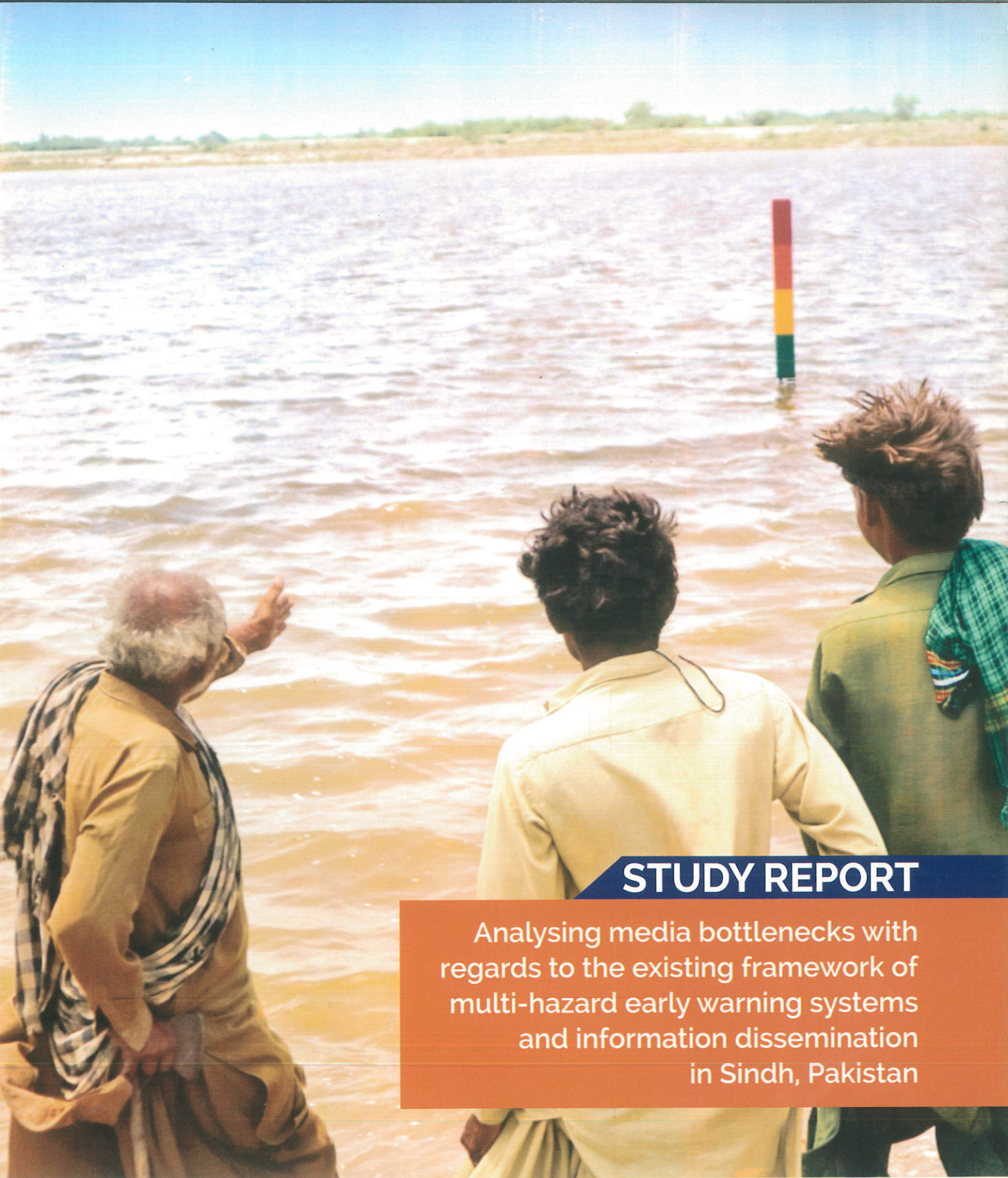




STUDY REPORT

Analysing media bottlenecks with regards to the existing framework of multi-hazard early warning systems and information dissemination in Sindh, Pakistan

CREDITS

Study:	Analysing media bottlenecks with regard to the existing framework of multi-hazard early warning systems and information dissemination in Sindh, Pakistan
Project:	Strengthening Disaster Preparedness System in Sindh, Pakistan
Study conducted by:	Sustainable Development Policy Institute (SDPI)
Reviewed by:	Mr. Falak Nawaz - DRR Advisor Cesvi Ms. Sadia Tehseen – Head of Programme Cesvi Mr. Sheraz Ahmed Kayani – DRR Team Lead Cesvi Mr. Zeeshan Azmat – Project Coordinator Cesvi
Funding support:	European Civil Protection and Humanitarian Aid Operation (ECHO)
Published by:	CESVI Pakistan
Year:	2024

ACKNOWLEDGEMENT

The consortium, Action Against Hunger (ACF) and CESVI Pakistan would like to express their heartfelt gratitude to the Sustainable Development Policy Institute (SDPI) for their unwavering support in conducting this crucial study. This study is a significant achievement in comprehending the media's role in disaster management and the current framework of the multi-hazard Early Warning System (EWS) and information dissemination in Sindh, Pakistan.

Cesvi Pakistan expresses gratitude to ECHO and the diverse range of individuals and organizations that participated in key informant interviews and consultative workshops. Representatives from PDMA, DDMA Thatta and Mirpurkhas, PMD Karachi, media houses, government agencies, UN agencies, local and international NGOs, the telecommunication sector, academia and research institutes, rescue agencies and local communities provided invaluable insights, contributing to the richness and depth of this report. The emphasis on gender, age and disability inclusivity in the study reflects our commitment to a holistic understanding of the media landscape. We acknowledge the challenges identified, particularly the critical role of the media during different phases of disasters. The positive practices recognized, as well as the highlighted challenges, will undoubtedly guide future interventions.

The success of this study is indebted to the dedication and expertise of all involved stakeholders. Their collective efforts have illuminated the complexities of disaster management, media practices, and communication dynamics in Sindh, Pakistan. As we present the key findings and recommendations, we express our gratitude to each contributor for their time, knowledge, and commitment. We hope that the insights gained and the proposed recommendations will serve as a catalyst for positive change, fostering enhanced disaster resilience in the region.

EXECUTIVE SUMMARY

Pakistan ranks among the countries most significantly impacted by numerous climate change-induced disasters, despite contributing less than 1% to the world's carbon footprint. The consequences of climate change, including shifting seasonal weather patterns, escalating temperatures, variable monsoons, and the melting of northern glaciers, have combined with recurrent extreme weather events and natural disasters. The rising temperatures have led to a surge in the frequency and intensity of extreme climate events such as floods, droughts, cyclones, heavy rainfall, and heat waves. These events have left a profound impact on the country's ecosystems, populace, settlements, and infrastructure. Sindh, the most adversely affected province in Pakistan due to climate change, witnessed severe consequences during the 2022 floods, with 24 districts significantly impacted by unprecedented rainfall. The province faces heightened risks, particularly in its coastal areas and the Indus deltaic region, due to factors such as sea level rise, coastal erosion, sea intrusion, extreme heat waves, and increased cyclonic activities. These recurrent hydrometeorological events are posing potential health risks like heat-related illnesses, diarrhea, cholera, and vector-borne diseases, along with threats to human settlements from recurrent floods, droughts, and cyclones.

In collaboration with CESVI Pakistan, the Sustainable Development Policy Institute (SDPI) conducted an analysis to identify bottlenecks in the existing framework of the multi-hazard EWS and information dissemination in Sindh, Pakistan. The study employs a meticulous methodology, encompassing a desk review of disaster communication and media practices, particularly their role in all three phases of disaster management i.e. before, during, and after the disaster. This report presents key findings derived from key informant interviews and consultative workshops focused on assessing the state of the existing EWS and media practices during disaster reporting in Sindh, Pakistan. Representatives from diverse organizations, including media houses, government agencies, and NGOs, provided valuable insights. The study emphasized age, gender and disability inclusivity, ensuring a comprehensive understanding of the media landscape.

The lack of governance in disaster management emerged as a significant challenge, particularly at the district level, leading to coordination deficits and communication gaps. The absence of dedicated technical human resources and reactive policies hindered effective disaster response. Specific, localized information from disaster management authorities was deemed crucial, emphasizing the need for a decentralized approach. The media's role during disasters, especially floods, was highlighted as vital for information dissemination and public awareness. While acknowledging positive practices, challenges included the impact of reporting on credibility, gender and disability-specific reporting gaps, and ethical lapses. Social media dominance in reporting underscored the need for formal EWS structures alongside digital platforms. Collaboration challenges and limited information availability during disasters hindered media coverage. Connectivity issues, especially in rural and coastal areas, affected timely and accurate reporting. The importance of establishing feedback mechanisms, enhancing capacities, and addressing challenges in local connectivity was emphasized.

The recommendations encompass a multi-phase approach, involving coordinated workshops, capacity-building initiatives, and standardized communication protocols. The establishment of a government coordination unit, the development of disaster reporting guidelines, and collaborations for capacity building were proposed. The report also calls for data transparency, digital applications for information sharing, and strategies for media local connectivity. Improved weather monitoring, enhanced coordination for effective response, and community engagement in disaster management were highlighted, along with the need for integrated research involving academia and research organizations.

