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The Importance of Education and Training of Local Government's DISASTER Management Public Servants

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Abstract

The various disasters that are happening all over the world are becoming increasingly difficult challenges. The management of the disaster with inherent attributes of risk and uncertainty is recognized by almost everyone as a public issue that governments must respond to immediately. As disasters have long and short-term effects not only on human and material damage but also on the public health safety net and social and political settings, an effective management system for disasters is important.

It can be said that the disaster management work in the local government at the forefront of protecting the lives and property of the people is very important. For large-scale disasters beyond the scope of local government, central government's personnel and budget support is needed, but the primary response is to be conducted quickly and flexibly at the local government level.

Therefore, it is important to improve disaster management capacity of public servants who perform disaster management work in local government, and education and training for their capacity building is important.

[Keywords] *Disaster Management System, Education and Training, Local Government Function in Disaster Management, Disaster Management Competency, Disaster Management Official*

1. Introduction

In Korea, stated as a basic idea, Article 2 of the Basic Law on the Disaster and Safety Management confirms that the basic duty of the state and local government is to prevent disaster and to minimize the damage when disaster occurs, and that when all citizens and nation-local government conduct activities related to the protection of people's lives and physical safety and property[1], safety is given priority so that citizens can live in safe society from disaster, which emphasizes the role of disaster management in local government[2].

Disaster management is important for the local government because the local government is at the forefront of the administrative

organization and can protect citizens' property and life near the site where disaster occurs. Second, the influential scope of contemporary disaster is limited within the region, and the local government's role in disaster management is emphasized because it requires routine and pre-emptive measures in accordance with local characteristics in that it occurs repeatedly in a short period of time[3]. Therefore, it is required to strengthen disaster management capacity through education and training of disaster management public servants performing these tasks.

2. Local Government Functions in Disaster Management

The local government must function differently from the central government or other relevant agencies for effective disaster management. First, local government plays an important role in the overall process of disaster management activities[4].

Second, local government is responsible for the function of coordination in disaster management, and it listens to the opinions of various organizations and organizations and plays a coordinating role to select and implement the most reasonable alternatives[5].

Third, it should be located at the forefront of the disaster scene. In addition, when disaster occurs, the increased costs including restoration costs[4] should be covered by the local government.

Fourth, the disaster management capability of local government should be strengthened. Increasing the disaster management capability of the local government is a long-term alternative to effectively managing local disasters and preventing them from expanding into large disasters.

3. The Importance of Disaster Management Training to Strengthen the Capacity of Disaster Management

In Korea, the "Disaster and Safety Management Basic Act" specifies the importance of education to strengthen the disaster management capacity of public servants. In Article 26-2, the chief of the disaster management responsible organization is required to promote the disaster prevention education, training and disaster management prevention in advance to prevent the disaster in the field of the duties to be managed, and in Article 29-2, it is stated that there should be a separate statute for the education of disaster safety workers and that public servants and employees who are responsible for disaster and safety management in disaster management institutions should receive regular and periodic professional education conducted by the Ministry of Public Safety and Security, as prescribed by the Prime Minister[6].

To enhance the capacity of disaster management, the development of human resources, the legal framework, the development of institutions, and appropriate policies should be combined. In particular, in the development of competency related to disaster management, it is necessary to educate the talents by training the knowledge and skills together with disaster management related diagnosis, policy, planning, supervision, evaluation, and on-site level.

4. Disaster Management Education in Korea

The disaster management system of Korea started with the establishment of the Fire Bureau in the Ministry of Internal Affairs in November, 1948, and the Ministry of Government Administration and Home Affairs in June 2004 established the National Fire Agency, and the Safety Policy Officer in the Ministry of Government Administration and Home Affairs. In 2013, it was expanded to the Safety Management Headquarters in Ministry of Security and Public Administration, and in April of 2014, following the disastrous Sewolho incident, the government organization law was revised in November of the same year, and it was separated into the Ministry of Public Safety and Security, which is a specialized safety department directly under the Prime Minister's Office. In July of 2017, the disaster management headquarters in the Ministry of Public Administration and Security, which integrated the Ministry of Public Safety and Security, was launched.

Education and training in relation to disaster management is conducted through the National Civil Defense Disaster Safety Education Center. The National Civil Defense Disaster Safety Education Center opened a linkage curriculum to support the national disaster management policy, established medium- and long-term development strategies for the relocation of the national safety education research complex, newly established "disaster support capacity support center" to strengthen capacity for social disaster, strengthened "civil defense, emergency pre-

paredness" for establishing steady preparedness posture, and has been implementing education and training aimed at training disaster safety, civil defense, and emergency human resources to enhance the quality of education courses as a priority project to strengthen "education and training evaluation."

In the National Civil Defense Disaster Safety Education Center, 141 courses divided into disaster safety, civil defense, emergency preparedness, school safety, life safety, job, international disaster prevention, and cyber education are in operation. Disaster safety education is divided into basic education and professional education, and professional education is divided into prevention, preparation, response and recovery.

Through newly opening a disaster preparation and correspondence course, expansion of earthquake-related education, newly opening a specialist enrichment course, compulsory education for pre-education before set education, it made efforts to improve the recommendation and educational effects of prior learning, but except for the new course of disaster prevention and safety management (15 days), the rest of the curriculum mainly consists of one to five days of one-off education, and the contents of the lecture are also usually composed of the lecture types. This suggests that there is a limit in establishing a cooperative system and nurturing field-oriented specialists which are emphasized in many previous studies.

5. Conclusion

To enhance disaster management expertise should be accompanied by capacity strengthening in terms of human personnel as well as the reorganization of the government system and systemic improvement. In other words, customized education should be conducted to increase the on-site responsiveness of public servants participating in disaster sites from various agencies, central government offices and local governments, and there should be practical training and on-site experience lectures for them. In this way, it is necessary to ensure that training is in place

for local conditions, and the trainings for disaster management should be conducted in conjunction with local disaster prevention agencies, surrounding regions, and even local residents.

