

# Chapter 1

## Media and Disaster Risk Reduction



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**Abstract** Media is an effective and essential stakeholder in disaster risk reduction and can enhance citizen perspectives through timely and science-based information dissemination. Media has a role in all phases of disaster management, from preparedness to during disaster, response and recovery. Different media have different target groups. Traditional media covers all age groups, while new media (like social media) is more popular among the younger generation. Role of media has been observed very strongly in addressing the global pandemic COVID-19. Citizen reporters are becoming popular to inform the ground realities during a disaster situation. This chapter draws some specific lessons on the role of media in disaster risk reduction. The chapter also provides an outline of the book.

**Keywords** Traditional media · New media · Global pandemic · Media governance · Science-based reporting

### 1.1 Introduction

Media can be classified into different ways. Broadly speaking, there are three types of media: print media (newspaper, magazine), broadcast media (television and radio) and online media (internet, social media, apps, blogs, Wikis, streaming video and music, podcast, etc.). Among these, traditional media includes print and broadcast media; while the new media includes mainly online media. Other characterization of media can be mass media (reaching a large number of people), and local or community media (like community radio, which has a restricted number of people).

Media has a direct link and outreach to people. That makes media very special when it comes to different aspects of a disaster. Before a disaster, media can play a critical role to inform and sensitize people on the importance of preparedness. There

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can be educative programs on TV, edutainment (education with entertainment), talk shows, panel discussion, etc. on different aspects of preparedness and preventive measures. Media can also share important information on disaster risk before a disaster strikes and can inform people what to do. For certain types of disasters like typhoon or tsunami (which has a lead time), media can provide real-time early warning and can enhance safe evacuation. There are different researches on how effectively the urgency of “early” warning can be communicated so that people take it seriously and evacuate to safe place. During a disaster, citizen reporters can play a vital role in providing local information through social media and providing critical alerts. After a disaster, media plays an important role in sharing information on missing and casualty and damage and losses. Local media like community radio plays important roles in the local information, which becomes vital to the local residents (affected people), while mass media plays important role to disseminate the information nationally, regionally and globally and helps in disseminating requests for aid and assistance. Social media has taken key roles in many recent disasters in disseminating real-time information. Several match-making services (like specific need for assistance at local level, and its supply by aid agencies) have been effectively provided by social media. Both local media and mass media, along with social media play critical roles in postdisaster recovery. One of the key issues of social media is fake news, which often creates panic and provides hindrance in disaster relief, rescue to postdisaster rehabilitation operations. Different countries have undertaking specific measures to address fake news in legal and through other governance mechanisms creating a techno-legal regime.

With this context of media and disaster risk reduction, this chapter provides overviews and draws a few critical lessons.

## 1.2 Global Pandemic and Role of Media

The timing of the book coincides with the global pandemic COVID-19, which affected the globe in different ways. COVID-19, being an invisible disaster, “*infodemic*” becomes a critical issue in risk communication (Hua and Shaw 2020). Media has been in the forefront of the pandemic response, providing non-stop information, coverage on different aspects of the disease, infection spread, mitigation measures, etc. Different heads of states had virtual meetings with media groups with an appeal of cooperation and collaboration. A great example is Indian Prime Minister Narendra Modi had a meeting with the head of media groups as early as March 2020 and appealed to them to work with governments to spread the right information and generate more citizen literacy about COVID-19.

Positive aspects of the role of media in the pandemic are quite prominent. Irrespective of the country, media groups provided free sites and services on information related to COVID-19. There have been several media dialogues, especially on the expert advice on what are the best protection measures from COVID-19. Several media groups have started social media and traditional media campaign on the use

of masks, sanitizers as well other protection gears. Role of the journalists covering different infection hit areas is commendable while risking their own lives. We also had reports of infection and death in the journalism fraternity. Role of media saving and coming to people was possibly never been so prominent. Media groups have also done fund-raising campaign in collaboration with different development agencies to help the most-needy people. Strict protocols were in place in continuing media operations, and many new measures were undertaken.

In the era of “*infodemic*”, fake news became a real challenge. In different countries, there were numerous fake news on the remedy of COVID-19, as well as the reasons for its spread, including many conspiracy theories. Some countries had strict measures for fake news (including penalty), and there were several portal sites developed to nullify or test the fake news. Of course, social media provided several positive sides as well. Many social media were positively used to reach out to different communities, especially to younger population during pandemic. TikTok or Instagram videos became very popular on what to do during the pandemic. Celebrities took their social media account to sensitize people and appeal to people for undertaking several control measures.