LIST OF ABBREVIATIONS

ACF	Action Against Hunger
BISP	Benazir Income Support Program
DDMA	District Disaster Management Authority
DHQ	District Headquarter
ECHO	European Civil Protection Aid and Humanitarian Aid Operation
EWS	Early Warning Systems
FRDP	Fast Rural Development Program
ICT	Information and Communication Technology
KII	Key Informant Interview
LHDP	Larr Humanitarian Development Program
M&E	Monitoring and Evaluation
MIS	Management Information System
MJ	Multimedia Journalists
NHN	National Humanitarian Network
PDMA	Provincial Disaster Management Authority
PEMRA	Pakistan Electronic Media Regulatory Authority
PHF	Pakistan Humanitarian Forum
PMD	Pakistan Meteorological Department
PRCS	Pakistan Red Crescent Society
PTA	Pakistan Telecommunication Authority
PTSD	Post-Traumatic Stress Disorder
SDPI	Sustainable Development Policy Institute
SFDRR	Sendai Framework for Disaster Risk Reduction
UNDRR	United Nations Office for Disaster Risk Reduction
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFAO	Food and Agriculture Organization of the United Nations
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
WHH	Welthungerhilfe

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INTRODUCTION

PROJECT INTRODUCTION

Action Against Hunger (ACF) and CESVI are implementing the project "Strengthening Disaster Preparedness System in Sindh" jointly in consortium with the financial support of the ECHO. The project is being implemented in two districts; ACF is directly implementing project activities in District Thatta and CESVI in District Mirpurkhas. The project focuses on enhancing the climate-induced disaster preparedness of the disaster management authorities for effective implementation of risk-informed anticipatory actions for multi-hazard through facilitating the PDMA in developing a provincial anticipatory actions framework for slow and rapid on-set multi-hazard disasters (flood and cyclone) and enhancing the existing MIS system to enable PDMA and the PEOC for joint monitoring the pre-identified triggers/threshold and trends to produce and disseminate updates to key stakeholders support the timely and effective implementation of anticipatory actions. The project includes proactive engagement with stakeholders involved in social protection, to ensure that anticipatory actions, triggers, and thresholds are incorporated into the overall programmatic strategy of the government's social protection program for systematic use by the BISP platform. The project also focuses on improving local preparedness for institutional anticipatory action planning by enhancing information, communication, and public awareness about swift disaster response by disseminating critical early warning messages to at-risk communities. In addition, the project also supports PDMA/DDMAs in the mapping of trained community resource persons/volunteers to be engaged as first responders at the community level and the project ensures consultations with all the

relevant government line departments in project interventions to ensure sustainability and ownership. The proposed response will also support PDMA to advocate for increased DRR financing for Sindh for enhanced preparedness and anticipatory actions.

STUDY BACKGROUND

Timely and effective warning communication enhances citizens' safety and reduces losses and damages during disasters. Governments around the world are constantly implementing communication innovations in order to properly disseminate essential risk information. Specifically, in the case of developing countries, where climate-related vulnerabilities are quite evident, effective early warning systems can help to minimize their losses and damages.

In South Asia, Pakistan has been bearing the brunt of climate crises for the past few decades in the form of increased events of unprecedented rains, riverine floods, heatwaves, cyclones, droughts etc. Although, these disasters used to occur over the years, however, recently, the country has been experiencing the sudden onset of climate-imposed hazards which have become more severe and frequent, posing a growing threat to the safety, livelihood and well-being of its population. Last year, the country experienced prolonged, unprecedented heatwaves starting from March, eventually skipping the spring season. These heatwaves resulted in Glacial Lake Outburst Floods (GLOFs) in the northern areas and also caused recurrent droughts due to the dry spell. However, during the monsoon, the country experienced unexpected torrential rains which resulted in super floods, that affected 33 million people and drenched 1/3rd of the country under water and the province of Sindh was one of the worst hits from the rain floods. 24 districts in Sindh were affected by floods which resulted in the loss of human lives and livestock, damage to the infrastructure, agricultural land standing crops etc¹.

The Pakistan Meteorological Department (PMD) plays a pivotal role in monitoring and forecasting weather conditions on a daily, weekly, and monthly basis. It provides comprehensive weather information, including advisories, weekly alerts and warnings for potential hydrometeorological hazards including floods and cyclones. The PMD relies on existing resources including satellite data, and real-time information from its existing network of radars and weather stations to deliver accurate and reliable weather forecasts, contributing to effective disaster preparedness and response efforts at various administrative levels. The PDMA effectively communicates advisories, alerts, and warnings through the established disaster management structure at both provincial and district levels. Their dissemination strategy prioritizes widespread outreach, ensuring that critical information reaches the masses through various channels. The effectiveness of these systems depends a lot on the dissemination of information through mass media. This system has been experiencing challenges and bottlenecks in Sindh province especially in the coastal and rural communities. Hence, analysis of these bottlenecks is crucial to address the challenges associated with climate induced disasters, so that in future, such massive level of loss and damage is mitigated.

For this purpose, Sustainable Development Policy Institute (SDPI) partnered with CESVI Pakistan to conduct analysis of bottlenecks with regards to the existing framework of multi-hazard early warning

¹ Iqbal, M., Rabbani, A., Haq, F., & Bhimani, S. (2022). The floods of 2022: Economic and health disaster hits Pakistan. *Annals of Medicine and Surgery*, 84, 104800.

systems and information dissemination in Sindh, Pakistan. This report offers an overview of the research methodology employed in the study, presenting findings from desk research, consultation workshops and KIIs done with various stakeholders. Additionally, it includes a set of recommendations derived from these findings to enhance the effectiveness of the existing EWS at both the provincial and district levels.

SCOPE AND OBJECTIVES

The bottlenecks identified in the existing multi-hazard EWS in Sindh, Pakistan, will contribute to strengthening the PDMA's capacities in disseminating critical information to the general public. The study's outcomes will result in a more effective, efficient, and responsive EWS, ultimately reducing the vulnerability of communities and increasing coping capacities which shall ultimately help in minimizing the adverse impacts of disasters at the grassroots levels in Sindh Province. The study will also aim to ensure gender and age inclusiveness while providing recommendations to strengthen the information dissemination mechanism on early warning systems. The main objectives of the study are as follows:

- To conduct the context analysis of existing early warning and information dissemination systems including the role of print and electronic media during different phases of the disaster management cycle (before, during, and after the disaster) at the provincial, district and further at the community levels to identify the gaps/challenges.
- To propose evidence-based recommendations for the enhancement of mainstreaming information dissemination systems in highlighting the need for early warning systems, promoting anticipatory actions, mitigation, and prevention approaches through the involvement of key stakeholders.





STUDY METHODOLOGY

LITERATURE REVIEWED

A comprehensive desk review was carried out to assess media bottlenecks associated with the existing EWS in the province of Sindh. The study focused on gathering insights from a diverse range of sources, including the NDMA's Disaster Reporting Manual 2011, which provided a thorough examination of guidelines and protocols established by the NDMA for effective disaster reporting. Real-time information on past disasters and reporting practices was obtained through a comprehensive analysis of news reports from both print and electronic media. Global standards and practices in disaster reporting were assessed through the review of reports from the UNDRR. Additionally, the study incorporated insights from the post-disaster needs assessment by the World Bank, aiming to identify gaps and needs in the aftermath of disasters. Academic research articles, journals, and relevant policy papers were also scrutinized to incorporate scholarly perspectives and findings, thereby creating a comprehensive overview of the existing framework and identifying areas for improvement in disaster reporting.

STAKEHOLDER MAPPING

For the stakeholder mapping, literature was reviewed along with the reports from the NDMA and Ministry of Planning and Development and Special Initiatives. Moreover, post-disaster needs assessment reports by the World Bank also helped to identify key stakeholders who were directly engaged with the flood-

affected communities in Sindh. Furthermore, through different news articles published in print media covering floods in 2022, media personnel, press clubs representatives, freelance journalists, and reporters from independent and private media houses were identified. Also, based on the relief and recovery efforts, humanitarian organizations, UN agencies and emergency rescue 1122 departments were identified as key stakeholders.

QUESTIONNAIRE DEVELOPMENT

A detailed questionnaire was developed with a desire to address key aspects crucial to understanding the dynamics of media engagement in critical information dissemination during different phases of disasters. These questions covered key aspects such as demographic information, existing early warning systems, media practices, capacity and awareness, collaboration, feedback mechanisms, roles and responsibilities, recommendations and challenges specifically in coastal and rural communities. Consideration was given to aligning the questionnaire with the broader study objectives, ensuring that the questions were tailored to capture relevant insights and facilitate a thorough examination of the media landscape's role in the context of disaster preparedness and response in Sindh.

