akeyo, 2010). Initiatives such as Youth Mappers demonstrate how young people can address local challenges through geographical citizen science (SMCoSE YouthMappers, 2023). Participatory approaches involving youth in EWS development can help overcome the limitations of traditional top-down models, fostering intergenerational dialogue and promoting a people-centered approach (Marchezini et al., 2017). However, challenges remain in implementing comprehensive EWS, including limited coverage of hazards and locations, as well as the absence of robust policy frameworks (Kafle, 2017). To maximize the potential of young people in disaster preparedness, it is essential to integrate their participation into school curricula and community-based initiatives, thereby strengthening partnerships for resilience and cultivating future leaders in disaster risk reduction (Akeyo, 2010; Marchezini et al., 2017). The role of young people in disaster management is often overlooked, despite their potential to enhance early warning systems and preparedness (Akeyo, 2010). Youth are physically strong, mentally agile, and eager for change and dynamism in their communities (Rahman, 2020). They possess the energy, idealism, and adaptability needed to contribute significantly to disaster risk reduction and management. In Malaysia, disaster management has become a significant concern for the government due to the frequent occurrence of environmental disasters such as floods and landslides (Rahman, 2020). Strategies are needed to empower youth with the necessary knowledge and skills to effectively involve them in disaster risk management. Involving young people in disaster management can help them learn crucial topics that affect their lives while gaining hands-on experience that will help them become better leaders (Akeyo, 2010).

One such approach is the formation of youth groups, such as the Reaktif Tanggap Bencana group in Indonesia, which aims to provide disaster preparedness education (Akeyo, 2010; Rahman, 2020; Istiana et al., 2022). This not only benefits from the creativity and energy of young people but also strengthens partnerships for resilience. Moreover, parents play a vital role in shaping youth attitudes and awareness towards disaster preparedness. When parents are educated on disaster preparedness and risk reduction, they can then pass on this knowledge to their children, ensuring the next generation has the understanding and skills to respond effectively during emergencies and contribute to building a more resilient community that is better prepared for future disasters. (Hardi et al., 2018; Rahman, 2020; Istiana et al., 2022; Akeyo, 2010). Geographical knowledge can also play a key role in empowering youth to solve local disaster issues. By providing training and resources to young people on assessing local hazards, vulnerability, and risks, they can develop community-based early warning systems that are tailored to their local environment. Involving youth in disaster management can have a lasting impact, as they gain hands-on experience that equips them to become future leaders in this critical field. Enhancing youth involvement includes: Empowering youth through geographical knowledge and participatory approaches, strengthening partnerships between parents, schools, and communities, and incorporating youth-focused disaster preparedness education into policy frameworks. While challenges like limited hazard coverage and weak policy support remain, fostering youth participation in DRR has the potential to build more resilient communities in the face of increasing environmental disasters. This discussion highlights the potential of youth involvement in disaster management and early warning systems (EWS), emphasizing their adaptability, energy, and idealism in addressing community resilience. Various studies and initiatives, such as Youth Mappers and the Reaktif Tanggap Bencana group, illustrate how young people can contribute meaningfully to disaster preparedness by actively participating in risk assessment, emergency planning, and response strategies. Incorporating youth into disaster risk reduction (DRR) efforts fosters a people-centered approach, overcoming the limitations of conventional top-down models, and promoting intergenerational dialogue. Integrating disaster preparedness into school curricula and community initiatives not only empowers youth but also cultivates future leaders equipped with crucial disaster management skills.

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THE IMPACT OF YOUTH-LED SOCIAL ENTERPRISES ON DISASTER RESILIENCE

Saikat Dutta

The engagement of young people in social entrepreneurship is increasingly important for improving disaster response in society. These enterprises, established by young individuals, utilize solution-oriented approaches, technology, and community connections to address the impact of disasters. This paper focuses on the role of youth social enterprises in enhancing disaster management, particularly in India.

India is vulnerable to various natural calamities such as floods, droughts, earthquakes, and cyclones. The country faces challenges including limited infrastructure, scarce resources, and unprepared communities, which hinder its ability to respond effectively to these disasters. In response, young social enterprises are developing new, affordable, and practical approaches to mitigate disasters and involve affected populations.

Impact of Youth-Led Social Enterprises:

- **Innovative Solution:** The young people are developing new and effective solutions to address disaster preparedness and response issues. They utilize mobile applications, drones, and IoT sensor connectivity. For example, Technology Innovation is a start-up technology based in India that developed a mobile application that sends flood alerts in real-time and shows evacuation.
- **Community Engagement:** These businesses engage the communities in the dissemination of information on the necessary measures that can be taken to avoid disasters and participation in their management. A youth-based social enterprise has developed a set of trained volunteers in India for help during disasters.
- **Capacity Building:** Youth-RUN is a social enterprise initiated by youths that aims to enhance community capacities in responding to disasters. They provide coaches and teaching aids to enhance the people's abilities in the community in key areas that embrace first aid, search and rescue, and the administration of the shelters in disasters.
- **Partnerships and Collaborations:** Most organizations today are partnering with social governmental bodies, NGOs, and other firms to gain funding, and share expertise and resources. For instance, one of the youth-led social enterprises has partnered with one of the Indian state governments to develop a strategy for disaster risks in a vulnerable district.

Case Study:

- **Flood-Resilient Construction:** A set of youngsters existing in Kerala, India, have developed building materials and techniques that may encourage floods. These innovations have been adopted to strengthen the local communities' resistance to floods.
- **Disaster Risk Reduction Education:** A group of youth in Odisha, India has developed a program that will help make students aware of various disasters and how to minimize associated risks. This program is incorporated into the school, intending to teach the students recommended emergency preparedness and management procedures.

This topic aims to explore how youth-led social enterprises contribute to disaster resilience in India. To achieve this goal, these enterprises generate new ideas, engage with communities, build capacity, and form partnerships to change the way the country prevents, mitigates, responds to, and recovers from disasters. For these youth programs to be effective, it is essential to involve governments, NGOs, and private organizations in providing support, time, resources, and financial assistance. Through this collaborative effort, it is possible to create a world that is better equipped to handle future shocks.

GROUNDWATER DEPLETION: CAUSES, IMPACTS, AND SUSTAINABLE SOLUTIONS

Ashmita Rakshit

Groundwater, one of the most crucial natural resources, plays a vital role in maintaining ecosystems, agriculture, and human societies. However, its depletion has become a pressing global concern, with adverse impacts on environmental sustainability, water security, and socio-economic development. Groundwater depletion refers to the decline in groundwater levels due to excessive extraction beyond the replenishment rate. This issue is particularly severe in arid and semi-arid regions, where dependence on groundwater is high. Addressing groundwater depletion requires a comprehensive understanding of its causes, consequences, and sustainable solutions.

Causes:

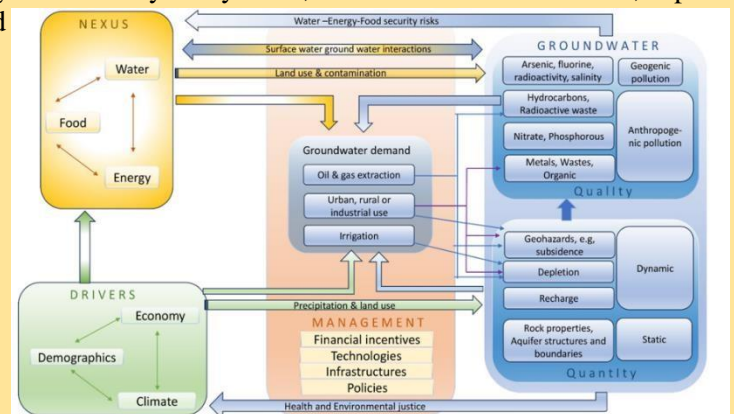
Agricultural Over-extraction: Agriculture is the largest consumer of groundwater, accounting for around 70% of global freshwater withdrawals. Intensive irrigation practices, especially in water-scarce regions, contribute significantly to groundwater depletion. **Urbanization and Industrialization:** Rapid urbanization and industrial growth have increased the demand for water. Industries and urban households often rely on groundwater for their needs, leading to over-extraction. Furthermore, the construction of concrete surfaces and impervious infrastructure in cities hampers the natural recharge of groundwater. **Climate Change:** Changes in climate patterns, including reduced rainfall and prolonged droughts, disrupt the natural recharge of aquifers. In many regions, reduced surface water availability forces communities to depend more heavily on groundwater, accelerating its depletion. **Deforestation and Land Use Changes:** The destruction of forests and alteration of land for agriculture, mining, and urban development disturb the natural hydrological cycle. **Poor Water Management Practices:** Inefficient water management, such as over-pumping and unregulated groundwater extraction, is a major cause of depletion.

Impacts:

Water Scarcity: Groundwater depletion exacerbates water scarcity, affecting millions of people globally. **Agricultural Decline:** The depletion of groundwater can severely affect agricultural productivity. In regions heavily reliant on groundwater for irrigation, declining water levels can lead to reduced crop yields, threatening food security. **Land Subsidence:** Over-extraction of groundwater can cause land subsidence, where the ground sinks due to the collapse of empty aquifers. This phenomenon not only damages infrastructure, such as buildings and roads, but also increases the risk of flooding in low-lying areas. **Degradation of Ecosystems:** Many ecosystems, such as wetlands and rivers, depend on groundwater to maintain their health and biodiversity. The depletion of groundwater can disrupt these ecosystems, leading to the loss of habitats. **Water Quality Issues:** As groundwater levels drop, the concentration of pollutants in the remaining water increases. This can result in the contamination of groundwater with harmful substances like arsenic, fluoride, and nitrates.

