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COVID-19 pandemic, global spread, issues, and challenges

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1. Introduction

The pandemic had a global impact and affected all sectors from health care to global governance, social culture, and human-to-human relations in a chain reaction (Permal, 2021). The World Health Organization declared a global health crisis on January 30, 2020, to mitigate and manage the widespread transmission of the COVID-19 (Abumalloh et al., 2021). People's interaction and mobility were restricted to prevent the virus from spreading without a plan to tackle economic and societal consequences. Obligatory rules such as social distancing, public space restrictions, and quarantine protocols were imposed by many countries as primary measures to mitigate the transmission of the virus (Karadag & Sengul, 2021). The cumulative effects of limited engagement and mobility hampered the world's ability to function (Pribadi et al., 2021). Initially, it appeared to be a health crisis, but the severity of the pandemic induced a slew of other cascading effects and led toward deglobalization. Countries and international communities collaborated to develop strategies to slow and reduce the virus's global spread. However, this global health emergency put a strain on all existing systems around the world, prompting national and regional governments and international communities to scramble to meet the demand.

Abbas (2021) and Permal (2021) discuss how COVID-19 disrupted global governance and posed a serious threat to global functioning. This pandemic will undoubtedly have long-term implications for all aspects of governance, opening up new research avenues and policy requirements. The most pressing need is an integrated assessment to quantify the societal consequences of the pandemic so that a comprehensive global response and recovery plan can be developed to regain the spectacle of global governance (Barouki et al., 2021). On a similar note, Paul et al. (2021) also emphasize that the most insistent concern in the post-

COVID-19 era is to address its effects through appropriate recovery management measures and have suggested that identifying rehabilitation challenges should be the first step in developing a recovery plan. The recovery plan is associated with adequate information on recovery issues which demands completely documented literature (both academic and gray), so the academic domain needs to play a contributing role in fulfilling this vacuum to regain the smooth functioning of the world. The base of the impact and assumed goal of the required global plan are both connected with human behavior (Barouki et al., 2021). Hence, while conducting the assessment for regaining global phenomena, it is important to understand the cutting-edge vulnerability and deprivation to address inequalities between countries, as these characteristics are crucial to understanding the paradigm of shifting modality in risk governance.

2. Pandemic risk, response, and resilience

Numerous large-scale epidemics of infectious diseases have occurred over the world in recent decades and have taken many lives. Moreover, large-scale outbreaks are causing severe disruption in the country's economic, social, and political functioning (Madhav et al., 2017). Ebola, Influenza, SARS, MERS, and most recently COVID-19 have significantly influenced in recent years. Large-scale mortality and morbidity caused by these pandemics have utterly disrupted the entire globe (Marco et al., 2020). Horrifyingly, a study by Fan et al. (2018) shows that the major epidemics and pandemics will strike again, and there is a need for more investment in preparation against epidemics and pandemics. Furthermore, with the onset of the COVID-19, pandemics are emerging as a multihazard as they possess a huge risk of cascading impacts not just in health but in multiple sectors. The risk management and governing of the pandemic is emerging as a key concern and demanding multilayer consistent collaboration. Therefore, it is essential to have conceptual clarity on pandemic risk and cross-cutting issues.

As a response strategy to mitigate the spread of the pandemic, countries are closing the borders and putting restrictions on foreign passengers as an effective way of responding to global health. This could be a part of immediate action but cannot be the only tool forever. The response and adoption strategies should be based on a clear scientific consensus on their efficacy in the face of a variety of pandemic risks (Kenwick & Simmons, 2020). Many countries failed to respond COVID-19 pandemic, demonstrating the limitations of long-running disputes over the pandemic response in risk governance. Thus, the COVID-19 pandemic has challenged governments and traditional thinking about response mechanisms in risk governance. In addition, several of the mechanisms that have been postulated and empirically confirmed in the literature have not behaved as expected in the setting of the COVID-19 pandemic, implying that future assessments will be more complex (Kavanagh & Singh, 2020). Henceforth, governments should work to integrate risk governance and its indices with development planning. Marco et al. (2020) suggest that leveraging current international policies and collaborations allows for a more mechanical understanding of the pandemic's complex dynamics and a better relationship between risk governance, economic assessment, and development planning. Management of pandemic hazards and risk reduction are critical problems for resilience that cannot be achieved without efficient governance (Pal and Bhatia, 2017).