DATA COLLECTION

For data collection, 30 KIs were conducted with media personnel, press club representatives, freelance journalists, and reporters from independent and private media houses. These interviews documented their experiences with disaster reporting challenges, operations, and recommendations for the future. Additionally, two provincial and regional-level consultative workshops were conducted to ensure a more inclusive and participatory process. Attended by numerous regional and district-level stakeholders, including representatives from DDMA Thatta and Mirpurkhas, response agencies, international and local NGOs, press clubs, government departments, academia, and community volunteers, these workshops sought insight and input on EWS elements, past experiences, and recommendations for a more inclusive EWS in the future.

DATA ANALYSIS

A critical qualitative and quantitative data analysis was performed to assess the results obtained via KIs and also through stakeholder consultation workshops. This analysis helped to analyse the strengths and weaknesses of the media reporting and based on that recommendations have been proposed.



LITERATURE REVIEW

EVOLUTION OF DISASTER COMMUNICATION AND MEDIA PRACTICES

Disaster communication specifically before and during natural disasters plays a critical role in mitigating the natural disasters by disseminating timely and accurate information. The local government and general public rely on obtaining fast and reliable information about the situation, evacuation protocols, and safety measures in the chaotic aftermath of a disaster. This rapid communication is critical in guiding at-risk populations, response agencies, volunteers, and humanitarian organizations to smoothly coordinate their activities. In the United States, disaster communication has long been a focus of public relations study and practice, notably in reputation management and image restoration². However, in the domain of disaster management by public organizations, the communicative components of crises have been overlooked for many years, and disaster communication did not establish itself as an independent study subject until after the Chernobyl disaster in 1986. In the aftermath of significant natural disasters, such as the Tsunami and Hurricane Katrina, rising uncertainty, an increase in the number and size of crises, and public criticism of governments, disaster communication has firmly placed the matter at the forefront in public organizations³. People living in the Western parts of the world often receive the news about natural

² Lowrey, W., Evans, W., Gower, K. K., Robinson, J. A., Ginter, P. M., McCormick, L. C., & Abdolrasulnia, M. (2007). Effective media communication of disasters: Pressing problems and recommendations. *BMC public health*, 7(1), 1-8.

³ Wahl-Jorgensen, K., & Panthi, M. (2013). The ethics of global disaster reporting: Journalistic witnessing and the challenge to objectivity. *Global media ethics: Problems and perspective*, 191-213.

disasters, which affect developing countries, from newspapers, television and social media platforms⁴. Hence, the media coverage of natural disasters is increasingly significant.

A major newspaper or television network's decision to document a disaster transforms it from a local catastrophe to a global tragedy, and it is well-recognized that extensive news coverage of a disaster considerably increases the volume of response to an emergency fund-raising appeal. As also indicated during the Tsunami 2004 in the Indian Ocean, when many developing countries were affected, the bias of the Western media was evident as they were only interested in reporting how many Westerners or Europeans were affected rather than native people⁵. Moreover, the account of women, children, the elderly and persons with disabilities affected was not considered to highlight the plight of distressed victims by the local media as well, which affected the projection of disaster internationally.

The media plays an important role in disaster communication, serving as a necessary intermediary between authorities and the people. The media supports disaster management authorities by educating the public about potential hazards, warning of expected threats, gathering and transmitting information about disaster-prone areas, alerting government departments, and relief organizations about the specific needs of the affected population, and facilitating discussions about disaster preparedness and coordinated response for continuous improvement. Providing media personnel with training on utilizing appropriate platforms to acquire reliable and verified information can mitigate the spread of disinformation and rumours. This practice of delivering trustworthy and confirmed information contributes to avert fear and confusion. Over the last decade or two, there has been a substantial shift away from traditional mass media consumption broadcast television, newspapers and radio, towards consumption of social media. Essentially, this growth in communication is regarded as a fundamental transition from broadcast or "one-to-many" communication to "many-to-many" more interactive webs of communication⁶.

GLOBAL COMMITMENTS AND MEDIA'S ROLE IN DRR

Globally, organizations like the United Nations Office for Disaster Risk Reduction (UNDRR) emphasize the importance of accurate and timely reporting to reduce hazard vulnerability and enhance preparedness⁷. It aligns with the Sendai Framework for Disaster Risk Reduction (SFDRR), which advocates for implementing EWS and reporting mechanisms as core components of disaster risk reduction strategies⁸. Studies in the global landscape reveal that while there has been significant progress in establishing disaster reporting and early warning systems, challenges are faced in their integration, accessibility, and effectiveness⁹.

*"The importance of the
"right information at the
right time" in the
management of disaster-
related reporting has not
altered for decades"*

*Monahan, B., & Ettinger,
M. (2018)*

⁴ Bennett, R., & Daniel, M. (2002). Media reporting of third world disasters: The journalist's perspective. *Disaster Prevention and Management: An International Journal*, 11(1), 33-42.

⁵ Knight, A. (2006). Covering Disasters and the Media Mandate: The 2004 Tsunami. *Media Asia*, 33(1-2), 47-57.

⁶ Boykoff, M. T. (2011). *Who speaks for the climate?: Making sense of media reporting on climate change*. Cambridge University Press.

⁷ Look More at <https://www.undrr.org/early-warnings-for-all>

⁸ United Nations. (2015). Sendai Framework for Disaster Risk Reduction 2015-2030. Retrieved from <https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030>

⁹ Lowrey, W., Evans, W., Gower, K.K. et al. Effective media communication of disasters: Pressing problems and recommendations. *BMC Public Health* 7, 97 (2007). <https://doi.org/10.1186/1471-2458-7-97>

There are many instances where EWS awareness among media supported timely dissemination of information among the masses such as in 1970, a tropical cyclone affected the southwest of Bangladesh, killing 300,000 people and rendering 1.3 million people homeless. However, in 1985, there was another cyclone of same intensity that again struck the same area, but this time, due to early dissemination of information by media sources and well-organized response from the government and general public, the loss of life was reduced only to 10,000. The same instances have been reported in Andhra Pradesh, India, where early dissemination of information based on EWS helped save lives¹⁰.

EXISTING EWS IN THE SINDH PROVINCE AND ROLE OF MEDIA

Sindh province has a population of 50.4 million people which makes up around 23% of Pakistan's population and generates 27% of the country's GDP. The Sindh has been found the most vulnerable province to climate change-induced disasters including riverine, urban and flash floods, droughts, heatwaves, and cyclones. Almost half of Sindh's population resides in rural areas, and around 37% of the rural population is living below the poverty line, which is higher than the Pakistan average. In 2022, 24 districts in Sindh were affected by floods which resulted in the loss of human lives and livestock, damage to the infrastructure, agricultural land standing crops etc.. Poverty rates in flood-affected regions are substantially higher, reaching 53.4% in Badin. Sindh's flood-affected communities have some of the worst stunting rates in the country, owing to inadequate access to sanitation and clean water. Food insecurity and related malnutrition are widespread, with particularly high rates among the poorest, and are projected to rise as a result of flooding.

The existing EWS primarily addresses prevalent hydrometeorological hazards in the province including droughts, floods, cyclones, heatwaves, and tsunamis. The Tropical Cyclone Warning Centre of PMD offers timely and accurate information about the formation of depressions and approaching cyclones, utilizing technologies such as satellite imagery, weather radars, and weather forecasting models. The PMD monitors weather patterns and collaborates with neighbouring countries to enhance the effectiveness of their warnings, particularly due to the higher cyclone risk along India's extensive coastline. For cyclones, the PMD issues advisories 15 days in advance, specifying the expected track, intensity, and potential impacts. These warnings are disseminated through various communication channels, including media, radio, SMS alerts, and informal community networks¹³. Furthermore, the Flood Forecasting Division (FFD) of PMD is responsible for riverine flood forecasting, relying on hydrological stations along rivers to monitor water levels, flow rates, and rainfall. Flood warnings are generated based on predefined thresholds, providing information on the expected timing, magnitude, and duration of flood events. The Flood Routing Model aids downstream communities in preparing for potential flooding¹⁴. For rainfall and floods, meteorological data, hydrological data, and communication networks are combined to predict and alert communities about potential risks. Weather forecasting models such as ECMWF, UKMO, ICON and existing technology including meteorological stations, and weather radars play a crucial role in monitoring precipitation and predicting heavy rainfall events.

¹⁰ Shaw, R., Kakuchi, S., & Yamaji, M. (Eds.). (2021). *Media and Disaster Risk Reduction: Advances, Challenges and Potentials*. Springer Nature.

¹¹ <https://www.worldbank.org/en/news/factsheet/2022/12/19/factsheet-strengthening-social-protection-delivery-system-in-sindh>

¹² Pakistan Floods 2022- Post Disaster Needs Assessment: <https://www.pc.gov.pk/uploads/downloads/PDNA-2022.pdf>

¹³ Awan, S. A. (2004). *Flood Forecasting And Warning Systems In Pakistan*.

¹⁴ Rana, I. A., Bhatti, S. S., & Jamshed, A. (2021). Effectiveness of flood early warning system from the perspective of experts and three affected communities in urban areas of Pakistan. *Environmental Hazards*, 20(3), 209-228.

