

## A Study on Defining and Allocating the Safety Budget in Seoul

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### Summary

Institutional grounds should be established for conducting prior consultation before drafting safety budget. It is also necessary to clarify the work of the Safety Budget Team in the Safety Management Authority that coordinates and oversees all the activities associated with disaster and safety control.

### 1. Introduction

**While there has been ever-growing interest in the public safety budget since the Sewol ferry tragedy, difficulty remains in defining and systematically managing the budget**

Since the Sewol ferry disaster, ensuring disasters preparedness and securing the safety budget have been the matter of utmost importance for the national government. Meanwhile, the role of local authorities has become increasingly important given their responsibility for civil protection. Therefore, it is necessary that the Seoul Metropolitan Government (SMG) discloses the criteria according to which it plans and allocates its safety budget. Not to mention, it must systematically manage such financial resources.

In general, the public safety budget is recognized as resources utilized for disasters preparedness and relief operation. However, it is currently used as the source of funds to many similar projects that seem to fall into the realm of disaster control and safety promotion. In addition, it is not easy to measure the actual effect of allocating the budget to those projects on the public safety enhancement. Due to

these reasons, it is difficult to deploy resources for disasters preparedness and safety enhancement in a timely manner.

Seoul is the most densely populated city in Korea. In other words, the city is likely to suffer from huge loss and damage in the wake of disasters. To prevent and guard against such crises, the SMG should carry out a systematic organization of the safety budget. Until now, not much research on the safety budget has been conducted. Amid a lack of even basic data on the matter, this report suggests herewith the definition and classification scheme of the SMG's safety budget.

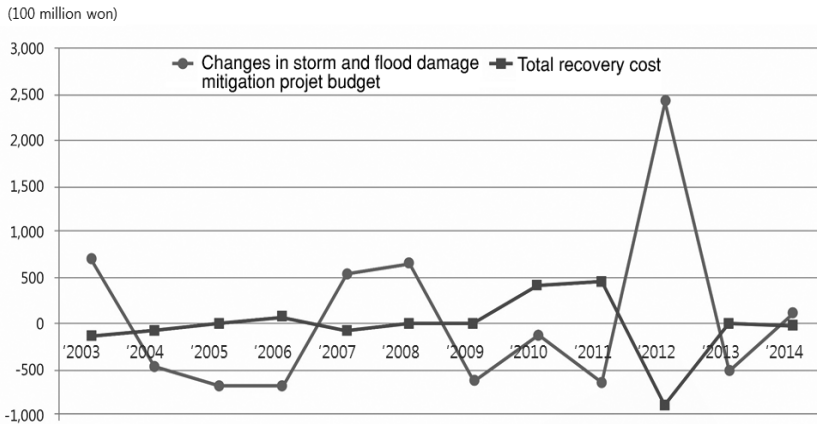
## 2. Main Findings

Discussion about the systematic organization of safety budget has covered various issues and made references to numbers of resources - previous studies of the safety budget, methods adopted by the national government and SMG in managing their safety budgets, and the features of other similar budgetary systems. For detailed analysis, we have conducted brainstorming, examined research papers, interviewed officials in charge of the safety budget management, and consulted experts.

**It has been confirmed that the recovery cost increased even with the shortage of the safety budget, yet they could not identify total budget size.**

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Every year, SMG allocates its budget to projects for mitigating against and preparing for storm and flood. Researchers have compared the annual cost of (i.e. budget allotted to) such projects with the amount of change in total recovery cost. We have discovered that, roughly, budget cuts in disaster prevention, preparedness, response and recovery activities tend to result in a rise in the recovery cost.



[Figure1] Changes in Storm and Flood Damage Mitigation Project Budget and Total Recovery Cost

**This study classified the SMG’s safety budget into 7 main and 21 sub categories by usage.**

To define the safety budget and track its usage, we have come up with a new set of classification criteria for the SMG’s safety budget (refer to [Table 1]). In the process of determining such standards, we have looked at other reports on the matter, the national safety budget classification system and the emergency management process. We also have studied the characteristics of Seoul as a large city and how its budget has been allocated in previous years. Moreover, we consulted experts and officials in charge of the safety budget management.

