Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Examining professional emergency managers in Korea
Kyoo-Man Ha, Ph.D, CEM

Department of Public Policy & Management, Pusan National University, Republic of Korea

Abstract

Although the number of emergency managers has risen in South Korea (hereafter referred to as Korea) over the years, their role is not yet as defined and noteworthy compared to other professions because of its unidisciplinary approach. This article investigates how Korea has to improve emergency managers’ disciplinary approach to ultimately contribute to the goal of effective transnational disaster management. This study uses qualitative content analysis of government policies, college curricula, nongovernmental organizations’ (NGOs’) emergency-manager certification, and mass media coverage to compare emergency managers’ unidisciplinary and multidisciplinary approaches. The key tenet is that Korea must change its emergency managers’ unidisciplinary approach into a multidisciplinary approach because the former is less effective when dealing with complicated disaster management systems. To achieve this change, the stakeholders must carry out their assigned responsibilities under risk-oriented management. As for the study’s international implications, developing nations may consider the enhancement of related educational curricula, collaborative learning, continuous evaluation, disaster awareness, and disaster prevention for the emergency managers’ multidisciplinary approach.

1. Introduction

The frequency and impact of large-scale disasters in Korea are not decreasing, and the characteristics of such disasters are becoming more complicated than ever before. In addition, disasters have become more heterogeneous. The current structure of Korean disaster management is unable to fully address the impacts of disasters, due to political, economic, social, and cultural reasons. To resolve this, a more collaborative, integrated, and comprehensive form of emergency management is required.

Several sub-areas in Korea including firefighting, civil engineering, and other businesses officially proclaim that they have produced emergency managers through their own individual programs, focusing on their specific discipline. Also, government institutions at the central government level (being similar to the U.S. federal level) have started to recruit emergency managers as public employees. However, governments have maintained that the capability or knowledge of Korean emergency managers is still limited when it comes to dealing with diverse disasters, both natural disasters and manmade emergencies (Kim, 2014). To be professional Korean emergency managers, they have to be oriented towards multiple disciplines. Such professionals possess specialized training, skill, or education, whereas non-professionals do not. Restrictively speaking, professional emergency managers concentrate on their own areas of responsibility, but they clearly need multiple disciplines apart from their own specialization.

The premise of this study is that a unidisciplinary approach does not lead to effective disaster planning, whereas a multidisciplinary approach does (DOE, 2006). By depending upon a single aspect or one-sided viewpoint, the unidisciplinary model addresses reactive disaster management, which does not consider planning (Culwick and Patel, 2013; Hartkopf, 2003). On the other hand, a multidisciplinary approach strongly supports disaster planning. Note also that similar terms have been used in place of multidisciplinary, such as interdisciplinary, transdisciplinary, and interdisciplinary. Among them, interdisciplinary has been used frequently or interchangeably with multidisciplinary. What they all have in common is the need for more than one discipline and the interconnection of one discipline to another.

Many developed nations have strongly relied upon the multidisciplinary approach for disaster management. When recruiting emergency managers, the United States prefers to employ those who have a multidisciplinary background (Waugh and Sadiq, 2011). Japan has also implemented the multidisciplinary approach to deal with earthquakes and tsunamis, floods accompanying typhoons, and other complex natural disasters (Nazarov, 2011). The Emergency Planning College in the United Kingdom has traditionally offered multidisciplinary programs, while educating their emergency managers (EPC, 2016).

Korean emergency managers have unique characteristics. The job itself lacks professionalism and popularity in Korea. For advanced nations, their emergency managers are regularly recruited, paid, and thus contribute significantly to efficient disaster management. Modern disaster management in Korea started 10 years ago, which is ‘new’ or less...
experienced when compared with developed nations such as the United States, the United Kingdom, Japan, and others. This means that Korea has much room for improvement in this field and can learn from examples and practices by developed nations such as the whole community approach in the United States, the establishment of integrated emergency management system in United Kingdom, the role of small-scale voluntary organizations in Japan, among others. A specific area to consider is adopting a multidisciplinary approach for/by emergency managers to widen their exposure in the field.