Sustainable Solutions:

Improved Water Management: Efficient water management is crucial for reducing groundwater depletion. Implementing policies to regulate groundwater extraction, promoting water-saving technologies, and encouraging responsible use of water resources can help manage groundwater levels sustainably. **Rainwater Harvesting:** One of the most effective ways to replenish groundwater is through rainwater harvesting. It is particularly beneficial in urban areas where natural infiltration is hindered by impermeable surfaces. **Sustainable Agriculture Practices:** The adoption of water-efficient irrigation techniques, such as drip irrigation and sprinkler systems, can reduce the pressure on groundwater resources. **Forest Conservation:** Protecting forests and engaging in afforestation activities are essential for restoring the natural groundwater recharge processes. **Awareness and Education:** Public awareness campaigns and education programs can promote the responsible use of groundwater and the importance of conservation. **Governmental and Policy Interventions:** Governments play a critical role in addressing groundwater depletion by enacting laws, setting extraction limits, and ensuring proper enforcement. International cooperation on transboundary groundwater management can also contribute to sustainable solutions.



INTEGRATING DISASTER RISK REDUCTION IN YOUTH CAMPS AND EXTRACURRICULAR ACTIVITIES

Sangita Saha

Disaster risk reduction (DRR) is becoming an increasingly important worldwide goal, particularly as natural catastrophes become more frequent and intense due to climate change and environmental degradation. Equipping the next generation with the information and abilities needed to reduce and manage these risks is crucial for creating resilient communities. One important way to promote this readiness is by including DRR into youth camps and extracurricular activities. Engaging young people outside of the typical classroom setting is made possible by youth camps and extracurricular activities like athletics, art, and leadership organizations. Because of their more relaxed, hands-on learning environment, these venues are perfect for imparting important DRR principles in an engaging, participatory, and useful manner.

DRR incorporation into youth camps: Youth camps are great venues for including disaster risk reduction training, regardless of whether they are set up for sports, environmental awareness, or leadership development. Activities that include risk assessment, disaster planning, and response techniques might be included in these camps. Camps conduct simulations or mock drills to teach evacuation protocols, first aid, and danger identification. These drills can be modified to handle regional hazards, enhancing participants' life skills and confidence. Disaster management professionals may conduct talks or workshops at youth camps to promote resilience and preparation, empowering youth to mitigate the impact of natural disasters on themselves, families, and communities.



Extracurricular activities as DRR education platforms: Extracurricular activities in community or educational contexts offer other channels for integrating DRR outside of youth camps. Environmental clubs might, for instance, host talks on how ecosystems lower the danger of disasters, such as how wetlands can lessen floods or how woods can stop landslides. Youth have an appreciation for the role that sustainable environmental management plays in averting disasters via these kinds of activities. Athletic associations can enhance disaster readiness by incorporating physical drills to develop agility, quick thinking, and collaboration skills. Arts and creative groups can promote creativity and public knowledge of disaster preparedness by involving young people in emotional activities.

Establishing a culture of readiness: Young people are preparedness-conscious because we include catastrophe risk reduction into our extracurricular and youth camp programs. This method guarantees that DRR awareness is embedded in the community at large and is not just known to emergency personnel. In their homes, schools, and communities, young people who actively participate in disaster preparedness become champions for safety and resilience.

In summary, incorporating DRR into youth activities is about giving the next generation the tools they need to take charge of their own destiny, in addition to dispensing information. In this way, we may create societies that are more robust to the problems posed by a world that is becoming more unpredictable.

YOUTH-LED RESEARCH ON LOCAL DISASTER RISKS AND VULNERABILITIES

Sanchari Roy

Youth-led research on local disaster risks and vulnerabilities plays a critical role in strengthening community resilience and contributing to sustainable development. In the context of increasing global challenges such as climate change, natural disasters, and urbanization, empowering youth to participate in disaster risk reduction (DRR) initiatives is essential. This approach enables young people to identify risks, assess vulnerabilities, and propose innovative solutions that can be implemented at the local level.

Youth are uniquely positioned to contribute to disaster risk reduction efforts. As future leaders, they have a vested interest in creating resilient communities that can withstand the impacts of disasters. Youth often possess fresh perspectives, creativity, and energy, which can lead to innovative solutions for local challenges. Additionally, young people are adept at using modern technologies, which can be harnessed to assess and address disaster risks in real time. Moreover, youth involvement in disaster risk reduction contributes to the empowerment of marginalized groups. In many communities, young people are among the most vulnerable populations, often facing limited access to resources, education, and opportunities. By engaging youth in research and decision-making processes, they are not only given the tools to protect their communities but also to advocate for their own needs and those of others who are similarly at risk.

Community-Based Research

Youth-led research on local disaster risks often focuses on community-based approaches. This involves working directly with residents, local authorities, and other stakeholders to gather information on hazards, vulnerabilities, and capacities. Such research emphasizes participatory methods, where youth collaborate with community members to collect data through interviews, surveys, and field observations. For instance, youth can identify areas prone to flooding, landslides, or other natural hazards by mapping local terrain and infrastructure. They can also assess social vulnerabilities, such as the presence of marginalized groups, including the elderly, people with disabilities, or low-income households, who may face greater risks during a disaster. By understanding the local context, youth researchers can develop targeted strategies that address both physical and social vulnerabilities. Additionally, community-based research encourages a sense of ownership and responsibility among young people. When youth are directly involved in researching local disaster risks, they become more invested in advocating for risk reduction measures and are more likely to take proactive steps to protect their communities.

Leveraging Technology and Innovation

One of the key strengths of youth-led research is the ability to leverage technology for disaster risk reduction. Youth are often more proficient in using digital tools, which can enhance the accuracy and efficiency of research. Geographic Information Systems (GIS), for instance, allow young researchers to create detailed maps of hazard-prone areas, while drones and satellite imagery provide real-time data on environmental changes. Furthermore, social media platforms offer a powerful tool for disseminating information about disaster risks and early warning systems. Youth can use these platforms to raise awareness, share research findings, and mobilize their peers and communities in disaster preparedness efforts. Technology not only enhances the research process but also enables young people to engage in broader advocacy and policy discussions related to disaster risk management.

Challenges and Opportunities

While youth-led research on local disaster risks offers significant potential, there are challenges that must be addressed. Young people often face barriers such as lack of access to funding, training, and resources needed to conduct comprehensive research. Additionally, in some cases, they may encounter resistance from local authorities or decision-makers who may not fully recognize the value of youth involvement in DRR efforts. To overcome these challenges, it is crucial to provide support in the form of training, mentorship, and resources. Governments, NGOs, and educational institutions can play a vital role in creating platforms where youth can learn about disaster risk reduction, develop research skills, and gain access to the necessary tools and funding. Partnerships between youth organizations and local authorities can also foster collaboration and ensure that youth-led research is integrated into broader disaster management strategies.

YOUTH LEADERSHIP IN DISASTER-RESILIENT COMMUNITY DEVELOPMENT

Tazmin Sultana

As natural disasters become more frequent and severe due to climate change, youth involvement in disaster management and community development is crucial. Youth leadership has emerged as a transformative factor in creating resilient communities. Youth can participate in various programs related to youth preparedness which are essential to rehabilitation initiatives. They might take on leadership roles in programs or help communities identify their protective and risk factors. Acting as change makers, contributing innovation, and spreading messages are a few more duties. According to projections for global population statistics provided by the World Youth Report in 2002, youth made up around 30% of the global population at that time. Therefore, involving young people in the process of disaster preparedness benefits not only the young people themselves, their families, and their communities, but it also helps to empower the grassroots, increasing the level of responsibility within the overall plan. Studies have shown that youth who participate in preparedness training are more likely to make responsible decisions and defend against abuse, exploitation, and illicit drug trade.

Youth leadership is essential in disaster-resilient community development for several reasons. First, young people's firsthand experience with disasters influences how urgently these problems need to be addressed. Engaging in proactive planning, response, and recovery activities during emergencies can help young leaders become change makers. Second, youth leaders have a natural attraction to use innovation and technology, which can greatly improve efforts to handle disasters and to engage in early warning systems and promote effective communication strategies during a crisis. For example, GIS, remote sensing, and social media are powerful tools. However, resilient communities can't be built overnight. They require ongoing efforts to build resilient social networks, infrastructure, and educational programs. There are several ways that youth leadership supports this long-term resilience. In order to increase disaster resilience, youth-led projects prioritize the conservation of natural ecosystems, climate-smart agriculture, and sustainable urban development. Furthermore, by emphasizing inclusive participation, they increase community ownership and the long-term viability of disaster management initiatives.

Numerous youth-focused initiatives that aid in disaster preparedness and recovery are funded by the federal government. Among these programs are: *AmeriCorps NCCC (National Civilian Community Corps)*, which is a full-time, team-based residential program for young people. Another distinctive team-based volunteer program, *FEMA Corps*, allows individuals between the ages of 18 and 24 to help communities affected by disasters while earning experience for their career development. *FEMA Youth Preparedness Council* and *CERT Program* provide opportunities for youth to learn disaster response skills and prepare for hazards in their community. In India, *Doers*, a humanitarian organization, is dedicated to building resilient and climate-smart communities in the Himalayan region of India through workshops and boot camps.



Children and youth's participation in disaster relief and climate action is not only vital but also essential, as they are among the most vulnerable groups in the event of a disaster. Governments, the UN, educational institutions, and other stakeholders, including young people themselves, are actively addressing the needs, reducing the risks, and fostering more resilient communities in accordance with the Sendai Framework and Youth 2030 agenda.

A sustainable future relies on youth leadership in building disaster-resilient communities. It's important to recognize that youth are not just future leaders, but also current architects of resilience. By empowering young people and providing them with the necessary resources and platforms, communities can become more resilient and better equipped to withstand the impact of disasters in the future.