Traditional media also played useful roles. Community radios were able to spread the news to the rural and remote communities. Several local language programs suitable to the local cultural contexts were delivered through community radio to reach out to rural population. Many local governments used community radios not only for one-way information flow but also to receive information from the community, especially on their immediate needs and priorities, and to customize the assistance based on those priorities.

In summary, the role of media during pandemic was a mixed one, with definitely more positive impacts. Over time, media roles have changed, and citizen reporting became stronger. Of course, there was panic created by some fake news (which prompted panic buying in many cities across the globe), however, gradually citizen’s awareness on fake news has also enhanced. Different age groups used different types of media to get “trusted” information. Thus, information provider sides also need to provide uniform sets of basic information to all types of media to reach different age groups.

### 1.3 Ten Key Lessons on Media and DRR

Following are some of the key observations and lessons while discussing the role of media in disaster risk reduction.

1. **Timely and precise information with a proper delivery mode can save lives:** **Timely** information is key to saving life. For any types of disasters, where early warning is feasible, time becomes critical. For some disasters like earthquake, where early warning has minimal lead time, pre-disaster information becomes critical. There have been different training to the announcers (in all different

types of media: TV, radio, community radio, etc.) on how to convey the urgency of an early warning. Japan is a classic example, where after the 2011 East Japan Earthquake and Tsunami, there has been specialized training and protocol of emergency announcement. This has been found to be effective for evacuation during other disasters like typhoons, where the scale and severity of the typhoon and urgency of evacuation need to be communicated properly.

2. **Media governance is an important aspect in enhancing its role in DRR:** Media is not always about the TRP. While for the private media houses, it is important to raise sponsorships by increasing their TRP, media houses also have social responsibilities. There, media governance plays an important role. Sensitizing higher authorities in media groups is an important task, and this can be done through multi-stakeholder consultative process. Science plays an important role here, and science-based journalism can play a neutral role in disseminating proper information timely. Media governance also includes safety concerns of journalists during a disaster reporting, especially from ground zero. There needs to be a strict safety protocol to be maintained during disaster reporting.
3. **Technology plays critical role to bring media to the most-needy people:** These days, media can access different types of technologies, including drones, IOT (Internet of Things), AI (Artificial Intelligence), etc. Sources of information have widely broadened over last past few years. Citizen science and crowd reporting have increasingly played important roles in disaster risk reduction. The key challenge is how to integrate these technologies to have effective use and benefit to the neediest and vulnerable people. The target vulnerable groups are different in different countries. For some countries, this is the aged population living in rural/coastal/mountain regions. Providing appropriate and timely early warning and encouraging them to evacuate is one of the key targets. For some countries, people living in slum/informal settlements are most exposed to different types of vulnerability. For some countries, urban non-engineered constructions are the key to vulnerability to some specific hazards like earthquakes. Media can bring the benefit of the integration of different technologies to these most vulnerable people.
4. **Role of media needs to be looked on the local governance and cultural context:** Media is very much linked to governance as well as cultural context in the local environment. This in a way defines the role of media. In several socialistic countries, media plays an important role as government spokesperson. In democratic countries, media is often biased or aligned to certain political parties. In some democratic countries, media plays a role with certain boundary conditions. These contexts often influence the role of media before, during and after a disaster, from government criticism to watchdog to neutral role as well as pro-government propaganda. This has also been reflected in the role of media during pandemic.
5. **Generating trust in media for DRR needs time and effort:** Trust in media is a very important issue for disaster risk reduction. The trust can be gained through science-based media coverage, highlighting the grass-root/people's

vulnerability issues, and timely early warning system. Popular media anchors can also be effective in gaining people's trusts.