[Table 1] Classification Criteria for SMG's Safety Budget

Classification by usage			
Main category	Sub-category		
1	Establishment and utilization of safety infrastructures	1-1	Implementing disasters and safety policies
		1-2	Developing, installing, and operating disaster and safety control systems
		1-3	Installing and deploying disaster and safety control equipment
		1-4	Strengthening disaster and safety management capacity
2	Enhancement of disasters mitigation capacity	2-1	Reinforcing the safety function of road infrastructures and facilities
		2-2	Strengthening the capacity of disaster management centers to manage crises
		2-3	Fixing hazardous or vulnerable facilities
3	Enhancement of social and daily safety management	3-1	Managing social safety
		3-2	Managing daily safety
		3-3	Managing safety in the arrival of a new or complex types of disasters
4	Education, training, and R&D	4-1	Increasing the public awareness of safety
		4-2	Cultivating crisis management capability
		4-3	Improving the work capacity of officials responsible for disaster and safety management
		4-4	Conducting R&D for disaster and safety control
5	Shoring up of safety enforcement	5-1	Establishing and operating disaster experience centers and memorial centers
		5-2	Supporting and certifying safety
		5-3	Managing safety and disaster preparedness
		5-4	Establishing the system network for disaster response and safety control
6	Expansion and management of facilities for disaster prevention and recovery	6-1	Establishing and maintaining new city facilities for disaster prevention
		6-2	Assigning facilities and raising fund for disaster management
7	Reserve fund	7-1	Responding to disasters and accidents

### The new safety budget classification criteria have measured SMG's 2015 safety budget to be 1.6431 trillion KRW.

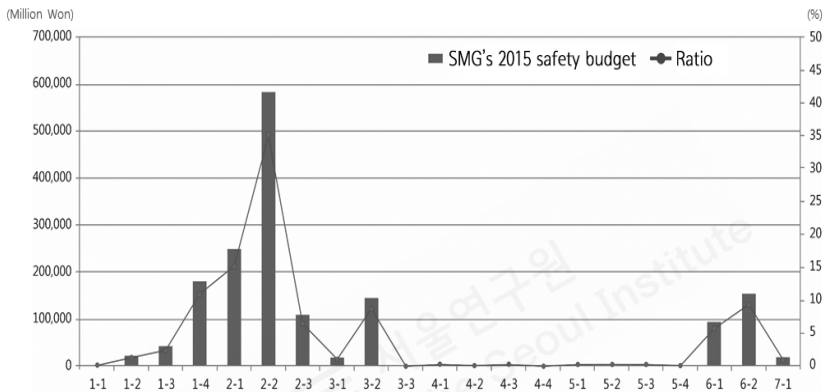
This study has applied the new safety budget classification criteria suggested earlier in this paper to measure SMG's 2015 safety budget. They also have checked if any projects funded by the safety budget are regarded as the program initiated by Seoul Safety Advisory Group. They have measured SMG's 2015 safety budget to be 1.6431 trillion KRW (Korean Won) and the number of safety projects to be 614 in total.

The second main category of usage, "Enhancement of disaster mitigation capacity", was allotted with the largest budget of approximately 940.6 billion KRW, which amounted to 57.25 percent of SMG's total safety budget (refer to [Table 2]).

[Table 2] SMG's 2015 Safety Budget Allocated to each Main Category of Usage

Main category		SMG's 2015 safety budget			
		Budget (in thousand KRW)	Ratio (%)	No. of projects	Ratio(%)
1	Establishment and utilization of safety infrastructures	247,805,642	15.08	127	20.68
2	Enhancement of disasters mitigation capacity	940,625,030	57.25	325	52.93
3	Enhancement of social and living safety management	162,015,584	9.86	70	11.40
4	Education, training, and R&D	10,557,945	0.64	29	4.72
5	Shoring up of safety enforcement	13,750,087	0.84	20	3.26
6	Expansion and management of facilities for disasters prevention and recovery	248,370,559	15.12	42	6.84
7	Reserve fund	20,000,000	1.22	1	0.16
Total		1,643,124,847	100	614	100