The purpose of this article is to investigate how Korea might improve the disciplinary approach of its emergency managers towards the ultimate goal of effective transnational disaster management through mitigating human loss, economic damages, and psychological impacts. We maintain that Korea has to change its emergency managers' unidisciplinary status to multidisciplinary status, and given Korea's own experience, the international community must address the need to change related educational curricula, collaborative learning, and sustainable evaluation.

2. Literature review

2.1. Studies on Korean disaster management

There have been two kinds of studies on Korean disaster management in the past; those within Korea, and those outside of it. The majority of Korean researchers or Korean language researchers have examined how to organize the national disaster management institution (Cho and Ahn, 2011). Considering that the history of modern disaster management in Korea started in 2004 with the establishment of the National Emergency Management Agency (NEMA), related researchers paid attention to predicting the next head of NEMA. With the rise of Ministry of Public Safety and Security (MPSS) at the end of 2014, they continued to study which professions would require the human resources of MPSS. In fact, the NEMA was transformed into the MPSS after experiencing the sinking of ferry Sewol in mid-2014.

Outside Korea, some English language researchers have looked into how disaster management principles would be applied to the case of Korea (Park, 2015). In doing so, they made efforts to examine subjects that Korean language researchers had not considered. For example, while disasters have both physical and social impacts, many Korean researchers focused only on the physical impacts in the following cases: typhoon Maemi in 2003, the sinking of ferry Sewol in 2014, the outbreak of Middle-East Respiratory Syndrome (MERS) in 2015, among others. Conversely, researchers outside Korea often delve into the social impact including the psychological impact of disasters, the status of special needs population, and the application of equity to emergency professionals.

2.2. Necessity of multidisciplinary approach

Many researchers have examined the significance of a multidisciplinary aspect on disaster management in the international community (Fazey et al., 2014; Leonard et al., 2014; Quick, 1998; Rose, 2007). In particular, many educators, nurses, and medical doctors have focused on topics within their areas. At the same time, they have identified, promoted, and implemented multidisciplinary status for professional emergency managers, while elaborating on environmental change, holistic problem solving, dynamic change, and case studies, among many others.

Although some researchers have attempted to create boundaries between their preferred subject and other specialized subjects in the field of disaster management, many researchers have shared basic knowledge or common disciplines (Macinnis and Folkes, 2010; Zhang et al., 2015). In this context, correlation exists among multidisciplinary subjects and other specialized ones. Multidisciplinary approach does not stunt but fuels the advancement of disaster management. Further, with a multidisciplinary approach, there is comprehensive planning as part of proactive management.

When analyzing that a specific disaster may lead to multiple disasters, disaster management is not oriented for a unidisciplinary but a multidisciplinary model. To illustrate, when a typhoon hits a local area, it usually causes flooding. Overflowing water contains a number of chemicals, which need the management of hazardous materials. Subsequently, flooding may cause fires due to electric leakage. Complex situations such as these scenarios will not be addressed by a linear or single approach. Understanding and quick action, looking into alternatives, and applying a multidisciplinary approach have a greater chance of succeeding and in helping to mobilize as many people and organizations as possible to work together to resolve problems. Given that disaster management involves a number of interrelated factors and parties, a multidisciplinary perspective is needed to identify and evaluate complicated issues (Ali and Nitivattananon, 2012).

2.3. Theoretical aspects on multidisciplinary approach

Unidisciplinary disaster plans typically outline actions for emergency managers from a single discipline or common background. Those emergency managers share similar language, training, and emergency function. In addition, they are oriented to handle only one specific aspect of disaster management. In contrast, multidisciplinary disaster plans cover those for emergency managers from diverse fields or different backgrounds. To this point, emergency managers from different disciplines or multidisciplinary disaster plan(s) are expected to handle the multi-faceted aspects of disaster management better than unidisciplinary emergency managers.

