Harnessing AI in Disaster Reporting: A Qualitative Study of Television Media Content

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ABSTRACT

In the current scenario characterized by rapid developments in multiple technological domains, it becomes increasingly imperative to understand how these technological innovations not only facilitate but also actively contribute to the progressive development and enhancement of societal structures. This study aims to discuss the transformative role of AI in disaster reporting through qualitative analysis of content on television media. Considering AI applications across three important phases-pre-disaster, disaster, and post-disaster stages research focuses on how AI-powered tools improve predictive accuracy, real-time updates, and tracking of recovery. In the pre-disaster phase, AI technologies such as predictive modelling and early warning systems enable media to spread timely alerts and preparedness campaigns. In the disaster phase, AI helps in vulnerability assessments, live reporting, and relief coordination, ensuring comprehensive and accurate coverage. Post-disaster, AI-driven impact assessments and recovery monitoring provide valuable insights into rehabilitation efforts and resource allocation. While the research mainly centres on the production and use of AI-driven content, it does identify certain limitations, including audience analysis and comparative channel studies. The findings highlight the promise that AI holds for the reformation of disaster

communication as a means of better public safety and resilience within communities.

Keywords: *Artificial Intelligence, Disaster reporting, Disaster, communication, Visualisation, Pre disaster, During the disaster and Post disaster*

Introduction

Disasters refers to a succession of unexpected events, whether natural or man-made, that seriously disrupt people's everyday lives, communities and nations' lives, in most cases causing a great loss of lives, property, and economic stability. In India, despite its varied geography and climate, disasters are quite recurrent and diverse, including earthquakes, floods, cyclones, droughts, landslides, and industrial accidents. It makes people's lives very hard. And such incidents are not avoidable. Under these circumstances, nothing one can do but deal with issues and rescue missions. Media is another most important factor who can build collective efforts to build capacity among the people during a disaster. Several studies from the stream proved the effectiveness of media, Zhang.et.al (2019) studied how social media worked in disaster management and the study proved that effective and proper usage of social media can bring notable changes. A study on twitter for disaster relief and found out the importance and complexity of utilising social media in disaster relief operations, specifically using the micro-blogging site - Twitter (Behl, 2021). Along with the effectiveness of the media, the current world is facing difficulties with fake news and the fake data. dealing with such issues bring more complication in the disaster mitigation projects, but there are studies which aimed to ensure trustworthiness and address biases in social media data, the study conclude that the integration of real time social data can improve the speed and accuracy of disaster management systems (Abid et.al, 2024). Now a new age change has happened in the media industry, not only media everywhere which is AI, AI brings a lot of changes in the reporting, presenting and

creating news in the whole media industry. Hence this study focuses on how AI is involved in disaster management. The study will consider doing a qualitative analysis of the AI media content made in time through disaster and disaster management mitigation using AI content. The research will help to understand how the media uses AI content and the effectiveness of such content for rescue missions.

The analysis of the study broadly divided into three parts, AI usage before the disaster, during the disaster, and after the disaster. To conduct the study, the researcher gathered media content related to the AI usage from television news channels.

Role of Media in Diffuse Information During Disaster

Media has been an important tool of communication, passing information during calamities, as it happens to be the first source of news and information to any human being, the public (Zhang et.al.,2019). The media has been very significant in their efforts at sensitization of distressing information, as well as its distribution, and formation of people's opinion, and directing them on what to do during such calamity. With media in the form of press and television channels to digital platforms, continuous information flow helps people make informed choices during an emergency. Damage and safety information with regard to relief activities while reporting natural disasters like floods, earthquakes, and cyclones become possible. In the last decade alone (2007-2017), the world has experienced 3469 natural disasters (i.e., floods, earthquakes, wildfires, storms, landslides, and volcanic activities), affecting 1.4 billion people of which there are 1.2 million injuries, 597,287 deaths and total damage of 1.6 billion (Ogie, Rho, & Clarke, n.d.).

Ensuring that the masses receive timely information is the job of the media, but it also helps prevent the worst impact that may arise and helps devise response strategies during emergencies. Media stories involving both broadcasting, print media and the internet create the response and perception of disasters in different communities as well as whom to prepare by

having authorised information that removes panic. Media systems in disaster management inform but also mobilise resources in terms of coordination, transparency, as well as facilitating resource mobilisation (de-Lima-Santos & Ceron, n.d.). Media reports even beyond emergency updates provide insights into how relief is being done on ground, governmental action, and other situations of interest. On the one hand, because of augmented visibility over crisis regions, media attention can channel focus towards such negated regions, plead for aid and mobilise public as well as international support. Through media scrutiny, efficient response is motivated, and organisations are kept accountable. The authors opine that Indian geography ranges so widely in terms of geographies, and populations are so different in terms of density; regional and national media disaster coverage repeatedly takes the attention of such vulnerable communities with impacts on policies and resource allocation.

Adoption of AI in Media.

AI in the media has transformed how information gets to be produced, distributed, and as well consumed. Media organisations can increase efficiency and reach more people through the use of automated news gathering, machine-generated articles, and AI-curated content. Algorithms sift through large datasets to extract relevant news and may even detect fake news by analysing patterns. The personalization enabled by AI tailors' news content based on user preferences to deliver relevant information that resonates with individual audiences.