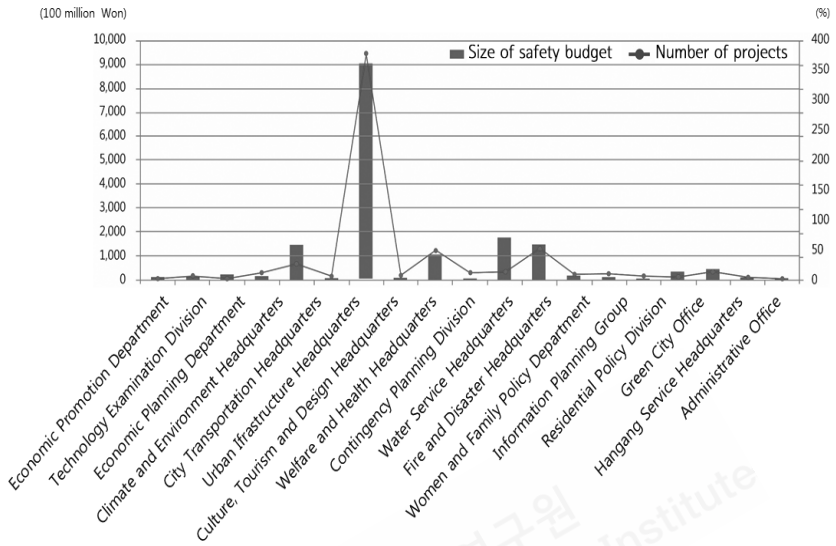
In detail, the sub-category 2-2, “Strengthening the capacity of disaster management centers to manage crises” (refer to [Table 1]) was allocated with 35.43 percent of the total safety budget. Meanwhile, the finances earmarked for the sub-category 3-2, “Managing living safety<sup>2</sup>”, accounted for 8.80 percent of the total safety budget.



[Figure 3] SMG's 2015 Safety Budget Allocated to each Sub-Category of Usage

SMG's 2015 safety budget was distributed to 19 different apparatuses. Among them, the Safety Management Authority was allotted with the largest budget of 900.4 billion KRW for total 376 projects. Within the office, the authority was responsible for 291 projects, which required total budget of 632.8 billion KRW. By contrast the Economy Promotion Division received the lowest budget of 900 million KRW, whereas the Office of Planning & Coordination had the least number of safety project (just one).

<sup>2</sup> Living safety includes the safety of vulnerable people in society as well as food and drug safety



[Figure 4] SMG's 2015 Safety Budget Allocated to each Apparatus

**With current diagnosis indicators, it is difficult to pin down the effect of the safety budget allotted to the fifth, sixth and seventh main categories of usage. SMG should develop additional performance indicators.**

This study has come up with the diagnosis indicators for the safety budget allocation in [Table 3]. These indicators are to be used for measuring the effect of the safety budget allotted to each category of usage. The 5th, 6th and 7th categories do not have enough indicators compared to other categories. Besides, most indicators only indicate the ratio of output relative to input. There should be developed additional performance indicators, based on which the actual effect of budget allocation can be determined.

[Table 3] Diagnosis Indicators for SMG's Safety Budget Allocation to each Sub-Category of Usage

Main Category	Categories of usage		Diagnosis indicators		
		Sub-category	No.	Ratio	Sub-total
1	1-1	Implementing disasters and safety policies	1	0.9	38.5
	1-2	Developing, installing, and operating disaster and safety control systems	4	3.4	
	1-3	Installing and deploying disaster and safety control equipment	3	2.6	
	1-4	Strengthening disaster and safety management capacity	37	31.6	
2	2-1	Reinforcing the safety function of road infrastructures and facilities	8	6.8	21.4
	2-2	Strengthening the capacity of disaster management centers to manage crises	12	10.3	
	2-3	Fixing hazardous or vulnerable facilities	5	4.3	
3	3-1	Managing social safety	21	17.9	20.5
	3-2	Managing living safety	3	2.6	
	3-3	Managing safety in the arrival of a new or complex types of disasters	0	0.0	
4	4-1	Increasing the public awareness of safety	6	5.1	13.7
	4-2	Cultivating crisis management capability	3	2.6	
	4-3	Improving the work capacity of officials responsible for disaster and safety management	7	6.0	
	4-4	Conducting R&D for disaster and safety control	0	0.0	
5	5-1	Establishing and operating disaster experience centers and memorial centers	2	1.7	6.0
	5-2	Supporting and certifying safety measure	4	3.4	
	5-3	Managing safety and disaster preparedness	1	0.9	
	5-4	Establishing the system network for disaster response and safety control	0	0.0	
6	6-1	Establishing and maintaining new city facilities for disaster prevention	0	0.0	0.0
	6-2	Assigning facilities and raising fund for disaster management	0	0.0	
7	7-1	Responding to disasters and accidents	0	0.0	0.0
Total			117	100.0	



**SMG should weigh both advantages and disadvantages of allocating the safety budget to each main category of usage. Next, it ought to come up with supplementary strategies and directions for budget allotment**

This report suggests herewith the strategies and directions that will help SMG more efficiently and effectively leverage its safety budget. To come up with the plan, we have analyzed both strengths and weaknesses of the SMG's safety budget allocation to each category of usage. In the process, it has made reference to the followings: the primary objectives of earmarking the safety budget to each category of usage; how the safety budget has been organized and executed in 2014 and 2015; the specifics of projects funded by the safety budget; SWOT analysis of SMG's safety projects; and diagnosis indicators.

