



CONCEPT OF “DISASTER” IS IN DISARRAY: NEED A CONSENSUS AMONG EXPERTS

 A.G. Amarasinghe

Head, Department of Geography, Faculty of Social Sciences, University of Kelaniya, Sri Lanka.

Email: amarageo@kln.ac.lk



ABSTRACT

Article History

Received: 9 April 2020

Revised: 13 May 2020

Accepted: 18 June 2020

Published: 16 July 2020

Keywords

Concept of disaster

Definitions of disaster

Issues in disaster management

Objectives of disaster

Management

Disaster management program

Value of consensus.

Huge number of definitions is in use national and international spheres to provide a meaning for the concept of “disaster”. Most of them are defined vaguely and others inclined to limited aspects. Concept of disaster with different meanings causes to socialize different understandings on the nature of disaster. This background leads to interpret and make plans for disaster management program from various points of views. Reaching the objective of disaster management program depends entirely on the consensus of the “concept of disaster”. Consensus helps groups to work together to meet the group’s objectives. Therefore, adhering to a consensus and unanimous concept of disaster can be regarded as the main solutions to solve array of problems related disaster management programs. Aim of this study is to identify the disagreement nature of the concept of disaster and the negative impacts of it. Qualitative data are main type of data used in this study. Reviewing literature through web page browsing was the main method used to collect data. The results of this study reveal that absence unanimously agreed concept of disaster has created a meaning crisis of the concept of disaster. This background led to practice disaster management program among respective authority without any consensus which end without successful results. One of the main reason for this is imperfect concept has led to formulate disaster management programs paying way to neglect, ignore and abandon well established disaster management policies, legal systems, institutions and its networks, reserved human and other capitals.

Contribution/Originality: The paper contributes the first logical analysis over the meaning crisis of the concept of “disaster”.

1. INTRODUCTION

The term “disaster” has been most frequently used and defined vaguely by scholars as well as practitioners providing different meanings. This has led to socialize different understandings of this concept and interpret it from different points of views (National Research Council, 2020). Changing the meaning of concepts spatially and temporally is considered as a normal and natural phenomenon in any discipline subject to its context (Herath, 2016) Yet, the disaster management is the program that covers national and global level matters engaging thousands of people and investing huge amount of money. The main objective of disaster management program is to reduce negative impacts of disasters. Reaching this goal depends entirely on the disaster management plan and its implementation process (Nojavan, Salehi, & Omidvar, 2018). This basic requirement can only be fulfilled if there is a solid concept which is accepted by respective authorities. However, it is indispensable to apply a clear and unanimously agreed definition of the concept, on which the large scale program rest. It is general truth that programs rest on concepts with abrupt and haphazard definitions caused to create complex issues and get

unsuccessful results (Akande, 2020); (Benjamin, 2020). The Purpose of disaster management programs is finding solutions to burning issues arisen due to natural or man-made disasters. The success in achieving targets of such programs depends on the related concepts and model.

A “Disaster management program” becomes one of the main components that regulate or determine the progress of a country that has faced a disaster at any scale (Nojavan et al., 2018). The concept of “disaster” is the main filler that rests the whole spectrum of activities of a disaster management program. Disasters can destroy and cripple the existing and future capacities of any country within short period of time. Therefore, disaster management programs that are being practiced locally or internationally have been recognized as the most vital step in securing the achieved level of development, lives and properties. Spending huge volume of money and resources for disaster management plans are common practice in the contemporary world. Establishing separate wing into the United Nations Organization (UNO) called United Nations International Strategy for Disaster Reduction (UNISDR) can be regarded as significant move in this regard. Forming separate ministries, institutions in many countries have also become a custom in all most all countries around the world. Stapes taken to manage disasters in Sri Lanka can be regarded as a good example. Enactment of the Sri Lanka Disaster Management Act, No. 13 of 2005, establishment of National Council of Disaster Management, the Disaster Management Center, appointment of technical advisory committees, preparation of Disaster Management Plans and declaration of state of disaster, awarding compensation and other conducting and monitoring other affairs related to disaster management activities were the main strategies applied in advance as a developing country with a view to manage disasters satisfactorily. Along with this settings several international agreements, treaties and resolutions have been signed. In order to initiate these agreements and secure the sustainable development of countries, there are several disaster management programs which have been launched in many countries. It is a general fact that all these programs are planned to last and run for over decade.