3. Risk governance at local, national, and regional scales

When COVID-19 was declared a global pandemic, most countries had response plans in place. The important thing noticed in managing the global pandemic during this horrifying situation was the strong community solidarity that made a significant difference (Lwin et al., 2020). Effective community solidarity aided in making the response more effective by assisting in the control of the virus's spread and playing an important role in the widespread use of modern technologies for medical/health-care treatment (Pedroza-Gutiérrez et al., 2021). Even though the pandemic was worldwide, local government, socioeconomic, and cultural factors played a deciding role while responding (Shaw et al., 2020). Pedroza-Gutiérrez et al. (2021) discuss the coping strategies adopted by governments in responding to the risk induced by the COVID-19 pandemic and looked at the organizational and governance structures that were formed to respond to the COVID-19 pandemic and discovered that capacity of individuals matters more than the governmental activities toward responding. Further, the study discusses that a lack of coordination between the various governments and communities was the reason behind the failure in the response mechanism in managing the COVID-19 in many countries.

Liu et al. (2021) have sparked a debate about revisiting the academic domain's long-running theoretical and policy debate about state–society ties in risk governance, which reflects an unclear relationship observed during the COVID-19 pandemic responses. Furthermore, legislation in many developing countries is silent on the role and responsibilities of governments in responding to the pandemic. In the regular development process, local governments seem to prioritize resources for infrastructure development, overinvesting in preparedness, and mitigation as disasters are more likely to occur. To which, Pal and Shaw (2017) have pointed economic component as an important aspect in risk governance and have discussed the national government's role in providing financial assistance to local governments for risk management at the local level. Risk governance demands initiation and innovation in local government in responding to risk as a sustainable approach; thus, one-time support from the national government cannot assure.

Chatterjee et al. (2020) have looked at risk communication as a critical and efficient factor for risk governance. The study has recommended RIKA's COVID-19 risk assessment tools to have a comprehensive understanding of the community, individual behavior, social compliance, and exposure factors that guide in identifying relevant areas of intervention. The findings of Saunes et al. (2021) also suggest similar perspectives as they demonstrate differences in implementation as well as outcomes in each governing context and points out the decision-making process as a key factor. Decision-making is determined by people's adaptation behavior and existing structural mechanisms, and these indices have a role in producing variations in outcomes in risk governance. Similarly, Kavanagh and Singh (2020) have concluded that COVID-19 has challenged the core understanding of comparative governance indices linked to ideologies and policies. For example, the way governments responded to the global crises during the initial stage was primarily guided by their understanding of the risk defined as per political ideology; as a result, policies regarding preparedness and capacity were also guided by similar notions. Thus, there is a need for integration of social aspects as a tool to sense to plan and draw conclusion while governing the risk.

4. Outline of this book

The 31 chapters in this edited book are divided into four contemporary themes and provide an overview of the steps taken and major issues faced by national, regional, and local governments in managing the risk posed by the COVID-19 pandemic. These chapters summarize and present cascading impacts, adopted responses mechanism, and recovery plans of national and local governments of the world but with a significant look at Asia. The first section of the book provides an overview of conceptual understanding of pandemic risk, response, and resilience. It discusses the current changing phenomena of risk governance with adopted approaches and practices at communal and megacities. The other section of the book examines the response actions and the important issues that local, regional, and national governments confront in dealing with the COVID-19 pandemic. The scenarios discussed here include both perspectives with a look at the capacity posed by these countries prior to the pandemic and their effectiveness or failure in responding to it.

4.1 Overview and national governance response

The initial section of the book contains chapters that provide an overview and response governance mechanism taking cases from multiple contexts from lower-income countries to higher-income one. The chapter entitled “COVID-19 and fiscal stimulus in South Asia: Implications for resilience and sustainable development” by Azreen Karim and others examined fiscal and associated policies in South Asian countries using macroeconomic data and has pinpointed various concerning issues related to the country’s economy, reliance on foreign aid, health, and socioeconomic protection sectors and emphasizes the importance of multistakeholder collaboration for effective risk management. The chapter calls for a holistic approach to addressing issues and existing policy gaps for sustainable development. Presenting a specific case of Thailand, Shubham Pathak discusses the issues and challenges faced by the country in managing COVID-19 in the chapter “Enhancing Risk Governance and sustainability in a time of COVID-19: Experiences and Repercussions from Thailand.” The chapter discusses insufficient policy implementation at the local and national levels of government and overemphasizes on resources resulting in the waste of scarce resources as severe threats in risk governance and recommends some strategic measures for resilience and sustainable development for national, regional, and local governments by conducting an SWOT analysis. The chapter “Pandemic in the land of Smile: the case study of COVID-19 outbreak in Thailand in 2020” by Mokbul Morshed Ahmad and Shahab E. Saqib has also discussed Thailand’s case but with more focus on the structural mechanism, economic functions, and livelihood alteration. The chapter showcases Thai societies’ financial strengths and vulnerabilities and lists structural issues as a critical challenge in addressing the crises. A large portion of the economy of Thailand is based on export and tourism, and it is associated with the livelihood of a vast section of the population. Hence, the chapter provides suggestions to authorities to be more serious about the further prolonged social disparities during the pandemic as social consequences have long-term impacts. Dilanthi Amaratunga and others discuss preparedness planning for biological hazards in the chapter “National perspectives of COVID-19: case of Sri Lanka” and alarm the urgent need to strengthen preparedness through a unified legal framework and system of governance that ensures relevant expertise, infrastructure, and