Therefore, AI increases the prospects of media reporting correctly and in real-time about disasters. Data analytics by AI can give very good insights into disaster trends and have automated tools to broadcast news instantly. For instance, the AI tools may source data from meteorological institutions, point out natural catastrophes, and provide the concerned media houses with enough notice. Further, AI in media assists journalists in reporting by providing data-driven analysis to form a more robust media reaction to disaster and facilitating public choices (Aissani, Abdallah, Taha, & Al Adwan, 2023).

Artificial intelligence in Disaster Response

AI has emerged as one of the greatest areas for potential in the disaster response sector, capitalising on the power of predictive analytics, machine learning models, and data visualisation to enhance natural and human made disaster responses. Real-time data analysis by AI enables the understanding of patterns, intensity, and impact of disasters. With the use of satellite imagery and algorithms in AI, it will be easy to classify flood zones, monitor seismic activities, and predict cyclonic movement trajectories thus offering more effective disaster preparedness and mitigation strategies (Gupta & Roy, n.d.). For example, AI-based early warning systems can help save lives because it correctly predicts the disasters and then comes up with evacuation plans accordingly. Besides, social media and ground reports have also been analysed by the AI tools for the disaster impact assessment and rescue operations of the survivors and resource distribution.

The future of Indian media in adopting AI seems very bright, as natural calamities like floods, earthquakes, and cyclones have been hitting this country frequently. Introducing AI in the media computing data in real time will, therefore, offer relevant information in real time and with accuracy specific to concerned populations. However, there are ethical questions surging on the usage of AI in disaster management in terms of truthful data, balance, and public perception. The use of machine-driven choices of decisions brings inherent issues of accountability and transparency, thereby implying the ethical standards needed for governance in AI usage within Indian media contexts. In this scenario the research is trying to find AI in disaster management and what specific advantages AI offers in terms of information, education, responding to disasters etc.

The study is highly important in the current scenario because of the climatic situation. The country always confronts a natural disaster, and year after year such scenarios bring up very tough situations to handle. Along with this media is evolving day by day with the new

advanced technologies. Hence it is important to incorporate the positiveness of such advancement in each and every sector. After the rapid growth of AI and usage of AI in media has brought much changes to the field of journalism. Therefore, the research study is focused on how such change can bring a positive approach towards disaster mitigations. In addition to the prior study, in this research, the purpose of the study is evoking emotional, educational, and responsible management towards the disastrous event through AI media content. The systematic analysis will be made to indicate the effectiveness of AI in disaster management.

Methodology

The study is occupied with qualitative research methodology for investigating artificial intelligence's role in reporting disasters with an emphasis on television media material. The technique consists of data gathering, content analysis and interpretation to understand how AI-powered tools enhance catastrophe reporting at each stage. The content analysis for each phases has been meticulously derived from an extensive review of the existing literature in the field. Following an exhaustive examination of previously published research papers, the study has identified several thematic categories, which include: in the pre-disaster phase, a set of sub-themes; in the during-disaster phase, a different set of sub-themes; and in the post-disaster phase, yet another distinct set of sub-themes (Periasamy et al., 2024; Manjula et al., 2024; Rao et al., 2024; Feng, 2024).

To effectively conduct the comprehensive study, the researcher gathered a diverse array of video materials sourced from television channels that are duly registered at State, National, and International levels, thereby ensuring a robust and varied dataset for analysis. Concerning the specific objective of examining the pre-disaster phase, the researcher diligently collected artificial intelligence-generated videos that were recorded precisely three days before the occurrence of the disaster itself; moreover, for the duration of the disaster event, the researcher ensured the acquisition of videos that were captured on the very day of the disaster, thereby

providing an immediate and relevant perspective, and for the post-disaster analysis, the researcher systematically collected artificial intelligence-generated videos that were recorded three days after the disaster's occurrence, thus allowing for a comprehensive examination of the aftermath.

Objectives

- To examine how AI functions in pre-disaster television media content.
- To investigate the effects of AI-powered tools on information dissemination and event reporting during the crisis.
- To assess how well AI supports recovery-oriented narratives during the post-disaster stage.

Research Method

The study systematically analyses the themes, narratives, and visualization effects presented in these videos. Data collection involves selecting disaster-related videos based on the timeframe, content relevance, and diversity of sources, which are then categorized by the three phases of disaster management.

Sampling

- National Television Channels: Leading networks that focus on regional and national disaster coverage. The research selected 10-15 AI-driven videos published by the recognised National T V
- State Television Channels: Channels covering localized impacts and community-specific issues. The research selected 10-15 AI-driven videos published by the recognised National T V
- International Television Channels: Networks providing global perspectives and comparative disaster narratives. The research selected 10-15 AI-driven videos published by the recognised National T V

Data Analysis

Data analysis is fully based on the themes which are identified from the three sessions such as Pre- Disaster, During the Disaster and Post Disaster. The researcher also did a visual analysis to understand how the media is presenting the news related to disasters by using AI. A thematic content analysis was employed for the conduction of the research. Thematic content analysis is a structured qualitative analytic method that focuses on identifying and interpreting themes within qualitative data. In this study, also the researcher did a visual analysis to understand how media outlets utilize AI-generated content and visuals to present disaster-related news effectively. As the researcher mentioned above, the analysis was conducted based on the three sessions. Under each session, the researcher identified subtopics which are: Warning the Public, Evacuation, Kit Preparedness and Awareness, Information Dissemination, Assessing Vulnerabilities, Educating the Public, Relief Coordination, Track Recovery and Empower the Public and Visual Analysis.