ENGAGING YOUTH IN COMMUNITY-BASED DISASTER RISK MANAGEMENT

Biplab Pal

A community has the inherent knowledge of common hazards, affected areas and vulnerability of their local area. The community has indigenous knowledge of the coping mechanism also. So, the perception of the community is the most important part of assessing and reducing the risk. Thus, a new approach is emerged called 'Community-Based Disaster Risk Management (CBDRM). According to a report from the National Institute of Disaster Management (2021), "Community-based Disaster Risk Management is a process in which at-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities." The concept of community-based disaster risk management promotes community involvement in disaster risk reduction through the participation of people of all ages, especially youths. The Sendai Framework advocates for an "all-of-society" approach to disaster risk reduction, involving communities at high risk in policy design and implementation. So, youth participation in CBDRM is an important strategy for enhancing disaster resilience, building capacity and promoting an inclusive approach to disaster risk management. Here are some strategies to engage the youths in Community-Based Disaster Risk Management:

1. **Youth-led initiatives:** Youth-led initiatives include Disaster Response Teams, Risk Assessment Groups and Community Outreach Programs, which train and equip youth for disaster response, identify local vulnerabilities and empower them to educate peers and community members about disaster preparedness and response.

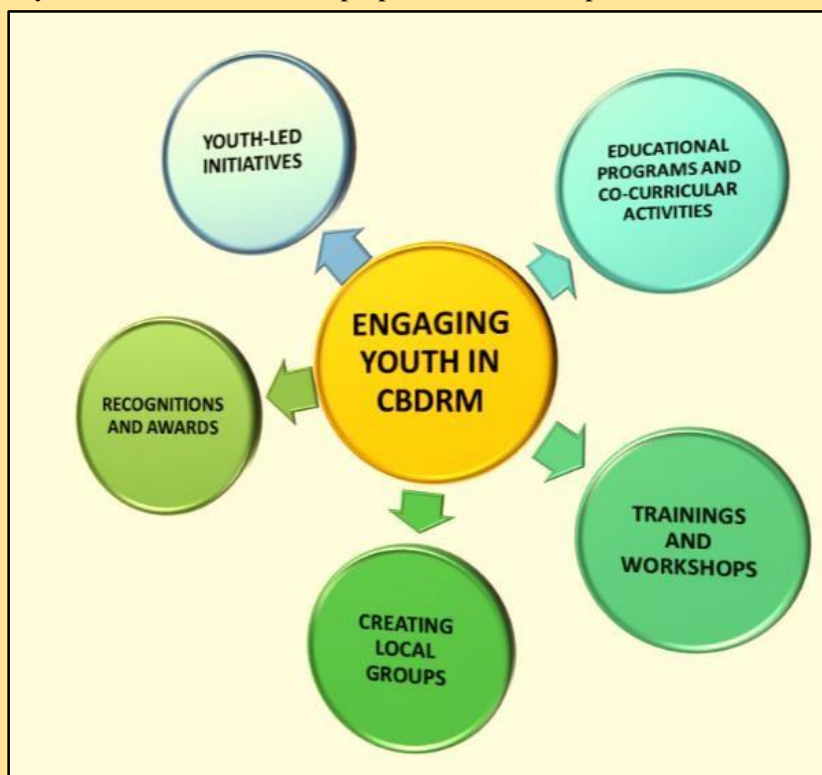
2. **Educational Programs and Co-Curricular Activities:** Integration of disaster risk management into school curricula is one of the best initiatives for engaging students. Besides, some of the most co-curricular engaging activities like micro-sessions on disaster preparedness, quizzes on disasters and preparedness etc. are very interesting learning processes for youth. Himachal Pradesh State Disaster Management Authority (HPSDMA) conducts an annual event called 'Samarth' to encourage youths for knowledge of risk through entertaining, educational and interactive learning activities.

3. **Training and workshops:** Some workshops and training programmes in schools and colleges initiated by some youth-led NGOs or Governmental Organisations are highly appreciable steps to make students learn about reducing risk and disaster preparedness. The best part is the practical experience provided by hands-on learning activities. They can also participate in response efforts, such as risk communication, evacuation, search and rescue.

4. **Creating local groups:** Creating groups of youths in the local level community is a great initiative for encouraging youths in Community-based Disaster Risk Management. Some of specialised people in Disaster Risk Reduction and some trained youths can create groups to mitigate and reduce local level disaster risks. These local level groups may seek help from NGOs or Governmental Organisations.

5. **Recognitions and awards:** Acknowledging and celebrating youth's contributions to disaster risk management through awards and recognition programs engages the youth to come forward.

Many countries across the world have created special organisations for coordinating with youths to manage disaster risk management, like Youth Advisory Council in the USA, Youth Emergency Response Team (YERT) in New Zealand etc. Some of third-world countries like India, Nepal, Indonesia etc. are trying to engage youths through local level planning, training and building various strategies in Community-Based Disaster Risk Management (CBDRM).



INTEGRATING DISASTER RISK EDUCATION IN SCHOOL CURRICULA: PREPARING THE NEXT GENERATION

Aveek Roy

Natural disasters pose a great threat to the world's population and it has become worse due to some factors like climate change, environmental degradation and rapid urbanization. From earthquakes in Japan to hurricanes in the United States and floods in India, these disasters not only disrupt economic and societies but also causes substantial loss of lives. In this backdrop, integrating disaster risk education in school curricula globally and especially in India is the need of the hour for preparing the next generation to understand, respond and mitigate these challenges.

Global Perspective:

Globally, countries have started to recognize the importance of disaster risk education in creating a culture of preparedness and safety. Japan has led the way in this aspect with its famous *Bosai* culture. Disaster education has been long included in its school Curriculum and students actively and regularly participate in earthquake drills and learns about disaster management form a very young age. The United States has also encouraged disaster risk education with its initiatives like FEMA's "Be A Hero Campaign" motivating students to develop emergency plans and kits.

Indian Perspective:

The need for disaster risk education in India is especially critical owing to the country's high vulnerability to a wide range of natural disasters like floods, earthquakes and droughts. According to NDMA (National Disaster Management Authority), 12% of India's land is vulnerable to floods and more than 58% of its landmass is prone to earthquakes. The pressing need for a resilient and prepared population is highlighted by the disastrous Uttarakhand flash flood of 2013, the Gujrat earthquake of 2001 and the 2004 Indian ocean tsunami.

Steps Taken:

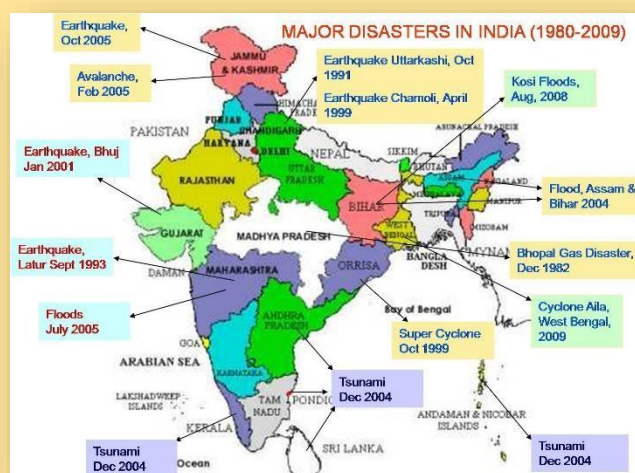
India has taken various significant steps towards integrating disaster risk education into the school curriculum. NCF (The National Curriculum Framework) 2005 is a great example of India's step towards creating a prepared and resilient youth. The NCF, 2005 included disaster management in the curriculum of secondary education in all central schools as a part of social science. Most of the State Boards of School Education have followed. Another noteworthy example of such step is the NDMA's guidelines for school safety and disaster management which was formulated in 2016 as a part of the National School Safety Programme (NSSP). Under this programme every school prepares its school safety plans and students are given hands on training on personal and group safety measures to be adopted during earthquake, flood, cyclone, fire etc. through mock drills. Students carry these skills to homes and educate other family members

Challenges and Opportunities:

Even though significant steps have been taken but still there is much to be done for effectively implementing disaster risk education all across India. Some of the key challenges are the poor infrastructure for school, lack of trained educators, drop out of students at the secondary level etc. To address these problems the government should increase the allocation of the education budget and invest in training programmes designed to specifically focus on disaster risk education. These training programmes should be made with collaboration of various state, national and international organization for efficient knowledge transfer.

Conclusion:

Noteworthy strides have been made globally and also in India but still there are much efforts to be done in this direction to ensure that every individual is capable of facing the challenges posed by natural disasters. Integrating disaster risk education into the school curriculum should be about creating a culture of resilience and preparedness and not just about teaching young minds how to react during a disaster, only then the society as a whole will be benefitted.



SOCIAL MEDIA AS A TOOL FOR DISASTER AWARENESS AMONGST NEXT-GENERATION

Ankita Kanjilal

Social media refers to a variety of technologies that facilitate the sharing of ideas and information among their users. Social media are interactive technologies that facilitate the creation, sharing and aggregation of content amongst virtual communities and networks. Social media functions like online platforms that enable users to create and share content and participate in social networking.

Here are some of the most popular types of social media:

1. **Social networks:** Social networking sites help people connect with each other. Users can share their thoughts, form groups based on their interests, curate content, upload photos and videos and participate in group discussion. Examples of social networking platforms: Facebook, Twitter, Instagram, TikTok.

2. **Bookmarking networks:** Bookmarking networks are platforms where users save different ideas, articles, posts and other content for later use.

Many people also share links to lists of online resources. The purpose of these websites is to discover new content based on shared interests and to discuss trends. Examples of bookmarking networks: Feedly, Flipboard, Pocket.

3. **Blogging and publishing networks:** These social media networks give you a place to publish your thoughts on your job, current events, hobbies and more. We can enjoy many of the benefits of having our own blog without having to host it on our own website. We can also attract new readers from the pool of people who visit the network



looking for interesting content. Examples of blogging and publishing networks: WordPress, Facebook.

4. **Consumer review networks:** These sites display customers' reviews of businesses, giving users a full perspective of the type of services and products offered and the overall satisfaction rate. Examples of consumer review networks: Tripadvisor, Google My Business.