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A Study on the Goal-Setting of Financial Investment to Prepare the Natural DISASTER in KOREA

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Abstract

This research observed the discussion about the existing disaster management policy, and present the aim set of the budget for natural digester prevention by government. Like mentioned above, a recognition of necessity of digester management in Korea is start from increasing, diversity, large scale and etc. of digesters. But the investment for digester prevention by central government and local government is stopping in support of the rehabilitation expense, but still can't set the scope of aim setting of budget investment for digester management and prevention and minimization of damage. Additionally, the public policy like the cost-benefit analysis and etc. also do not have its analysis of evaluation. This research indicated the limitation of budget investment in digester management policy and examined the approach method and approach direction for investment in disaster management and prevention business.

[Keywords] *Disaster Management, Disaster Prevention, Financial Investment, Natural Disaster, Republic of Korea*

1. Introduction

It occurs every year that damaging of life and property when meeting with disasters such as storm and flood etc., every time government is pointed out with disaster system problem and take criticism because of negligence of disaster prevention investment. Especially, the effect of prevention investment can't notice immediately, so local government meet the difficulty to invest in disaster prevention which is different with government policy confrontation.

There is more point is that what is the safe which means well enough safe? This question derives different reactions depending on each countries and techniques. In other words, the scholar claim that the choice of danger acceptance level is decided by cultural code or make that question as an political

thing. The point is clear that those choice is not the value neutral selection as minimum[1]. This fact present a necessity of proper budget investment by government for prevention before the disaster.

Things of this critical mind, this study observes the discussion about the disaster management policy, and makes a setting up the goal which is government budget investment in natural disaster prevention.

2. A Restriction of Disaster Prevention Business Investment

2.1. A restriction which follows in quality of disaster management

A disaster management has public sectors. In other words, the disaster management has

non-excludability, non-rivalry and etc. which bring out the externalities.

In case of disaster management which is necessary to joint responsibility in part, a local government is difficult to take a active position for disaster prevention because a investment into disaster management get a reflected profit or reflected effect.

At the time of disaster restoration process, the center government support the restoration expenditure, and it produce the result which calls a moral relaxation because of the distortion of prevention business investment.

2.2. A restriction which follows in organization logic

After disregarding a safety, it looks like earning a profit individually in a short time, but it appears everyone's loss include individual in a long time. A safe is concluded by dynamic factors not static factors[2]. But, the reason why budget investment is difficult same as improvement of disaster management system is seeking from the organization logic which governs the regulative agency.

In order to accomplish the task, organization have to operate by regular logic. The dominative operation principle of modern bureaucracy organization is efficiency logic. But, in crisis management organization, the precaution principle is dominative. To prepare in emergency situation, the absentmindedness is prohibited things. It is necessary to make a preparation with the best training and the newest equipment for emergency situation that happens occasionally.

By this way, the logic that expense does not to be liberal without knowing of when and how much expenditure be used, is almost opposite to efficiency logic. That is, from government dimension, it is difficult to expend a finances because of the uncertainty of when is the disaster occurring and damage degree. In this manner, it is possible to understand the local government's negative approach to disaster expenditure compare with providing the convenience directly to public.

2.3. A restriction of disaster management in budget

The original point of disaster management is possible to call as political supporting problem which is related with various disaster policy[3]. Again, the disaster management, which have to be prepared in advance, come into the spotlight after the disaster among people who concerned in emergency. And difficulty of financial expenses can be found in timely intensive character of disasters with people's acute reaction.

Just for the prevention and management of disaster, it is also need lots of financial resources. There are case of the low recognition on disaster and its nation wide scope, however, almost every disaster is local, so center government hard to promise the financial resources.

That is, the disaster management policy is pushed from other priority policy, so it is easy to estrangement from allocation of financial resources[4].

3. A Goal-Setting for Disaster Prevention through Social Cost-Benefit

The way of cost-benefit analysis is also of use to make a budget investment scope and aim for natural disaster prevention. In order to evaluate or decide the public policy as a cost-benefit analysis, expense of policy and convenience must be accurately calculated.

The cost-benefit analysis method is used as officially or tacitly in various way in around countries to decide the many public policy or many investment in private sector[5]. Especially, the cost-benefit analysis is used to calculate which is relatively easy to calculated area such as road construction etc.

But the case of disaster management policy is difficult to get a accurate calculation, so there is limitation of strict application a cost-benefit analysis method.

Namely, the disaster management policy is especially operated in order to sectors such as non-currency, invisibility, indirectness, and long period.

But, the central government of local government have been not so changed in public investment of digester management policy

regardless of necessity and changed recognition to disaster management, fixation of social safety culture and consideration of law legitimate in country level. And the budget investigation in local governmental dimension is almost in the lowest ranking, and apportionment of budget is also not on a highly consideration in actual circumstance. The cost-benefit analysis is important to definite the concept of cost and benefit.

Because, according to the conceptualize of the cost and benefit, the result of cost-benefit analysis is possible to appear considerable difference. The cost and expense can be divided into two large scales as individual cost and benefit and social cost and benefit. The individual cost and benefit is purely individual cost and benefit, and social cost and benefit is social whole cost and benefit.

Giving a example of the disaster prevention policy, a individual cost is a private or a enterprise taxes, natural disaster insurance bill and etc., a individual benefit is damage compensation which are reduction of damage put up as reduction damage or payment by disaster management policy.

On the other hand, social cost and benefit is social benefit getting through all society and social expense possible to loss by disaster management policy. In this case, in the concept of disaster management policy, the necessity of clear the conceptual scope is demanded. For instance, when the government invest 100 billion during one year, a social cost is not only 100 billion but also reduction of social property which is possible to expended with 100 billion by inefficient apportionment of social resources.

Also, an uncertainty of size and scope and damage type of disaster is difficult to connect with damage reduction or damage degree in social benefit, and have to consider with the effect through the whole society. Therefore, how far is social benefit and concept have to discuss.

There is limitation of disaster prevention policy in budget expenditure or investment which is not given a priority in disaster prevention policy but put aside as proper budget

expenses scope. That is, a business investment for the disaster prevention lead to reduction of social resources by its inefficiency of resource allocation. And the financial expenditure is possible to allocate according to how far is sector of social benefit, based on accuracy of digester prediction, still it is hard to get a priority among the others.

4. Conclusion

This research observed the discussion about the existing disaster management policy, and present the aim set of the budget for natural digester prevention by government.