Analysis

Disasters, whether natural or man-made, demand rapid and accurate information dissemination to mitigate their impact on lives, infrastructure and communities. Television media being a vital source of real-time information, plays a central role in the process. However, the dynamic and often chaotic nature of disasters challenges traditional reporting methods, which must contend with limited access, evolving situations and the imperative for precision. This integration of AI in the reporting of disasters offers the most innovative way to work around these challenges and enhance television media's ability to achieve timely, relevant, and comprehensive coverage.

The study aims to look at the extent to which the integration of AI has transformed disaster reporting by considering the phases of Television media content. The analysis will closely examine how the AI created television content helps the public to mitigate disaster

management. For the analysis the researcher divides the study into three parts. Through this investigation, the research aims to contribute to the broader discourse on the role of AI in enhancing the effectiveness and Usage of media practices in disaster scenarios.

Phase 1: Pre-Disaster

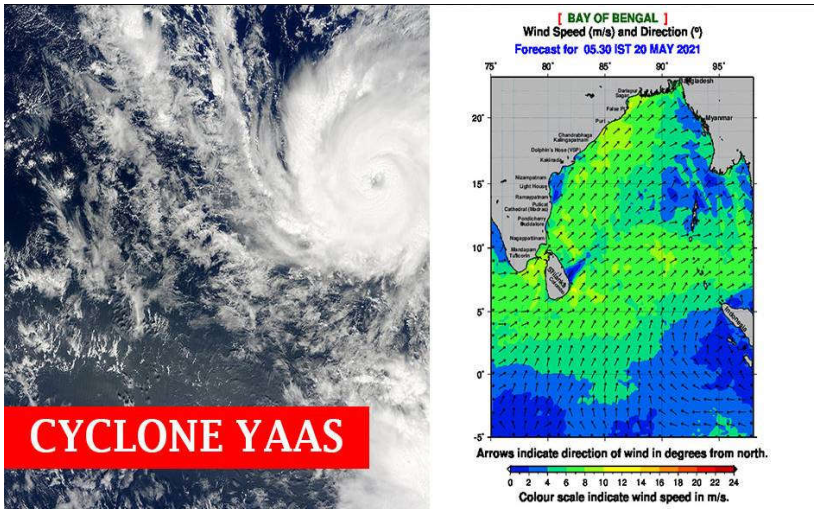
Effective disaster management begins with preventive steps performed prior to a crisis occurring. This phase entails using modern techniques and technologies to forecast possible disasters, alert the public and prepare them to mitigate risks. Artificial intelligence has emerged as a transformative tool, allowing for exact forecasting, efficient information dissemination, and personalized preparedness activities. Under the topic pre disaster the factors the research analysis are: Predicting the Disaster, Warning the public and Evacuation, kit preparation and awareness.

Predicting the Disaster

The ability to effectively foresee disasters is critical to reducing their consequences. AI-powered tools like machine learning models, neural networks, and big data analytics have transformed disaster predicting. These tools analyse massive amounts of meteorological, geological, and environmental data to find patterns and anomalies. For example, improved AI-powered weather modelling systems can more accurately anticipate cyclones, floods, and droughts. Similarly, AI-based seismic activity monitoring can provide early warning of future earthquakes.

From the analysis of different news channel videos, it is very evident that the usage of AI is very high during the pre-disaster period. The news channels are providing different AI created videos, information bulletins for sharing in WhatsApp etc. these videos help to create awareness related to the disaster. Also, the reports examine the use of satellite images, drone

data and Internet of Things (IoT) sensors with AI algorithms to foresee disasters. Case examples of early warnings during cyclones, such as Cyclone Fani in India, demonstrate AI's ability to improve disaster preparedness. According to research, AI-enabled forecasting systems can cut lead times and enhance warning precision, allowing for greater readiness. Most of the time the warning also has the language of panicking the public. It will create more issues among the people apart from helping them. The National news channels work at a broader level covering disaster affecting areas and having nationwide implications. These include NDTV (India), CNN (USA), and ABC News (Australia), which make full use of their reach and resources for in-depth coverage and expert inputs. The National channels use their platform for educational purposes at a greater level; most of the shows carry expert opinions and data-based analyses. National channels like broadcasting those efforts of governments building barriers for floods or cyclone sheds at community levels and what measures have been in practice.



Screenshot from Odisha TV (Predicting news of Cyclone YAAS)

According to the National Policy on Disaster Management (NPDM), it has been prepared in tune with and in pursuance of the Disaster Management Act of 2005. The NPDM provides the framework or roadmap for handling disasters in a holistic manner. Here, the policy covers all aspects of disaster management covering institutional, legal and financial

arrangements, relief and rehabilitation, reconstruction and recovery etc.

International news channels bring a global perspective to disaster reporting with an emphasis on cross-border impacts and international cooperation. Channels like BBC News (UK), Al Jazeera (Qatar) and CNN International report on the economic, environmental, and humanitarian implications of disasters.