Moreover, the National Seismic and Tsunami Monitoring Center addresses the risk of tsunamis originating from seismic activities in the Arabian Sea. In the event of an earthquake, the system assesses the potential for a tsunami and issues alerts through various means, including sirens, mobile networks, and coastal community networks, to minimize loss of life and property through timely and accurate information dissemination¹⁵.

Based on the review, studies show that the existing EWS was not delivered during the recent floods in the region. The challenges include a lack of resources for operational EWS equipment, issues with community trust, and the absence of proper communication guidelines, affecting the effectiveness of flood warnings¹⁶. Moreover, the existing EWS falls short of being people-centered and gender-sensitive¹⁷. Here, the role of media is imperative in raising public awareness and disseminating quicker and reliable information to facilitate disaster preparedness and response efforts¹⁸. Media has societal obligations, including serving as a watchdog, providing accurate information, and facilitating public discourse for the common good¹⁹. While the media is quick to report the immediate news and ongoing developments during the disaster, they struggle to provide in-depth information about the causes of natural disasters and their long-term effects²⁰. Moreover, Pakistani media ignore its pre-disaster role, particularly in foreseeably predictable events like floods and drought, where no coverage is provided. In post-disaster coverage, the media prioritizes political statements over government accountability and policy discussions, overlooking crucial aspects of disaster management²¹. It has been observed that disaster reporting by media is not very efficient and inclusive of gender and age gap²².

CHALLENGES FOR MEDIA IN DISASTER REPORTING

The barriers to pre-disaster reporting include limited access to information and low news value of environmental stories²³. During disasters, working in challenging environments have an impact on both a personal and professional level. In addition to the emotional strain and psychological harm, limited resources, logistical problems, and tough judgments frequently characterize the scenario. Media plays a crucial role in collecting timely data on various aspects of disasters, including morbidity and mortality statistics, health needs, infrastructure evaluations, dietary assessments, and sheltering requirements. However, often hazardous conditions in disaster-affected areas, coupled with insufficient infrastructure,

¹⁵ Nawaz, J., & Naeem, G. (2016). Coastal hazard early warning systems in Pakistan: Tsunami and cyclone early warning dissemination: Gaps and capacities in Coastal Areas of Balochistan and Sindh Provinces. Oxfam GB.

¹⁶ Rana, I.A., Bhatti, S.S. and Jamshed, A., 2021. Effectiveness of flood early warning system from the perspective of experts and three affected communities in urban areas of Pakistan. *Environmental Hazards*, 20(3), pp.209-228.

¹⁷ Mustafa, D., Gioli, G., Qazi, S., Waraich, R., Rehman, A. and Zahoor, R., 2015. Gendering flood early warning systems: the case of Pakistan. *Environmental Hazards*, 14(4), pp.312-328.

¹⁸ Zaheer, L., 2016. Natural catastrophes and role of Pakistani mass media. *J. Pol. Stud.*, 23, p.207.

¹⁹ Muzamill, A., 2012, May. A Comparative Study of Natural Disasters News Coverage in Pakistan by Dawn & the News (The Case of Earthquake 2005, & Floods 2010). In *International Conference on Communication, Media, Technology and Design* (pp. 1-5).

²⁰ Ali, F.M., 2014. Analysis of role of Media in Disaster reporting in Pakistan. In *1st MEDITERRANEAN INTERDISCIPLINARY FORUM ON SOCIAL SCIENCES AND HUMANITIES, MIFS 2014*, Vol. 2 (p. 598).

²¹ Zaheer, L., 2016. Media coverage of natural disasters in Pakistan: The case of Earthquake (2005), Flood (2010) and Famine (2014). *Journal of the Research Society of Pakistan*, 53(1).

²² Sharif, A. and Medvecky, F., 2018. Climate change news reporting in Pakistan: A qualitative analysis of environmental journalists and the barriers they face. *Journal of Science Communication*, 17(1), p.A03.

²³ Sharif, A. and Medvecky, F., 2018. Climate change news reporting in Pakistan: A qualitative analysis of environmental journalists and the barriers they face. *Journal of Science Communication*, 17(1), p.A03.

hinder the effective consolidation of essential disaster-related data. Economic problems, such as a lack of proper finance, may impasse data-gathering efforts even more. Cultural and linguistic barriers may further hinder data collection, as interpreters are required if assistance and research professionals do not speak the local language. Finally, a lack of collaboration across disaster response organizations impedes quick and effective data collecting.

GENDER DISPARITIES IN DISASTER REPORTING: OVERLOOKED CHALLENGES AND UNREPORTED REALITIES

Disasters have a disproportionate impact on women, not just because they are female, but also because of the intersection of numerous social identities. The media professionals face challenges in covering news on women and girls' issues in the gender-sensitive society in which they live and in case of disaster reporting specifically in developing countries.

"Natural disasters impact individuals differently based on existing social, cultural, and political structures in both private and public spheres, affecting women, men, girls, boys and persons with disabilities in different ways"

Oxfam. (2017). Consolidated Gender Analysis for Disaster Response in Pakistan

As far as the reporting guidelines are concerned, the United Nations 2030 Agenda for Sustainable Development places a high priority on improving understanding and interaction to support women's empowerment. Additionally, the Fourth World Conference on Women, held in Beijing, also urged media owners and professionals to create and implement norms or principles to ensure a fair and honest depiction of women in the media. Furthermore, in 2015, UNESCO inked an agreement with the International Network on Gender, Media, and ICTs to produce and disseminate credible evidence and data on gender, media, and ICTs, particularly comprehensive gender statistics. Despite several regulations, and action plans, women and girls are not mainstreamed in reporting during natural disasters²⁴. When making news judgments, journalists are impacted by their morals, views, and opinions, as well as external variables such as their news organization, guidelines, and universal ethics.

During disasters in developing countries particularly in South Asia, women confront specific challenges that are frequently underreported by the media, exacerbating the gender disparities in disaster coverage. One notable concern is the disproportionate impact of disasters on women's health and well-being. Women and girls are generally more vulnerable in the aftermath of disasters owing to reasons such as limited access to reproductive health services, higher exposure to waterborne infections, and a probable lack of maternity care facilities²⁵. Pregnant women and lactating mothers require special care during rescue as well as rehabilitation process. It was reported by UN Human Rights Watch, during Floods 2022 in Pakistan, at least 650,000 pregnant women and girls were evacuated during floods and were living in relief camps which lacked basic emergency medical facilities²⁶. Additionally, women specifically adolescent girls lack access to sanitary requirements which makes it extremely challenging for women to

²⁴ Das, J. (2021). CHALLENGES IN COVERING WOMEN AND GIRLS' ISSUES: INSIGHTS FROM JOURNALISTIC PRACTICES IN BANGLADESH. , (2). 217-230.

²⁵ Azad, A. K., Hossain, K. M., & Nasreen, M. (2013). Flood-induced vulnerabilities and problems encountered by women in northern Bangladesh. *International journal of disaster risk science*, 4, 190-199.

²⁶ <https://www.hrw.org/news/2022/09/02/flood-affected-women-pakistan-need-urgent-help#:~:text=Catastrophic%20floods%20have%20destroyed%20huge,deliver%20in%20the%20next%20month.>

survive during and even after floods in relief camps. Media coverage sometimes overlooks these complicated health problems, adding to a misunderstanding of the intersectionality of gender and health in disaster-affected communities²⁷.

Moreover, in South Asia, where due to the low literacy ratio, and diverse cultural barriers and traditions, women are not allowed to interact with media directly, these challenges are even more exacerbated. The evacuation of women during floods by the local authorities is seen as another challenge, because of the non-participation of women due to cultural barriers in policy processes, specifically, in rural areas of the country²⁸. Since many remote and rural parts of the country are mostly hit by disasters like floods, the cultural norms and societal traditions often restrict women from appearing in public spaces in the presence of men who are not part of their immediate families. This cultural practice poses a challenge during evacuation efforts, particularly when rescue teams, predominantly comprised of men, arrive to assist during disasters such as floods. Due to the cultural barriers and traditional gender roles, women may hesitate or outright refuse to follow or be rescued by male responders. The reluctance stems from the cultural expectation that women should avoid interacting with unrelated men in public spaces, even in times of emergency. As a result, the evacuation of women becomes a complex challenge, necessitating culturally sensitive approaches and strategies to ensure the safety and well-being of all community members during disaster response efforts. Another significant factor that is frequently disregarded by the media is an increased risk of gender-based violence during and after disasters. Forced displacement, overcrowding in temporary shelters, and the disintegration of social systems might make women more vulnerable to many types of abuses including domestic abuse, sexual harassment, and exploitation. During the floods of 2010/11 and also in floods 2022 in Pakistan, women's lack of mobility in flood relief camps hindered their access to basic sanitation facilities and those who tried to get access were subject to sexual abuse and domestic violence.