Like mentioned above, a recognition of necessity of digester management in Korea is start from increasing, diversity, large scale and etc. of digesters. But the investment for digester prevention by central government and local government is stopping in support of the rehabilitation expense, but still can not set the scope of aim setting of budget investment for digester management and prevention and minimization of damage.

Additionally, the public policy like the cost-benefit analysis and etc. also do not have its analysis of evaluation.

This research indicated the limitation of budget investment in digester management policy and examined the approach method and approach direction for investment in disaster management and prevention business.

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Knowledge and Practice of Hand Washing for the Prevention of Contagious DISEASES in Local Residents

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Abstract

The purpose of this study was to examine the level of knowledge on hand washing, practice of it(hand washing frequencies before meals, after discharge and after going out) and hand washing promotion experience based on the 2015 community health survey data for the region of Gyeongnam in an effort to determine the hand washing knowledge of local residents, their hand washing practice and promotion experience. As for the level of hand washing knowledge, the respondents who were female, who dwelled in urban communities, who were younger, whose academic background was better, whose monthly mean household income was larger and who engaged in economic activities were more knowledgeable. Concerning the level of practice, the respondents who were female, who resided in urban regions, who were younger, who were better educated, whose monthly mean household income was higher and who engaged in economic activities put all the three items into practice. In addition, the respondents with hand washing promotion experience were ahead of the others in terms of both knowledge and practice, and there were positive correlations among all the level of hand washing knowledge, the level of practice and promotion experience.

Therefore the easiest way to prevent the frequent occurrence of contagious diseases caused by an increase in overseas trips and climate change and to promote individual people's health is hand washing. Sustained monitoring and the development of a variety of educational media and publicity methods are all required to encourage individuals to wash their hands in the right manner.

[Keywords] *Contagious Diseases, Hand Washing, The Level of knowledge, The Level of Practice, Hand Washing Kpromotion*

1. Introduction

Hands washing started to be known as the easiest way to curb or block the contagiousness of germs and viruses, which are the major causes of the occurrence of infectious diseases, after a study found that there was a reduction in the occurrence of puerperal fever after the practice of hand washing in a maternity ward in 1847 in Vienna, Austria[1]. According to the 2005 data released by Korea Centers for Disease Control and Prevention, the right practice of hand washing makes it

possible to prevent contagious diseases by approximately 70 percent[2], and Ludy's study established that hand washing with ordinary soap contributed to decreasing the occurrence of pneumonia, diarrhea and bacillary dysentery by 40 or 50 percent[3].

Our country was vulnerable to contagious diseases because there was no perception of hand washing. In 2005, a pen-national hand washing campaign center was established, and an 1830 campaign was conducted to urge people in general to wash their hands eight times a day, 30 minutes each. Despite such an

effort, however, 2005 survey data showed that the rate of hand washing practice in our country stood at 63.4 percent, which was lower than that of the United States that stood at 82.0 percent[2].

In 2014, Korea Centers for Disease Control and Prevention launched a nationwide hand washing movement because of an increase in imported contagious diseases. Specifically, this movement was conducted primarily to ensure thorough personal hygiene to prevent contagious diseases in summer such as typhoid, Middle East respiratory syndrome, hand-foot-mouth disease and eye diseases[4].

It's known that water-borne contagious diseases are possible to prevent by approximately 50 to 70 percent when one washes his or her hands in the right way, and that the use of soap is more effective at preventing these diseases than that of water only. Approximately 90 percent or more of people were aware of the importance of hand washing, but there was little change in the rate of hand washing practice. That just stood at 63.2 percent in 2006 and 66.7 percent in 2013[5].

Contagious diseases have evolved in various ways due to global warming and changing ecosystem. New kinds of infectious diseases have continued to break out including severe acute respiratory syndrome(SARS) in 2003, influenza A virus subtype(H1N1) in 2009, ebola hemorrhagic fever in 2014 and Middle East respiratory syndrome(MERS) in 2015, and there is growing concern for how these new infectious diseases occurred, how they became prevalent and how to prevent them[6]. In particular, it's known that Middle East respiratory syndrome which broke out in 2015 had rarely been found in Asia. According to the announcement of Korea Centers for Disease Control and Prevention in October, 2015, the number of deaths related to this disease was 36[7].

Hand washing practice is recommended as a means to prevent these contagious diseases. Curtis and Caimcross's study[8] found in 2003 that hand washing with soap served to lower the relative risk of the occurrence of diarrhea patients by 1.88 times and the risk of diarrhea by roughly 47 percent.

The purpose of this study was to examine the level of hand washing knowledge, the level of hand washing practice and related promotion experience among local residents in an effort to lay the foundation for the development of various hand washing education programs.

2. Method

2.1. The subjects

The subjects in this study were 18,037 local residents in 20 cities and counties in South Gyeongsang Province. There were a mean of 900 sample sizes for each of the 254 public health centers that participated in the 2015 community health survey conducted by Korea Centers for Disease Control and Prevention, and the places for sample selection and the sample households were selected from across the nation in consideration of geographic area, regional unit and type of house. The selected local residents were surveyed between August and November, 2015.

2.2. Method

20 areas of South Gyeongsang Province were divided into 10 urban regions and 10 counties. As for general characteristics, six items were prepared, which were gender, residential district, age, academic credential, monthly mean household income and whether to engage in economic activity or not. Regarding the items of hand washing knowledge, one point was given to the answer choice "Hand washing is very helpful for the prevention of contagious diseases"; two to "helpful"; three to "not helpful"; and four to "never helpful." A lower score was interpreted as indicating a higher level of knowledge.

Concerning the level of hand washing practice, three items were prepared, which were hand washing frequency before meals, hand washing frequency after discharge and hand washing frequency after going out. One point was given to the answer choice "always"; two to "often"; three to "from time to time"; and four to "scarcely." A lower score was considered to indicate a higher level of practice. As

to hand washing promotion experience, one point was given to the answer choice "yes," and no point was given to "no."