Warning the Public

Once a calamity is expected, it is critical to issue timely and accurate warnings. AI plays a critical part in this process by providing automatic alerts, real-time visualizations, and geographic analysis. Media sites use AI algorithms to create visually appealing representations of looming disasters, such as flood maps or storm tracks. For example, AI-enhanced heat maps created with geographical data aid in identifying high-risk locations, allowing authorities and media to target certain populations more effectively. AI technologies also help manage automated warnings across numerous channels, including television, radio, mobile apps and social media. Chatbots and AI-powered assistants help to personalize and deliver messages in local languages. Media coverage frequently highlights these technical developments, demonstrating how AI improves warning systems by eliminating human error and assuring rapid information distribution. Studies show that when the public hears well-designed, AI-backed warnings, the likelihood of fast action increases dramatically.

Such information educating viewers about the nature of incoming disasters is often aired in state channels. For example, before a cyclone, Odisha TV telecasts programs on how cyclones form, what to expect during them, and what steps a community can take to keep safe. These educational exercises typically incorporate advice on, firstly, how to be informed about the situation, to listen to weather warnings and to be on alert mode. Secondly, to keep monitoring updates given by the media channels. Thirdly, passing on the information to others as well who are not aware about it and also not to indulge in rumour mongering, to help avoid

panic situation. The state channels also use local languages and cultural analogies to ensure their message reaches a wide audience.

Almost all media are providing the warning AI connect to prepare for the disaster. It not only helps the people to prepare for the disaster it will also help the authorities for preparing the resources for resilient strategies. Also, the researcher found that the AI created videos are much easier to understand, and it has a sharable format. It helps the channel to spread the news content using any type of gadgets.

International news channels like BBC News (UK), Al Jazeera (Qatar) and CNN International cover global perspectives of disasters with respect to a particular issue such as climate change. Some of these international news channels show documentaries and reports comparing disaster preparedness strategies of different countries. AI tools are part and parcel of such analyses since they provide global datasets and trends for predictions to frame those comparisons. Preventive measures: These channels highlight both national and international efforts in disaster prevention. AI plays a huge role here, enabling the visualization of large-scale preventive strategies, such as global flood mitigation projects. The BBC's international climate summits often carry AI-powered insights into how countries are improving disaster preparedness through technology and policy

Evacuation, Kit Preparation and Awareness

Media campaigns concentrating on catastrophe preparedness have increasingly relied on AI-powered solutions to improve their effectiveness. AI simulations and predictive modelling are used to construct evacuation scenarios that give authorities and the public clear directions. These simulations also enable media outlets to demonstrate the safest evacuation routes, anticipated traffic patterns, and threats in specific areas, resulting in better preparation and execution. Platforms powered by AI assist in suggesting emergency supplies suited to certain crisis situations. These algorithms recommend necessary products to include in disaster

kits based on historical data and present threats, meeting local or personal demands. AI is also used to evaluate how well public awareness efforts are working. Machine learning algorithms, for example, can assess how consumers respond to preparation messages on social media, assisting organizations in improving their tactics. AI-generated information, including infographics or films, is frequently featured in media stories to inform the public about catastrophe preparedness. This method successfully engages audiences while simultaneously simplifying complicated topics. Research indicates that public retention rates for interactive AI-supported campaigns are greater, highlighting the importance of these tools in fostering resilience.

State channels are essential in disseminating evacuation plans. They broadcast information about shelter locations, emergency helpline numbers, and designated escape routes. Kansai TV, during earthquake warnings, provides detailed maps of evacuation centres and routes, ensuring that viewers can access help promptly.

The state channels are in partnership with the local government agencies to identify prevention measures that can be taken by the communities. WFTV (Wonderful Florida Television) in Florida frequently airs parts of its show on the hurricane-proofing of houses, preparation of emergency kits, and preparation of water for drinking. All these precautionary measures are always complemented with interviews of local authorities and disaster management personnel.

Visual Explanation of the channels are also very important in the study. State channels utilize simple visual aids to effectively interact with their audience. This encompasses elementary weather graphics, warning color-coded systems, and images of local weather stations. Prior to Cyclone Yaas in 2021, Odisha TV aired live radar images along with AI-based wind speed maps for their viewers. Mock drill videos conducted by local authorities are also shown to the audience for better understanding of emergency response situations. National

channels are marked by advanced visual tools. NDTV's coverage of the Kerala floods included drone footage and real-time geospatial data to highlight affected areas and inform evacuation efforts. International channels are superior in the use of cutting-edge visual tools, often fuelled by AI. For example, BBC News uses AI in creating real-time, interactive disaster simulations, allowing viewers to see the potential impact of events such as tsunamis or earthquakes. When reporting on Cyclone Idai, Al Jazeera used AI-generated graphics to depict the intensity and trajectory of the storm as well as the areas it may hit, thus bettering international understanding of the disaster.

Screenshot from AL Jazeera: Cyclone Idai

Phase 2: During the Disaster

The crucial time when disasters are actively developing and necessitate prompt and well-coordinated responses is represented by the 'During the Disaster' phase. With the use of AI tools, the media is able to bridge the gaps that exist between affected communities, relief organizations, and authorities. In order to lessen the impact of a disaster, AI-driven applications help with risk assessments, public education, recovery monitoring, logistical relief activities, and real-time information dissemination.