lessons learned from previous similar contexts. The chapter outlined Sri Lanka's response to COVID-19 reflecting preparedness status and pinpoints the gap noticed in preparedness planning for biological hazards in subnational level disaster management plans. Another concerning finding discussed in the chapter is a lack of focus on community resilience building to mitigate the hostile social and economic effects induced by COVID-19. Further investigating the positive initiation of Sri Lanka in managing the risk, the chapter "Sri Lanka's fight against COVID-19: a brief overview" by Deepthi Wickramasinghe and Vindhya Kulasena discusses Sri Lanka and its efforts in controlling the emergency by health authorities in coordination with governments and third sectors, and credits the three-tiered approach in contributing to risk management. Further discussing the South Asian countries, in the chapter "Extent and Appraisal of COVID-19 Pandemic, Risk Governance, and Resilience in Pakistan," Mahnoor Rafiq and others have examined how geography and public attitudes affect risk communication during the pandemic. In the chapter "National Perspectives of COVID-19 in the Maldives," Sonath Abdul and others discuss the measures taken to control and contain the outbreak, which includes the establishment of NEOC and its transition to HEOC. It also covers the key legal frameworks that govern public health emergency response, socioeconomic consequences, educational and public health implications, climate change and environmental challenges, migrant issues, and a review of foreign aid received. Furthermore, the chapter emphasizes the importance of decentralized governance and administration in responding effectively to disasters and emergencies, exacerbating the problem in densely populated areas, and explains the importance of establishing and maintaining effective cross-sector and cross-agency coordination for effective response to the pandemic.

Discussing the key challenges faced by low-income countries of South Asia, the book also presents chapters that discuss the pandemic risk, response, and resilience of developed countries and their key strategies adopted in managing the risk imposed by the COVID-19. For example, the chapter "Risk Governance, Resilience, and Response against COVID-19 in the Republic of Korea" by Yong-kyun Kim and others discusses the reason behind the effective risk management during the chaotic period induced by the COVID-19 pandemic in the Republic of Korea. The study has detailed examined capabilities, use of ICT tools, and rigorous treatment and their contribution in governing the COVID-19 risks. The chapter also presents a clear conceptual understanding and delineating roles and responsibilities of designated persons and authorities playing essential role in mitigating the risk. In the chapter "COVID-19 Pandemic in the Arctic and Subarctic," Jyotiskona Barik and others outlined the COVID-19 issues and challenges faced in the Arctic and Subarctic, highlighting psychological impact as one of the profound impacts induced by the COVID-19 pandemic in humankind, and discuss cascading effects of a pandemic on human behavior and their psychological implications. In addition, the chapter emphasizes the role of effective risk governance in responding to the pandemic, pinpointing that government-imposed COVID-related guidelines and policies can help the Arctic region achieve long-term growth while contributing to virus transmission. In the chapter "Reflections on pandemic governance in China and its implications to future growth strategy," Zuquan He and others discuss the use of technologies to reduce the spread of the virus. The chapter gives us an overview of how the management of COVID-19 in China was achieved through an adequate functioning of risk governance system at every stage in responding to pandemics from infection control and management to safeguarding approaches to economic recovery. Further discussing the

innovation introduced during the COVID-19 pandemics, the chapter gives a perspective on how the technologies can support managing crises, acknowledging the contribution of new technologies in the economic recovery of the country. The chapter pinpoints further on strengthening structures, policy outcomes, and results for curtailing future challenges. Yongxi Jiang and others examine Japan's governance system from the standpoint of the state emergency system and how it was used during the COVID-19 pandemic in the chapter "Reflections on Pandemic Governance in Japan." It also discusses in a local context from an adaptive governance approach to better understand adaptive governance. The benefits of effective coordination between central and local governments at various stages and capacities in responding to the COVID-19 pandemic are demonstrated in this chapter. Though risk governance in Japan is one of the successful mechanisms, the study suggests that the Japanese government focuses on exercising shared powers across levels of government through adaptive governance approaches so that a lot more can be accomplished in the future.