Many challenges come with disaster awareness, decision flexibility, adapting to volatile environments, among others, and for this reason, relying on a single discipline is not likely to adequately explain certain complicated aspects of hazards or risks in disaster management nor will it provide comprehensive solutions (Doren et al., 2012; Jensenius, 2012). Conversely, a multidisciplinary approach may fully address many fragmented issues and concerns towards the goal of effective disaster management, in particular, by comprehensively combining or integrating various knowledge and information.

2.4. Value of this study

As decision-makers, professional emergency managers in developed nations may get diverse support from their multidisciplinary background (Sterlacchini et al., 2007). Whether as part-time or full-time, shared position or not, as they go about making sound decisions, they also utilize their knowledge on preventive measures during dangerous events. As a result, professional emergency managers play a role in maximizing potential benefits despite limited resources, as long as they fully utilize a multidisciplinary approach.

On the other hand, professional emergency managers in Korea have not played a specific role in managing diverse disasters. Rather, they have taken part in many roles in disaster management such as planners, leaders, administrators, trainers, protectors, communicators, and problem solvers, among others. Accordingly, the whole community has expected them to carry out many activities such as hazard identification, efficient emergency response, systematic emergency recovery, ethical conduct, and others (FEMA, 2013–1).

In Korea, an increasing number of researchers have studied how efficiently the nation has to operate its disaster management. In doing so, some researchers have indirectly mentioned the category of emergency managers while proposing their theories (Incheon City Council, 2013). However, when reflecting that the concept of professional emergency managers is a relatively new one to Korea, almost no rigorous study has been attempted to delve into the issue (Yoon, 2015; Yoo et al., 2015). To the author’s best knowledge, this study is the first to systematically investigate Korean professional emergency managers.
Although this study is not a new attempt outside Korea, researchers from other nations can also benefit from or adopt the results of this study at a national level, in particular while studying their national disaster management systems. In other words, this study can serve as an example to other nations in terms of learning from and avoiding similar mistakes. Korea can also learn from the experience of advanced nations, potentially applying principles that reflect a multidisciplinary approach. With all the above in mind, the scope of this paper includes not only the characteristics of Korean disaster management but also many disaster management principles as observed in the international community.

2.5. Challenges to having multidisciplinary emergency managers

It is not easy to have and maintain emergency managers who are multidisciplined. Many practitioners, though knowledgeable, may not be readily available or may not have access to relevant networks on account of (geographical) location or other barriers (e.g., language). Some educators, trainers, and researchers also have different means of interpreting certain disaster management data or model (Gonzalez et al., 2012). For this reason, it is crucial to discuss and establish appropriate techniques and strategies for better communications including exchange of best practices towards solidifying multidisciplinary approach.

3. Method

We used qualitative content analysis as it is able to provide meaningful insights and generalizations that may not be possible in quantitative analysis. This is particularly helpful in evaluating characteristics of professional emergency managers and how they relate to multidisciplines in disaster management (Fig. 1). In addition, we used comparative perspective, while focusing on qualitative content analysis.

Similarly, we used qualitative data in this paper. Qualitative data are useful in studying disaster management as they may describe qualities, features, or certain characteristics relevant to disaster management including stakeholders’ behavior, human relations, effective strategies, and other information (Gorodzinsky et al., 2015). Further, those qualities are helpful in analyzing the disciplinary status of professional emergency managers or in examining the interaction between emergency managers and disaster management.

To elaborate, we primarily used several databases for qualitative data collection. In the case of English data, we relied on traditional scholarly journal articles. In the case of Korean data, we utilized Korean databases to include DBpia, KISS, and government websites. We typed some keywords such as emergency managers, unidisciplinary study, multidisciplinary study, and Korean disaster management, among others. In terms of English data analysis, we evaluated data on the U.S. emergency managers that indicate many significant lessons for Korea. When thinking that Korean data did not directly analyze many things about its emergency managers, we had no choice but to qualitatively interpret them.

