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# AI for a Greener Planet: How Artificial Intelligence is Revolutionising Climate Change Solutions

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**By Bijal Brahmbhatt, Executive Director at Mahila Housing Trust and one of the key partners of Ellara Bengaluru**

In its 9th edition of Google for India, the US search giant said that while the company is enhancing the search experience for its recently launched Search Generative Experience, Generative AI in search will help users in India easily navigate and access critical information about over 100 government schemes

spanning crucial areas such as employment, housing, healthcare, farming, women's welfare, and more – thereby breaking all barriers to access research, information and knowledge.

While multiple industries are already working on prioritizing the need to stitch Generative AI for various functionalities, the larger social sector—alongside civil society, policymakers, and industry—has admitted to having seen a clear opportunity to help bend the course of Generative AI toward its large-scale, potential benefits that can resolve critical issues surrounding health & drug development, education, environment,
and climate crisis amongst others. The sector largely believes that there should be collective efforts to craft what this technology could do best to build inclusive societies that allow every individual to benefit from the good that AI is here to offer.

**The Urgency to Deploy Smarter Technology to Monitor Climate Issues**

"The State of Climate in Asia 2022" report published by the World Meteorological Organisation said India lost $4.2 billion due to disasters relating to floods followed by drought and heat waves. The other Asian countries that faced significant losses were Pakistan and China. Much of the cost was attributable to agricultural losses.

The report further stated that India's lower course of the Ganges and Brahmaputra basins had one of the region's largest precipitation deficits, triggering drought-like conditions. These basins support millions of people's livelihoods through agrarian activities in India as well as Bangladesh.

The agriculture economy, which employs more than half of the country's population and is the largest contributor to India's overall GDP, has been severely hit by challenges stemming from climate adversities leading to social and economic challenges in this sector. Climate change also upsets the overall crop cycle, causing disturbances to the market price of vegetables, dairy, and pulses resulting in inadequate nutrition supply, especially to vulnerable communities across the country.

**Supporting Climate Monitoring Initiatives**
Globally, several technology experts have advocated the implementation of AI in mitigating climate change-associated issues by better modeling of monitoring

and mapping systems – which can aid in disaster management, especially in densely populated geographies like India.

AI-based modeling has the potential to transform flood vulnerability assessment by providing more accurate and comprehensive insights into flood susceptibility, infrastructure vulnerability, and socio-economic impacts. This can lead to more effective flood risk assessment, management, and response. Geospatial Artificial Intelligence (GeoAI) is the use of artificial intelligence to analyze and interpret remote sensing data.
GeoAI can be used to identify trends and patterns in remote sensing data and to predict future changes.

The mapping of flood-vulnerable zones plays a crucial role in understanding and mitigating the risks associated with it. With the potential impact on the population, infrastructure, and effective flood management strategies, it becomes important to analyze areas prone to flooding. In this, various criteria are evaluated for deducing the susceptibility of an area. Similarly, extracting climate & precipitation patterns gives great insight into flood vulnerability assessment – further facilitating timely disaster
management for communities living and working in topographies susceptible to climate adversities.

Gujarat Mahila Housing Trust was one of the recipients of a grant from the APAC Sustainability Seed Fund backed by Google to facilitate their exploration of new applications, including AI and machine learning, to address the challenges posed by extreme water scarcity and flooding in India.

Community mapping conducted in all 12 slum areas of Amalner city, Maharashtra by Mahila Housing Trust in August during the rainy season has helped the team identify areas most at risk of flooding in the city of Amalner and to prioritize the allocation of resources for disaster preparedness and mitigation.

Similar implementation of AI-based modeling can be further implemented in urban cities that are home to millions of citizens working across different economic sectors. Erratic rainfall, landslides, and extremely dry weather lead to several civic and economic issues that include water scarcity, flooding of city roads causing commute issues, water logging, sanitation woes, and the spread of contagious diseases.

Accurately predicting and preparing cities for potential climate adversities will help protect its dwellers, especially those living as urban poor and are usually severely impacted by urban climate issues. Multi-stakeholder engagement, coalition building, and collaboration are critical for using AI across sectors and for solutioning on varied issues. In Bengaluru, the Ellara Bengaluru coalition can potentially use AI across their organisations for this purpose.

**Looking at Bigger Deployment of AI in Climate Change**
As Indians get comfortable with the implementation of AI as a technology by upskilling and educating themselves in this space, one will eventually witness more public and private-sector groups adopt AI-driven monitoring technology and other methodologies for more accurate climate monitoring and real-time calculations and thereby support better management of disasters caused by aggressive climate changes. Timely monitoring of climate-associated challenges by communities and civic groups will benefit households, especially the weaker economic homes, to make timely decisions.

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