5. **Sharing economy networks:** These sites give people access to resources by encouraging them to share goods and services.

Social media has both positive and negative impacts on next generation of youths.

Positive Impacts: Through social media, youth may interact with like-minded individuals and express themselves. Outside of typical classroom settings, social media offers access to educational resources. Online communities provide a secure setting for people to ask for help and exchange stories about mental health. By offering tools and support systems, social media can give people a sense of empowerment.

Negative Impacts: The anonymity of the internet can result in both exposure to harmful influences and cyber-bullying. Overuse of social media can have a detrimental effect on one's physical and mental well-being in addition to causing addiction. There are worries over privacy violations and the improper use of personal information by social media businesses.

Social media has revolutionized the way we communicate, share information, and connect with others. Social media can be used as a powerful medium to disseminate messages for early warning, disaster preparedness, and mutual help during disasters. The big data generated by social media can be analyzed to assess the perception, difficulties, challenges, demands and needs.

PREPARING YOUTH FOR DISASTER RESILIENCE IN URBAN ENVIRONMENT

Maitreyee Biswas

Disaster resilience is the capacity of individuals, communities, and systems to anticipate, withstand, adapt, and recover from various hazards. In urban environments, where disaster risks such as earthquakes, floods, fires, and man-made hazards are increasing due to rapid urbanization, climate change, and population growth, there is an urgent need to enhance resilience among the most vulnerable groups, particularly the youth. Preparing youth for disaster resilience is essential, as they represent a significant portion of the population, hold the potential for innovation, and can influence both current and future risk reduction strategies.

The Role of Youth in Urban Disaster Resilience

Youth in urban areas often experience firsthand the challenges of living in high-risk environments, such as densely populated neighborhoods with poor infrastructure. By empowering them with disaster preparedness and resilience-building strategies, they can act as critical agents of change within their communities. Young people are not just passive victims but can contribute to hazard identification, preparedness efforts, and post-disaster recovery. For example, youth-led community initiatives can engage in activities such as mapping high-risk zones, conducting awareness campaigns, and providing early warning messages through social media platforms. Their energy, creativity, and strong connection with technology make them ideal candidates for contributing to innovative solutions such as creating mobile apps for disaster alerts, crowd-sourcing data for risk assessment, and spreading vital information in real-time during disasters.

Disaster Education and Training Programs

Educational institutions play a crucial role in preparing youth for disaster resilience. Integrating disaster risk reduction (DRR) into school curricula ensures that young people are aware of the risks they face in urban environments and are well-versed in basic survival skills. Schools can incorporate lessons on hazard awareness, emergency response procedures, and how to create personal and family preparedness plans. Involving youth in regular emergency drills, evacuation simulations, and first aid training helps to build confidence and readiness in times of crisis.



Harnessing Technology and Social Media

The youth's familiarity with technology and social media platforms provides a significant advantage in disaster resilience efforts. Social media platforms like Facebook, Twitter, and Instagram are effective tools for spreading awareness about impending disasters, sharing evacuation routes, and organizing volunteer efforts. Training youth in the responsible and effective use of these platforms can enhance their ability to disseminate life-saving information in urban disaster scenarios. Additionally, youth can use digital platforms to engage in disaster simulations and virtual preparedness training. Mobile applications and online courses that focus on disaster risk management provide opportunities for young people to gain essential knowledge from any location, increasing their accessibility to disaster preparedness resources. This technological engagement not only improves individual resilience but also encourages community collaboration and collective preparedness.

Building Leadership and Engagement

Youth engagement in disaster preparedness and resilience initiatives should be seen as a leadership-building opportunity. When young people are given the chance to lead or participate in decision-making processes regarding urban planning, disaster management, and resilience strategies, they gain valuable experience that enhances both their personal development and the broader community's resilience. Creating platforms where youth can exchange ideas, learn from experts, and collaborate with peers fosters a sense of ownership over resilience efforts. This is especially critical in urban areas, where diverse communities face complex challenges, and youth-driven solutions can often address issues that traditional approaches overlook.

Overall, preparing youth for disaster resilience in urban environments is a multidimensional process that requires education, training, technological engagement, and leadership opportunities. By empowering youth with the necessary tools, knowledge, and platforms for engagement, they can become catalysts for disaster resilience in urban settings. As future leaders, they are crucial in shaping urban resilience strategies that will not only protect communities from disasters but also promote sustainable development in the long term.

BUILDING YOUTH CAPACITY IN DISASTER RESILIENCE INFRASTRUCTURE PLANNING

Sneha Bhattacharyya

It is crucial to build the capacity of youth in planning disaster-resilient infrastructure to create sustainable and adaptive communities. As the impacts of climate change and natural disasters become more pronounced, involving young people in disaster resilience efforts ensures a fresh perspective and long-term commitment to safety and sustainability.

The Importance of Youth Involvement: The next wave of leaders, organizers, and community influencers are the youth. They will personally be impacted by climate change and natural disasters during their lifetime; thus, it is imperative that they actively participate in disaster resilience planning. By involving young people, planning processes can benefit from fresh perspectives, and future leaders will be better prepared to handle this issue with the knowledge and abilities they require.

Educational Initiatives: Education is essential for developing young people's potential. It is crucial to incorporate infrastructure planning and disaster resilience into higher education programs and school curricula. The instruction should encompass the principles of disaster risk reduction, climate adaptation, and sustainable infrastructure design. Including practical, hands-on components such as simulations, field exercises, and project-based learning will enable students to better apply their theoretical knowledge to real-world situations. Collaborations between academic institutions, schools, and disaster management groups can provide valuable knowledge and resources.

Engaging Youth in Planning Processes: Promoting youth involvement in disaster resilience planning requires active engagement. Encouraging youth to participate in advisory councils, decision-making bodies, and community planning meetings guarantees that their opinions are heard. Youth-led projects can provide them with a sense of ownership and practical experience. Examples of these projects include community awareness campaigns and local disaster response teams. These programs help young people become proactive members of their communities and enhance their resilience to disasters.

Mentorship and Leadership Development: Young people require mentoring programs to help them develop their skills in disaster resilience planning. Pairing them with experienced professionals provides valuable and practical guidance. Leadership development programs tailored to youth can enhance their project management, strategic thinking, and communication skills. By preparing young people to assume leadership roles, we can cultivate a pool of knowledgeable and capable individuals who are ready to address challenges in disaster resilience.

Taking Advantage of Technology: Many young people are proficient in emerging technologies, which can be beneficial for disaster resilience planning. By teaching young people how to use technologies such as Geographic Information Systems (GIS), data analytics, and digital communication platforms, we can strengthen disaster preparedness and response initiatives. Youth can contribute to better data collection, more accurate risk assessment, and efficient emergency communication plans by utilizing these tools.

Creating Supportive Environments: Supportive settings are necessary for children to effectively contribute to disaster resilience planning. This involves establishing opportunities for young people to participate, providing them with adequate resources, and ensuring that their input is recognized and integrated into broader planning processes. At the local, national, and policy levels, encouraging youth engagement and the development of disaster resilience is crucial.

Building Collaborative Partnerships: Effective youth engagement in disaster resilience requires cooperation among multiple stakeholders. Collaboration between governments, educational institutions, non-governmental organizations (NGOs), and the commercial sector is necessary to provide funds, resources, and expertise. Collaborative projects and initiatives can offer youth regulated opportunities to participate in meaningful employment and acquire necessary skills.

THE ROLE OF ART AND CULTURE IN ENGAGING YOUTH IN DISASTER RISK REDUCTION

Triparna Pal

Disaster Risk Reduction (DRR) is the systematic development and application of policies, strategies and practices to minimize vulnerabilities, hazards, and the unfolding of disaster impacts throughout a society. Disaster risk reduction strategies include the appraisal of the likelihood and intensity of hazards analysis of vulnerabilities thereof to the community, building of institutional capabilities and community preparedness. Youth engagement in DRR is crucial because of the large populace of youth and their tendency to be the most affected by disasters. Art and culture serve as a tool for engaging youth in DRR through various innovative ways to raise awareness among them.

- **Encouraging Youth by Creative Participation:** Artistic activities such as drawing, music, photography, sculpture, or poetry help the youth to showcase their feelings, emotions and thoughts related to DRR. Initiatives like workshops, seminars, competitions and exhibitions around the theme of disaster can give away a message to youth to explore and imply their understanding of DRR. Such initiatives ignite the fire of taking operative roles in elevating disaster preparedness among themselves.
- **Encouraging Youth by Traditional Knowledge:** Knowledge plays an important role in DRR. The traditional knowledge available to the community has to be used along with knowledge acquired through research and past experiences. Incorporating cultural heritage that includes intangible assets such as oral histories, festivals, religious rites and practices helps to cope with natural hazards and helps youth to co-relate with their tradition and culture while learning influential knowledge about disaster resilience.
- **Encouraging Youth by Cultural Activities:** Building community resilience through cultural activities such as festivals, street plays, folk dances and music and film screenings binds youth with the rest of the community to build a collective sense of responsibility toward disaster preparedness. Visiting heritage sites that are vulnerable to disasters helps them understand the importance of preserving cultural heritage while adding to the community's overall resilience to disaster.
- **Encouraging Youth Collaborative Art Project:** Art projects that require collaboration of youth with NGOs and other institutions, promote social solidarity and a sense of shared motive. When the youth work conjointly on a project, they develop a skill of partnership and build relationships which are crucial for community resilience. These type of projects helps to foster dialogue among generations as young people cooperate with the elder members of the community to create works of art that review the community's collaborative experience and knowledge. This type of project helps to develop their skills to work together in times of crisis.



Art and culture provide creative ways to communicate complex objectives, encourage creativity, set up community resilience, support psychological stability and promote social cohesion. Encouraging youth in disaster risk reduction not only develops disaster preparedness and community resilience but also empowers the upcoming generations to take the initiative to build a safer, stronger and more resilient future. Therefore, investing in the encouragement of youth through art and culture is an investment in the long-term resilience of communities. The role of youth DRR is progressively vital making the art and culture more essential as disaster is becoming more frequent and intense.