6. **Social media role is becoming important:** Social media is gaining increasing importance due to its easy usage and deep penetration in different parts of society. This media can be linked properly with traditional media and can play an important role, provided the source of information and its authenticity is made clear. For example, during the COVID-19, WHO (World Health Organization) has used extensively Twitter, Facebook, Instagram and TikTok to spread safety information in different languages.
7. **Contents research as well as dissemination ways are equally important:** Disaster risk reduction is increasingly becoming important in higher education and research. Different inter-, multi- and trans-disciplinary researches are performed on different aspects of disasters in the universities and research institutions. Media content research is a key topic in many universities. It is important to put research emphasis on the delivery mechanism of information as well. This coupled with content research can make a breakthrough in generating new innovation in media research in DRR.
8. **Journalist training needs to be linked to real-life scenario:** There are different online and face to face training courses on DRR for journalists. Different regional bodies like ABU (Asia Pacific Broadcasting Association) took key efforts enhancing capacities of journalists from developing countries. An effective journalist training needs to be linked to real-life scenario, with specific and direct link to the field realities and disaster cases. A holistic training would require to focus on contents, delivery mechanism, basic protocols in disaster situations, disaster reporting, etc.
9. **Citizen journalism is becoming popular and can be effective:** This is increasingly becoming a popular trend, especially to cover wide area disaster situation. Many media groups have previous citizen volunteers with certain level of training for disaster reporting. Some media groups use more ad-hoc citizen reporters, collecting materials from the social media sites with certain levels of verification. An organized citizen reporter's group can help effectively and real-time information sharing during a disaster.
10. **Edutainment becomes a crucial learning tool:** Disaster is often considered as a negative subject. However, education for disaster risk reduction can be fun and can attract children and their parents if properly designed. Edutainment (education and entertainment) can be effectively used by media to make effective imprints on children at an early age. Different education channel or different programs with cartoon (manga in Japanese) can be effective in sharing the right message to the children. Both broadcasting as well as print media would be effective means for that.

## 1.4 Outline of the Book

This book consists of fifteen chapters in three parts. Part 1 provides two overview chapters. Part 2 explains three types of media and Part 3 provides actual cases of utilizing media in different aspects of disaster risk reduction.

Chapter 1 outlines the key issues of media and disaster risk reduction, and also provides an overview of different chapters of the book.

Chapter 2 provides an outline of activities of Asia Pacific Broadcasting Union. During the second decade of the twenty-first century, members of the Asia Broadcast Union staff and associated consultants and trainers worked across the Asia–Pacific region on various training and consultation projects related to Climate Change and Disaster Risk Reduction programs. Some of their experiences are highlighted in this paper, which is aimed primarily at outlining the lessons that have or should have been learned. Despite the logistic and practical challenges facing Asian and Pacific broadcasters and media outlets, the analysis offers a way forward regarding strategy and approaches that can be adopted for the development and improvement of mass audience awareness, safety and well-being.

Chapter 3 focuses on community radio experiences in Indonesia and Japan, where there are many natural disasters. Community radio has played an important role as a “hub” for local information during times of disaster and recovery and reconstruction. In Indonesia, a community radio station will be established in the affected area under the leadership of the Community Radio Association, with civil society taking the lead. On the other, in Japan, in the event of a major disaster, local governments in the disaster-stricken areas set up temporary disaster broadcasting stations with the support of the Ministry of Internal Affairs and Communications and neighboring community radio stations hand. Both forms have advantages and disadvantages. In particular, in the case of Japan, there is little initiative from residents, and in the case of Indonesia, there is little involvement from the government. The chapter focuses on the experiences of Japan–Indonesia Joint program with the aim to enhance the functions of community radio, a public–private partnership to enhance the community-based disaster risk reduction capabilities. This chapter focuses on the installment of the Wakayama model to Boyolali, this paper examines a mechanism in which community radio is established with community initiative in the event of a disaster, and its activities can be continued until the period of recovery and reconstruction in cooperation with the government.

Chapter 4 focuses on role of social media in disaster response and recovery. It analyses several cases like 2010 earthquake in Haiti, the 2011 Tohoku earthquake and tsunami in Japan, the 2012 Hurricane Sandy in the USA, and a great number of crisis events ever since. Social media platforms are also increasingly used by a variety of actors—from ordinary residents, to local and international organizations, governments, and traditional media outlets—to a different degree and to different effects. Facebook, Twitter, Instagram, Youtube and others are now among the primary means for information dissemination, mapping and sending instant reports, organizing volunteers and help groups, connecting with family members, and donation

gathering. Nonetheless, some concerns over personal data privacy, “fake” news, scams, misinformation and difficulties in outreach to older populations have also been identified. This chapter will provide a brief overview of the available literature on the role of social media for disaster management, and the types, uses, benefits and potential threats and challenges. A review of relevant case studies is included to identify some good and bad practices and derive lessons learnt. Finally, the chapter pinpoints some key takeaway messages for practitioners and policy-makers in an attempt to chart the way forward.

