A FRAMEWORK OF INFLUENCING FACTORS FOR SUCCESSFUL DISASTER MANAGEMENT IN UNITED ARAB EMIRATES (UAE)

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I dedicate this thesis to my dear and beloved parents for their amazing support, perseverance, encouragement, and prayers despite the hard times they went through, which gave me the strength to withstand the obstacles I went through during my academic journey. To my precious darling wife, my dear children, and my siblings who have supported and stood by me I would like to say a big thank you for being there.

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ABSTRACT

The United Arab Emirates (UAE) is a wealthy country that has an excellent opportunity to strengthen its emergency management system using its financial resources. However, the government needs to focus on improvements require solutions of disastrous issues rather than economic improvement. This study seeks to address the influencing factors that significantly affect disaster management in UAE. This study's efforts are geared towards consciously evolving a contemporary development style and culture, as well as institutionalising its operational procedures, in such a way that reconfigures the current development framework into a privilege framework. Therefore, the purpose of this study to develop a framework for factors influencing successful disaster management in UAE. The objectives of this study are to identify influential factors and their impact on disaster prevalence reduction and successful disaster management in the UAE. A total of 269 questionnaires were collected from experts involved in disaster management using questionnaires. The Analysis of Moment Structures Equation Modelling (AMOS-SEM) model was developed based on groups related to disaster management functions (institutional factors, environmental factors, human factors, and natural factors) and people's participation in the development. The findings indicated that the influencing factors effected significantly the successful disaster management and reduced disaster prevalence. This research could further strengthen structures and create a new output, an adoptable emergency management tool. In conclusion, it is hoped that the framework developed can assist in successful disaster management to reduce natural disasters in the UAE.

ABSTRAK

Emiriah Arab Bersatu (UAE) adalah sebuah negara kaya yang mempunyai peluang yang sangat baik untuk memperkasa sistem pengurusan kecemasan dengan menggunakan sumber kewangan. Namun, kerajaan UAE perlu memfokuskan pada penambahbaikan yang memerlukan penyelesaian masalah terhadap isu bencana dan bukannya peningkatan ekonomi semata-mata. Kajian ini adalah untuk mengenalpasti faktor-faktor yang mempengaruhi secara signifikan pengurusan bencana di UAE. Usaha kajian ini adalah menjurus ke arah mengembangkan gaya dan budaya pembangunan kontemporari, melembagakan prosedur operasinya, serta mengkonfigurasikan semula kerangka pembangunan sediada menjadi kerangka yang lebih. Oleh itu, kajian ini bertujuan untuk membangunkan kerangka bagi faktor-faktor yang mempengaruhi kejayaan pengurusan bencana di UAE. Objektif kajian ini adalah untuk mengenal pasti faktor-faktor mempengaruhi serta kesannya terhadap pengurangan kejadian bencana dan pengurusan bencana yang berjaya di UAE. Sebanyak 269 soal selidik dikumpulkan dari pakar yang terlibat dalam pengurusan bencana dengan menggunakan borang soal selidik. Model Analisis *Moment Structures Equation Modeling* (AMOS-SEM) dibangunkan berdasarkan kumpulan yang berkaitan dengan fungsi pengurusan bencana (faktor institusi, faktor persekitaran, faktor manusia, dan faktor semula jadi) dan penglibatan manusia. Hasil kajian menunjukkan bahawa faktor yang mempengaruhi memberi kesan signifikan terhadap pengurusan bencana yang berjaya dan dapat mengurangkan berlakunya bencana. Penyelidikan ini dapat mengukuhkan struktur dan menghasilkan alat pengurusan kecemasan yang baharu serta boleh diterima pakai. Kesimpulannya, adalah diharapkan kerangka kerja yang dibangunkan dapat membantu dalam pengurusan bencana yang berjaya bagi mengurangkan bencana alam di UAE.

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LIST OF ABBREVIATIONS

IFs	-	Influencing Factors
UNDP	-	United Nations Development Programme
UNISDR	-	United Nations Office for Disaster Risk Reduction
USEPA	-	United States Environmental Protection Agency
NCEMA	-	National Crisis and Emergency Management Authority
FEMA	-	Federal Emergency Management Agency
IF	-	Institutional Factors
EF	-	Environmental Factors
HTF	-	Human/Technology factors
NF	-	Natural Factors
PPD	-	Peoples' Participation on Development
SDM	-	Successful Disaster Management
IAEM	-	International Association of Emergency Managers
CBD	-	Convention on Biological Diversity
NGOs	-	Non-governmental organizations
SPSS	-	Statistical Package for the Social Sciences
AMOS	-	Analysis of Moment Structures
SEM	-	Structural Equation Modeling
CCA	-	Civil Contingencies Act
HNSC	-	Higher National Security Council
NRF	-	National Response Framework
NIDM	-	National Institute of Disaster Management
NFA	-	National Fire Agency
NPM	-	New Public Management
GDP	-	Gross Domestic Product