ECO-FRIENDLY PRACTICES AMONG YOUTH FOR DISASTER RISK REDUCTION

Priti Biswas

Disaster risk reduction (DRR) is a critical component in mitigating the impacts of natural and human-induced disasters. As the frequency and intensity of disasters escalate due to climate change and environmental degradation, there is an urgent need to involve all sections of society, especially youth, in promoting sustainable practices. Engaging young people in eco-friendly habits is a transformative step toward building resilient communities and reducing disaster risks. Some eco-friendly practices for disaster risk reduction are:

- **Waste Reduction:** Improper waste management leads to environmental degradation and increases the severity of disasters like floods. Youth can be encouraged to minimize plastic use, recycle, and engage in clean-up drives to keep their communities clean and disaster-resilient.
- **Afforestation and Reforestation:** Planting trees and preserving green spaces are essential to prevent soil erosion, landslides, and floods. Youth-led initiatives like tree-planting campaigns contribute to a healthier environment and reduce disaster risks.
- **Water Conservation:** Water scarcity and contamination are significant challenges during disasters. Youth can be encouraged to adopt water-saving practices and participate in water conservation projects that improve access to clean water and reduce the risk of drought.
- **Energy Efficiency:** Promoting the use of renewable energy, such as solar or wind power, helps reduce carbon emissions, mitigating the impact of climate change, which is a driving force behind the increasing occurrence of extreme weather events. Young people can lead the way by opting for sustainable energy solutions in their homes and communities.

Encouraging youth in this disaster risk reduction through eco-friendly practices may become a powerful tool for reducing the risks of disasters and would also help to improve the skills of youths in this field of concern. Some of the ways to encourage eco-friendly practices among youth to reduce the risks of disasters are listed below-

- **Education:** Providing knowledge about the causes, effects, and preventive measures of disasters along with some eco-friendly practices may help the youths to grow their interest in disaster risk reduction.
- **Awareness:** Conducting awareness programs related to disaster risk reduction strategies would help grow interest among youth to engage with eco-friendly practices and reduce the risk of disasters.
- **Field visits:** Visiting the places that are affected by disasters and providing theoretical knowledge about the intensity of disasters may also influence the youths to practice eco-friendly activities to reduce the risks of disasters.
- **Competition:** Organizing competitive programs including the preparation of models, art contests, and project work that are relatable to disaster risk reduction may encourage the youths and this growing interest may help them to introduce new eco-friendly practices.
- **Integrating traditional practices:** Providing information about the benefits of traditional environmental practices would encourage eco-friendly practices among youths which in turn may help in disaster risk reduction.
- **Provide certificates:** Offering certificates for participants in eco-friendly activities and Disaster preparedness programs may encourage eco-friendly practices among youths and disaster risk reduction.
- **Green infrastructure projects:** engaging youths in planting trees, and building natural barriers would provide practical knowledge about the risk reduction strategies.

Overall, encouraging eco-friendly practices among youth is not just about promoting sustainability; it is about empowering them to be active participants in disaster risk reduction. By raising awareness, promoting eco-friendly habits, and involving youth in leadership roles, we can build a generation that is equipped to tackle environmental challenges and reduce the impact of disasters. Investing in youth today will lead to a more resilient and disaster-ready society tomorrow.

PROMOTING MENTAL HEALTH AND WELL-BEING IN YOUTH DURING DISASTERS

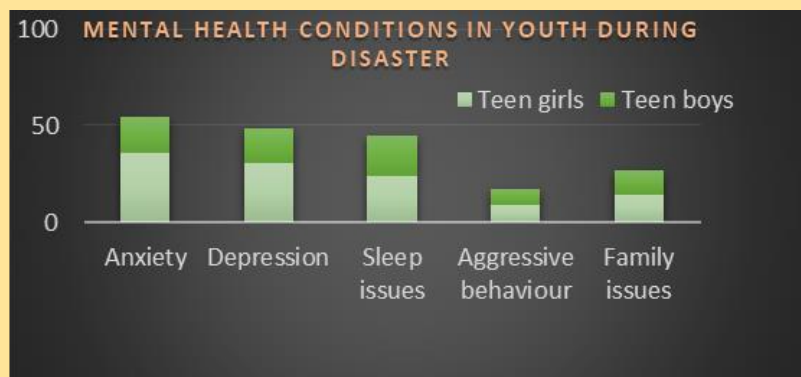
Susmita Sarkar

Your mental health is everything – prioritize it. Make the time like your life depends on it, because it does. — Mel Robbins

Disasters, can have profound psychological effects on individuals, especially youth. The impact of such traumatic events can lead to anxiety, depression, and post-traumatic stress disorder (PTSD) among young people. Therefore, promoting mental health and well-being during these crises is crucial for fostering resilience and ensuring the long-term psychological health of the younger generation.

Understanding the Impact of Disasters on Youth Mental Health:

Youth are particularly vulnerable to the adverse effects of disasters due to their developmental stage. They are often still learning to navigate their emotions, understand their identity, and establish social connections. Disasters can disrupt these processes, leading to feelings of helplessness and insecurity. Young individuals may experience heightened fear, uncertainty, and grief, especially if they lose loved ones, homes, or access to education. These disruptions can severely impact their mental health, leading to academic struggles, social withdrawal, and long-term psychological issues.



Source (Posté le 05 Sept 2023 , By CODICOMG)

Creating Supportive Environments:

One of the most effective ways to promote mental health during disasters is to create supportive environments that foster open communication and emotional expression. Schools and community organizations can play a pivotal role in this regard. Implementing programs that encourage dialogue about feelings and fears can help youth process their emotions. Support groups led by trained facilitators can provide a safe space for young people to share their experiences, validate their feelings, and build a sense of community.

Engaging Parents and Caregivers:

Parents and caregivers are crucial in promoting mental health in youth during disasters. Providing them with resources and training can enhance their ability to support their children effectively. Workshops on recognizing signs of distress, communicating openly, and fostering resilience can empower parents to be proactive in addressing their child's mental health needs. Encouraging families to engage in activities that promote bonding and emotional support can also strengthen the overall well-being of youth during times of crisis.

Utilizing Technology and Social Media:

In today's digital age, technology can be a powerful ally in promoting mental health. Online platforms can serve as a means for young people to connect with peers, share their experiences, and access mental health resources. Social media campaigns that raise awareness about mental health during disasters can help reduce stigma and encourage youth to seek help. Telehealth services have also become increasingly popular, providing easy access to mental health professionals. These platforms can facilitate counseling and therapy sessions, allowing youth to receive support without the barriers of transportation or stigma associated with in-person visits.



Implementing Community-Based Initiatives:

Community-based initiatives play a crucial role in promoting mental health and well-being among youth during disasters. Collaborating with local organizations, governments, and mental health professionals can ensure a comprehensive approach to support. Community events, such as resilience-building workshops, recreational activities, and outreach programs, can help young people reconnect with their peers and foster a sense of belonging.

YOUTH PERSPECTIVES ON BUILDING BACK BETTER AFTER DISASTER

Srinjoy Roy

In today's world, there are approximately 8.2 billion people, but only 1.2 billion of them are youth (ages 15 to 24), making up about 16% of the global population. We recognize the importance of this youth generation as they represent our future. Therefore, their perspectives and participation are crucial for the concept of Build Back Better (BBB) post-disaster.

In December 2004, The World Bank's Preliminary Stocktake of the damage and destruction caused by the tsunami in Aceh and Nish used the term "Build Back Better" (BBB). This report was published in May 2005. Almost a decade later, BBB was described in the United Nations' (UN) Sendai Framework for Disaster Risk Reduction document, which was agreed on at the Third UN World Conference on Disaster Risk Reduction held on March 14–18, 2015, in Sendai, Japan. The main goal of "Build Back Better" is to promote recovery, rehabilitation, and reconstruction after a disaster to increase the resilience of nations and communities. It aims to address immediate needs while also focusing on long-term resilience and sustainability.

The process of "building back better" starts in any area with the wisdom and knowledge of the local elderly people. A study on the value of local wisdom in tsunami disaster mitigation in Simeulue Regency, Aceh Province, Indonesia, found that the local poetry called "Poetry of Smong" played a crucial role in mitigating the impact of a destructive tsunami. This poetry contributed to the low mortality rate of only 7 people in the region. Such local knowledge and practices can help shape youth perspectives on disaster and form a strong foundation for the "building back better" concept.



After all this discussion, we can easily understand that "youth" and "building back better" are two crucial components for disaster risk reduction and post-disaster recovery. Let's now discuss some key points, or rather, the youth's input on the objective of "building back better".

Sustainability and Climate Action: Youth are highly attuned to environmental issues and climate change. Their perspectives often highlight the following:

- **Green Recovery:** This involves integrating sustainability into rebuilding efforts, such as using eco-friendly materials and renewable energy sources.
- **Climate Resilience:** This entails designing infrastructure and systems that are resilient to future climate-related disasters.

Technology and Innovation: Young people are generally more tech-savvy and open to innovation. They often advocate for the following:

- **Smart Solutions:** This involves utilizing technology for better disaster management, such as using data analytics for predicting risks or deploying drones for assessing damage.
- **Digital Inclusion:** This focuses on ensuring that digital tools and resources are accessible to all, including those in remote or underserved areas.

Community and Mental Health often emphasizes the importance of community cohesion and mental well-being:

- **Community Building:** This involves strengthening social ties and fostering community-led initiatives to support recovery.
- **Mental Health Support:** This includes addressing the psychological impacts of disasters and providing accessible mental health services.

Empowerment and Leadership: Young people seek opportunities to lead and contribute to recovery efforts:

- **Leadership Roles:** This entails providing opportunities for youth to take leadership roles in recovery projects.
- **Skill Development:** This involves offering training and resources to build skills relevant to disaster response and recovery.