It is clear fact that disaster management programs encompass huge volume of resources, consensuses and expectations. The basic requirement to materialize these responsibilities is to work with a unanimously agreed unique plan with visible components. At the same time, each and every person involved to implement programs related disaster management should be known about them clearly. Otherwise one in the other corner of a country does different thing to a person in the opposite corner. Such situation will not get successful results. Basic step that can be taken to secure the sustainability of such programs and to avoid issues is to stand on concepts with definitions which have consensus and unanimity.

Government and non-government institutions and organization have introduced and implemented several well organized programs to manage disasters since 1990s. However, is a significant fact that impacts of disasters are escalating at an alarming rate year by year. Several reasons influenced to increase the negative impact of disasters. Among them, increasing population, make use of hazardous places to live, engagement of dangerous activities to make lively hood and weaknesses of the applied disaster management programs are significant. However, many claim that the main factor that caused to get dissatisfactory results from the disaster management program is non-other than the prevailing weaknesses of the concept of “disaster” (Singh, 2006).

It is general truth that any activity or a program based on a weak concept leads to get bad results. This article considers about national level or global level disaster management programs. Nature of such programs consists with complex activities, components and engagements. Further, such programs distribute spatially over a country or entire world and temporal distribution is a year or decade. Huge amount of government assets including money and work force involve with the disaster management program.

1.1. Aims of the Research

Main aim of this study is to identify the disagreement nature of the concept of disaster and the possible negative impacts that can be caused to get unsuccessful results from the disaster management programs. Secondary

objectives of the current study are to trace laps and gaps of the available definitions given to this concept and proposed most suitable and complete definition for the concept of disaster.

1.2. Methods and Materials

Qualitative data are main type of data used in this study. Reviewing literature through web page browsing was the main method that used to collect data. Published peer reviewed journal articles, online encyclopedias and distortionary were the main sources of information of this study. As this article compiled during the COVID 19 (Corona Virus Disease 2019) pandemic prompted “stay at home” order (During March- April 2020) in Sri Lanka, Telephone conversation were made with due academics to get clarification and further information over the concerned matters. Official web pages of reputed national and international institutions and agencies deal with disaster management activities were also used to collect required data. Social media such as Face Book (FB) and information from general public were employed to verify relevant information. Collected data were analyzed using conceptual analysis and content analysis methods.

1.3. Importance of having a Consensus on Concepts

Consensus helps groups to work together to meet both the individual's and the group's needs. This results in a greater commitment to turn program into reality (www.seedsforchange.org.uk); (Dapo, 2020). The term “Concept” means what exists in the mind (<https://www.merriam-webster.com>). Thus, concept can be regarded as the abstract expressionism of a mental image. That means concepts represent mental images. Mental images can be formed in the mind by seen, hearing, imaging or known about physical or metaphysical objects, processes or abstraction. However, mental image that affected to formulate a concept is not just a mental image. Concept is developed after considerations, comparison and analyzing mental image with actual facts and figures that exist in the real or abstract world. Furthermore, a concept accepts and popularize if there is a consensus and consent among scholars and general public. Therefore, concept can be regarded as a product out of mental image or images.

There are several other terms that used to denote the mental image or what exist in the mind. Among them, idea, thought, belief, notion, opinion, perception and impression are popular among scholars and general public. These words can be regarded as the terms used to represent mental images that come to mind at ones, vaguely, suddenly or unexpectedly. At the same time things in the mind what do not analyze and scrutinize well also represent by these words. Yet, the image that construct in the mind after consideration several instances and phenomenon that analyze and synthesize by scientists or scholars who poses expert knowledge in the particular field of studies would help to form a “concept”. Concepts play an important role in all aspects of cognition and they used for teaching and learning purposes in almost all disciplines of studies.

Philosophers have provided deep and complex views and explanation of the ontology of “concepts” (Weiskopf, 2020). Such analysis on this term does not require fulfilling the objectives of this paper. Concept is based on more reliable, trustworthy things that are close to real world situation or represent actual phenomenon or processes belong to physical or metaphysical world. Therefore, concept can be used as organized plan, model or blueprint. Spatial and temporal scale of them may be small or large. That's why concepts are used to execute national or global level scale programs that span over decades. Therefore, program such as “disaster management” that executes to get benefit for a county or entire world spending huge amount of resources based on concepts must have consensus and unanimity. Therefore, scientists in the field of disaster management urge for a more diverse, interdisciplinary and technologically sophisticated social science workforce in the future to deals with the conceptual issues related to concept of disaster (National Research Council, 2020). Such initiative will lead to produce consensus concepts in the field of Disaster management.