The connection between poverty and vulnerability is evident, especially considering that floods predominantly impact rural areas. As a result, women and girls experiencing poverty encounter heightened challenges during various stages, including displacement, rescue, relief, and rehabilitation²⁹. Among the many concerns that women face, young girls are especially vulnerable during floods. Young girls from lower-income families are more susceptible since they must accompany their parents to work outside in the field. They work as child labourers because they have no other choice than to support the family³⁰. Unfortunately, media coverage of disaster-related violence tends to minimize or ignore the unique gender elements of violence, resulting in a lack of understanding and public engagement on these vital problems³¹.

²⁷ Safajou, F., Nahidi, F., & Ahmadi, F. (2024). Reproductive health challenges during a flood: A qualitative study. *Nursing Open*, 11(1), e2044.

²⁸ Bukhari, S. I. A., & Rizvi, S. H. (2015). Impact of floods on women: with special reference to flooding experience of 2010 flood in Pakistan. *Journal of Geography & Natural Disasters*, 5(2), 1-5.

²⁹ Saleem, S. (2013). Flood and socio-economic vulnerability. New challenges in women's lives in northern Pakistan (Master's thesis, The University of Bergen).

³⁰ Yadav, S. K. (2019). The Struggles of Women: An Experience from the Flood-Prone Area. *Disaster Risk Reduction: Community Resilience and Responses*, 191-204.

³¹ Singh, D. (2020). Gender relations, urban flooding, and the lived experiences of women in informal urban spaces. *Asian Journal of Women's Studies*, 26(3), 326-346.

Another unreported element is the economic impact of floods on women. Women play important roles in the informal economy, agriculture, and small-scale companies, particularly in developing countries³². Disasters have the potential to interrupt these economic activities, resulting in financial insecurity for women-headed families. However, the media frequently fails to highlight the economic repercussions on women and their efforts to rebuild livelihoods in the aftermath of floods.

Women in Sindh recognize a lack of knowledge, skills, and adherence to social norms as primary obstacles to their coping abilities during disasters³³. This highlights the need for a dedicated gender analysis in media reporting during such disasters. Many humanitarian organizations have been working to address these challenges being faced by the women and girls in Sindh during and after disasters, especially floods, but mass media has failed to report these challenges to the masses. Hence, during rehabilitation efforts, due to a lack of gender, and age-group-inclusive reporting by the media, certain targeted relief efforts are not made by the policymakers.

INCLUSIVE REPORTING ACROSS GROUPS: AGE AND DISABILITY

During disasters, because of pre-existing health concerns such as disabilities, poor health, dementia, and other mental health problems, elderly persons and persons with disabilities are more sensitive to the consequences of disasters such as floods. Also due to mobility restrictions, they are less likely to respond to flood warnings³⁴. Furthermore, disasters can have a negative psychological impact on PWDs and elderly persons, with some having Post Traumatic Stress Disorder (PTSD) symptoms such as post-flood anxiety and mood changes. Disasters may also make it difficult for PWDs and elderly persons to receive critical emergency medical services and even nonurgent visits. If an elderly person or PWD lives alone, they are less likely to be prepared to defend themselves or to recover after a disaster. Moreover, evacuation protocols for the elderly persons and PWDs are already lacking and no protocols are followed, hence, their health usually suffers a lot in comparison to young adults during natural disasters like floods³⁵. Disaster data typically show that elderly persons and PWDs have greater death and morbidity rates than the rest of the population. Following disasters specifically floods, elderly persons and PWDs are also at a disproportionately higher risk of physical and psychological morbidity. Those who already have several co-morbidities and multiple disabilities are at a higher risk of morbidity. The causes of this susceptibility are diverse and vary depending on disaster type, intensity, personal meaning of loss, and pre-existing unfavourable conditions such as co-morbidities. Prescription medicine use, limited social support, vision and hearing impairment, restricted mobility, and low economic position are all related to an increased risk of morbidity³⁶.

³² Akanwa, A. O., Okedo-Alex, I. N., Joe-Ikechebel, N. N., & Chatterjee, U. (2022). Persistent climate-driven floods: A voiced case of indigenous women experiencing ecosocial and health risks in a South-East community in Anambra state, Nigeria. In *Indigenous People and Nature* (pp. 495-523). Elsevier.

³³ Memon, F.S., 2023. WOMEN'S DISASTER MANAGEMENT CAPACITIES: A QUALITATIVE STUDY OF FLOOD-AFFECTED AREAS OF SINDH, PAKISTAN. *Pakistan Journal of Women's Studies*: Alam-e-Niswan, 30(1).

³⁴ Haq, G. (2022). Flooding and older people. In *Encyclopedia of Gerontology and Population Aging* (pp. 1889-1891). Cham: Springer International Publishing.

³⁵ Nakanishi, H., Black, J., & Suenaga, Y. (2019). Investigating the flood evacuation behaviour of older people: A case study of a rural town in Japan. *Research in Transportation Business & Management*, 30, 100376.

³⁶ Kar, N. (2016, December). Care of older persons during and after disasters: meeting the challenge. In Kar N. Care of older persons during and after disasters: meeting the challenge. *Journal of Geriatric Care and Research* (Vol. 3, No. 1, pp. 7-12).

Furthermore, there is no disaggregated data available on how many persons with disabilities have lost their lives, been injured, or faced the destruction of their homes or livelihoods. But based on what has been documented in many other disasters around the world, persons with disabilities are two to four times more likely to die or get injured during disasters, are often left behind when others move to safety, and lose assistive devices, their network of support and access to essential services during displacement³⁷.

"As per a Help Age report, prior to the floods, a significant portion of senior individuals in Sindh were employed, yet only 24% presently possess a source of income. Concerningly, 61% of those displaced have had to borrow money to make ends meet. According to the report, the most common safety issue among elderly men and women is financial abuse (38%)."

aljazeera Report

<https://www.aljazeera.com/opinions/2022/10/5/the-hidden-victims-of-pakistans-floods-its>

On the other hand, during disasters, children and adolescents face a variety of issues that go beyond the immediate impact of disrupted education and increased risk of waterborne infections. Disasters impair their sense of stability and security, potentially leading to long-term psychological stress. The loss of familiar surroundings and habits may dramatically impact their mental well-being, demanding media coverage that tackles the obvious results and the hidden emotional toll on this age group³⁸.

Such issues are not being showcased by the mass media; hence, humanitarian assistance and rehabilitation efforts could not be directed to those targeted populations who were in actual need of assistance. The media did show loss and damage in terms of physical losses and monetary losses, but not the non-economic losses such as psychological trauma, emotional abuse etc.

Additionally, the media often face challenges in being fully aware of and sensitive to the diverse needs and experiences of different age groups and PWDs during disasters. Limited understanding of the specific vulnerabilities of children, adults, the elderly and PWDs has resulted in inadequate coverage and failure to address their unique challenges during the floods in 2022 in Pakistan.

THE EVOLVING LANDSCAPE OF DISASTER REPORTING: THE IMPACT OF SOCIAL MEDIA

The fast expansion of the internet in recent years has greatly revolutionized the media, to the point that it is quite different now than it was a few decades ago. User-generated content and social media platforms are becoming increasingly popular, which has altered the conventional practice of acquiring information from official sources. Media firms must stay up with fourth-generation technology and transition traditional journalists to multimedia journalists (MJ)³⁹.

³⁷ <https://www.internationaldisabilityalliance.org/content/international-disability-alliance%E2%80%99s-statement-situation-persons-disabilities-affected-floods>

³⁸ Morisaki, Y., Fujiu, M., & Takayama, J. (2023). Analysis of Flood Risk for Vulnerable People Using Assumed Flood Area Data Focused on Aged People and Infants. *Sustainability*, 15(23), 16282.

³⁹ Esa, I. L., Hamzah, M., & Zainodin, W. H. W. (2022). Journalists' challenges in adapting to ambient journalism that uses Twitter in news reporting. *SEARCH Journal of Media and Communication Research*, Special Issue: iCOMS2021, 99, 111, 99-111.



Today, in many parts of the world, whenever there is a disaster, it is usually reported on social media first before any other medium. Hence, social media platforms help to make the news international before any other medium. Notably, the younger generations, have had a considerable influence on the incorporation of social media in disaster reporting⁴⁰. During a

disaster, these groups, noted for their digital fluency and social media savvy, frequently take the lead in reporting and sharing information. Their capacity to quickly spread information via platforms such as Twitter, Instagram, and TikTok has proven essential in quickly reaching a large audience.

However, there is a significant generational divide, with Generation X (born between the 1970s and 1980s) often hesitating to completely embrace these new reporting traditions, emphasizing the necessity for media organizations to bridge this gap to provide a unified and successful approach to disaster reporting⁴¹. That is why, social media reports include more of a younger generation's perspective, while broadcast media includes perspectives from adults and the older generation. However, internationally, some guidelines exist for integrating the voices of marginalized groups, but no specific guidelines are there for making media reporting inclusive of all age groups.

"Even during floods in 2022, the first flood-related hashtag appeared on August 18th, 2022 and by July 1st, 2022, the floods had already caused substantial damage to the country. Later, the affected communities started sharing visuals of the damages on Twitter and that's how mainstream media became active after the visuals were shared on social media. Hence, social media became the first source of information on floods in 2022 in Pakistan."