From my perspective, one of the most crucial aspects is mental health support following a disaster. Women, elderly individuals, and children are the most affected groups, and it is the responsibility of the younger generation to help them overcome their trauma. Post-traumatic stress disorder (PTSD) is a common mental health issue in such situations. If people are not mentally stable, they will struggle to cope with other post-disaster challenges such as structural damage and loss of homes.

EMPOWERING GIRLS AND YOUNG WOMEN IN RISK REDUCTION

Joyeta Basu

The 13th of October is known as the International Day of Disaster Reduction (IDDR). This program will take place in Asia-Pacific, Africa, the Arab States, Europe, and Central Asia from October to November. The program provides a valuable opportunity to address cross-border issues related to disaster preparedness and mitigation, and to provide guidance, leadership, and actionable ideas to reduce the threat of disasters and enhance public and community resilience.

The Global Platform for Disaster Risk Reduction (GPDRR) has scheduled a total of eight meetings for June 2025, each with specific purposes. This year, the focus of the International Day for Disaster Risk Reduction (IDDR) is "Women and Girls – the Invisible Force of Resilience." Women and girls play crucial roles in disaster management as demonstrators, caregivers, and more, highlighting the need for a holistic approach that addresses their specific requirements. In sustainable development, women and girls are involved in reducing disaster risks, particularly in areas such as governance, urban and land use planning, socio-economic planning, environmental management, and natural resource management, all of which are essential elements in disaster risk reduction. Youth can contribute to emergency preparedness by sharing knowledge and assisting with creating disaster plans and preparation kits. Empowering women and girls in disaster risk reduction can promote gender equality and decrease disaster risks by implementing various strategies.



In disaster risk reduction (DRR) initiatives, promoting gender equality and empowering women is crucial. A report from Nepal highlights the experience of Parvati Napit, who has been the DRR focal point for Barhabise Municipality for the past four years. She emphasizes that women bear much of the responsibility in disaster situations and play key roles. Women and girls play crucial roles as demonstrators, carers, and more in the disaster management cycle, which is vital for a holistic approach that addresses their needs. For women to lead efforts in educating their communities and addressing their specific needs during crises, they must be empowered and given the necessary training.

DRR plans should consider the distinct needs of women, ensuring that their knowledge, expertise, and skills are integral to action plans.

Both boys and girls should have access to education in order to eliminate the barriers preventing women and girls from participating in disaster risk reduction (DRR) activities. Gender inequality is a significant problem in natural disasters, greatly affecting the well-being of women, children, and the entire community. Closing this gap is essential for building resilience. Education, from childhood to adulthood, plays a crucial role in engaging women and girls in disaster risk reduction.

Both genders have an equal role to play in disaster risk reduction. Leadership roles involve rehabilitating and supporting climate action, natural resource management, and sustainable energy. It is crucial for women to be involved in these efforts. Women must be connected with organizations, businesses, and cooperatives and be able to manage these responsibilities without interruption. Their work includes monitoring and providing technical advice. Equality in resource access can lead to food security, renewable energy, and sustainable systems. Improving gender statistics and collecting sex-disaggregated data can aid policymaking. Increasing awareness and integrating women into public life can improve resilience. The 2012 International Day for Disaster Risk Reduction emphasizes women as leaders in disaster risk reduction.

MENTORING PROGRAMS FOR YOUTH LEADERSHIP IN DISASTER RISK REDUCTION

Mir Wasif Ahammed

Today, the world is experiencing the largest youth population in history, with one out of every five people globally between the ages of 15 and 24. India, in particular, has one of the youngest populations in a rapidly aging world. It is essential to involve young people in disaster risk reduction (DRR) efforts because they will bear the brunt of future disaster impacts. When given the opportunity, young people can play a pivotal role in building resilience and enhancing community capacity, despite being among the most vulnerable populations likely to be disproportionately affected by disasters and climate change.

Initiatives for mentoring the youth:

- When designing the program, it's important first to define the goals. These goals include developing specific skills in disaster risk reduction (DRR), nurturing leadership qualities, or increasing awareness about disaster preparedness. Next, it's crucial to identify key skills to focus on, such as risk assessment, emergency planning, first aid, community engagement, and crisis management.
- Recruiting mentors for the program should involve experienced professionals in emergency management, local government officials, and seasoned community leaders. When selecting participants, targeting youth from diverse backgrounds and areas, including schools, community groups, and youth organizations is essential.
- The program should include training workshops to provide foundational knowledge in DRR through workshops and training sessions covering disaster preparedness, response strategies, and recovery processes. Additionally, hands-on experience should be provided through real-life simulations, drills, and community projects to apply the knowledge gained.
- Mentorship pairing is a crucial component where mentees are matched with mentors based on their interests and expertise. Regular one-on-one sessions can help tailor guidance and support. Leadership development modules can also be incorporated, including skills training in public speaking, team management, and participation in local decision-making processes and community planning.
- Engaging strategies may involve interactive learning methods such as case studies, role-playing exercises, and interactive discussions to make learning engaging and practical. Encouraging projects involving local communities, such as developing disaster preparedness plans or organizing awareness campaigns, can also enhance engagement. Acknowledging the achievements of participants through awards, certificates, or public recognition is important to motivate and validate their efforts.
- Continuous assessment is critical for evaluating the program's effectiveness through surveys, feedback sessions, and performance assessments. Using feedback to refine the program, address challenges, and enhance the learning experience is essential. Lastly, successful program examples such as "Youth Ambassadors for Disaster Risk Reduction," local school programs, and community-based initiatives should be studied to draw inspiration and best practices for the program.

The Indian government has supported various youth forums, including the National Service Scheme (NSS), Bharat Scouts and Guides, Nehru Yuva Kendra Sangathan (NYK), National Cadet Corps (NCC), and the Indian Red Cross Society, to encourage volunteerism and involve young people in community development efforts. Many adolescents and young adults have joined these forums as volunteers and are actively taking part in activities related to disaster risk management.

SI No.	Name of the Adolescents/Youth Forum	No. of Members
1	National Service Scheme	3925500
2	Nehru Yuva Kendra Sangathan	3528642
3	Bharath Scouts and Guides	3395139
4	National Cadet Corps	1281298
5	Civil Defence Volunteers	425000
6	Indian Red Cross Society	DNA
	Total	12555579

Source: Ministry of Youth affairs and Sports

EMPOWERING RURAL YOUTH FOR AGRICULTURE RESILIENCE IN THE FACE OF DISASTERS

Trisha Ghosh

In the context of global climate change and increasing natural disasters, empowering rural youth is vital for enhancing agricultural resilience. Rural youth represent a significant demographic in agricultural communities and can play a crucial role in developing innovative practices, implementing sustainable technologies, and fostering community engagement to adapt to and mitigate the impacts of disasters. To achieve this, targeted strategies are essential, including education, access to resources, and fostering leadership skills.

Education and training are foundational for equipping rural youth with the necessary knowledge and skills to respond to disasters effectively. Agricultural education programs should incorporate disaster risk reduction (DRR) principles, focusing on sustainable farming techniques that increase resilience. This includes training in soil conservation, crop diversification, integrated pest management, and water management practices. By understanding the impacts of climate change and disasters on agriculture, youth can become change agents in their communities, advocating for innovative approaches that enhance resilience.

Furthermore, access to technology is critical. Modern agricultural practices often rely on advancements in technology, such as precision farming, remote sensing, and data analytics. Providing rural youth with access to these technologies through training programs and community resources can significantly enhance their capacity to respond to agricultural challenges. For instance, utilizing mobile applications for weather forecasting can help farmers make informed decisions about planting and harvesting, thus reducing crop loss during adverse weather events. By promoting digital literacy and access to technology, rural youth can effectively engage in modern agricultural practices, making their farms more resilient. Financial support and access to resources are also crucial for empowering rural youth. Many young people face barriers in accessing credit, land, and markets, limiting their ability to invest in resilient agricultural practices. Microfinance programs tailored for youth can provide the necessary financial backing to start or enhance agricultural ventures. Additionally, establishing cooperatives can empower youth by pooling resources, sharing knowledge, and increasing market access. These cooperatives can serve as platforms for innovation, allowing young farmers to collaborate on sustainable practices and disaster preparedness strategies.

Leadership development is essential for fostering a sense of agency among rural youth. Programs that encourage youth participation in decision-making processes at local and national levels can strengthen their voices in agricultural policies and disaster management strategies. Youth leadership initiatives can provide mentorship and support, helping young individuals build confidence in advocating for their needs and the needs of their communities. Moreover, creating platforms for youth to share their experiences and successes can inspire others and promote a culture of resilience.

Collaboration between various stakeholders is the key to empowering rural youth. Governments, non-governmental organizations (NGOs), and the private sector must work together to create supportive environments for youth engagement in agriculture. This includes investing in youth-led initiatives, supporting agricultural education, and promoting policies that prioritize the needs and aspirations of rural youth. By fostering partnerships, communities can enhance their collective capacity to respond to disasters and build resilience in agricultural systems.

In summary, empowering rural youth is crucial for enhancing agricultural resilience in the face of disasters. By focusing on education, technology access, financial support, and leadership development, communities can equip their young members to tackle the challenges posed by climate change and natural disasters. Through collaboration and innovation, rural youth can become pivotal in creating sustainable agricultural practices that not only mitigate the impacts of disasters but also contribute to the long-term viability and productivity of rural economies. This empowerment is not just a necessity for survival; it is an investment in the future of agriculture and rural development.

FROM AWARENESS TO ACTION: INVOLVING YOUTH IN DISASTER RISK REDUCTION POLICY FORMULATION

Trisha Mondal

Disasters have far-reaching impacts that threaten lives, economies, and communities. As the frequency and severity of these events continue to rise due to climate change and urbanization, the need for effective disaster risk reduction (DRR) strategies has become increasingly critical. One of the most powerful resources in this endeavor is the youth population, whose energy, creativity, and fresh perspectives can significantly enhance the formulation and implementation of DRR policies.