GO	-	Governmental Organizations
CFA	-	Confirmatory factor analysis
EFA	-	Exploratory Factors Analysis
AVE	-	Average Variance Extracted

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CHAPTER 1

INTRODUCTION

1.1 Introduction: Disaster Management

This chapter is the gateway to this research's entire endeavour as it captures what really aroused the researcher to conduct this research. It first presents a deep reflective excursion into the observed phenomenon that necessitated this study through a general research overview and background, as well as articulating the challenges that brought about the curiosity of the researcher into the research problem statements. Furthermore, it provides the research questions, objectives, and hypotheses as well as clarifies interrelationships between contributing variables, which are the independent and dependent components of this research. In addition, the study significance, operational term definitions, and parts of the research methodology are discussed in this chapter.

The focus of this research emphatically revolves around the twin link between natural disasters and development, as well as how development ceaselessly affected by natural disasters. On one hand, this study weave concerted efforts towards addressing natural disasters via development pathways by governing development in terms administration and implementation. Thence, it becomes necessary to recognise that within the purview of this research, both development and natural disasters are treated as inseparable twins, with the former triggering the latter (Fagel, 2011; UNISDR, 2014, Al Nuaimi, 2021; Alteneiji *et al.*, 2021). Pertinently, the continual prevalence of naturally occurring but developmentally driven disasters are associated with infrastructure development and construction (UNDP, 2004; USEPA, 2011). Moreover, an increased level of awareness with respect to natural disasters and the

changing needs of a fast-developing nation led to the creation of the National Crisis and Emergency Management Authority (NCEMA). Governed by the Higher National Security Council (HNSC), NCEMA's aims are to "*ensure the safety of the lives of all citizens and residents in the territory of the United Arab Emirates; to preserve the property of the country; and to enhance the UAE's capabilities in managing crisis and emergencies by setting the requirements of business continuity, enabling quick recovery through joint planning, and coordinating communication both at the national and local level*" (NCEMA, 2012). With the setting up of NCEMA, a National Response Framework (NRF) was developed and procedures were created for training and auditing all emergency management related activities (NCEMA, 2012). National, regional, and local operation centres were established to receive responses from UAE organisations involved in emergency management through periodic training and exercise (NCEMA, 2012). However, even if all the above indicates the presence of good emergency management standards and response arrangements, there are no links to the preparedness phase in US, UK, and Australian standards.

The United Arab Emirates (UAE) is an Islamic and Arabic country in the Middle East. Located near the edge of the Arabian Plate adjacent to the Iranian plateau and close to the Zagros Fault zone, which is characterized by high seismic activity. The UAE is not as safe from natural hazards as has often been assumed (Wyss and Al-Homoud, 2004). The rapid growth of population and its increased concentration in urban centres, with a lack of a clear hazard planning policy and engineering regulations for seismic resistance contributes to making this area more vulnerable. For example, in Fujairah the following rapid onset natural hazard events have occurred in the period 1995-2009 such as Masafi earthquake in year 2002, Al Qurayah flood in year 1995, Al Tawaian landslide in year 2005, Tropical Gonu storm in year 2007, and Sharm flash flood in year 2009 (Fujairah Municipality, 2009).

Additionally, there exists a multiplicity of windows via which age-long styles of development administration and implementation as previously designed, with ownership centrally vested and exercised in top-down manner. Furthermore, it has been a serious problem that has continued to hamper the feedback necessary to fully profile the developmental activities have brought turbulence to ecological and geological equations, thus triggering the occurrence of natural disasters of varying scales and dimensions (Waugh, 2000). This trend become worse by an unprecedented demographic burst, which manifests through uncontrolled urbanisation, negative rural-

urban migration, and unchecked natural growth rates. This has caused unprecedented developmental ambitions on the part of the government to cater commensurately for this increasing population without any conscious attempt to evolve a veritable platform that involves citizens in the development scheme (UNISDR, 2014).