<https://pide.org.pk/research/politicization-of-floods-in-pakistan-an-assessment-of-twitter-trends/>

⁴⁰ Gabrielova, K., & Buchko, A. A. (2021). Here comes Generation Z: Millennials as managers. *Business Horizons*, 64(4), 489-499.

⁴¹ Press, A., & Livingstone, S. M. (2006). Taking audience research into the age of new media: Old problems and new challenges. *na*.



KEY FINDINGS FROM KEY INFORMANT INTERVIEWS AND CONSULTATIVE WORKSHOPS

For data collection, KIIs were carried out with the 30 key informants representing diverse organizations, providing valuable insights into demographic information, the existing early warning system, media practices during disaster reporting, capacity and awareness, collaboration and partnerships, feedback mechanisms, recommendations for improvement, role and responsibility, and challenges in coastal and rural communities.

Responses were gathered from a broad spectrum of organizations in Sindh, reflecting the diversity of experiences and perspectives. Key informants included representatives from media houses, press clubs, government agencies (Rescue 1122, PDMA, DDMA, DHQ), and NGOs (ARTS Foundation, Civil Society Support Program, Tamir-e-Khalq Foundation, Agha Khan University, agriculture research councils, telecom authorities, etc.), ensuring a comprehensive understanding of the media landscape. The findings have also been indicated in the pie charts below.

In the case of gender inclusivity, the respondents included 18 female and 12 male representatives from the selected organizations Figure A. Further, to make it more inclusive, diverse organizations that were engaged with flood victims were also taken on board for KIIs as indicated in Figure B. Moreover, the media respondents were selected from print, electronic and digital media who directly covered floods 2022 in Sindh, the details have been shared in Figure C.

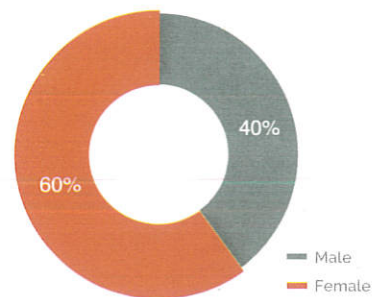


Figure A: Pie chart indicates the percentage of male and female respondents for KIIs

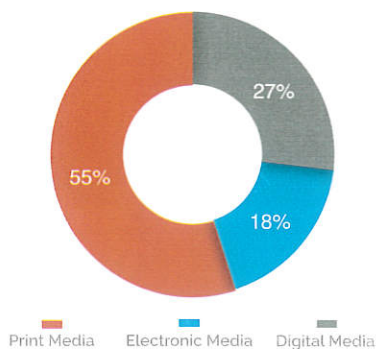


Figure B: Different stakeholders from diverse sectors for KIIs

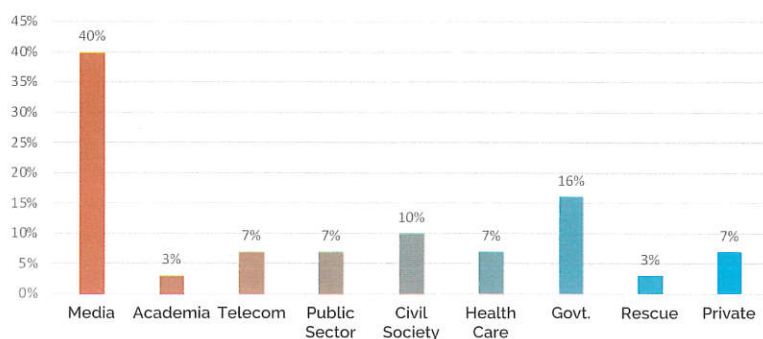


Figure C: Media respondents for KIIs

Additionally, two consultative workshops including provincial and regional-level events were organized to systematically analyze and address challenges within the existing framework of EWS and information dissemination in the province of Sindh. Around 71 participants representing media, press clubs, telecommunication authorities, PEMRA, PDMA, DDMA, CSOs, climate activists, community volunteers and rescue departments, actively participated in the workshops.

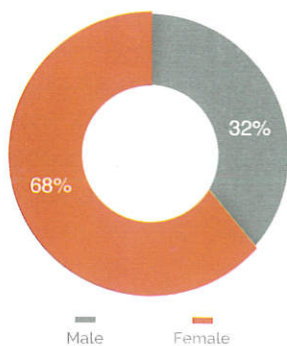


Figure D: The pie chart indicates the percentage of male and female participants of the consultative workshops

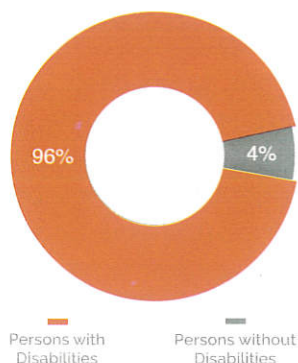


Figure E: The pie chart indicates the participation of persons with disabilities in the consultative workshops

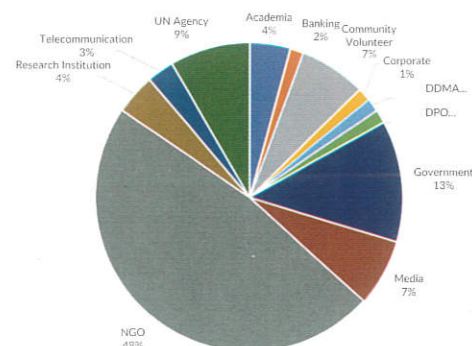


Figure F: Consultative workshops Participants

LACK OF GOVERNANCE IN THE DISASTER MANAGEMENT

Key informant interviews and workshops highlighted weaknesses in disaster management governance at both provincial and district levels, highlighting coordination challenges. The coordination deficit is particularly severe at the district level, where the EWS is almost non-existent, resulting in a significant communication gap between government authorities and grassroots communities. While there is a structured mechanism at the provincial level, indicating efforts to establish a foundational framework for early warnings, there is a need for a more decentralized and locally tailored approach due to the diverse challenges faced by districts within the province.

73%

key informants were of the view that there is a lack of governance in the disaster management at both provincial and district levels

The lack of dedicated technical human resources at the DDMA level poses a major challenge, creating difficulties in timely communication of disaster-related information to the media. Additionally, the policies and approaches are reactive rather than proactive, with authorities often deciding to respond only after a disaster occurs rather than implementing contingency measures beforehand to secure communities.

Participants also emphasized a deficiency in providing clear, specific, and localized information from disaster management authorities regarding the nature and severity of floods. This lack of specificity includes details such as the expected duration of flooding, water levels, potential impact areas, and recommended evacuation routes. Communities require more than general alerts for effective evacuation efforts; they need precise information to make informed decisions about when and where to evacuate safely. The absence of specific details from the EWS makes it challenging for residents to assess the level of risk and make decisions regarding evacuation. This information gap hampers the ability of government authorities and disaster response teams to convince communities about the necessity and urgency of evacuation measures.

Furthermore, there is a need to enhance the efficiency of local governments and improve the competency of local district administrations in both responding to and communicating during disasters. The acknowledgment of inefficiencies in local government at the district level points to specific challenges that hinder effective disaster management. One significant aspect involves the inadequacy of disaster preparedness measures, with local governments lacking comprehensive strategies for swift and coordinated responses to disasters. This deficiency could result in delays, confusion, or suboptimal allocation of resources during critical situations. Moreover, resource constraints, including limited financial allocations, inadequate infrastructure, and a shortage of necessary equipment, pose notable hurdles. These limitations can impede the implementation of efficient disaster response measures, affecting the government's ability to address the immediate needs of affected communities.

EXISTING MEDIA'S ROLE IN DISASTER REPORTING

Key informants provided valuable insights into the roles and challenges faced by media practitioners during disaster reporting. Emphasizing the responsibility of the media, informants articulated that their role should encompass gathering information, verifying its accuracy, and disseminating it responsibly among

the masses. This commitment to ensuring the reliability of information aligns with the crucial role media plays in shaping public understanding and response during disasters.

One highlighted responsibility is the media's role in alerting relevant departments and creating awareness among the public. This dual function positions the media as a vital channel for information flow between authorities and the public, contributing to effective disaster management and response strategies. However, informants noted challenges in this process due to a perceived lack of cooperation from government departments, emphasizing the need for improved collaboration for more efficient information exchange. For instance, during the floods in 2022, reporters faced discrepancies in the information received from victims and the official numbers issued by public sector departments, highlighting the importance of timely and transparent communication.

The need for a robust and reliable reporting infrastructure was also highlighted that can serve as a foundation for effective communication during disasters. Additionally, the challenge of information verification, especially when it originates from multiple sources, points to the complexities media practitioners face in ensuring the accuracy of the information they disseminate.

The impact of reporting for television rating points on credibility was acknowledged as a significant challenge. This dynamic introduces a potential conflict between the imperative to report news accurately and the commercial considerations that drive media organizations. Striking a balance between these elements is crucial for maintaining the integrity and trustworthiness of disaster reporting.

Gender and disability-specific reporting during disasters emerged as a critical gap, with informants highlighting the absence of guidelines in the country. The lack of such guidelines raises concerns about the inclusivity and sensitivity of media reporting, particularly in addressing the unique challenges and needs of vulnerable groups, including women, children (especially girls), the elderly, and persons with disabilities, during disasters.