1.4. Etymology of the Word “Disaster”

The term disaster has been derived from Italian word “disastro” to English. “Dis” is the prefix and “astro” is the word stem. Meaning of “dis” is away, not, wrong or pejorative. “Astro” in Italian used for star. When the stars are in bad position with malevolent astral influence is called “disastro” in Italian (Singh, 2006). It is a common notion of the general public in most of the cultures including Sri Lanka and most of the Asian countries from ancient time to present that the misfortune is an impact of bad position of stars. This shows that the meaning of the term “disaster” is based on astrology. As the astrology was a key driving force of ancient civilization, the word “disaster” did not change up to now. Yet, definitions given to the term “disaster” has been changing significantly.

Mainly three factors have been influenced to change the definition given to the concept of disaster. Scientific invention, nature of problems faced by the general public and improved cognition of people are these three factors. The evolutionary history of definition of disaster is long and complex. Consequently, there is a rich literature and multifaceted definition for disaster. Therefore, concept of disaster is not act as unanimously agreed concept. Many people get use to apply the term disaster vaguely to explain both large scale and small scale incidents that cripple human activities in a country a minor incident that come across to an individual in day to day lives.

2. RESULTS AND DISCUSSION: NATURE OF DISAGREEMENT AMONG CONCEPTS OF “DISASTER”

Hundreds of definitions of the “concept of disaster” can be found in the literature. It shows that scientists, governments and reputed national and international intuitions have been defined this concept providing various meanings. Significant differences can be traced among these definitions when analyzing the meanings of the content of them. According to the central and surface meaning, these definitions can easily be categorized into four groups as Tables 1-4 and as follows;

1. Concepts highlight the impacts of disaster.
2. Concepts highlight the physical process of a disaster.
3. Concepts highlight required level of assistants.
4. Concepts with complex meaning.

2.1. Concepts Highlights the Impacts of Disaster

Impacts of disastrous events have been emphasized by many definitions given for the term “disaster” Table 1. The significant feature of such definitions is highlighting the consequences of a disaster. It is an apparent truth that any disastrous event would certainly generate negative impacts. Concentration on impacts of the disaster is not enough to take action in managing disasters. Root cause that lead for a disaster, physical process of it and many other areas are to be taken into account when define the concept of disaster. However, many definitions are centered on the impacts of disasters rather than other facets. Further, impacts of disaster too have been divided into several categories by these definitions.

According to R.B. Singh disasters are potential risk to extreme events which are the results of natural hazards (Singh, 2006). Smith (2004) and Sahni and Ariyabandu (2003) define the disaster as “the realization of a hazard that severely impacts things of human value” (Weiskopf, 2020); (Singh, 2006); (Sahni & Ariyabandu, 2003).

According to the web page <http://www.wordiq.com/definition/Disaster>, “ a disaster is a natural or man-made event that negatively affects life, property, livelihood or industry often resulting in permanent changes to human societies, ecosystems and environment” (<http://www.wordiq.com/definition/Disaster>).

Similar definition of this category can be seen in the web page named en.wiktionary.org/wiki/disaster. This encyclopedia defines disaster as “An unexpected natural or man-made catastrophe of substantial extent causing significant physical damage or destruction, loss of life or sometimes permanent change to the natural environment;

an unforeseen event causing great loss, upset or unpleasantness of whatever kind” (en.wiktionary.org/wiki/disaster).

Definition for disaster given by Ariyabandu and Wickramasinghe (2003) explains that the disasters pose a serious threat to all aspects of development. There are definitions which highlight the damage as well as the required level of assistance. For instance, following definitions can be given (Ariyabandu & Wickramasinghe, 2003).

“any occurrence that causes damage, ecological destruction, loss of human lives, or deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community area” (www.nhtsa.dot.gov/PEOPLE/injury/ems/emstraumasystem03/glossary.htm).

“A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources” (Asian Disaster Preparedness Center, 2001).

Table-1. Concepts disaster highlighting the impacts.