4.2 Capacity and response of local government

The second section of the book discusses and zoom in on local government and their capacity in responding to the pandemic. Finally, a chapter, "The Rohingyas in Bangladesh: The 2020 Pandemic and the aftermath" by Shahab e. SAquib and Mokbul Morshed, presents the multihazard context and discusses the impact of the COVID-19 pandemic on the livelihood of Rohingya Refugee. The chapter provides perspectives from stakeholders and third sectors and gives a comprehensive idea about the stress aggravated between the government of Bangladesh and Rohingya refugees due to the COVID-19 pandemic. In the chapter "Guess-timating the COVID-19 burden: what is the best model?" Wajiha Javed and Anzal Abbas discuss the findings of their study and share that serologic testing has proven to be the most successful method of conducting massive level testing because it reduces the need for hospitalization, reduces the strain on an already overburdened health-care system, and allows for an accurate assessment of the true prevalence of the disease in a population. The chapter also looks from the economic perspective and suggests a cost-intensive model for diagnosis for developing countries.

Taking a case from Uttarakhand, a mountainous state of India, Piyooosh Rautela and others analyze the role of the provincial government in controlling the spread of the virus in the chapter "Pandemic Management in Mountainous Regions: Challenges and Opportunities" and identify key takeaways that will aid in the management of future pandemics. The chapter observes the stress placed on administration and health professionals, which further increased in the COVID-19, and discusses the importance of national, regional, and local government in providing the necessary support for effective mitigation and management of pandemics. The chapter has highlighted the importance of travel restrictions for timely steps in limiting the virus's spread. Similarly, in the chapter "Redefining Vulnerability and Resilience from the Lens of COVID-19: A Case Study of COVID-19 Management in Bihar, India," Anil Kumar and others examine the case from Bihar. From the perspective of health emergency management, it paves the way for more discussion and research in the area of vulnerability and resilience assessment, as well as a rethinking of how to determine pandemic vulnerability indicators. In addition, the chapter focused on the effects of globalization as it became a driving force behind the spread of COVID-19. Furthermore, the chapter discusses the

provincial government of Bihar's key strategic approaches for mitigating the spread of the virus using modern tools and technologies, as well as pinpoints technology-driven solutions, efficient management of migrant laborers, and patient tracking as contributing factors in lowering the mortality rate. Risk governance strategies discussed by Neelay Srivasatava and others in the chapter "Uttar Pradesh – State level governance and response in the COVID-19 pandemic" include a four-step action plan: Integrated Command and Control Centers (ICCC), door-to-door surveys, lockdowns on weekends for sanitization, and a COVID help-desk as a practical approach adopted by the provincial government in response to the pandemic. However, the chapter has also highlighted the gaps that require more attention from all levels of government to resolve the issue of health-care worker shortages.

"Village Health Volunteers Response COVID-19 Impact on Fisheries and Aquaculture in Thailand," a chapter written by Puvadol Doydee and others, examines the impact of the COVID-19 pandemic on Thailand's fisheries sector, analyzing the domestic and international market, as well as fluctuations in seafood supply chains, stress, and livelihood disruptions. In order to develop opportunities for increasing COVID-19 pandemic resilience in the fisheries and aquaculture sectors, the chapter also describes the potential of VHVs in conjunction with a framework for knowledge translation. COVID-19's positive aspects discussed in this chapter include how it benefits the global environment by reducing GHG emissions, water pollution, industrial pollution, and noise pollution. Shweta Sinha and Mrutyunjay Swain discuss the profound impact of COVID-19 on agriculture, nutrition, and consumption, as well as the impact on the agricultural and food system value chain on various stakeholders in India and Thailand, in the chapter "Response and Resilience of Agricultural Value Chain to COVID-19 Pandemic in India and Thailand." The importance and role of digital technologies and tools are emphasized in this chapter. Furthermore, it recommends that governments collaborate with Agri-technological advancements in future strategies to build more resilient agricultural systems, which can be accomplished by better integrating technology and digitization into existing agricultural systems. The chapter suggests governments that effective departmental and ministry coordination can reduce supply chain risks, improve food processing, and reduce postproduction losses.