The involvement of youth in DRR begins with awareness. Education plays a pivotal role in equipping young individuals with the knowledge they need to understand the risks their communities face. Schools and educational institutions can serve as platforms for teaching students about disasters, their causes, and the importance of preparedness and resilience. By integrating disaster risk reduction into curricula, young people can learn about hazard assessment, risk analysis, and the value of community involvement in creating safer environments. This foundational knowledge is essential for fostering a culture of preparedness among youth. However, awareness alone is not enough; it must translate into action. Engaging youth in DRR policy formulation ensures that their voices are heard and considered in decision-making processes. Governments and organizations can establish platforms, such as youth councils and forums, where young people can contribute their ideas and perspectives. These platforms can facilitate discussions on local vulnerabilities and innovative solutions tailored to the unique challenges faced by their communities.

Additionally, training programs can empower youth to take on leadership roles in disaster risk reduction. Workshops and seminars can provide them with skills in risk assessment, emergency management, and community engagement. Such training equips young individuals to be active participants in developing and implementing DRR strategies. For instance, youth-led initiatives can address issues like climate adaptation and resilience building, which are vital in mitigating disaster risks.

Collaboration with local governments, NGOs, and international organizations can further amplify youth involvement in DRR. These partnerships can provide resources, mentorship, and networking opportunities, allowing young people to contribute meaningfully to policy formulation. By leveraging social media and technology, youth can raise awareness, share knowledge, and mobilize communities for disaster preparedness campaigns. Creative campaigns, such as interactive workshops, community drills, and awareness drives, can enhance community engagement while showcasing the capabilities and innovations that youth bring to the table.

Furthermore, including youth in the monitoring and evaluation of DRR policies can ensure that these initiatives are effective and responsive to community needs. Young people can contribute to assessing the impact of disaster risk reduction strategies, providing feedback on what works and what needs improvement. Their involvement in this process not only empowers them but also fosters a sense of ownership over the policies that affect their lives and futures.



Overall, involving youth in disaster risk reduction policy formulation is essential for creating resilient communities. From awareness to action, young people have the potential to drive innovative solutions and contribute to the development of comprehensive DRR strategies. By prioritizing education, providing opportunities for engagement, and fostering collaboration between youth and decision-makers, societies can harness the enthusiasm and creativity of the younger generation. Ultimately, the active participation of youth in DRR not only prepares them for future challenges but also strengthens communities in the face of adversity, paving the way for a more sustainable and resilient future.

ADDRESSING THE NEEDS OF YOUTH WITH DISABILITIES IN DISASTER PREPAREDNESS

Disha Roy

According to UNDRR “disruption of a community or society due to hazardous events interacting with conditions of exposure, vulnerability, and capacity can lead to human, material, economic, and environmental losses and impacts”. Due to rapid population growth, unplanned urbanization, climate change, environmental degradation, and widespread poverty, an escalating number of individuals and assets face exposure to disasters, that’s why disaster preparedness is crucial because being prepared for disasters saves numerous lives, accelerates people’s recovery, and reduces costs. Preparedness relies on a thorough analysis of disaster risks and strong connections with early warning systems. It involves activities such as making contingency plans, stockpiling equipment and supplies, establishing coordination arrangements, organizing evacuations, providing public information, and conducting related training and field exercises. As defined by UNISDR (2009), disaster preparedness involves the knowledge, capabilities and actions of various groups and individuals to effectively envision, respond to and recover from potential hazards. Preparedness aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response to sustained recovery.



Disasters can have significant and interconnected impacts on the health and well-being of youth with disabilities, spanning biological, behavioural, social, and environmental realms. Various researches have demonstrated that among all kind of human beings, individuals with disabilities are at a greater risk during disasters, experiencing mortality rates two to four times higher than those of non-disable persons. Disability is characterized by impairment in body functions or structures, a limitation in a specific activity, or a restriction in social participation. According to UNESCO, every year millions of children worldwide are affected

by a wide range of disasters. Shockingly, over seven million of these are children with disabilities, and there are millions more who acquire disabilities during childhood due to these catastrophes. The disproportionate vulnerabilities of the disabled people in emergency, disaster and conflict situations require special efforts for evacuation, search and rescue, and rehabilitation, including shelters, food distribution and recovery processes.

When preparing for disasters, it is crucial to prioritize the needs of people with disabilities, including youths. Everyone must be included in disaster plans and have access to necessary resources, such as those with compromised mobility or sensory sensitivities. Emergency shelters need to be equipped to accommodate their requirements, and evacuation plans should prioritize their safety. It is essential to discuss the specific needs of people with special health care requirements when preparing disaster supply kits. Additionally, disabled youth should be provided with training in readiness and response skills.

Despite all kind of obstacles the disable youths play a vital role in disaster preparedness. Engaging youth with disabilities in the development and execution of disaster plans and strategies is crucial because their voices and experiences should be at the forefront of disaster planning. Youth with disabilities are essential contributors to emergency response efforts. Their unique perspectives can greatly influence the creation of inclusive policies and practices. By advocating for the accessibility of humanitarian activities through assistive technologies, they play a critical role in ensuring equal access for all. Moreover, they provide secure and confidential avenues for reporting grievances and offering feedback on humanitarian action. Their active involvement can significantly enhance the accessibility and inclusivity of disaster preparedness programs. Empowering them to participate in emergency responses can lead to the creation of safer and more integrated communities. Moreover, the advocacy of clinicians, educators, and pediatricians for the inclusion of youth with disabilities is paramount in ensuring families with special health care needs are equipped to handle emergencies. Lastly, the role of youth with disabilities in raising awareness about the importance of disaster preparedness cannot be overstated.

ROLE OF TECHNOLOGY IN EMPOWERING YOUNG PEOPLE FOR DISASTER RISK REDUCTION

Sanchita Saha

Reducing the risk and impact of disasters is particularly beneficial to children and young people under 30, who account for more than half of the world's population. Technology plays a crucial role in empowering young people to actively participate in disaster risk reduction. There are numerous technologies that can help people reduce the risk of disasters:

Enhancing access to information: Access to information is crucial for disaster risk reduction. Technology provides young people with real-time data, early warnings, and critical information to inform decision-making. Online platforms, mobile apps, and social media enable youth to access resources, share knowledge, and stay informed.

Facilitating communication and collaboration: Technology also facilitates communication and collaboration among young people, emergency services, and communities. Mobile apps and social media enable rapid information sharing, coordination, and response. Online forums and networks connect youth with experts, organizations, and peers, fostering a sense of community and solidarity.

Building skills and knowledge through online training and simulations: Youth can learn about disaster preparedness, response, and recovery through interactive modules, games, and exercises. Online training and simulations help youth develop their knowledge and skills in disaster risk reduction and management.



Models of youth participation in DDR

Supporting innovation and entrepreneurship in disaster risk reduction: Technology supports innovation and entrepreneurship in disaster risk reduction. Young people can develop innovative solutions, products, and services to address disaster risks. Online platforms and networks provide opportunities for youth-led startups and initiatives.

Amplifying youth voices and perspectives through social media and online platforms: Technology amplifies youth voices and perspectives in disaster risk reduction decision-making. Social media, online forums, and blogs enable young people to share their experiences, ideas, and concerns. This ensures that youth perspectives are considered in disaster risk reduction policies and programs.

Digital innovation: Young people can use their creativity and digital skills to develop solutions to reduce risk of disaster. Digital innovation by youth in disaster risk reduction includes: Developing apps for early warnings, emergency response, and resource sharing. Utilizing social media platforms to raise awareness, share information, and mobilize action. Creating online forums, networks, and marketplaces for disaster risk reduction resources and services. Applying data analytics and visualization to inform disaster risk reduction decision-making. Developing AI-powered tools for disaster prediction, response, and recovery. Using VR/AR for disaster simulation, training, and awareness-raising. Creating digital maps for disaster risk assessment, response, and recovery. Developing online courses and training programs for disaster risk reduction education. By harnessing digital innovation, young people can drive creative solutions, improve disaster resilience, and save lives.

Participatory video: Youth-centered participatory video can be used in disaster risk reduction and climate change contexts. For example, the film-making process can be used as a means for social change.

The use of technology is an effective way to empower young people in reducing disaster risks and building resilient communities. By utilizing technology, young people can become more effective agents of change in disaster risk reduction.

PROMOTING CLIMATE RESILIENCE AMONG YOUTH THROUGH SUSTAINABLE PRACTICES

Shreya Pal

The climate crisis is one of the most urgent issues of our time, with far-reaching consequences for our planet and its inhabitants. As the next generation of leaders, youth play a vital role in addressing this global challenge. It is critically important to promote climate resilience among youth through sustainable practices, education, and community engagement. Empowering young people to take action can foster a culture of sustainability, drive positive change, and ensure a resilient future for all. This highlights effective strategies, successful initiatives, and innovative solutions to inspire and support the development of climate-literate, engaged, and active youth leaders.

Education and Awareness Programs:

- ❑ **Incorporate Climate Education:** Schools and universities can integrate climate change topics into their curricula. Topics should include the causes and impacts of climate change, renewable energy, water conservation, and sustainable agriculture.
- ❑ **Workshops and Webinars:** Organize interactive workshops or webinars on climate resilience, providing youth with the tools and knowledge to understand global environmental challenges.

Youth-Led Initiatives:

- ❑ **Empowering Youth Leadership:** Encourage youth to lead environmental initiatives in their communities. Youth councils or clubs dedicated to sustainability can advocate for local policy changes and organize clean-up campaigns, tree-planting drives, and recycling programs.
- ❑ **Support for Green Startups:** Provide platforms or grants to support youth-led startups or businesses that focus on sustainable practices such as eco-friendly products, waste reduction, or clean energy solutions.