We maintain that Korea has to transform its current emergency managers’ unidisciplinary approach into a multidisciplinary approach. In a unidisciplinary setup, the decision-making process is linear whereas in a multidisciplinary approach, inputs come from multiple areas and there is an opportunity to evaluate before concretizing a decision (as reflected by the ‘decision box’ in the flowchart).

To systematically compare two disciplinary approaches, we initiated listing important stakeholders surrounding emergency managers in Korea by relying on many qualitative techniques, such as analyzing government documents, discussions with experts, Internet searches, and others. The list included the MPSS, local governments, disaster management trainers, industries, job applicants, and others. Finally, we chose four major stakeholder areas, namely government policies, college curricula, NGOs’ emergency-manager certification, and mass media coverage.

The identified stakeholders and emergency managers are expected to play a number of roles within the field of emergency and disaster management (Kim et al., 2015; Yo, 2014). For emergency managers, the exercise of their responsibilities will depend on which stakeholder they deal with at a given time in the (disaster) lifecycle. With all the above in mind, we have attempted to draw international implications for many other nations later.

4. Results on the comparison between unidisciplinary emergency managers and multidisciplinary emergency managers

4.1. Unidisciplinary emergency managers

4.1.1. Government policies.
When the sinking of ferry Sewol happened around Jindo Island in 2014, unidisciplined maritime policemen attempted to rescue passengers with minimal success. Even though they were accustomed to dealing with maritime accidents, the maritime policemen were unable to consider important issues such as disaster victims’ psychological needs, the operation of rapid and complex disaster management, interaction with other institutions, and how to use public information officer(s). After rescuing only 172 out of 476 passengers, the public became angry at the poor disaster management actions of the maritime policemen, causing the President to dismantle the institution, which is the NEMA (Hong, 2016). The procedures followed by emergency managers during the Sewol ferry incident are considered typical of the unidisciplinary approach.

Only three professionals, namely firefighters, civil engineers, and maritime police make up the MPSS, which is a comprehensive disaster management agency in Korea (MPSS, 2016). Since the ferry Sewol sinking in 2014, the MPSS has placed most of the emphasis on maritime accidents as well as house fires and flood accompanied by typhoon. Therefore, those who are dealing with each hazard have also turned into the emergency managers for those fields or areas.

Each professional under the MPSS has strongly wanted to dominate the field of disaster management in Korea. In particular, the competition between firefighters and civil engineers has been fierce in terms of budget allocation. Not much collaboration has been observed among the three professionals. Further, other professionals such as humanists, natural scientists, mechanical engineers, lawyers, sociologists, and public administrators have not been allowed to work for disaster management. Under politics-oriented management, each of the three emergency managers has come to embrace his or her own principles based on their own disciplines or areas of expertise.

4.1.2. College curricula.

Korean health workers in college hospitals were heavily involved in dealing with the outbreak of the MERS in 2015. Although health workers knew their responsibilities in terms of medical treatment, they knew relatively little about the phase of medical prevention as part of disaster management lifetime, how to coordinate with other stakeholders to include patients’ family members, government officials, and local communities, and other emergency management principles. Consequently, because the unidisciplined health workers in college hospitals were not able to consider the other equally important aspects surrounding the situation, the outbreak claimed the lives of 36 patients (Ha, 2016a).

Many departments in colleges have recently begun offering disaster management programs such as firefighting science, civil engineering, ocean science, medical science, nursing science, public administration, and safety engineering, among others (Ha, 2015). Each department has maintained that their own academic subject, which is a unidisciplinary approach, is the key major in the field of disaster management. They have not seriously attempted to incorporate other disciplines into their own areas.

When analyzing departmental curricula, we can see that they have not put significance to the concept of emergency managers (Kang et al., 2012). Without emphasizing the role of emergency managers, they have tried to describe how each has operated its own disaster management. In general, many departments have not realized the status of emergency managers as a professional in the field of disaster management.