2.3. Data analysis

IBM SPSS 23.0 for Windows was used to analyze the collected data. To evaluate the hand washing knowledge and practice of the subjects by general characteristics, t-test and ANOVA were carried out, and Scheffe test was employed to make a post-hoc analysis. To figure out the levels of their knowledge and practice according to hand washing promotion experience, t-test and ANOVA were utilized again, and correlation analysis was made to determine the relationships among the level of knowledge, the level of practice and promotion experience.

3. Results

<Table 1>. The level of hand washing knowledge by general characteristics.

The general characteristics of the subjects are shown in <Table 1>. By gender, the women got 1.41($p<0.001$) and had a more knowledge. By region, the respondents from the urban areas got 1.43($p=0.037$) and were more knowledgeable. By age and academic credential, the older($p<0.001$) and less-educated($p<0.001$) respondents were less knowledgeable.

The respondents whose monthly mean household income was larger($p<0.001$) and who engaged in economic activities($p<0.001$) had a higher level of knowledge(see Table 1). These respondents got 1.42.

Table 1. The level of hand washing knowledge by general characteristics.

Characteristic	Classification	Knowledge level	t/F	p
Gender	Male(7923)	1.47±0.55	8.379	0.000
	Female(9881)	1.41±0.12		
Region	City(9017)	1.43±0.53	-2.081	0.037
	County(8787)	1.45±0.54		
Age	20(1444)	1.38±0.52b	101.634	0.000
	30(2229)	1.32±0.48a		
	40(3076)	1.37±0.51b		
	50(3550)	1.43±0.54c		
	60(3266)	1.43±0.52c		
	70(4239)	1.58±0.55d		
Academic credential	Elementary school or lower education(5496)	1.57±0.55d	215.221	0.000
	Middle school(2157)	1.47±0.54c		
	High school(5115)	1.40±0.52b		
	Junior college or higher education(5036)	1.31±0.49a		
Monthly mean household income	Less than 200(8089)	1.52±0.54d	106.770	0.000
	200-300(2992)	1.41±0.53c		
	300-400(2778)	1.38±0.51b		
	400-500(1848)	1.37±0.51b		
	More than 500(2097)	1.30±0.48a		
Whether to engage in economic activity	Yes(11451)	1.42±0.53	-5.222	0.000
	No(6353)	1.46±0.54		

<Table 2>. The Level of Hand Washing Practice by General Characteristics.

The women and the county dwellers were at a higher level in terms of hand washing practice, as the former got 1.49(p=0.001) and the latter got 1.59(p<0.001). The respondents who were in their 60s were at the highest level with 1.54, followed by those in their 50s, those in their 40s and those in their 30s (p<0.001). The respondents who earned a larger monthly mean household income(p=0.005) and who engaged in economic activities (p<0.001) were at a higher level as both of them got 1.62.

As to hand washing practice after discharge, the women and the urban residents were at a higher level, as the former and the latter respectively got 1.45(p<0.001) and

1.54(p<0.001). The younger(p<0.001) and less-educated(p<0.001) respondents were at a higher level. The respondents whose monthly mean household income was larger(p<0.001) and who engaged in economic activities(p<0.001) were at a higher level. Both of them got 1.58.

Regarding hand washing practice after going out, the women and the county dwellers were at a higher level. The former got 2.17 (p<0.001), and the latter got 2.13(p<0.001). The older(p<0.001) and less-educated(p<0.001) respondents were at a lower level. The respondents who earned a larger monthly mean household income (p<0.001) and who engaged in economic activities were at a higher level. Both of them got 2.21.

Table 2. The level of hand washing practice by general characteristics.

Characteristics	Classification	Before meals	After discharge	After going out
Gender	Male	1.81±0.83	1.79±0.87	2.33±1.07
	Female	1.49±0.70	1.45±0.71	2.17±1.08
	p	27.722(0.000)	27.879(0.000)	9.603(0.000)
Region	City	1.68±0.77	1.54±0.75	2.35±1.11
	County	1.59±0.78	1.66±0.86	2.13±1.04
	p	8.287(0.000)	-10.175(0.000)	13.377(0.000)
Age	20	1.83±0.822e	1.44±0.694a	2.23±1.053bc
	30	1.63±0.745c	1.43±0.690a	1.98±1.042a
	40	1.63±0.759c	1.51±0.727b	2.18±1.078b
	50	1.58±0.756b	1.57±0.798c	2.26±1.086c
	60	1.54±0.735a	1.63±0.809d	2.21±1.083bc
	70	1.69±0.827d	1.82±0.904e	2.42±1.080d
	p	105.335(0.000)	342.645(0.000)	301.331(0.000)
Academic credential	Elementary school or lower education	1.62±0.800	1.77±0.889d	2.37±1.070c
	Middle school	1.63±0.766	1.70±0.855c	2.32±1.078c
	High school	1.63±0.775	1.57±0.778b	2.23±1.088b
	Junior college or higher education	1.65±0.763	1.41±0.662a	2.07±1.059a
	p	2.702(0.216)	365.748(0.000)	243.994(0.000)
Monthly mean household income	Less than 200	1.63±0.792ab	1.72±0.867	2.29±1.072b
	200-300	1.65±0.766bc	1.59±0.794d	2.21±1.078a

	300-400	1.68±0.771c	1.53±0.737c	2.18±1.062a
	400-500	1.62±0.765ab	1.45±0.702b	2.19±1.098a
	More than 500	1.60±0.778a	1.40±0.671a	2.19±1.108a
	p	9.071(0.005)	259.536(0.000)	46.508(0.000)
Whether to engage in economic activity	Yes	1.62±0.76	1.58±0.79	2.21±1.07
	No	1.66±0.81	1.63±0.84	2.28±1.09
		-3.650(0.000)	-3.547(0.000)	-4.131(0.000)

<Table 3>. The Levels of Hand Washing Knowledge and Practice according to Hand Washing Promotion Experience.

The levels of hand washing knowledge and practice according to hand washing promotion experience are shown in <Table 3>. The

respondents with the promotion experience were at a higher level in terms of knowledge, and they were at a higher level in terms of practice as well($p<0.001$).

Table 3. The levels of hand washing knowledge and practice according to hand washing promotion experience.