Information Dissemination

Accurate and timely information can save lives during a disaster. By analyzing data from a variety of sources, such as satellite photography, Internet of Things devices, social

media feeds, and emergency sensors, AI solutions allow for real-time updates and reporting. AI-powered systems are used by media organizations to produce real-time infographics, prediction updates, and immediate warnings. For example, social media posts can be analyzed by Natural Language Processing (NLP) algorithms to detect and share real-time developments on the ground. Additionally, automated news creation systems are essential for providing regular updates devoid of human involvement. The progression of a disaster, such as the growth of a wildfire or the shifting strength of a cyclone, can be visually monitored with AI-powered dashboards or applications, as demonstrated in media reports. According to research, AI greatly enhances public awareness and crisis decision-making by distilling complex, large-scale data into actionable insights.

State channels collaborate with local authorities to broadcast evacuation plans often emphasizing nearby shelters and safe routes. AI systems that are integrated with traffic monitoring tools are used to find and recommend less congested evacuation paths. Odisha TV during Cyclone Fani showcased AI-generated evacuation maps which helped thousands of residents find safer routes to shelters.

Screenshot from News 18: Kerala State Channel

Assessing Vulnerabilities

By determining danger areas and examining demographic sensitivities, AI tools improve our understanding of vulnerabilities. To identify regions most vulnerable to damage, machine learning models analyse geographic maps, historical data, and real-time inputs. AI-generated heatmaps, which show the disaster's severity in particular areas, are frequently used in media coverage. Furthermore, in order to identify susceptible communities, AI systems can assess demographic variables including population density, age distribution, and socioeconomic circumstances. AI algorithms, for example, can determine which low-lying metropolitan areas with high human densities should be evacuated first during floods. These insights are used by media outlets to create narratives that stress the need for immediate action and draw attention to the suffering of underprivileged or oppressed groups. Research has demonstrated that vulnerability assessments powered by AI not only improve relief efforts but also increase public empathy and support.

Educating the Public

Public education is essential to ensuring people's safety and well-being during calamities. AI makes it easier to create educational content that is interactive, localized and simple to grasp. In order to educate the audience about what to do in the event of a catastrophe, media outlets use AI techniques to broadcast tutorials, simulations and automated messaging. AI-generated movies that show how to use emergency kits or provide safe evacuation instructions, for instance, can be very helpful during a tsunami. Media may now distribute material in numerous languages, guaranteeing inclusion, thanks to AI's natural language processing skills. By responding to questions, giving out updates, and giving survival advice, chatbots and virtual assistants further involve the public. The significance of using AI into media tactics is highlighted by studies showing that AI-powered instructional campaigns during disasters greatly increase adherence to safety procedures and lower casualties.

National news channels like NDTV (India), CNN (USA) and ABC News (Australia) cover disasters with a wider perspective, focusing on both immediate impacts and their implications for other regions. The channels often feature expert panels explaining the science behind the disaster, its potential progression and safety measures. For instance, CNN often brings in meteorologists and disaster management specialists during hurricanes to explain it in detail. AI tools strengthen these efforts by analysing massive datasets and generating predictions and insights, which are then distilled for public consumption. For example, NDTV used flood prediction models generated by AI during the Kerala floods to inform viewers about areas likely to be submerged.

Relief Coordination

During a disaster, coordinating relief operations is a dynamic and complex task. By evaluating real-time data on needs, available resources, and transportation restrictions, artificial intelligence solutions simplify logistical assistance and resource allocation. The public, Governmental organizations and non-governmental organizations (NGOs) are among the stakeholders that media outlets are essential in informing with these AI-enabled insights. For example, AI tools map impacted areas and optimize the delivery of relief commodities like food, water, and medical aid using crowdsourced data and geospatial analysis. These tools also forecast resource requirements by using disaster severity and population data. The efficiency of AI in organizing rescue efforts is frequently highlighted in media publications, which present case studies where AI-driven logistics reduced waste and delays. Additionally, studies show that using AI technologies in relief operations improves resource usage and speeds up response times.

State-level news channels often are the first contact for local communities when disaster strikes. Their coverage puts more emphasis on immediate actionable information specific to the disaster locations. Channels such as Odisha TV (India) and Kansai TV (Japan) also work

with local disaster management authorities and present real-time updates to people, which include weather conditions, safety advisories, and helpline numbers. State channels have ensured the inclusion of AI videos in regional languages, thereby making culturally relevant examples in the context of the respective language. AI is increasingly coming into play in improving such updates. For instance, channel provision of hyper-localized weather forecasts through algorithms used in systems that predict the weather helps deliver timely warnings to residents in vulnerable areas.

National channels often liaise with disaster management agencies for evacuation and safety updates. The AI systems that monitor the traffic and population density also suggest evacuation strategies. The 2019 Australian bushfires saw ABC News employ AI-powered heat maps of fire hotspots to aid evacuation efforts, broadcasting them in multiple languages for better reach.