4.1.3. NGOs’ emergency-manager certification.

About 250 NGOs have issued certificates for emergency managers in Korea. Among them are several noteworthy NGOs, including the Korea Fire Safety Association (KFA), the Korea Disaster Prevention Association (KDPA), the Maritime Rescue and Salvage Association (MRSA), Lifesaving Society Korea (LSA), and the Korea BCP Association (KBCPA). Each NGO provides an emergency manager’s certificate in their own specialized area within the field of disaster management (KDPA, 2016).

Having such certificates is a requirement for some public institutions’ recruitment. Nevertheless, many emergency manager certificates have been based on the unidisciplinary approach. It means that they have been taught in only one area of study when a more comprehensive and diverse curriculum/training would be better. Certificates from KFSA, KDPA, MRSA, and LSA are oriented on their own disciplines including firefighting, flood accompanied by typhoon, maritime rescue, and maritime search and rescue. Although the KBCPA has supported multidisciplinary emergency managers via classroom sessions, the program towards certification still lacks the aspect of multidisciplinary training.

4.1.4. Mass media coverage.

Diverse mass media including TV, radio, Internet, mobile phones, newspapers, and others have exerted efforts to cover the occurrence of a disaster as breaking news. Similarly, they have tried to cover the phase of disaster response or that of recovery much more than that of disaster prevention/mitigation or preparedness (Choi et al., 2011). In general, many mass media networks have not clearly recognized emergency managers as entities in the field of disaster management.

Notwithstanding, few mass media such as Arirang TV and YTN TV have just begun to talk about emergency managers. There was realization that with the disasters Korea has faced so far, the role of Korean emergency managers has been neither extraordinary nor maximized. The discussion about the criticality of the profession has not touched on the needed multidisciplinary approach.

4.2. Multidisciplinary emergency managers

Korea has a small number of multidisciplinary emergency managers in the field of disaster management. They are those professionals who are open-minded and used to interpreting various disaster management concepts in a more critical manner (MacAskill and Guthrie, 2014). For example, having a multidisciplinary background helps professional emergency managers to more flexibly interpret diverse issues to include the scientific analysis of complicated evolution, decision making process, the behavior of multiple stakeholders, and others than a unidisciplinary one. Without a multidisciplinary background, those emergency managers may not be able to design and implement flexible alternatives quickly during the period of disaster response.

There are many reasons why Korea has currently had only a few multidisciplinary emergency managers. For example, some stakeholders including governments have politically supported unidisciplinary emergency managers, when reflecting few incumbents’ aspiration towards hegemony. In addition, colleges and mass media as well as NGOs have not seriously realized the importance of having a multidisciplinary approach on Korean emergency managers. In short, either politics or lack of expert knowledge is the fundamental reason for the lack of emergency managers’ multidisciplinary approach at present (Ha, 2011).

The nation has just partially enhanced its multidisciplinary approach, as far as the field has failed to embody the full extent of addressing risk-oriented management. Without considering risks and having appropriate or sufficient knowledge, resulting also from various experiences on past emergencies or disasters, the nation has not moved to the level of multidisciplined emergency managers (Ha and Ahn, 2009). In particular, when assigning resources and priorities, the nation and its emergency managers have not utilized sound principles on disaster management.

To elaborate, thanks to the support of International Association of Emergency Managers’ (IAEM’s) Certified Emergency Manager program, Korea now has several multidisciplined emergency managers. IAEM has played many roles in training emergency managers in the international community. Although the number of multidisciplinary emergency managers in Korea is not quite big, those Certified Emergency Managers are trying to contribute to the goal of disaster management in the government sector, in colleges, and others.
Another good case of multidisciplinary emergency managers is that of the Association of Slope Disaster Management (ASDM). As an NGO in Korea, it radically adopted multidisciplinary training and exercise program in 2013 despite lack of management funds that almost closed its business. Since that time though, ASDM has provided many multidisciplinary courses to the trainees by following important lessons from Hong Kong’ slope management. Their program included not only the civil engineering perspective but also other multidisciplinary trainings sessions such as on disaster awareness, climate change, and local history. Now, the ASDM has been able to recruit many trainees. At the same time, those trainees have played a role in managing slopes around their places by successfully practicing multidisciplinary approach.