Chapter 5 focuses on the media that does not work at the time of calamity, but it works for the future. Records of disaster are useful information storage to raise awareness of disaster prevention among residents who live in places where disasters may occur again. It is very important to hand over the past records and lessons to the next generation. There are several effective forms of storage media such as books, stone monuments, videos, preserved relics and so on. However, the experiences felt by the victims are sometimes deleted from memory of the people who has psychological trauma. There are also various challenges in preserving damaged architectural structures. Example of efforts to record the experience by the children in the affected areas of the Great East Japan Earthquake showed the way to record their experiences in disaster media and absorb them into local culture. By comparing with the catastrophes of other countries like South Asia, this chapter will find that usage of relic is unique effort to Japan. The Atomic Bomb Dome in Hiroshima is a relic that tells the scale of destruction beyond generations. Its power as a media goes beyond video and language. The chapter highlights that it is necessary to consider how to preserve and use relic and remain sites as media for disaster mitigation.

Chapter 6 focuses on Indigenous and local knowledge (ILK) systems and practices have featured in agriculture, water resources management, forest management, disaster risk reduction, health risk management, disaster early warning, etc. in the Hindu Kush Himalayan (HKH) region. This area is one of the fragile ecosystems in terms of climate change and its impacts, which is reflected by the effect of both slow-onset and fast-onset disasters. Traditionally, this area has been a co-existence between nature and people. ILK could be an entry point for introducing appropriate adaptation know-how and practices through enhancement and customization in a cost-effective manner. However, communication is a challenge to the promotion and diffusion of potential ILK and practices for climate change adaptation (CCA). Lack of scientific assessments, inadequate documentation and their diversity are the key barriers for communicating the merits of ILK for CCA. In this chapter, the role of community radio networks in HKH is discussed as an effective vehicle to bridge the existing communication gaps in three ways. First, as a platform to share climate change impacts and ILK-based coping mechanisms among local communities. Second, share potential ILK-based solutions relevant to CCA across the local communities. Third, to connect with stakeholders beyond the community level (such as government, researchers and scientists, development partners) to disseminate information about local issues, financial and capacity needs, and mainstreaming of local practices into the region’s CCA planning and implementation. A framework is proposed for the incorporation of community radio as a formal means of CCA communication.

Chapter 7 offers the diverse reporting experience of Asian journalists when covering major disasters in their countries for leading domestic and international media. Through their voices—as quoted in their personal contributions for this book—the reader is offered access to a special insider look into the intricacies of media reporting. In addition, this chapter opens a window into the varied topics covered by journalists before, during and after the disaster. A critical aspect of this section is the compilation of their recommendations based on their experience. We hope the information will contribute to the ongoing development of disaster communication practices and media research.

Chapter 8 focuses on community radio experiences from Indonesia and Haiti. Being governed and managed by the local people, community radios effectively serve for addressing local concerns in local language and cultural context. However, their sustainable operations during disaster situations are often interrupted due to technical issues like power blackouts, limited frequency range, etc. While contemporary research is focused on overcoming the social, financial and institutional challenges to community radio operations, this chapter mainly deliberates on overcoming the technological challenges. In that regard, digital technologies like mobile phones and internet are presenting newer means of information sharing that complement the community radio operations, helping cover a wider audience from within and beyond their geographical frequency range. The chapter discusses two selected case study examples of Jalin Merapi (Indonesia) and Signal FM (Haiti) based on literature review. Notably, the community radio operations in both the cases were restrained during disaster situation, however, the integration of digital technologies enhanced their effectiveness in disaster communication. The study derives key lessons from the selected cases and suggests feasible strategies for integrating digital technologies with community radio operations. To enhance the sustainability of community radio operations in long term, the study emphasizes enhancing community engagement and raising digital awareness.

Chapter 9 examines measures taken toward enabling media to report urban disasters. Bangladesh, a highly populated and disaster-prone country, has developed good response systems, especially focusing on coastal disasters where regular typhoons have led to widespread human and environmental destruction. But the emergence of deadly urban disasters with higher losses experienced in the country's cities has raised the urgent need to adopt and implement measures to strengthen urban resilience. The case study presented here outlines specific support is necessary for journalists to deepen their knowledge about disasters facing cities and the need to strengthen their Disaster Risk Reduction (DRR) reporting capacity to educate the public. Dhaka, the capital city with a 15 million population, is highly vulnerable to fires, urban floods and air pollution. Journalists participating in the training program focused on disasters in North Dhaka and were introduced to Japan's advanced reporting experience under the platform of learning from each other. Another prominent aspect of this study is the development of collaborative activities between journalists and communities to build disaster resilience in Dhaka. This network worked smoothly and facilitated the journalists to highlight DRR topics.