Item	Hand washing promotion experience		t	p
	Experienced(=13872)	Not experienced(=3932)		
Hand washing is helpful for contagious diseases.	1.38±0.512	1.63±0.550	-25.184	0.000
Hand washing frequency before meals	1.59±0.753	1.79±0.845	-13.058	0.000
Hand washing frequency after discharge	1.53±0.764	1.85±0.898	-20.444	0.000
Hand washing frequency after going out	2.19±1.079	2.43±1.059	-12.343	0.000

<Table 4>. The Correlations of Hand Washing Knowledge, Practice and Promotion Experience.

The correlations of hand washing to injury experience and experience of a hurt from a

fall are shown in <Table 4>. The level of hand washing knowledge was positively correlated with hand washing before meals, hand washing after discharge, hand washing after going out and having hand washing promotion experience.

Table 4. The correlations of hand washing knowledge, practice and promotion experience.

	Knowledge	Practice before meals	Practice after discharge	Practice after going out	Promotion experience
Knowledge	1	.234**	.200**	.237**	-.193**

Practice before meals	.234**	1	.358**	.521**	-.104**
Practice after discharge	.200**	.358**	1	.377**	-.092**
Practice after going out	.237**	.521**	.377**	1	-.165**
Promotion experience	-.193**	-.104**	-.092**	-.165**	1

Note: * The correlation coefficients were significant at the 0.05 level of significance on both sides.

** The correlation coefficients were significant at the 0.01 level of significance on both sides.

4. Discussion

The most accessible way to prevent contagious diseases and ensure personal hygiene is hand washing. And hand washing education and promotion activities are provided in various forms. It is especially important for local residents to view it as a behavior of promoting their own personal health and to practice it.

There were differences in the level of hand washing knowledge according to all the variables that were gender, region, age, educational background, monthly mean income and whether to engage in economic activity or not. This finding was similar to the finding of Lee, et. al.(2016)'s study[6]. The respondents who were male, who dwelled in the counties, whose educational level was lower, whose income was smaller and who didn't engage in economic activities were at a lower level in terms of knowledge, and how to remedy the situation should carefully be devised.

Likewise, there were differences in all the three items of hand washing practice according to gender, region, age, academic background, monthly mean income and whether to engage in economic activities or not. This finding is similar to the finding of Jeong, et. al.(2007)'s study[9] and the result of Korea Research's survey[10] in 2011. Particularly, those who used public restrooms didn't practice hand washing properly. Therefore the change of restroom culture is required to change the situation.

The respondents with hand washing promotion experience had a higher level of knowledge, and the level of their practice was higher as well. This finding corresponds to the

finding of Kim and Choi's study[11]. In their study, a hand washing education program was provided for elementary school fifth and sixth graders during an eight-week period of time, and their hand washing knowledge and practice were investigated. And they found that the students with a higher level of knowledge were at a higher level in terms of practice.

The level of hand washing knowledge was positively correlated with hand washing before meals, hand washing after discharge, hand washing after going out and having hand washing promotion experience.

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Improvement Directions for Plans for Residents' Scattering in a Risk Management Plan based on the SAFE Chemicals Act in South KOREA -Focused on the Cases of Ensuring Residents' Right to Know in the U.S.A.-

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Abstract

Chemical accidents continue to happen since the hydrofluoric acid leak in Gumi in 2012, and people are voicing their opinions to highlight the importance and need of a prevention and management system for chemical accidents. This study thus set out to review the risk management plan under the Chemicals Control Act in the nation and the cases of risk management planning(RMP) at the US Environmental Protection Agency, searching for measures to improve residents' scattering plans based on risk management plan of the South Korean government. In South Korea, businesses handling toxic chemicals should provide residents in neighboring areas with the information about such chemicals once a year to ensure their right to know. The method of providing the information is, however, dependent on the homepage of the concerned local government or the concerned business, which means there are limitations with the residents' perceiving the information. The Emergency Planning Community Right-to-Know Act(EPCRA) was enacted in the U.S.A. The EPA asks each state to form a local emergency planning committee(LEPC) whose members are appointed by 13 groups. EPCRA offers a chance for a third party to participate in risk management, which reflects the greater importance and weight on the education and participation of the public rather than the interventions based on the government's order and control. Local social groups, environment organizations, and labor groups can ask for the information about toxic industrial substances collectively. Based on the review results of plans for residents' scattering in the American risk management plan, the present study made a couple of proposals to improve the plan for residents' scattering in the risk management plan of South Korea. First, there is a need to form a consultative group to promote autonomous risk responses among civilians and encourage its activities. Secondly, there is a need to establish a mutual support system to guarantee residents' right to know and help them perform the duty of seeking information.

[Keywords] *Chemical Disaster Prevention, RMP, Risk Management Plan, Residence Right' to Know, Safe Chemical Act*

1. Introduction

Chemical accidents continue to happen since the hydrofluoric acid leak in Gumi in 2012, and people are voicing their opinions to highlight the importance and need of a prevention and management system for chemical accidents. In South Korea, the number of safety accidents involving chemicals has been exploding from nine in 2012 through 87 in 2013 to 104 in 2014.

Residents who are living near chemical plant have anxiety on accident occurrence. According to Bae & Chung(2017)'s study, anxiety on accident occurrence was shown to have a statistically significant correlation with the possibility[1]. of accident occurrence and the seriousness of damages from accidents.

The trends report of the Ministry of Employment and Labor records that 73 chemical

accidents took place at 1,337 PSM establishments between January, 2013 and July, 2014. Of them, major industrial accidents were nine. The chemical accident rate was 0.7% among the establishments. Approximately 1.5% of establishments across seven categories of business witnessed a major industrial accident on the premise. The percentage was higher than (about 0.5%) that of establishments exceeding the regulated upper limits[2]. According to the Ministry of Environment's survey report(2014) on chemical discharges, the number of surveyed companies increased by 109 from 3,159 in 2011 to 3,268 in 2012[3]. What is more dangerous is that major risk industrial complexes are situated in the areas of dense population, which indicates that it is critical to make a plan for residents' scattering to let them scatter smoothly and minimize their damage in case of a chemical safety accident.

This study thus set out to review the risk management plan under the Chemicals Control Act in the nation and the cases of risk management planning(RMP) at the US Environmental Protection Agency, searching for measures to improve residents' scattering plans based on risk management plan of the South Korean government.