Regarding the differences between unidisciplinary and multidisciplinary approaches, quite a few researchers have tried to empirically prove them, in particular, in the research area of emergency medicine and education (Beckett et al., 2012; Chen et al., 2009; Ferrario et al., 2015). Although the focus of each research has been distinct depending on individual viewpoints, many researchers have indicated that the characteristics of multidisciplinary emergency managers are superior to those of unidisciplinary emergency managers (Thomson and Black, 2008). Thus, the multidisciplinary model may be evaluated as one of the most innovative solutions for disaster management.

Certainly, there are different effects between emergency managers’ unidisciplinary approach and multidisciplinary approach, see Table 1. The details in the table illustrate that both have benefits. In some aspects, a particular approach is better than the other. In general though, the multidisciplinary approach has more advantages when compared to a unidisciplinary one.

In the field of disaster management, multidisciplined emergency managers have traditionally performed better than unidisciplinary emergency managers have. Though it is certain that unidisciplinary emergency managers also possess positive characteristics such as their speed of decision making or homogeneity, other aspects still support positive signs for the superiority of multidisciplinary status. In particular, if thinking that the whole community approach is quite necessary in the 21st century, multidisciplinary approach is more suitable for the operation of disaster management than unidisciplinary approach is.

Similarly, multidisciplinary disaster plan(s) or related planning are more effective than unidisciplinary disaster plan(s) are. Effective means that multidisciplinary emergency managers produce results, and thus, may contribute to the goal of disaster management, compared with unidisciplinary emergency managers (Martensson et al., 2016). To elaborate, disaster plan(s) include handling diverse kinds of disaster. While dealing with them, multidisciplinary disaster plan(s) or related emergency managers communicate with one another and then implement a series of evaluation processes on uncoordinated problems. Their decisions are credible and thus, may flexibly adapt to the complexity of disasters. In short, multidisciplinary emergency managers are able to produce successful outcomes as initially intended during disaster management planning.

### 5. Recommendations and international implications

#### 5.1. Recommendations

When Korea fully embodies the multidisciplinary approach for emergency managers, it may have the most appropriate or ideal disaster management style. If thinking that the field of disaster management cannot survive without those who are running it, emergency managers are the key to the efficient operations of disaster management (Wooten and James, 2008). Even though dealing with emergency managers is not an easy task, they are considered to be the most valuable resource in the field. While emergency managers have competitive advantages, the Korean field of disaster management may develop a new style of its disaster management in particular by breaking down the unidisciplinary approach.

Not just one or two, but all four stakeholders in Korea need to carry out their own assignments for the goal of achieving multidisciplinary approach, following Table 2. In particular, many decision-makers (with vested interests) in each area have not been willing to change the disciplinary approach of their emergency managers in Korea (Saleh and Pendley, 2012). Hence, the field including the four stakeholders must expand the aspect of multidisciplinary approach into its

---

### Table 1

| Aspects of disaster management | Unidisciplinary emergency managers | Multidisciplinary emergency managers |
|--------------------------------|-------------------------------------|--------------------------------------|
| ① Speed of decision            | ☐ (= more applicable)               | ☐ (= less applicable)                |
| ② Homogeneity                  | ☐                                   | ☐                                   |
| ③ Heterogeneity                | ☐                                   | ☐                                   |
| ④ Information sharing          | ☐                                   | ☐                                   |
| ⑤ Synergy effect               | ☐                                   | ☐                                   |
| ⑥ Holistic or community approach| ☐                                   | ☐                                   |