A significant challenge faced by the media in reporting floods in coastal areas was the difficulty in connecting with women and girls. Cultural norms and societal practices in these regions often restrict the access of women and girls to public spaces, limiting their visibility in media coverage. This posed a challenge for journalists and reporters to gather diverse perspectives and experiences, resulting in potential gaps in the representation of the impact on women and girls in the flood-affected communities. The acknowledgment that age and disability are often not considered a priority during disaster reporting underscores the need for a more inclusive and comprehensive approach that considers the diverse needs and vulnerabilities of all segments of the population.

ETHICAL IMPERATIVES IN DISASTER REPORTING

Instances of ethical reporting lapses during disasters were identified, highlighting the need for responsible reporting practices. These lapses often included sensationalism, misinformation, or the violation of privacy and dignity in the pursuit of a story. Sensationalism, for instance, involves the exaggeration of facts or the use of provocative language to garner attention, potentially leading to panic and fear among the public. Misinformation, whether unintentional or driven by the pressure to break news quickly, contributed to confusion and misinformation among the affected communities. This not only undermined the credibility

of media outlets but also had the potential to harm public trust in the information provided during critical times.

Furthermore, violations of privacy and dignity occurred when media personnel intruded on the personal space of disaster victims or exploited their vulnerable situations for dramatic effect. Such actions not only lacked empathy but also raised ethical concerns about the treatment of individuals in distress.

The identification of these ethical reporting lapses underscored the critical need for responsible reporting practices during disasters. Responsible reporting entails prioritizing accuracy, sensitivity, and respect for the privacy and dignity of those affected by the disaster. It involves verifying information before dissemination, avoiding sensationalism, and considering the potential impact of reporting on the well-being of individuals and communities.

SOCIAL MEDIA DOMINANCE IN DISASTER REPORTING

Social media and WhatsApp were identified as primary sources of information for media houses during disasters, especially when traditional infrastructure is disrupted. An interesting finding is the reliance on social media platforms, particularly WhatsApp, as the primary source of information for media houses. This was notably evident during the Floods of 2022, where these digital platforms played a pivotal role in disseminating information. While the flexibility and rapidity of information dissemination through social media are advantageous, there is a parallel need to strengthen formal EWS structures to ensure accuracy, reliability, and comprehensive coverage, especially in regions where social media access may be limited.

53%

key informants pointed out that social media has played an important role during floods 2022 for media reporting

COORDINATION AND COLLABORATION FOR DISASTER REPORTING

Informants reported varying degrees of involvement in collaborations with government departments and NGOs for disaster reporting. Coordination issues and a lack of cooperation were highlighted as challenges. The absence of explicitly mentioned successful models of collaboration between public and private sectors suggests a potential area for improvement. During the reporting of the 2022 flood, media outlets encountered various challenges that impacted their ability to effectively cover and communicate the unfolding situation. One significant challenge was the limited availability of information to stakeholders involved in disaster management. The dynamic and rapidly changing nature of the floods made it difficult for authorities to provide real-time and comprehensive data, creating gaps in the media's ability to convey accurate updates to the public.

Moreover, a notable impediment was the hesitancy of authority and department representatives to share information with the media. Internal media-related information-sharing policies within organizations contributed to a reluctance to disclose certain details, affecting the transparency and timeliness of the information provided to the media. This challenge hindered the media's capacity to deliver thorough coverage and updates during the critical period of the floods.

Additionally, media representatives or organizations faced challenges due to a lack of awareness about the specific departments or individuals to contact to obtain accurate and timely information. The urgency of reporting during a disaster requires quick access to relevant sources, and the absence of clear communication channels led to delays and potential inaccuracies in media coverage. These challenges highlighted the need for improved coordination and communication between media outlets and various stakeholders involved in disaster response.

The collaboration with the Pakistan Army and Navy is recognized as a crucial lifeline in reaching communities and reporting accurate information, especially during cyclones. However, key informants highlight the necessity for further refinement and streamlining of these collaborations. This involves establishing clear protocols and frameworks for effective coordination, ensuring that the support from military entities aligns seamlessly with media practitioners' goals, while also enhancing the feedback loop to improve overall disaster response.

CRUCIAL ROLE OF FEEDBACK MECHANISMS IN DISASTER REPORTING

The respondent also highlighted the need to establish a feedback mechanism within media houses. Media organizations need to designate individuals or teams accountable for receiving and processing feedback from the audience. This feedback not only helps in understanding the information's effectiveness but also enables swift adjustments or clarifications based on audience responses.

CHALLENGES IN LOCAL CONNECTIVITY

Respondents from key informant interviews and consultation workshops underscored a significant challenge in connecting media houses with disaster affected vulnerable communities at the local level, particularly in rural areas and along the coastal belt. Limited mechanisms for connecting media houses with affected and vulnerable communities in rural areas, especially coastal communities pose a significant challenge to timely and accurate reporting during disasters. This connectivity deficit not only hampers the media's ability to relay crucial information promptly but also impacts the affected communities' access to vital updates.

In rural and coastal belt, local communities often face challenges in accessing TV, Radio and other electronic media due to disruptions in electricity supply, damages to broadcasting infrastructure, or the displacement of media personnel. This results in a notable reduction in the availability of television broadcasts, which is particularly concerning as television serves as a primary source of real-time information and visual updates for many residents. Despite the widespread use of mobile phones, their effectiveness as a communication channel during disasters is not immune to challenges. The networks supporting mobile communication can be adversely affected, leading to disruptions in connectivity and hindering individuals from receiving timely alerts, updates, or emergency information through text messages or mobile apps. The vulnerability of mobile networks during disasters underscores the need for alternative communication strategies.

Additionally, radio broadcasts, often relied upon for their wide reach and accessibility, also face limitations in these rural coastal areas. The infrastructure supporting radio transmissions can be susceptible to damage, reducing the effectiveness of this traditional medium. This connectivity issue becomes

especially critical in rural coastal areas where radio is a primary means of communication, and disruptions can leave communities without a vital source of information.

ASSESSING AND ENHANCING THE CAPACITIES IN DISASTER REPORTING

In media organizations, the role and responsibility in disaster risk communication and information dissemination encompass a multifaceted approach to ensure effective coverage and public understanding. It was emphasized that assessing the existing capacity within the media house to gather technical information is crucial. This entails evaluating whether the media organization has the necessary human resources with the technical expertise to comprehend and interpret complex information related to disasters. Adequate training and skill development may be necessary to empower journalists and reporters to handle technical aspects, ensuring accurate reporting that aligns with the organization's standards. Furthermore, having a designated person within the media house responsible for verifying information from various sources is imperative. This appointed individual will act as a gatekeeper, ensuring that the information disseminated to the public is credible, reliable, and free from misinformation. Verification processes help maintain the integrity of the media outlet and build trust among the audience during critical times.

The translation of technical information into easily understandable content is another significant responsibility within media organizations. This role requires individuals who possess the skills to simplify complex technical details for a broader audience. Whether through graphics, layman's terms, or engaging storytelling, this responsibility ensures that the information is accessible and comprehensible to a diverse audience, enhancing the impact of the communication.

Within the realm of capacity building, key informants emphasized a mixed landscape where some media houses conduct their programs, while government-level initiatives at the district level remain notably scarce. The dearth of government-led capacity-building programs highlights a critical gap, particularly in regions where information dissemination during disasters is paramount. To address this deficit, concerted efforts are needed to expand capacity-building initiatives to the district level, ensuring that media practitioners across all regions are equipped with the necessary skills.

The role of NGOs and CSOs in contributing to the development of technical reporting skills was acknowledged as a positive aspect. These external programs provide valuable training, but their reach and coverage may not be comprehensive. Collaborative endeavours between government bodies, the private sector, and development partners are recommended to create targeted and widespread capacity-building programs. This collaborative approach becomes even more pressing when considering the specificity of disaster reporting. A notable absence of dedicated government-level programs for disaster reporting signals a need for tailored initiatives that address the unique challenges and nuances associated with reporting on such disasters.

Furthermore, key informants stressed the importance of expanding capacity building programs beyond technical reporting skills. Initiatives focusing on loss and damage reporting, climate advocacy, and post-disaster assessments were identified as crucial components. The recommendation to develop these programs at the government level in collaboration with various stakeholders underscores the necessity for a comprehensive and multifaceted approach. Such programs would not only enhance the capabilities of media journalists but also contribute to building a more informed and resilient media landscape in the face of climate-induced disasters.



RECOMMENDATIONS

Drawing upon the literature review and insights gathered from Key Informant Interviews (KIIs) and consultative workshops, the following recommendations are proposed.