Track Recovery and Empower the Public

Applications of AI increase its usefulness by making it possible to track recovery attempts in real time. Media platforms track the development of disaster recovery, including the repair of infrastructure, the restoration of power and the repatriation of displaced people to their homes, using analytics and visualizations produced by artificial intelligence. According to studies, these empowerment programs that are supported by the media and enabled by AI increase public trust and hasten communal healing. International channels focused on the evacuations and relief efforts with cross-border coordination. AI tools help in the mapping of refugee movements, monitoring resource distribution, and forecasting future needs. BBC News covered the Syrian refugee crisis by using AI-driven analytics to trace migration patterns and identify hotspots that required immediate help. Visual analysis is also one of the important factors in the study. State channels are using simple but effective visual tools like feeds from the affected areas, mapped locations with annotations, and drone shots. During Kerala floods,

Manorama News used drones to depict in real-time how waterlogging affected areas. AI-enhanced visuals like heat maps indicating intensity of damage are being progressively used to make data speak for viewers. Reporters on the ground may use mobile units with AI to analyse and report real-time data. For instance, the change in environmental conditions can be tracked by wearable devices fitted with sensors, like a rise in floodwaters, and sent immediately to the newsrooms.

Screenshot from News 18: Kerala State Channel

Screenshot from News 18: Kerala State Channel

National channels are known for using advanced visual tools. Augmented Reality (AR) and Virtual Reality (VR) technologies are used more frequently to create immersive disaster simulations so that viewers can better understand the scale and impact of the event. Another specialty of the national coverage is live reporting from multiple locations. Artificially intelligent tools help reporters to access real-time data coming from space satellites, drones,

and sensors so that reporting is punctual, accurate, and reliable.

Phase 3: Post-Disaster

Planning rehabilitation, evaluating the impact of the disaster, and determining how well response measures worked all depend on the post-disaster phase. The use of AI in data collection, recovery assistance, and result evaluation is revolutionary. In this stage, the media is an essential channel that amplifies AI-driven findings to empower impacted communities, engage stakeholders, and inform policymakers.

Assess the Impact

Determining the level of losses and damages is one of the top responsibilities after a disaster. Through the analysis of drone footage, satellite photos and ground-level data, AI technologies allow for quick and thorough assessments. This data is processed by machine learning algorithms to produce precise estimations of environmental effects, financial losses, and physical damages. Media organizations frequently use data and heatmaps produced by AI to tell stories visually about the extent of the damage. After a cyclone, for instance, AI-powered systems may map the extent of flooded areas, indicating buildings, bridges and other infrastructure that has been impacted. Allocating resources and setting priorities for recovery efforts depend heavily on these findings. According to studies, AI-driven impact assessments outperform conventional techniques in terms of speed and accuracy. Disasters like the Kerala floods in India have been covered by the media, highlighting the value of these technologies in promoting accountability and accelerating recovery. Additionally, AI's capacity to give underrepresented populations detailed information on damages guarantees that their demands are met, supporting programs for equitable recovery.

Rehabilitation and Recovery

Rebuilding physical infrastructure, resuming services, and assisting impacted communities are all part of rehabilitation and recovery. AI-powered solutions, which facilitate

effective planning and resource management, are essential to maximizing these efforts. The use of AI in creating intelligent infrastructure that is more disaster-resistant is frequently highlighted in media narratives. AI models, for example, may model several rebuilding scenarios, assisting policymakers in selecting economical and sustainable alternatives. AI was used to forecast the operational requirements of temporary healthcare facilities during the COVID-19 epidemic. This method might be used to repair homes, hospitals, and schools following natural disasters. By keeping an eye on resource allocation and guaranteeing transparency, AI also aids in recovery efforts. AI systems with blockchain integration, for instance, track aid supplies, avoiding corruption and poor administration. Such solutions are frequently highlighted in media coverage, which emphasize how they help impacted groups regain confidence. According to research, the way AI-driven recovery solutions are portrayed in the media increases public trust in disaster management systems and speeds up community resilience.

Impact Analysis

To improve plans for upcoming catastrophes, it is crucial to examine how well AI works in disaster response and preparedness. The public and experts' conversations about the advantages and disadvantages of AI are greatly aided by the media. Assessments of how well AI foresaw the catastrophe, distributed alerts and aided reaction activities are part of these conversations. According to studies, the potential of AI to handle large datasets in real time and produce actionable insights is frequently highlighted in media coverage of the technology's application in disaster management. But there is also discussion of ethical issues including algorithmic prejudice, data privacy, and the possible exclusion of vulnerable groups. For instance, even though AI may be able to identify dangers with accuracy, unfair results may result if the socioeconomic circumstances of impacted areas are not taken into account. Media platforms give interested parties a forum to discuss these problems, guaranteeing that future

applications of AI take into account its limitations. In order to improve accuracy and inclusivity, AI algorithms must be continuously improved, according to academic and media evaluations of previous disasters like the Nepal earthquake and the Uttarakhand floods.

This report assesses the coverage by State, National and International news channels in the post-disaster phase. The scope of reporting has been concentrated on the public education role, visual representation of recovery efforts and analysis of preventive measures. This report also analyses how AI enhances the quality, speed of post-disaster reporting.