No	Author/Institution & Year	Definition
1	Smith (2004); Sahni and Ariyabandu (2003); Weiskopf (2020); Smith (2004)	“the realization of a hazard that severely impacts things of human value”
2	UNDRR (2019); UNISDR. (2020)	A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.
3	UN-SPIDER (2020)	"a serious disruption of the functioning of a community or society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope with using its own resources."
4	https://dictionary.cambridge.org [21]	An event that results in great harm, damage, or death or serious difficulty
5	NIDM-India (2020)	A Disaster is an event or series of events, which gives rise to casualties and damage or loss of properties, infrastructure, environment, essential services or means of livelihood on such a scale which is beyond the normal capacity of the affected community to cope with. Disaster is also sometimes described as a “catastrophic situation in which the normal pattern of life or ecosystem has been disrupted and extra-ordinary emergency interventions are required to save and preserve lives and or the environment”.
6	National Highway Traffic Safety Administration (2020)	any occurrence that causes damage, ecological destruction, loss of human lives, or deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community area”

In The Australian Disaster Resilience Knowledge Hub (2020) disaster is defined describing the impacts as: “A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts. The effect of the disaster can be immediate and localized, but is often widespread and could last for a long period of time. The effect may test or exceed the capacity of a community or society to cope using its own resources, and therefore may require assistance from external sources, which could include neighboring jurisdictions, or those at the national or international levels (en.wikipedia.org/wiki/Disaster).

General public sometime use the concept of “disaster” to explain even tiny mental unrest that caused to disturb the daily routing of task of the work place or office. Examples for such definition can be taken from the web page www.collectionscanada.gc.ca/about-us/emergency-preparedness/012015-102-e.html. “an incident or calamity

caused by accident, natural causes, or deliberate intent and resulting in: serious damage or destruction to records and facilities; a sudden threat to personal safety; or major disruption (National Research Council, 2020).

2.2. Concepts Highlighting the Physical Process of Disaster

Many definitions given for the term “disaster” highlight the physical process of disastrous situation and hazard rather than impacts or required assistance Table 2. The web page en.wikipedia.org/wiki/Disaster defines “A disaster is the tragedy of a natural or human-made hazard (a hazard is a situation which poses a level of threat to life, health, property, or environment) that negatively affects society or environment” (www.nceev.org/resources/terms.html).

Table-2. Concepts of disaster highlighting the physical process of disasters.

No	Author/Year	Definition
	WHO (2020)	A disaster is an occurrence disrupting the normal conditions of existence and causing a level of suffering that exceeds the capacity of adjustment of the affected community.
	en.wikipedia.org/wiki/Disaster [25]	“A disaster is the tragedy of a natural or human-made hazard (a hazard is a situation which poses a level of threat to life, health, property, or environment) that negatively affects society or environment.”.....
	https://www.ncbi.nlm.nih.gov/books/NBK221638/ [27]	A subset of the broader trauma literature has focused on the psychological consequences of disasters. Disasters differ from other forms of traumatic events in that, by definition, they are likely to affect larger segments of the population or entire communities of individuals, causing widespread destruction and distress.

Several web definitions centered on the physical process of disasters try to elaborate the nature or severity of physical process of disaster. For example, the definition of “en.wiktionary.org /wiki/disaster” highlighted that the disaster is an unexpected natural or man-made catastrophe of substantial extent causing significant physical damage or destruction, loss of life or sometimes permanent change to the natural environment; An unforeseen event causing great loss upset or unpleasantness (en.wikipedia.org/wiki/Disaster)

2.3. Definitions Highlighting the Required Level of Assistants

Requesting or expecting assistance from outsiders to recover from a disaster is normal and natural phenomenon. The meaning of the term “disaster” does not relate directly with seeking assistants to get out from the malevolent effects of disaster. Yet, many writers compelled to define disaster from the point of required assistants. Definitions popular among scholars and policy makers seem to be stress the outside assistance. Such definitions can be grouped into the “Concepts of disaster highlighting the required level of assistants Table 3.

Table-3. Concepts disaster highlighting required level of assistants.

No	Author/ Institution & Year	Definition
	www.nhtsa.dot.gov/ [15]	“any occurrence that causes damage, ecological destruction, loss of human lives, or deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community area can be defined as disasters
	www.adrc.asia/ [28]	“A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources is a disaster.”

For instants, National Highway Traffic Safety Administration (NHTSA) of the United States Department of Transportation has defined the concept of “disaster” as “any occurrence that causes damage, ecological destruction, loss of human lives, or deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community area can be defined as (disasters” www.nhtsa.dot.gov/PEOPLE/injury/ems/emstraumasystem03/glossary.htm).