Promote Sustainable Practices:

- ❑ **Adopt Zero-Waste Lifestyles:** Teach youth how to reduce, reuse waste, recycle, compost, and adopt sustainable consumption habits, such as reducing single-use plastics.
- ❑ **Sustainable Agriculture and Food Systems:** Encourage youth to participate in community gardens or urban farming projects that use eco-friendly farming techniques, promoting food security and reducing carbon footprints.
- ❑ **Renewable Energy Use:** Encourage the use of renewable energy sources like solar and wind energy. Youth could participate in solar installation programs, or even run campaigns promoting clean energy.

Capacity Building and Skills Development:

- ❑ **Technical Training:** Offer training in areas like energy efficiency, water management, and environmental monitoring so youth can acquire practical skills to support climate resilience.
- ❑ **Green Jobs:** Highlight career opportunities in sectors such as clean energy, sustainable agriculture, and environmental engineering to help youth transition into green jobs.

Community Engagement:

- ❑ **Climate Action Groups:** Form or support climate action networks where youth can collaborate with local and international communities to raise awareness and advocate for climate policies.
- ❑ **Volunteering Opportunities:** Create avenues for youth to volunteer in conservation efforts, such as habitat restoration or wildlife protection projects, to help preserve ecosystems affected by climate change.

Leverage Digital Tools And Social Media:

- ❑ **Social Media Campaigns:** Use platforms like Instagram, Facebook and YouTube to spread awareness about climate resilience, sustainable practices, and eco-friendly lifestyles.
- ❑ **Climate Apps and Tools:** Promote digital tools and apps that educate about environmental footprints, carbon tracking, or sustainable shopping, allowing youth to make informed, climate-friendly decisions.



FOSTERING INTERGENERATIONAL COLLABORATION IN DISASTER MANAGEMENT

Souvik Dey

In recent years, the incidence and severity of disasters have increased around the globe due to the climate crisis. Disaster preparedness is important to prevent significant loss during natural calamities. It requires a collective effort from individuals of all ages, as different age groups can contribute various strategies for fostering cooperation.

The Power of Intergenerational Collaboration:

Intergenerational collaboration in disaster management taps into the various capabilities of different age groups. Each generation has its own strengths, and bringing them together can result in a more comprehensive approach to disaster preparedness. The older generation can provide their precious knowledge and historical context, while the younger generation can contribute technological expertise, energy, and innovative thinking. By combining these strengths, communities can develop a more effective disaster preparedness plan. The efforts of both generations could successfully prevent disasters.

Strategies for Fostering Intergenerational Collaboration:

To promote intergenerational collaboration, specific strategies can be implemented to encourage cooperation and knowledge-sharing across different age groups. These strategies ensure that individuals from various generations can effectively contribute to disaster management efforts:

- **Mentorship Program:** Connecting older generations with the younger generation to facilitate the sharing of experiences and the latest technology.
- **Community Events:** Organizing events that bring together people of all ages to improve collaboration and communication in disaster management strategies.
- **Planning:** Involving representatives from different age groups in disaster preparedness planning to incorporate diverse perspectives and strategies.
- **Technological Training:** Providing training specifically designed to help older adults understand essential technology skills.
- **Intergenerational Teams:** Forming groups with a mix of different age groups to work together on disaster preparedness projects.

Benefits of Intergenerational Collaboration:

- Improve knowledge and skill development.
- Increase innovation and creativity.
- Possible to make a stronger and more resilient community.
- To work together easily mitigate any disaster.

Fostering collaboration across different age groups in disaster preparedness is essential for creating resilient communities. By uniting the wisdom and experience of older generations with the fresh perspectives and innovation of younger generations, we can lay the foundation for a safer and more sustainable future. Intergenerational collaboration not only plays a vital role in disaster preparedness but also contributes to overall social and community development, ensuring readiness to face diverse challenges that may arise in the future.

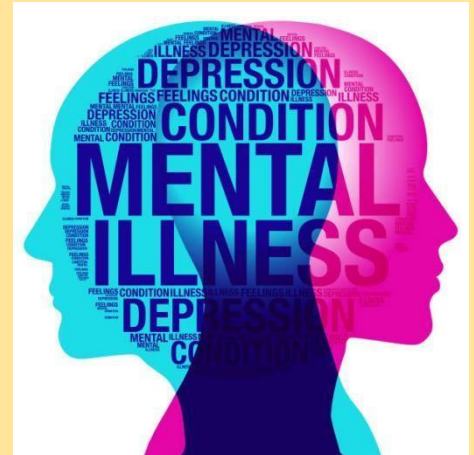
SUPPORTING YOUTH MENTAL HEALTH RECOVERY IN POST DISASTER SCENARIO

Lopamudra Mukherjee

Disasters can have a profound and lasting impact on communities, particularly on vulnerable groups such as youth. The emotional, psychological, and social toll that disasters inflict can disrupt the normal developmental trajectory of young people, leading to mental health challenges that may persist long after the disaster. Supporting youth mental health recovery in post-disaster scenarios requires a multi-faceted approach that incorporates timely interventions, community support systems, and long-term strategies for resilience building.

The Impact of Disasters on Youth Mental Health

Disasters such as hurricanes, earthquakes, floods, and wildfires not only result in physical destruction but also trigger emotional distress, fear, and trauma among young individuals. Youth, in particular, are more susceptible to mental health issues in the aftermath of such events due to their developmental stages and limited coping mechanisms. They may experience anxiety, depression, post-traumatic stress disorder (PTSD), grief, and behavioral issues. The loss of family members, displacement from home, and disruption of daily routines, including schooling, can further exacerbate feelings of insecurity and isolation. Moreover, youth are likely to struggle with understanding and processing their emotions in the context of a disaster, which may result in a delayed response to trauma or the development of unhealthy coping strategies.



Immediate Mental Health Interventions

In the immediate aftermath of a disaster, it is crucial to address the mental health needs of affected youth through rapid intervention strategies. Psychological First Aid (PFA) is an evidence-based approach that can be employed to reduce distress and help individuals regain a sense of safety and control. This method involves listening to youth, providing comfort, normalizing stress reactions, and connecting them to available resources. Mental health professionals, educators, and community volunteers trained in PFA can be instrumental in offering emotional support and directing youth to necessary services. Additionally, creating safe spaces where young people can engage in recreational activities and express their feelings through art, music, or play can provide a sense of normalcy and emotional relief. These activities not only allow them to process trauma but also foster resilience by promoting social interaction and community connection.

School and Community Support Systems

Schools play a pivotal role in post-disaster mental health recovery for youth. Re-establishing a routine through the return to school helps create a sense of stability and normalcy. However, educators need to be prepared to address the emotional and psychological needs of their students. Training teachers in trauma-informed approaches allows them to recognize signs of distress and respond appropriately. Mental health services should be integrated into school settings, offering counselling and peer support programs that promote open communication and emotional healing. Community-based programs are equally essential in supporting youth mental health recovery. These programs can offer group therapy, family counselling, and peer-led initiatives that encourage young people to share their experiences and support each other. Religious organizations, local non-profits, and youth clubs often serve as valuable resources for creating a supportive environment.

Long-Term Mental Health Recovery Strategies

While immediate interventions are crucial, long-term mental health support for youth should not be overlooked. Recovery from disaster-related trauma can take months or even years. Mental health services need to be sustained beyond the initial response phase to ensure continuous support as youth navigate the emotional and psychological effects of the disaster over time. One effective long-term strategy is resilience training, which focuses on teaching young people coping mechanisms, problem-solving skills, and emotional regulation techniques. Community-based resilience programs can incorporate mindfulness practices, physical activities, and social skill development to strengthen emotional well-being.

EMPOWERING THE NEXT GENERATION FOR A RESILIENT FUTURE

Mouli Adak

In an era of escalating natural disasters, climatic crises, and environmental degradation, resilience is more crucial than ever. Resilience is the ability of ecosystems and societies to anticipate, withstand, recover from shocks, and adapt to long-term environmental changes in the context of environmental and catastrophe management. Providing the next generation with the knowledge and abilities that they need to deal with issues like resource depletion, sea level rise, and harsh weather is necessary. It is not only essential that today's young be equipped to build and oversee resilient, sustainable communities, but it is also vital that future generations endure and prosper.

Younger generations are disproportionately affected by the growing number of environmental and disaster-related issues that the globe is confronting, including climate change, extreme weather, and biodiversity loss. In order to address this and ensure a sustainable future, it is crucial to equip young people with the information and skills necessary to handle these problems. In this process, education is essential because it incorporates disaster preparedness and climate change into school curricula. On the other hand, community activities and workshops provide hands-on experiences that promote awareness and problem-solving abilities. When taken as a whole, these initiatives give youth the tools they need to not only recognize the hazards but also actively participate in creating robust, long-lasting solutions.

To address climate change and catastrophe management, young people require a variety of talents, including critical thinking, problem-solving, flexibility, and leadership. Developing these skills requires exposure to new technologies like artificial intelligence (AI) and data analysis as well as hands-on experiences like community service and internships. Youth activists and leaders are already influencing policy reforms, advancing global awareness, and spearheading decision-making processes; movements such as Fridays for Future serve as prime examples. Youth have a critical role in developing resilient, sustainable solutions for the future, as demonstrated by their leadership and activism.



Government, academic institutions, non-governmental organizations, and the commercial sector must work together to empower young and foster resilience. It's necessary to implement community-based initiatives that involve young people in environmental sustainability and local preparedness for emergencies. To increase community resilience, there has to be a greater exchange of information and mentoring between generations. By working together, we can create strong support systems that will help young people overcome challenges in the future.

Empowering the next generation is important for a resilient future. Support for youth advocacy, education, and mentoring programs is crucial to this endeavour. Think about how you may contribute to these efforts and create a sustainable future that will enable future generations to face and overcome all the difficulties that lie ahead.

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