Educating the Public

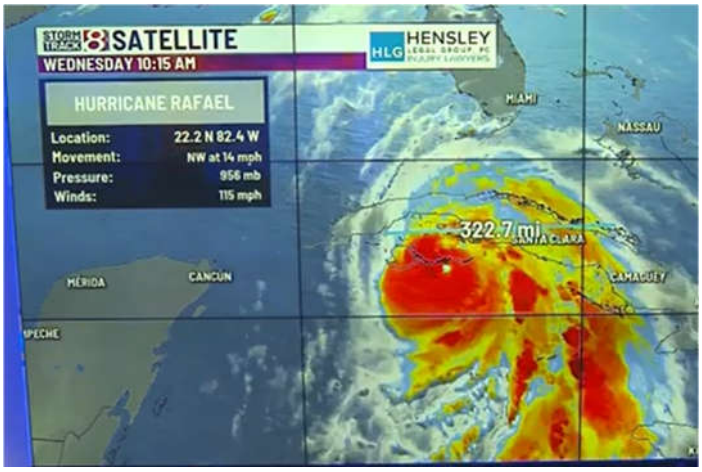
State-level news channels act as a bridge between the local community and disaster management authorities during the recovery phase. Regional Channels inform the public about relief camps, food distribution centres, and medical facilities. They also educate the public about resources available for rebuilding homes, filing insurance claims, and receiving government aid. AI tools aid in these efforts by providing real-time analytics about resource allocation and identifying underserved areas.

Natural hazards occur naturally, but the catastrophe arises when they result in heavy casualties and destruction, which hampers social as well as economic progress. Every year, millions are affected by natural disasters. Furthermore, the frequency of these disasters has increased. This causes much damage to human lives and infrastructure and affects society dramatically. Accordingly, research in natural hazards and disaster risk science tries to understand the spatial-temporal pattern, process, and mechanisms of these events and develop strategies for emergency responses and risk mitigation. The current section outlines natural disasters and AI-based approaches toward enhancing understanding about events and implications.

Visual analysis

State channels rely much on visuals to communicate the extent of damage and progress of recovery. Drone footage, AI-enhanced satellite images, and on-ground video reports are commonly used. During the 2018 Kerala floods, Manorama News used drone-based visuals to show the scale of destruction. These visuals not only educate the public but also hold the authorities accountable as changes in aid delivery occur.

International channels excellently use the most contemporary technology to present very lively reports. AI-driven images from satellites and 3D mapping tools are applied to demonstrate the level of destruction and recovery work done at the site. When the news was surfacing about Typhoon Haiyan, Al Jazeera utilized visuals enhanced by AI to document the destruction of the shores and compare it with ongoing redevelopment work. These visuals are designed for global audiences, focusing on the interdependence of disaster management and the need for collaboration. On the other hand, AI weather models learn to recognize patterns by being trained on decades of climate data that were mostly collected through satellites and ground-based sensors, shared through intergovernmental collaboration.



Screenshot from Hensley, Eastern Kentucky

Preventive measures

When a wildfire breaks out, an earthquake strikes, or a storm makes landfall, the public relies on timely, precise, and accurate information from authoritative sources so that it can react

and recover properly. Moreover, the people expect life-supporting infrastructure and services, such as telecommunications, evacuation routes and first-response measures to be there to diminish the impact of the disaster. Transparency in the data, training, evaluation, and limitations of AI for disaster management is very important to ensure the safety and robustness of such tools. AI can help in preparedness by contributing to forecasts. For instance, AltaML-which is a leading developer of AI powered solutions-is training AI with data on historical fires, regional weather, and forest conditions to predict wildfires.

After a disaster happens, the first thing to do is to start the rescue operation. In practice, during the process of emergency rescue work, the operational ability of relevant personnel is crucial for the smooth progress of rescue efforts. However, the overall functional capacity of emergency rescue teams still needs to be strengthened. There is a lack of practical experience and a lag in developing and upgrading advanced rescue equipment. Emergency rescue teams conduct a few targeted simulation training activities, and the drill evaluation system is not yet sound, resulting in unsatisfactory exercise outcomes. International channels often correlate disasters with the broader issues of global climate change, and they encourage global preventive measures. AI models are used to predict how long-term disaster impacts will alter ecosystems and economies, painting a comprehensive picture of the stakes involved. For instance, BBC News, in covering Cyclone Idai, used its AI tools to simulate the impacts of improved infrastructure on the prevention of flooding, providing actionable insight for policymakers.

Conclusion

One revolutionary invention which has changed the way television media approaches disaster management is AI in disaster reporting. This research explores how AI can make forecasting more accurate, expedite real-time reporting and support recovery efforts during the Pre-disaster, During the disaster and post-disaster phases. According to a qualitative review of

television media material, AI-powered solutions not only increase the accuracy and timeliness of information but also make it easier to communicate with the general public, guaranteeing that vital updates reach communities that are most in need.

In the pre-disaster phase, AI technologies like predictive modelling and early warning systems empower media to provide actionable insights, fostering preparedness and reducing risks. The focus is placed on prediction, preparedness, and public awareness. Television media can predict disasters with great accuracy using AI-powered tools, such as predictive models, early warning systems, and geospatial technologies. For instance, machine learning algorithms can process meteorological data to forecast cyclones or floods, allowing media houses to broadcast risk assessments and timely alerts. These AI-based insights are often represented in the form of exciting visualizations and simulations so that complicated data can be comprehensible to a wide range of people.