Furthermore, construction and developmental works distort the ecological and geological make-up of UAE's crustal-scape (Smith, 2002). This is due to the density and vibrational effects of several UAE constructions, which have led to natural disasters of varying scales (Quarantelli, 1998; Smith, 2002). Also, as posited by Dhanhami *et al*. (2010), the prevalence of natural disasters in the United Arab Emirates (UAE) is unbelievably soaring beyond the global benchmark (NCEMA, 2012). The totality of the governments emergency management approaches have been marshalled using a top-down style that excludes citizen participation in development and emergency management arrangements (Gunn, 1993; Benson & Clay, 2004). It is regrettable to note that in spite of the sensitive link between these factors as well as the very vital role that human beings play; their exclusion is an aberration in the development-disaster-emergency equation (Shaw *et al.*, 2003; Norman & Cole, 2003).

On the other hand, age-long styles of development administration and implementation vested and exercised in a top-down manner (Wells, 1978; Ashcroft, 1997). A structure such as this creates disconnect between the government as executors of development initiatives, which trigger natural disasters, and the populace (FEMA, 1995; UNDP, 2004; Gundel, 2005; Sendai Framework, 2015). This trend is a serious problem that has continued to hamper the feedback necessary for ecological and geological equations (Mitroff, 1983). It has also triggered the occurrence of natural disasters of varying scales and dimensions (Waugh, 2000; Suter, 2006; Akinbola & Ayoade, 2013). The situation become worse by an unprecedented demographic burst that has caused uncontrolled urbanisation, negative rural-urban migration, and unchecked natural growth rates (Kajl, 2002; Cutlip *et al.*, 2006). This has caused unprecedented developmental efforts on the part of the government to cater commensurately for the needs of this increasing population (FEMA, 1995; Coppola, 2011; UNISDR, 2014). Disasters occur in many forms, each with their own way of being handled. Essentially, this section explains the various forms in which disasters can occur to understand how they can be managed using disaster risk, hazards, and vulnerability. Risk is conventionally defined as a 'possibility for harm'. However, within the context of disasters, risk is the probability of consequential harms coming

about from a hazardous event such as deaths, economic loss, injuries, physical and environmental damage, or destruction of livelihoods. Thence, the term disaster risk is very multidisciplinary and can be used in a variety of contexts (UNDP, 2004). Kelman (2003) stated that several callings also define risked in various ways depending on the context of the professional calling. First, with respect to disaster risk reduction, disaster risk (United Nations Development Programme (UNDP, 2004) sees risk as being usually associated with human inability to cope with a particular situation. Along the same vein, risk is being seen as that which embraces exposure to danger, adverse or undesirable prospects, or conditions that contribute to danger (Hewitt, 1997). It has been widely recognised that for disaster risk reduction to be successful, it should be applied at the local or community level.

This situation is also plausible because of the various coping mechanisms within a particular community. In general, less endowed communities are more at risk, due to their being fewer resources to attack or avert the occurrence of disaster; thus making them less resilient than communities with sufficient resources and adequate coping capacities (be they social, economic, physical, political, or environmental). It is pertinent to note that increased emphasis is now placed on risk due to an acceptance that disaster, development, and environmental problems are not only inextricably linked, but also delicately intertwined.

Therefore, this study is geared towards shedding light on some cross-cutting issues in this important phenomenon. Essentially, this study seeks to deeply understand the disaster profiles of the UAE as well as their impact to situate the prevalence and frequency of disaster occurrences to establish remote and pronounced catalysts of their main causal agent, which may affect development, as it is around development hat all other silent drivers revolve. All efforts in this research are geared towards disaster reduction issues within the United Arab Emirate. Therefore, it is imperative to identify the influencing factors militating to reduce disaster prevalence in the UAE. This study identifies the influencing factors that cause disasters and as well as the factors that influence successful disaster management, including Institutional Factors (IF), Environmental Factors (EF), Human/Technology Factors (HTF), Natural Factors (NF), Peoples' Participation on Development (PPGD), and Successful Disaster Management (SDM) through the Influencing Factor (IFs) framework. As the world ages, tranquillity which was once a commonly felt and shared phenomenon is fast disappearing at a geometrically increasing pace, such that a curious mind will be

uncomfortable with the alarming and agony-heralding situation that our developmental aspirations continually usher. It is pertinent to note that human beings are at the epicentre of this turbulence, both as causal agents as well as the receivers of the doom that these unfolding dramas bring about in the form of multi-dimensional disasters of unimaginable scales (Fagel, 2011). However, well-orchestrated strategies, programmes, policies, projects, frameworks, models are continually birthed to consistently stay ahead of these emerging phenomena. This is expected to lessen the consequences of this phenomenon and prevent the situation from getting worse and the fortune that human beings seek through developmental activities from getting dim (Ayegbajeje & Akinbola, 2012).