2. Risk Management Planning System in South Korea

The risk management planning system was newly introduced to the "Toxic Chemicals Control Act" to overcome the problems with the old system for "controlling chemical substances to prevent an accident" based on the Act[4]. The system is to prepare in advance for a chemical accident that can happen accidentally with regard to process safety, emergency measure, and emergency plan at an establishment handling a certain amount of chemicals(in the range of 39~2,250 tons to manufacture and use by the substance) or more. Such establishments should update a risk management plan(RMP) every five years, and the plan should cover the followings: ① the list of chemicals they are handling and the information about their toxicity, ② the current state of control facilities and equipments,

③ the current state of operators and workers at the facilities handling chemicals, and ④ the spill and leak scenarios and emergency plans in case of a chemical accident. In addition, it should contain an evaluation table of off-site influences examined earlier.

Parts of the RMP content should be announced to residents in neighboring areas once a year or more to ensure their right to know. They should cover ① the information about the toxicity of harmful chemicals they handle and the risk of chemical accidents and ② the scope of influence on the atmosphere, water quality, underground water, soil, and natural environment in case of a chemical accident, the method of delivering the information early, and the behavioral know-how for the evacuation of residents.

A risk management plan should cover three major areas including accident prevention, off-site evaluation, and emergency response, which include six, two, and three smaller parts, respectively. The area of emergency response covers a plan for residents' scattering including workers. The content of such a plan is comprised of a consultative group in cooperation with residents, ② specific methods of noticing residents, ③ an evacuation alarm in case of an accident, ④ behavioral know-how for residents, emergency treatments, and the route and venue of evacuation for residents in case of an accident, ⑤ a consultation system with the concerned agencies, and ⑥ an emergency communication network with the concerned agencies.

In South Korea, businesses handling toxic chemicals should provide residents in neighboring areas with the information about such chemicals once a year to ensure their right to know. The method of providing the information is, however, dependent on the homepage of the concerned local government or the concerned business, which means there are limitations with the residents' perceiving the information.

3. Risk Management Planning System of the USA

Interest in chemical accidents has increased worldwide since the Bhopal gas tragedy in India in 1984. A series of chemical accidents followed in the U.S.A., which led to a strong demand to introduce a systemic approach and new system to prevent and manage accidents at facilities handling chemicals.

In the United States, the prevention of chemical accidents is considered in two major aspects: the protection of workers and the protection of residents or the environment. The prevention of chemical accidents to protect workers is usually based on the Process Safety Management system led by the Occupational Safety and Health Administration(OHSA). The prevention of chemical accidents to protect local residents or the environment is based on the Risk Management Planning system run by the Environmental Protection Agency(EPA). While the two systems share many similarities in terms of content, there are some differences in the time of implementation and the objects of protection between them. The differences are prominent especially in the concerned facilities, chemicals, and methods of application.

After the Bhopal gas tragedy, the Emergency Planning Community Right-to-Know Act(EPCRA) was enacted in the U.S.A. The EPA asks each state to form a local emergency planning committee(LEPC) whose members are appointed by 13 groups. EPCRA offers a chance for a third party to participate in risk management, which reflects the greater importance and weight on the education and participation of the public rather than the interventions based on the government's order and control. Local social groups, environment organizations, and labor groups can ask for the information about toxic industrial substances collectively.

This shows the case of LEPC operation by Massachusetts[5]. The state government runs local governance inclined more toward proactive preparation systems than control activities to respond to a chemical accident quickly. Its emergency management is based on the cyclic activities of prevention, planning, preparation, response, restoration, and prevention. In the state, the Massachusetts Emergency Management Agency(MENA) runs the

State Emergency Response Commission under LEPC. The MENA homepage offers information about the current operation of LEPC and REPC.

According to law, LEPC should ensure the participation of practitioners in the transportation industry to support the fast evacuation of residents in case of an accident. LEPC should be comprised of public servants elected at the state or local government level, law enforcement agencies, staff members in charge of emergency management, firefighters, emergency medical workers, public servants in health, local environment groups, healthcare professionals, practitioners in the transportation industry, broadcasting journalists, local social groups(reflecting and raising the public's concern with the risk and harmful factors of chemicals raised by conservationists, environmental activists, and the community very effectively), and owners or employees of concerned businesses(facilities).

The American law stipulates that the businesses should provide local residents with the list of chemicals they handle, MSDS, and handling information(Tier II) via LEPC. One of LEPC's important roles is to notice local residents regularly that such information is available via LEPC. In addition, the minutes and meeting plans of LEPC are all made to the public. Since LEPC meetings are open to everyone, anyone can observe them.

4. Conclusion

Based on the review results of plans for residents' scattering in the American risk management plan, the present study made a couple of proposals to improve the plan for residents' scattering in the risk management plan of South Korea:

First, there is a need to form a consultative group to promote autonomous risk responses among civilians and encourage its activities. Information about an accident plays a critical role in the fast evacuation of residents in an emergency situation. Risk alarms including a siren serve as an important strategy of

providing risk information in case of an accident, but the awareness of risk possibilities in advance plays an important role in residents' handing the emergency situation fast. It is thus necessary to run a consultative body of residents in a similar form to the LEPC of America systematically in the risk management plan.

Secondly, there is a need to establish a mutual support system to guarantee residents' right to know and help them perform the duty of seeking information. It will be desirable for local residents to invest their resources, combine them together, and form a consultative body to ensure sustainable safety in their living spaces from the viewpoint of putting the vulnerable class or individuals to safety first and from the perspective of prosumers (producers + consumers) rather than simple consumers of autonomous administration. It will especially be desirable to form a close consultative body among local residents, local government, and businesses to ensure residents' right to know.

The present study focused on the cases of residents' scattering in the risk management plans of South Korea and the U.S.A. Chemical safety accidents are not, however, restricted to the two countries. Such disasters happen around the world. Local residents' right to know in a risk management plan should thus be treated as an important global issue beyond South Korea.