If these findings are made more easily accessible and visually appealing for television media, it assures that the information gets dispersed to a wide range, even those who may not have technical knowledge. Also, with AI technologies, media can also personalize warnings and preparedness messages to target audiences. With geospatial technologies, AI can even determine high-risk zones and thereby develop localized alerts, by which communities can take targeted preventive measures. For example, AI-based tools can suggest areas that are likely to see floods during heavy rainfall. In this way, by creating customized messages advising residence to evacuate or secure themselves at home, it saves more lives and increases the public's credibility towards the media for delivering accurate relevant information. Focusing on prediction, preparedness, and public awareness, AI technologies make television media a vital partner in disaster management, bridging the gap between complex scientific data and actionable public knowledge.

Television media widens the reach for these technologies by presenting them through

a narrative that emphasizes preparation. Initiatives to prepare an emergency kit, evacuation drill, and community awareness programs often draw upon AI-based recommendations to validate the programs and make them much more effective. Despite these advances, unequal access to technology and differing technological literacy leave some communities vulnerable. It's only through collective efforts among media organizations, policymakers, and technologists that preparedness for AI-driven readiness may be approached in an equitable manner.

In the post-disaster phase, AI-driven impact assessments, recovery tracking, and rehabilitation planning are useful in portraying both the scale of the disaster's aftermath and the efforts toward reconstruction. An active disaster requires quick and effective communication of information, for which AI becomes extremely helpful in the processing of real-time data. AI helps television media disseminate live updates, evaluate vulnerabilities, and organize relief operations. For example, an AI-powered system can study satellite imagery and social media feeds to trace high-risk areas, population movements, and trajectories of disasters. This is all the information required by the media to present factual and timely updates to affected communities.

Apart from real-time reporting, AI also helps with vulnerability assessments, which are critical in a disaster. Analysing demographic data, infrastructure resilience, and environmental conditions, AI tools identify communities most at risk. For instance, communities that have elderly populations or insufficient shelter facilities can be identified as requiring urgent attention. Based on these findings, television media can use them to give the most vulnerable people exposure, urging the authorities and relief organizations to attend to their needs first. Such targeted reporting not only educates the public but also creates a sense of belongingness that incites viewers to donate for the relief or volunteer for helping.

Besides real-time reporting, AI allows television media to broadcast educational content during disasters. Instructions on safety measures, evacuation routes, and medical

assistance, often generated by AI algorithms, are disseminated widely, empowering individuals to make informed decisions. AI also helps combat misinformation by ensuring that audiences receive verified and credible information amidst the chaos. However, dependence on AI raises ethical concerns that algorithmic biases and data breach are some of the most threatening issues. Therefore, television media needs to be extremely vigilant in balancing the positive elements of AI-based reporting with transparent and accountable journalism.

The post-disaster phase begins, and there is a focus on recovery, rehabilitation, and impact assessment. In this stage, AI technologies are used in the determination of damage assessment and facilitation of recovery. TV media, in reporting on the damages sustained and the progress made on rebuilding, uses AI-driven analytics, such as the comparison of satellite images and machine learning algorithms. This is a way to not only update the public but also keep authorities on their toes as they respond and distribute resources.

AI technologies also help track the recovery progress and report it to the public and stakeholders. For example, AI tools can analyse data from drones, on-ground sensors, and social media feeds, reporting reconstruction activities, resource allocation, and community rehabilitation in real time. Media reports based on such insights can point out successful stories, such as school reopening or transportation networks reinstated, to instil hope and resilience among affected people. At the same time, the same reports can also show delays, inefficiencies, or inequities in recovery efforts and bring governments and relief organizations under scrutiny. Combining these two strands of narrative, television media acts both as a watchdog and a motivator, ensuring that recovery efforts remain focused and transparent.

In addition to recovery tracking, AI-powered tools are instrumental in conducting impact assessments that measure the social, economic, and environmental consequences of a disaster. Television media can then use these assessments to give a panoramic view of the disaster's aftermath, including the economic losses of local businesses, the psychological toll

on affected communities, and the ecological damage caused by the event. Media can amplify the voices of marginalized or underrepresented groups through in-depth reporting and ensure that their needs are addressed during the recovery process.

However, the study also raises challenges in the use of AI in disaster reporting, such as data privacy issues, algorithmic bias, and ethical implications in the reliance on automated systems for critical decision-making. Television media, as a powerful public communication platform, is at the forefront of amplifying AI capabilities while addressing these concerns through transparent reporting and inclusive practices.

It falls in the category of studies on the use of technology for effective disaster management as it focuses on how AI can be effectively implemented into the role of mediation for the media, between technological change and society. A continuation of innovation, together with ethics and collaborative relationships, will ensure that responsible application for AI is equitably practiced during disaster scenarios through close relationships between media people, technologists, and policy-makers.

The results of this study highlight AI's revolutionary potential to improve disaster reporting across all three phases. AI not only enhances disaster management results but also gives communities the ability to better handle disasters by enabling broadcast media to provide rapid, accurate, and actionable information. AI integration in media operations has the ability to increase resilience, increase public trust, and support more environmentally friendly disaster management techniques.

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