It is desirable to emphasise at this juncture that among several of the drivers that have continued to cause these series of turbulence that are putting a big halt on the once observed global peace is development that is non-inclusive, which culminates in disasters of life-taking magnitudes. Hence, the undercurrents that have consistently caused disasters, both natural and manmade, have been a perennial challenge to the United Arab Emirates. Experiences over the years among local Emiratis and even foreign nationals that are residents of the UAE have consistently emphasised reasons to dig further into some not-so-explored but extremely important areas that are drivers of natural disasters. These were found not to be clearly and consistently captured by the government's emergency management of disaster problems in the UAE (Gulf News, 2012).

Furthermore, weak institutional mechanisms as well as non-dynamic development administration and implementation systems are unable to quickly respond to an ever increasing need for decentralisation in present structures. Decentralization will make these structures more people centred, flexible, and inclusive, providing a platform for feedback from the beneficiaries of developmental actions. This style in place will certainly provide opportunities to receive on-the-spot reports about the eco-geological challenges that are being brought into existence. This is as a result of the implementation of these developments, which inevitably makes the occurrence and prevalence of natural disasters as well as associated problems linger on (Sendai Framework, 2015). It is then sad to note that virtually all activities upon which the meaningful survival and continued existence of human beings depends rests on developmental activities.

In addition to this lop-sidedness is the fact that development enables growth and prosperity without the due involvement of all stakeholders, partly to its over-centralised structure. A trend such as this has have ripple effects on all mankind. Wherever they may be, urban, supra-urban, or rural, all are effected by the monumental havoc being wrecked as a result of natural disasters, with little or nothing being offered on a long lasting basis by the present comprehensive non-development emergency management tool platform (EU, 2014). Figure 1.1 captures two major causal modes, within which natural disasters via the domain of their ***agents of occurrence and prevalence*** can be categorised.

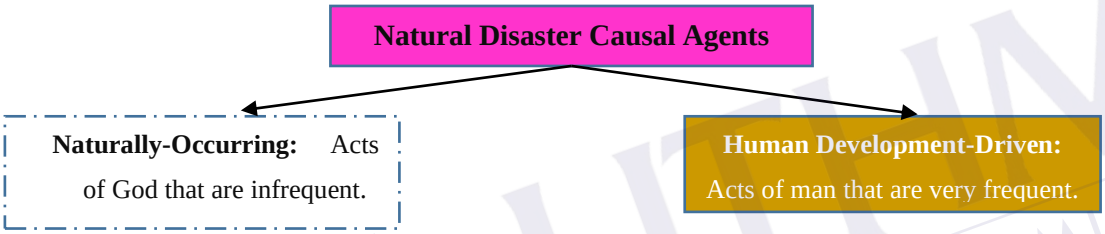

Figure 1.1: Major Causal Agents for Natural Disaster Modes (EU, 2014)

Figure 1.1 above depicts the two major modes of causal agents. As far as natural disasters are concerned, over the past several decades the gulf region like any region with a similar geologic plate across the Middle East, Europe, and continental Asia as seen earthquakes, tremors of varying scales, floods, and excessive heat culminating in diseases and pandemics of life threatening dimensions (Dhanhani, 2010). It is very sad to note that, much as these challenges are damning, they could be reversed, or at least tamed, in such a way as to reduce their prevalence, thereby giving hope for a sustainable and threat-free way of life for the people of the UAE. Furthermore, it is no longer news that today's multi-dimensional challenges have been addressed by a single, narrow, and shallow approach, especially when such solutions are expected to be long lasting.

Knowledge management is a process by which knowledge is created, shared, and utilised (Deshmukh *et al*., 2008). While abundant knowledge about risk and hazard vulnerability exists, its access and utilisation at the community, national, regional, and international levels has yet to reach its full potential (UNESCO *et al*., 2005). Kaklauskas *et al*. (2009) indicated that in countries affected by an Asian tsunami, a

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APPENDIX C

PUBLICATION RELATED TO THIS STUDY

(1) Saeed, AL-Fazari, and Narimah Kasim (2019). Role of Stakeholders in Mitigating Disaster Prevalence: Theoretical Perspective, *MATEC Web of Conferences Proceeding*, 266, pp. 03008(2019), https://www.matec-conferences.org/

(2) Saeed, AL-Fazari, and Narimah Kasim (2020). Influencing Factors Governance (IFG) Model for United Arab Emirates Disaster Management, *Psychology and Education*, 57(9), pp. 5464-5471, http://psychologyandeducation.net/pae/index.php/pae

(3) Saeed, AL-Fazari, and Narimah Kasim (2020). Framework of Inclusive Governance as Management Tool for Mitigating Disaster Prevalence in the United Arab Emirates, *Psychology and Education*, 57(9), pp. 5602-5609, http://psychologyandeducation.net/pae/index.php/pae