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Retirement Management of FIREFIGHTERS in KOREA

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Abstract

Among the ways to improve the treatment of firefighters, firefighter retirement management is important, and to look at the previous studies, many results derived show that firefighters are worried about life after retirement because there is poor practice of retirement management due to lack of retirement management system. Thus, this study attempts to examine the retirement management system of public firefighters to improve the treatment for firefighters, and to investigate current problems and future improvement strategies. To improve the retirement management of Korean fire bodies, the following should be urgently improved. First, the public firefighter's retirement management system should be settled. Currently, in the case of firefighting organizations, the regulations on retirement management are insufficient, and there is also a lack of legal and institutional arrangements for dedicated organizations, personnel and/or programs. Because of this, public firefighters are complaining about the inconvenience that they should do their own retirement management themselves. Since the retirement management system is so insufficient as compared to other private companies and general public officers and police officers, the legal system for firefighter retirement management should be provided first. Second, it is necessary to establish a special organization that specializes only in retirement management in the firefighting organization, and it is necessary to employ the appropriate personnel for the firefighting retirement management organization and operate various retirement management programs. Third, it is necessary to maintain a cooperative relationship with other organizations' retirement management systems, such as introducing private retirement management programs and attracting beneficial lectures, by benchmarking organizations that are currently performing well in retirement management such as private companies. This is because retirement management of firefighting organizations is at the basic stage, and it is considered that the linkage with other organizations will have a synergy effect. Lastly, firefighters have insufficient retirement management owing to the difficulty managing every single day without thinking about the future because they have difficulty in working conditions and environment. Therefore, if the firefighters' working environment and treatment are urgently improved, it is judged that there is room for mind enough to consider retirement management.

[Keywords] Retirement Management, Firefighters, Korea, Better Treatment, Retirement System

1. Introduction

The fact that the treatment for firefighters is poor is not the case of either yesterday or today. Recently, the treatment of the poorer firefighters has become more controversial, and it is found that many firefighters suffer from senile diseases. Particularly, out of 10

firefighter special health checkups, 7 showed health abnormalities. In addition, chronic geriatric diseases such as hypertension, hyperlipidemia, diabetes and hearing loss were common. This is because firefighters are ex-

posed to toxic fumes in fire suppression, rescue and emergency sites, and are always in extreme tension[1].

On the one hand, Mun Jaemin's government is trying to change policy to improve the treatment of firefighters, and as part of that effort, the government is trying to make the Fire Department increase its independence, public firefighters become public officials and to increase the number of public firefighters. On the other hand, efforts are being made to improve the treatment of firefighters, such as building a firefighter trauma center[2].

In particular, among the ways to improve the treatment of firefighters, firefighter retirement management is important, and to look at the previous studies, many results derived show that firefighters are worried about life after retirement because there is poor practice of retirement management due to lack of retirement management system[3]. Thus, this study attempts to examine the retirement management system of public firefighters to improve the treatment for firefighters, and to investigate current problems and future improvement strategies.

2. Theoretical Discussion on Retirement Management for Public Firefighters

The concept of retirement is defined in various ways by scholars. However, it seems to be a product of relatively industrial society. In farming society, there is little difference between the time of stopping farming and the ending of life. However, when entering the industrial society, free contracts establish a certain contractual relationship between the company and the worker, and set the age at which they can actively engage in production activities to make a contract. And, after this age, as it is seen as a retirement, it should be seen as a relatively recent system.

Public firefighter's retirement management is a system or role activity that supports and manages retirement preparation before and after retirement so that public firefighters can prepare for retirement[4].

In the previous studies on retirement management of public officials, there are relatively many studies on retirement management of general public employees. There are also relatively many studies on retirement of specific positions such as police officers and soldiers. Previous studies have focused on retirement management in terms of legal, institutional, operational, financial, and collaborative perspectives for efficient retirement.

However, research on the retirement management of public firefighters is rarely conducted except for a few studies. Lee(2014) conducted a survey on the demand for retirement management of public firefighters scheduled for retirement in Seoul. Lee & Lee(2014) also conducted research on the status of retirement management and policy support for public firefighters in Seoul. In addition, Ryu & Nam & Cho & Lee(2017) conducted an empirical study on the retirement management of public firefighters in Busan. These studies suggest that public firefighters lack the preparation for retirement, there is no institutional mechanism for effective retirement management and that education and various programs for retirement management are inadequate compared to the private sector[3][4][5].

3. Current Status and Problems of Firefighter Retirement Management in Korea

It can be viewed as a statistical result that public firefighters die the fastest after retirement. The average death age for firefighters was found to be 69 of age, which is the fastest after retirement among other civil service jobs. It seems that public firefighters' work and working styles are affected by mainly by exposure to toxic gases in dangerous places, and biorhythm degradation due to excessive work and shift work[6].

As for the status of firefighter retirement management, in Ryu & Nam & Cho & Lee's (2017) studies, 71% of public firefighters in Busan responded that they worried about retirement, and regarding the worries, there were 50% of the worries about living, 32% of health worries about their own, and 9% of

mental health worries. Also, according to Lee's (2014) study, public firefighters in Seoul were positive about the retirement itself, but the level of readiness for retirement is low, and the level of preparation for re-employment, start-up, and social service was found to be insufficient [3][4].

4. Improvement Direction for Fire-fighter Retirement Management in Korea

Therefore, to improve the retirement management of Korean fire organizations in the future, the following should be urgently improved. Above all, the public firefighter's retirement management system should be settled. At present, the regulations on retirement management are insufficient in the case of firefighting organizations, and there is also insufficient legal institutional apparatus in terms of dedicated organizations or workforce for retirement. Because of this, public firefighters are calling for the inconvenience of doing retirement management themselves. Since the retirement management system for firefighters is insufficient compared to other private companies and general public officers and police officers, the legal and institutional system for firefighter retirement management should be provided first. Second, it is urgent to establish a dedicated organization that specializes only in retirement management in firefighting organizations. The dedicated organization for fire retirement management is considered to be required to employ the appropriate personnel and operate various retirement management programs. Third, it is necessary to maintain a cooperative relationship with retirement management systems of other organizations, such as introducing private retirement management programs and attracting beneficial lectures, by benchmarking organizations that are currently performing well in retirement management such as private companies. This is because retirement management of firefighting organizations is at the basic stage, and it is considered that the linkage with

other organizations will have a synergy effect. Lastly, firefighters have insufficient retirement management owing to the difficulty managing every single day without thinking about the future because they have difficulty in working conditions and environment. Therefore, if the firefighters' working environment and treatment are urgently improved, it is judged that there is room for mind enough to consider retirement management [7][8][9][10][11][12][13].