The chapter "Assessing the impact of COVID-19 to Tourism and Adaptation Strategies: a case study in Thua Thien Hue, Vietnam" by Bui Phan and Indrajit Pal provides a theoretical foundation for decision-makers to manage tourism during the COVID-19 pandemic. Furthermore, based on the findings of their study conducted using comparison and survey methods, the chapter recommends a thorough assessment of the effects of the COVID-19 pandemic on tourism in order to develop appropriate and effective adaptation strategies. Said Muhammad and others discuss the impact of the COVID-19 pandemic on informal businesswomen and their attitudes toward following pandemic standard operational procedures in the chapter "Positive externality matters in the COVID-19 pandemic: The case of women informal businesses in District Mardan, Pakistan." The findings of their study show that the COVID-19 pandemic in Pakistan had less impact on the informal sector. The chapter puts forth the argument that informal businesses can play a critical role in sustaining families' livelihoods in times of economic hardship. Sujoy Kumar and others examine the national government's ability to adapt to the COVID-19 pandemic in the chapter "COVID-19 National Response on Tourism Sector: A case study of Western Division of Vitilevu, Fiji Islands," discussing the few positive initiations and its role in mitigating risk and controlling the spread of the

virus. The chapter highlights lessons learned on a local, regional, and national scale during the management of the COVID-19 pandemic that was useful and necessary in equipping Fiji during the second wave. Further, the chapter provides recommendations to national, regional, and local governments for effective risk governance in responding to the future pandemic and other disasters.

Tomonori Ichinose and Takashi Oda discuss how school risk management and resilience can aid in the successful reopening of schools following natural and biological disasters in their chapter “Risk Management and Resilience of Schools in Response to the COVID-19 Pandemic.” Biological hazards are a constant threat, so the chapter presents MEXT’s proposed guidelines for defining school activities based on the various stages of a biohazard, as well as an appeal to government agencies and development partners to consider the educational institutions’ resilience as one of the most important components in risk governance. Indrajit Pal and others discuss adaptation to the new era of digital education in the COVID-19 pandemic in the chapter “Impacts of Pandemic on Education Sector in Thailand” (Shah et al., 2020). The chapter investigates the direct and indirect effects of COVID-19 on Thailand’s education sector and also discusses how the COVID-19 pandemic has revealed long-hidden societal issues of Thailand. Nandhini Sanyal and others share a comparative study regarding the COVID-19 impacts on local communities in Bangladesh with the global in the chapter “Knowledge Gaps and Operational Challenges in Managing COVID-19 in Bangladesh: Post Pandemic Strategies in Multi-Disaster Contexts,” which pinpoints the lesson learned during the pandemic. The chapter also discusses potential global changes in the post-COVID era and makes recommendations to governments on how to adapt to current conditions and deal with post-COVID realities.

5. Conclusion

COVID-19 pandemic has triggered to redefine the risk governance. Although the existing risk governance mechanism is primarily focused on legislative, administrative, and economic functions (Pal & Shaw, 2017), these key pillars of the risk governance couldn’t smoothly bear the paramount risk induced by the COVID-19 pandemic. The intensity of cascading impacts of COVID-19 paused the administrative and financial functions of the entire globe. Most importantly, the legislations of many countries were not prepared enough for such a long hiatus. Therefore, the onset of the post-COVID-19 era is not just forcing the risk governance paradigm for a complete shift but also demanding to relook on the conceptual understanding of risk governance. Henceforth, in this changing phenomenon of risk governance, it is high time to integrate new indices and priorities, allocating a significant stake to innovations.

This book gives an outline of the shifting paradigm of risk governance demands incorporating indices suggested by extensive research that provide equal scope to hazards, economic, social aspects, legislation, and structural mechanisms. These indices should have characteristics to interlink with local, national, and international governing systems and should possess the capacity to function in any worse scenarios. Unlike in pre-COVID-19 pandemic context, it should not be just a governing tool but a holistic approach that provides equal space for international collaboration, priorities for efficient alert systems, interlayer coordination, and communication to have all sorts of requirements to function. The redefined risk governance

should be developed as an interdisciplinary collaboration of legislation and administration that is interconnected with economic capabilities backed by technological and social innovations.

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