ROLE OF MEDIA DURING DIFFERENT PHASES OF DISASTERS

PRE-DISASTER PHASE

- Establish coordinated workshops and training courses involving media houses, press clubs, and local journalists to enhance their understanding of hazards, risks, glossary of technical terms, types, science, socio-economic impacts, technical terminologies and jargon used in PMD/PDMA alerts and advisories, alert and advisory-specific prevention, gender, age and disability specific mitigation and preparedness actions local communities must take and disaster reporting protocols, emphasizing the importance of accurate and timely information dissemination.
- Capacity-building initiatives are essential for media personnel, including journalists and reporters, to encompass diverse types of disabilities and promote disability-inclusive disaster risk reduction.
- Encourage collaboration among provincial and regional level stakeholders including PMD, PDMA/DDMAs, PEMRA, PTA, media houses, press clubs, local journalists and reporters for more effective disaster reporting.
- Facilitate joint initiatives between the PMD, PDMA, and media outlets to conduct regular drills and simulations for practicing coordinated responses to potential disaster scenarios.

DURING DISASTER PHASE

- Formulate a dedicated communication task force comprising representatives from PMD, PDMA/DDMAs, media houses, and press clubs to ensure real-time coordination and information exchange during disasters.
- Implement a standardized communication protocol for media reporting during emergencies, outlining the roles and responsibilities of each stakeholder and facilitating seamless collaboration in disseminating critical information to the public.

POST-DISASTER PHASE

- Establish a post-disaster review committee involving media representatives, regulatory bodies like PEMRA and PTA, and disaster management authorities to assess the effectiveness of information dissemination strategies.
- Encourage media outlets to actively participate in post-disaster recovery efforts by highlighting community needs, success stories, and ongoing relief initiatives, fostering a sense of resilience and solidarity.
- Foster partnerships with international media houses to disseminate national disaster information promptly.

GOVERNMENT COORDINATION UNIT ON INFORMATION

Advocate for the establishment of a dedicated coordination unit within the government to enhance communication and information dissemination, with a specific focus on promoting gender and age-inclusive disaster reporting. Recommendations for the coordinated unit include:

- Advocate for the formation of a government unit responsible for coordinating disaster-related communication efforts. This unit should include representatives from relevant government bodies, media regulatory authorities, and disaster management agencies.
- Encourage the unit to formulate policies that explicitly promote gender, age and disability inclusivity in disaster reporting. This can involve the development of guidelines for media outlets to ensure fair representation and sensitivity to diverse populations in their coverage.

DISASTER REPORTING GUIDELINES DEVELOPMENT

The Sindh Information Department needs to create comprehensive guidelines for gender, age and disability-inclusive media reporting during disasters. To ensure the efficacy and relevance of these guidelines, collaboration with PEMRA, PTA, PMD, PDMA Sindh and civil society becomes crucial. Collaborating with PEMRA in the guideline development process ensures alignment with regulatory frameworks and industry standards. Additionally, collaboration with the PDMA is essential. Involving PDMA in the guideline development process ensures that the guidelines are informed by on-the-ground experiences and address the unique needs of diverse communities during crises. Furthermore, collaboration with relevant civil society organizations working on gender, age and disability inclusivity can enrich the guideline development process.

CAPACITY BUILDING INITIATIVES

In response to the challenges of technical terminologies and jargons associated with climate-induced disasters, the responsibility for developing a capacity-building manual and establishing capacity-building programs on disaster reporting should be entrusted to relevant government bodies, such as the PDMA Sindh and the NDMA. Similarly, the responsibility for translating technical jargons related to climate-induced disasters into local languages should be assigned to the PMD and Sindh Information Department. This ensures that media professionals have access to clear and comprehensible information for effective reporting. Moreover, the NDMA and PDMA should collaborate with relevant climate research institutions to keep media houses updated on the latest research and on-ground situations regarding climate crises. Regular technical training can then be conducted, ensuring media professionals are equipped with accurate and timely information.

DATA TRANSPARENCY

The responsibility for emphasizing the importance of local administrations providing unbiased and uniform data to media representatives rests with the NDMA and PDMA Sindh. These entities should actively advocate for transparent reporting practices and collaborate with local administrations to ensure data accuracy.

DIGITAL APPLICATION FOR INFORMATION SHARING AND COLLABORATION

To address the challenge of promoting effective disaster preparedness and response, collaboration with the telecom sector should be spearheaded by the PDMA Sindh in coordination with the Sindh Information Department. This collaboration can lead to the development of a digital mobile application aimed at enhancing disaster communication and response mechanisms during disasters, connecting media houses with relevant departments and affected communities.

MEDIA LOCAL-CONNECTIVITY STRATEGIES

Efficient mechanisms to connect media houses with affected communities at the local level should be established through collaboration between the Sindh Information Department, PDMA Sindh, DDMA and local government bodies. This collaboration ensures that media outlets receive timely and accurate information for reporting during disasters.

ENHANCED WEATHER AND SITUATION MONITORING

Improved coordination in the existing EWS is essential for enhancing weather and situation monitoring. This involves better collaboration between meteorological departments, environmental monitoring agencies, and relevant research and academic institutions. Coordinated efforts enable the pooling of resources and expertise, ensuring a more comprehensive and accurate assessment of weather patterns, early of potential disasters, and improved forecasting capabilities. This, in turn, contributes to a more proactive approach to preparing for and responding to impending disasters.

IMPROVED COORDINATION FOR EFFECTIVE RESPONSE

Another critical aspect of improved coordination in the EWS is to bolster disaster response efforts. This requires effective collaboration among emergency response agencies, local authorities, and humanitarian organizations at both provincial and district levels. This partnership is crucial for pooling resources, leveraging technological advancements, and jointly investing in the development and maintenance of an effective EWS. Private sector involvement can bring innovative technologies and expertise, while development partners can provide financial and technical support.

Furthermore, coordinated planning and communication enable a more efficient mobilization of resources, timely deployment of rescue teams, and the establishment of emergency shelters. Enhanced coordination ensures that the response is well-organized, minimizing delays and optimizing the effectiveness of relief efforts during and after a disaster.

ENGAGING COMMUNITY INFLUENTIALS IN DISASTER MANAGEMENT

Community leaders and influentials including Community Resource Persons (CRPs), village and Local Support Organization (LSO) members, influentials, local political leaders etc., often serving as the focal points for information dissemination and decision-making, play a crucial role in coordinating and organizing community responses to disasters. Their influence extends to various aspects of disaster management, including preparedness, early warning dissemination, relief distribution and evacuation efforts. In disaster-prone regions, community leaders act as the bridge between the authorities and the residents. They are instrumental in conveying official warnings and instructions to the community members, translating complex information into understandable terms, and ensuring that everyone is aware of the imminent threats. Moreover, community leaders are pivotal in organizing and executing evacuation plans, leveraging their knowledge of the community's dynamics, vulnerabilities, and resources.

INTEGRATED RESEARCH

There is a need to connect academia and research organizations with PDMA, DDMA, and local governments at the district level to develop up-to-date research regarding disaster preparedness and support proactive policies.

CONCLUSION

The responses gathered from key informants illuminate critical challenges and opportunities within the context of disaster communication and early warning systems in Sindh. A prevailing concern highlighted is the lack of information available to the media regarding the EWS, both at the provincial and district levels. Such as information regarding latest equipment for weather forecasting being installed by PMD or PDMA's has not been shared with media. This information gap raises an urgent need for increased transparency and accessibility, ensuring that media practitioners have timely and accurate data to effectively communicate risk and response measures during disasters. There is a need to improve the coordination between media houses and information departments.

Coordination challenges within line departments, both at the district and provincial levels and further at the local levels, emerged as a significant hurdle. The lack of cohesive efforts and communication among these entities not only hampers the efficacy of the existing early warning system but also poses a hindrance to media practitioners in disseminating timely and coordinated information. Addressing this coordination deficit is imperative for improving the overall resilience of disaster communication strategies. Another crucial aspect highlighted in the responses is the deficit in capacity-building initiatives for media professionals concerning climate-induced disaster reporting. To enhance the effectiveness of media engagement during disasters, comprehensive training programs addressing the intricacies of climate-induced disasters should be developed, emphasizing the importance of accurate reporting and information dissemination.

The absence of gender, age and disability-specific reporting, as well as the neglect of ethical reporting guidelines during disasters, is a notable concern. Addressing these gaps is vital for fostering inclusive, sensitive, and ethical reporting practices that respect the diverse needs and vulnerabilities of affected populations.

Despite these challenges, it is encouraging to note that local communities play a pivotal role in supporting media during disasters. Such as by coordinating with the field reporters and providing them with first hand information on relief, rescue efforts and on what is happening in terms of humanitarian efforts. Their cooperation and engagement serve as a valuable resource for media practitioners, emphasizing the importance of community-centric approaches in disaster reporting. The utilization of social media as the first source of information during disasters underscores the evolving media landscape. While this digital shift presents new opportunities for rapid information dissemination, it also necessitates a strategic approach to ensure the accuracy and reliability of the information shared.

In conclusion, the insights gathered from key informants highlight both the gaps and strengths in the current state of disaster communication and early warning systems in Sindh. Addressing these challenges will require a concerted effort from relevant stakeholders, including government agencies, NGOs, and the media, to collaboratively build a more resilient, informed, and ethically sound system that can effectively navigate the complexities of disaster communication in the region.

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