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Plans to Help Forestry Households Overcome Their CRISIS through Their Linkage to a 6th Industry in South KOREA

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Abstract

Agroforestry is a very important industry that provides people with food resources. However, the forestry households of South Korea are facing a crisis that will have critical impacts on the provision of food resources in the nation. This study set out to examine problems with the forestry households of the nation by looking into their current management and conducting an interview with forestry household managers. It also aimed to search for plans to overcome the issues faced by forestry households and promote the development of the forest industry.

This study examined the current population of forestry households, the age of managers, the number of forestry household members, and the current income of forestry households as well as the age of forestry managers, the members of forestry households, and the income trends of the forestry industry and anticipated that the phenomena of forestry managers leaving the industry and forestry households shrinking would continue in the long run. An interview was conducted with 11 forestry household managers around the nation to examine the actual management of forestry households. They pointed out such major problems as difficulties with securing clients, issues with the gathering and storage of forest products, and challenges with product distribution and sales.

Based on these findings, the study proposed the following measures to help the forestry households overcome their economic crisis in the nation: first, they should form a cooperative of forestry households to create an opportunity for the forest industry to evolve into a 6th industry; and secondly, the government should provide a variety of supportive programs to ensure the vitalization of distribution.

[Keywords] *Korea Crisis, Forestry Household Crisis, Forestry Household Prevention Plan, Economic Crisis, Role of Government*

1. Introduction

Forests play critical roles that include providing various economic and environmental benefits. The forest industry of South Korea is recently facing a crisis due to the aging of forestry practitioners and the everyday reduction of forestry households both in number and size. Lumber, one of their major sources of income, requires a lot of time invested to hold its economic value; and thus,

fails to serve as a source of income for forestry households. In addition, the crisis of forestry households has been exacerbated by the introduction of cheap forest products into the South Korean market after opening trade. In South Korea, forestry households are labor-intensive and have low pricing competitiveness in the market due to the high production costs for cultivation, which means that small forestry households have a difficult time generating income through their forest

products except for a few environment-friendly high-quality ones.

Agroforestry holds huge importance as an industry to provide food resources to the nation. Nevertheless, forestry households in the nation face a crisis today that will have negative impacts on the distribution of food resources in the future. This study, thus, intended to examine problems with forestry households by reviewing the current management of forestry households in the nation and interviewing some of their managers, and explore measures to help them overcome their problems and promote the development of the forest industry.

2. Current Management of the Forest Industry in South Korea

2.1. Current population of forestry households

The Agriculture, Forestry, and Fishing Industry Survey(2017) by the Statistics Korea reported that as of December 1, 2016, the number of forestry households was 87,000, down by 2.9% year-to-year. The population of forestry households was 204,000 down by 5.9% year-to-year. The members of forestry households continue to leave the business[1].

2.2. Current state of forestry household managers

The study also examined the age of forestry managers and members of forestry households and found that the average age of forestry managers was 63.2 years in 2016 and that the forestry households whose managers were in their sixties were the most at 41.6%. There was no single manager aged 39 or younger. Of the entire forestry households, 71.5% had two members or fewer, which suggests that the forest industry is in a very serious situation in terms of future growth possibilities[1].

2.3. Current income of forestry households

Income per forestry household increased 4.2% from the previous year in 2016, continuing the rising trend since 2012. The total income of forestry households was, however,

low at 11,314,000 won per year. Forestry households showed very high dependence on forestry income at 33.7%[2][3]. These findings indicate that forestry households face limitations with running a household based on the current forest industry.

It is estimated that the trend of forestry managers leaving the business will continue along with the shrinking of forestry households based on the findings about the age of forestry managers, members of forestry households, and income trends of forestry in the nation.

3. Problem with Forestry Households Management

The investigator conducted an interview with 11 managers of forestry households around the nation to examine the actual management of forestry households. The results show that they had the following management problems: first, they had a difficult time securing clients. Forest products should be sold to generate income, but they suffered difficulties with securing clients and promoting their products due to high online advertising costs; second, there were problems with gathering and storing forest products. All the households of wild herbs and vegetables, mushrooms, and tree fruits found the biggest problem in the shortage of manpower during gathering time. It was also problematic that the value of their products would deteriorate due to the lack of storage facilities after gathering; and lastly, they had difficulties with distributing and selling their products. The value added of forest products is not returned to forestry households due to the margin rate of the middlemen. They also had difficulties with addressing customer complaints.

4. A Case Study on Outstanding Forestry Household Management

The investigator visited and examined a wild grape farm in Paju to apply a successful case of producing, selling, and serving forest products for the stabilization of forestry

household management. The wild grape farm formed a cooperative with its peers in the area and sold wild grape wine and jam products. The farm increased its sales by linking its products to tourism service including an experience of making wild grape jam and exploring a wine cave. <Figure 1> shows the wild grape wines sold by the farm, and <Figure 2> shows its products linked to tourism.

Figure 1. Cases of wild grape wine products.



Figure 2. Cases of tourism-linked products.



5. Conclusion: Plans to Help Forestry Households Overcome Their Crisis

In an effort to help forestry household managers overcome their management problems, the study surveyed experts in the consumer and marketing fields for their opinions

and made the following proposals for the creation of new income for forestry households for the stabilization of their management: first, a cooperative of forestry households should be formed to create a chance for the forest industry to evolve into a 6th industry. It will have positive effects on the way that small forestry households produce and grow forest products in an organized manner, and develop and distribute high value products; secondly, they need to create value by developing processed food. They will have to recruit and educate talents via a village or cooperative organization and carry out a project supported by the government based on the connection between the central and local areas; and finally, the government should provide them with various government-funded programs for the vitalization of distribution. Example products will include the development and improvement of varieties, construction of joint processing and storage facilities, creation of a tourism village, and manpower support for the harvest period so that forestry households will be able to develop their own competitive edge for themselves.

6. Reference

6.1. Additional references

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