According to the Asian Disaster Reduction Center mentioned in their official web page named www.adrc.asia/publications/terminology/top.htm, disaster as “a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources is a (disaster” https://www.adrc.asia/publications/TDRM2005/TDRM_Good_Practices/PDF/PDF-2005e/Chapter1_1.2.pdf)

In the Australian Emergency Management Glossary a disaster is defined as: A serious disruption to community life which threatens or causes death or injury in that community and/or damage to property which is beyond the day-to-day capacity of the prescribed statutory authorities (www.ema.gov.au/www/ema/rwpattach.nsf/27F4). There are many other sources, reports and research article have been given similar definitions that can be included into this category.

2.4. Definitions of the Concept of Disaster with Complex Meanings

Most of the definitions given for the term disaster consist with explanation on several factors such as impacts, physical process and required level of assistants. Such kind of definition can be grouped into the category of “Definitions of the Concept of Disaster with Complex meanings”.

Table 4 and the followings are the few examples belong to this category,

“An unexpected natural or man-made catastrophe of substantial extent causing significant physical damage or destruction, loss of life or sometimes permanent change to the natural environment; An unforeseen event causing great loss, upset or unpleasantness of whatever kind (en.wikipedia.org/wiki/Disaster).

“A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources” (disaster” https://www.adrc.asia/publications/TDRM2005/TDRM_Good_Practices/PDF/PDF-2005e/Chapter1_1.2.pdf).

Further to these examples definition given by the Asian Disaster Reduction Center and the definition of Singh (2006) also can be put into this group. “A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources (www.nceev.org/resources/terms.html).

“ serious disruption of the functioning of society, causing widespread human, material and environmental losses which exceeds the ability of the affected society to cope using its own resources” (Singh, 2006).

Definitions given for the term disaster by the governments of India and Pakistan also fall into the category of “Definitions of the Concept of Disaster with Complex meanings”.

Government of India refers disasters to a catastrophe, mishap, calamity or grave occurrence from natural or man-made causes, which is beyond the coping capacity of the affected community (National Disaster Management Authority, 2009). Ordinance no XL of 2006 of National disaster management policy for Pakistan define disaster as catastrophe, or a calamity in an affected area, arising from natural or manmade causes, or by accident which results in a substantial loss of life or human suffering or damage to, and destruction of property (UNDP Pakistan National Disaster Risk Management Framework Pakistan, 2007).

There are definitions that cannot be put into either of above category. For instance, writers “disaster is a start of crisis”, “disaster is an act that has disastrous consequences”. However, it is clear that the most of the definitions above elaborate the bad impacts of disaster. But, the Chinese philosophers suggest that though there is a misfortune of disasters, there are possibilities to harvest benefits out of disasters. The Chinese popular term called “*Wei Ji*” use

often in the field of disaster management. The meaning of the word “Wei” is danger, the meaning of “Ji” is opportunity (Milašinović & Kešetović, 2008). Therefore, they did not consider disaster as an event that describes from the definitions given above. That means the Chinese have the belief that when people are vigilant about hazards, they can use to get benefits from impacts of it. Yet many other define disaster as a thing to avert.

3. CONCLUSION

It is not difficult to trace the question of disagreements mounted over the concept of disaster when paying attention to the above discussions. This can be summarized as a meaning crisis of the concept of disaster. This crisis has created a twofold issue. First one, there is not a unanimously agreed concept of disaster. Second is, there is no consensus over the disaster management program among respective authority. One of the main outcomes of this situation is neglecting, ignoring and abandoning well established legal systems, institutions and its networks, reserved human and other capitals. Corona-19 (COVID-19) outbreak and underutilization the capacity of the Ministry of Disaster Management in Sri Lanka can be taken as an instance for this situation. Such circumstances are common in the international context too.

When taking in to account all fact and figures given above that one of the main reasons to develop issues discussed above is the disarray of the concept of disaster. This situation has led to create several other subordinate problems too. For instance, establishment of duplicate systems to manage disasters, reinvesting huge amount of money to develop new system to implement disaster management programs, employing trainees neglecting trained people. Such situations might lead to disastrous situation in to another disaster. Therefore, adhering to a consensus and unanimous concept of disaster can be regarded as the main solutions to solve array of problems hang around the national and international disaster management programs.

Funding: This study received no specific financial support.