### Table 2

| Stakeholder areas | Characteristics in management styles | Recommendations |
|-------------------|--------------------------------------|-----------------|
| ① Government policies | - In terms of public and private relationships, government institutions have often dominated the activity of private institutions in the field of disaster management. | - The MPSS must include not only three major groups (firefighters, civil engineers, maritime policemen) of professionals but also the other professionals into its human resources. |
| ② College curricula | - Each college department has maintained that its own subject or area of expertise is what disaster management is all about. | - Each college department must systematically include the concept of emergency managers as a new breed of professionals into their curricula. |
| ③ NGOs’ emergency-manager certification | - Many NGOs have recognized the significance of emergency managers as evidenced also by certificates they issue to many individuals. | - NGOs must further consider changing the requirements on issuing their own certificates on emergency management. |
| ④ Mass media coverage | - The authorities of mass media have not played a significant role in collecting and then broadcasting information on emergency managers. | - Various mass media need to seriously cover the importance of emergency managers in Korea. |

Sources: (FEMA, 2013-2, IAEM, 2016, Kim, 2004, MCNY, 2016, Smithsonian National Museum of Natural History, 2015).
culture by getting rid of vested interests of those in politics or by being well-informed, and not ignorant.

5.2. International implications

A disaster may happen to anybody, regardless of national boundary (Ha, 2016b). At the same time, the category of professional emergency managers has risen in the international community. Emergency managers in each nation have played their own roles in minimizing the impacts of disasters, although the exact extent of their roles is not fixed but continues to vary. With these in mind, many nations may learn important lessons from the disciplinary approach of Korean emergency managers to include mistakes or errors made by the Korean emergency managers.

Other nations, which do not have the category of emergency managers in the field or whose emergency managers lack multidiscipline, must realize why the disciplinary approach does matter for the role of emergency managers in their areas. Without knowing the significance of multidisciplinary approach, those nations will not develop or improve the position of their emergency managers (Ha and Ahn, 2008). In short, those nations have to consider the multidisciplinary approach as critical to the development of their professional emergency managers.

Based on disaster awareness, such nations need to diversify their educational curricula for professional emergency managers. When considering that educational curricula provide concepts, principles, instructions, strategies, and tools on disaster management, such curricula as an essential element should be improved by including multiple approaches. While studying multidisciplinary curricula, emergency managers are likely to be equipped with skills to help them quickly create appropriate strategies to address certain aspects of disaster management.

It is also necessary for certain nations to utilize collaborative learning among different schools, teams, specialties, communities, and other institutions (Alfred et al., 2015). When a specific educational unit faces its limits on the expansion of multidisciplinary curricula, it may contact neighboring units and then collaboratively develop its curricula. Collaborative learning may bring different disciplines into the activity of emergency managers.

Those nations may continue to set up collaborative networks on the way to stronger collaborative learning. They can start to establish multidisciplinary environments with the cooperation of diverse individuals and institutions within national boundaries (Kozucha and Siemkiewicz-Mahjurek, 2014; Noran, 2014). To this point, various communication channels around them should play an important role in coordinating thorny issues. Simultaneously, they may extend collaborative networks internationally by addressing not only different disciplines but also cultural interoperability (Ha and Park, 2014).

When recruiting emergency managers, authorities from training centers must consider recruiting from a variety of professionals. They need to include not only firefighters, civil engineers, and maritime police, but also public administrators, environmental engineers, chemical engineers, communicators, psychologists, medical doctors, nurses, and others (Becker, 2000). Vice versa, diverse trainees may outline how different disciplines can work together towards the goal of disaster management.

Training and exercise in disaster management are also expected to expose challenges experienced by disaster victims, and thus, facilitate or stimulate related experience for trainees (Martin and Hutchon, 2008). However, the extent of exposure or experience accruement may not be quite feasible in other nations, due to limited environment such as poor disaster preparedness programs. Thus, there is a need to formalize their multidisciplinary training and exercises, and then provide robust training opportunities for professional emergency managers.