Chapter 10 focuses on disaster reporting and risk communication in China, which have played a critical role in face of the unexpected and catastrophic natural disasters, and even more so in the digital age. The innovative development of social media and new media technologies bring enormous potentials for exploring new paradigms of effective communication and reaching to the public proactively and effectively. It serves as a catalyst for not only disaster professionals but also media and science communication practitioners, even the lay population to engage in the communication. This chapter first introduces the diversified active players involved in the arena in the new media age. It then discusses the new media approaches and advanced technologies applied in practice. To further understand the tendencies, we summarize some of the new dynamics of risk communication in China. The chapter closes with discussions on how to contribute to effective risk communication with sufficient qualified professionals and quality contents.

Chapter 11 focuses on reporting and analyzing local disasters—usually smaller in scale in terms of fatalities and loss comparison to the major tragedies, which are usually ignored in the mainstream media. But, as a case study in Varanasi has illustrated, disasters occurring close to home have impacted local societies gravely by causing lasting destruction. Their occurrence tends to be regular and linked to seasonal changes and local reporters reporting the disasters to say their coverage is widely disseminated in the public and respected for providing crucial information. The case study also indicates news reports that capture the reality on the field have played a role in facilitating aid and assistance for the affected from outside. Journalists participating in the study further noted that when losses from local disasters have reached large proportions creating difficult political and economic consequences spreading beyond the area, local disaster reporting has gained the attention of the national media and central authorities.

Chapter 12 narrates a journalist's own experience in disaster reporting in ground zero. Disasters destroy critical infrastructures like rural roads and highways, bridges, power and water supply lines and communication infrastructure (including mobile towers) in and around Ground Zero. This makes it challenging for news correspondents to travel inside a disaster-affected zone and gather and transmit news from there. The unprecedented deluge in Jammu and Kashmir and the landslides that followed made it difficult for reporters to travel by road to Srinagar and other flood-affected areas for several days. Disasters also disrupt social processes: they create a social circle of fear in the affected areas, as the victims suffer from acute sense of loss of life and property around them. This makes it imperative for Reporters to develop a Protocol to manage risk and gather news in a climate of fear and insecurity. They also need to protect themselves from the possible outbreak of an epidemic in a given disaster zone. At a broader level, the chapter argues the outflow of credible information from a given disaster zone is largely conditioned by the ability of news correspondents to access and gather critical information in a disaster zone. Credible news reporting on the nature and scale of damages and the status of rescue and relief work in a disaster-affected zone can help direct relief and rescue operations in the right direction and also strengthen them. This is especially significant in situations

where disasters impair the institutional flow of information from official channels, mainly because of the sudden collapse of communication structures.

Chapter 13 focuses on Japanese broadcasters' experiences, which have made great efforts to report disasters over the past 100 years. The role of broadcasting is not only to report the damage when a disaster occurs. When there is a risk of a disaster, to convey correct information and encourage rapid evacuation, to support the recovery and reconstruction of the affected area after a disaster, to deepen understanding of disaster risks in normal times and to raise awareness of disaster prevention. There are roles to be played before, during, after disasters and normal times. Since the Great East Japan Earthquake that killed more than 20,000 people on March 11, 2011, coverage of disasters in Japan has increasingly focused on hazard mitigation. Broadcasters have been making progress in improving both the software and hardware for encouraging early evacuation in disasters. This chapter describes the challenge and issues of disaster broadcasting in Japan in recent years.

Chapter 14 focuses on an important issue of information dissemination to foreign tourists and residents, the number of which is steadily increasing, which requires urgent attention in a strategic risk communication process. However, social infrastructure in Japan, including media communication, is not yet sufficient for foreigners due to lingual, cultural and social gaps. While the tourists need customized emergency information, foreign residents need more local risk information to enhance their daily life preparedness. To find an effective strategy, this chapter will analyze disaster awareness and risk communication of foreign tourists and residents in Japan through a first-hand survey, data analysis and interviews. The survey focuses on four language groups, Chinese, Portuguese, Vietnamese and Indonesian speaking communities, which have different historical and social background in Japan. This chapter also discusses countermeasures through a local activity, which involved foreign and Japanese residents and proved to be effective communication in the time of disaster.

Chapter 15 explains the experiences of NHK WORLD-JAPAN and elaborates the concept of "participatory coverage", inspired by "action research" in the academic world. "Participatory coverage" means that the media and citizens work together to improve society through the process of content production and by utilizing the content. This is especially important in the field of disaster preparedness, where taking action is indispensable to protect lives. The chapter also recognizes a TV program as an example of "participatory coverage", because the collaborators continue learning BOSAI on their own even after the program was over.

## Reference

Hua J, Shaw R (2020) Corona virus "infodemic" and emerging issues through a data lens: the case of China. *Int J Environ Res Public Health* 17:2309. <https://doi.org/10.3390/ijerph17072309>