Competing Interests: The author declares that there are no conflicts of interests regarding the publication of this paper.

REFERENCES

- Akande, D. (2020). What is the meaning of “Consensus” in international decision making? Retrived from: <https://www.ejiltalk.org/negotiations-on-arms-trade-treaty-fail-to-adopt-treaty-by-consensus-what-is-the-meaning-of-consensus-in-international-decision-making/>.
- Ariyabandu, M. M., & Wickramasinghe, M. (2003). *Gender dimensions in disaster management: A guide for South Asia*. Colombo: ITGP South Asia Publication.
- Asian Disaster Preparedness Center. (2001). *Policy, legal and institutional arrangements and planning for disaster management Lao PDR*. Thailand: Asian Disaster Preparedness Center.
- Benjamin, M. (2020). The value of consensus, society's choices: Social and ethical decision making in biomedicine. Retrieved from: <https://www.ncbi.nlm.nih.gov/books/NBK231961/>.
- Dapo, A. (2020). What is the meaning of “consensus” in international decision making? Retrieved from: <https://www.ejiltalk.org/negotiations-on-arms-trade-treaty-fail-to-adopt-treaty-by-consensus-what-is-the-meaning-of-consensus-in-international-decision-making/>.
- Herath, C. (2016). *Meanings crisis in the context of environment: A philosophical analysis*. Paper presented at the RGS-IBG Annual International Conference 2016.
- IFRC. (2020). What is a disaster? Retrieved from <https://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/what-is-a-disaster/>.
- Milašinović, S., & Kešetović, Ž. (2008). Crisis and crisis management: A contribution to a conceptual & terminological delimitation. *Megatrend Magazine*, 5(1), 167-185.

- National Disaster Management Authority. (2009). *National policy of disaster management*. India: Ministry of Home Affairs Government.
- National Highway Traffic Safety Administration. (2020). Definition of disaster, Trauma system agenda for the future. Retrieved from <https://one.nhtsa.gov/people/injury/ems/emstraumasystem03/glossary.htm>.
- National Research Council. (2020). *Facing hazards and disasters: Understanding human dimensions*. Washington, DC: The National Academies Press.
- NIDM-India. (2020). *Understanding disasters*. India: National Institute of Disaster Management, Ministry of Home Affairs, Government of India.
- Nojavan, M., Salehi, E., & Omidvar, B. (2018). Conceptual change of disaster management models: A thematic analysis. *Jamba: Journal of Disaster Risk Studies*, 10(1), 1-11. Available at: <https://doi.org/10.4102/jamba.v10i1.451>.
- Sahni, P., & Ariyabandu, M. M. (2003). *Disaster risk reduction in South Asia*. New Delhi: Prentice Hall of India.
- Singh, R. B. (2006). *Natural Hazards & disaster management: Vulnerability and mitigation*. India: Prem Rawat.
- Smith, K. (2004). *Environmental hazards: Assessing risk and reducing disaster* (4th ed.). New York: Routledge.
- The Australian Disaster Resilience Knowledge Hub. (2020). Definition of disaster, Australian disaster resilience glossary. Retrieved from: <https://knowledge.aidr.org.au/glossary/?wordOfTheDayId=&keywords=&alpha=D&page=3&results=50&order=A-Z>.
- UN-SPIDER. (2020). *Knowledge portal, United Nations space- based information disaster management and emergency response, United Nations office for outer space affairs*. Retrieved from: <http://www.un-spider.org/risks-and-disasters>.
- UNDP Pakistan National Disaster Risk Management Framework Pakistan. (2007). National disaster management authority (NDMA), Government of Pakistan, Retrieved from https://www.preventionweb.net/files/2952_NationalDisasterRiskManagement.pdf.
- UNDRR. (2019). Annual report for the United Nations office for disaster risk reduction 2019. Retrieved from <https://www.undrr.org/publication/undrr-annual-report-2019>.
- UNISDR. (2020). Terminology on disaster risk reduction. Retrieved from https://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.
- Weiskopf, D. (2020). Ontology of concept. Retrieved from: <https://philpapers.org/browse/ontology-of-concepts>.
- WHO. (2020). Disaster and emergency definition training package, WHO/EHA Pan African emergency training centre, Addis Ababa Updated Retrieved from <https://apps.who.int/disasters/repo/7656.pd>.

Views and opinions expressed in this article are the views and opinions of the author(s), International Journal of Geography and Geology shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.