Similarly, it is necessary for other nations in the international community to reflect on diverse knowledge and information during the planning process. By integrating multiple disciplines into emergency operational plans, the competencies of professional emergency managers are expected to be enhanced. In short, multidisciplined emergency managers will be able to efficiently adjust to the demands of multidisciplinary planning process under complicated environments or situations (Khorram-Manesh, 2015).

Other nations may not easily produce professional emergency managers via a single program or tool. Rather, they require a series of programs for the goal of developing professional emergency managers (GFDRR, 2012). Thus, those nations have to continue to monitor, evaluate, and then improve relevant programs. In addition, because the scope of disaster management is quite wide, those nations must be flexible in introducing changes to related programs or tools via sustainable evaluation.

6. Conclusion

Among the many challenges and alternatives, the major finding is that Korea has to transform its emergency managers’ unidisciplinary approach to multidisciplinary approach in the near future. In so doing, it is necessary for each stakeholder to carry out their own assigned roles and responsibilities under the name of risk-oriented management. Likewise, many nations in the international community may learn important lessons from the Korean case regarding why a nation should transition to the multidisciplinary style.

Accredited researchers have studied the exact role of emergency managers in some advanced nations. However, almost no rigorous study has been attempted to examine the role of Korean emergency managers or how to change their disciplinary status under their own environment. By suggesting the importance of multidisciplinary approach, this paper may be considered a pioneer study. In a broad sense, this paper may contribute to the goal of transnational emergency management by highlighting the need for multidisciplined emergency managers in the international community.

As a future study, researchers may expand their exploration on the disciplinary approaches practiced by professional emergency managers in the international community. Korean researchers may further study specifically how their emergency managers will utilize and benefit from a multidisciplinary approach. Various researchers in advanced nations may compare their emergency managers’ disciplinary approach with other nations and then work towards sharing best practices. Researchers in developing nations can also work towards utilizing good disciplinary models for their potential emergency managers.

References

Alfred, D., Chilton, J., Connor, D., Deal, B., Fountain, R., Hensarling, J., Klotz, L., 2015. Preparing for disasters; education and management strategies explored. Nurse Educ. Pract. 15, 82–89.
Ali, G., Pinitwattananon, V., 2012. Exercising multidisciplinary approach to assess interrelationship between energy use, carbon emission and land use change in a metropolitan city of Pakistan. Renew. Sust. Energ. Rev. 16, 775–786.
Becker, S.M., 2000. Environmental disaster education at the university level: an integrative approach. Saf. Sci. 35, 95–104.
Beckett, A., Pelletier, P., Manczak, C., Benfield, R., Elster, E., 2012. Multidisciplinary trauma team care in Kandahar, Afghanistan: current injury patterns and care practices. Injury 43, 2072–2077.
Chen, S.-C., Chen, M., Zhao, N., Hamid, S., Chatjerjee, K., Armella, M., 2009. Florida public hurricane loss model: research in multi-disciplinary system integration assisting government policy making. Gov. Inf. Q. 26, 285–294.
Cho, G.-H., Ahn, S.-R., 2011. Organizational change and public servants’ attitudes (in Korean.). J. Kor. Assoc. Org. Stud. 8 (1), 107–129.
Choi, S.-J., Chun, I.-C., Im, J.-T., Ahn, S.-Y., 2011. A Study of Public Alert and Warning System using New Media (in Korean.). Korea Communications Commission, Seoul.
Culwick, C., Patel, Z., 2013. A multi-disciplinary approach to understanding disaster risk: the case of flood disasters in Brabourn. (Available at) http://www.acdu.uct.ac.za/sites/default/files/C.Culwick%20SAAC%20presentation.pdf Accessed on April 21, 2016.
Department of Education (DOE), 2006. Creating emergency management plans. ERCMExpress 2 (8), 1–12.