[Table 4] Future Directions for SMG's Safety Budget Allocation

Type	Strategies	Detailed directions for budget allocation
Strength/ Opportunity	Harness the increased interest of Seoul citizens in safety	<ul style="list-style-type: none"> <li>· Encourage the civil participation in safety projects</li> <li>· Raise the public awareness about safety through safety education</li> </ul>
	Integrate ICT with safety measures	<ul style="list-style-type: none"> <li>· Strengthen the capacity to monitor disasters and accidents</li> <li>· Establish advanced fire response systems</li> </ul>
	Increase the efficiency of budget allocation	<ul style="list-style-type: none"> <li>· The safety budget is currently being overly concentrated in the maintenance of storm and flood damage mitigation facilities. Though, increasingly more finances are being invested in establishing damage mitigation facilities, higher efficiency should be ensured in budget allocation and management</li> </ul>
Weakness/ Opportunity	Strengthen the budget management capacity in the areas allotted with relatively small budget. Integrate with ICT	<ul style="list-style-type: none"> <li>· At present, the safety budget for each category of usage is managed separately. Based on this management system, reinforce the budget management function and capacity of the areas that are allotted with a very small number of projects and not much budget</li> <li>· Enhance the R&amp;D capacity related to disaster and safety preparedness by leveraging high technology</li> </ul>

Type	Strategies	Detailed directions for budget allocation
	Objectively evaluate budget allocation	<ul style="list-style-type: none"> <li>Develop various diagnosis indicators, which can serve as a reference point to determine the effect of earmarking the safety budget for each category of usage</li> </ul>
Strength/ Threats	Find new countermeasure projects against disasters	<ul style="list-style-type: none"> <li>Currently, the safety budget is concentrated in projects for the reconstruction of damaged structures. Address this imbalance by allocating more budget to projects for activities other than reconstructing damaged structures.</li> </ul>
	Ensure preparedness for disasters that the citizens consider especially detrimental and happen increasingly frequently	<ul style="list-style-type: none"> <li>Allocate more budget to the management of living and social safety to avert accidents associated with <sup>3</sup>5 major crimes and <sup>4</sup>4 social evils</li> <li>Shore up the education and training of the citizens about how to response to disasters in high-rise, large-scale, multi-use facilities.</li> </ul>
	Introduce an effective response plan to the class or region that receives a little budgetary support	<ul style="list-style-type: none"> <li>Develop a plan for how to deal with damages done to both constructions and other areas by disasters for groups or localities that are especially vulnerable to natural disasters</li> </ul>
Weakness/ Threats	Increase the budget for R&D necessary to prepare for a new type of large-scale disasters that may strike Seoul	<ul style="list-style-type: none"> <li>Earmark a larger budget for R&amp;D projects in preparation for complex and new kinds of disasters</li> <li>Ward off disasters or accidents that may happen or aggravate due to the current urban conditions of Seoul (ground subsidence, facility deterioration, increasing use of multi-use facilities, rising population vulnerable to certain disasters)</li> <li>Eliminate safety hazards that might cause disasters or accidents in advance</li> </ul>
	Promote the sense of safety in the entire process of urban planning	<ul style="list-style-type: none"> <li>Raise the awareness of safety or conduct R&amp;D for safety promotion throughout urban planning</li> </ul>
	Prepare for increase in facility maintenance cost	<ul style="list-style-type: none"> <li>Prioritize budget allocation to facility maintenance</li> <li>Improve sustainability and efficiency of safety budget projects to maintain the continuance of overall safety projects</li> </ul>

<sup>3</sup> 5 major crimes are namely, murder, burglary, rape, theft and assault

<sup>4</sup> 4 social evils are namely, sexual assault, school violence, domestic violence, and distribution of substandard food products

### 3. Conclusions & Policy Recommendations

This report summarizes issues with SMG's safety budget management into (1) inadequate classification system, (2) vague definition of and criteria for the safety project, and (3) problems emerging in the system execution. By factoring in these three implications, this report recommends the improvement plan for SMG's safety budget management.

#### **Solutions for sustainable and effective management of SMG's safety budget**

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##### **1) Mandate the conducting of prior consultation regarding the safety budget by stipulating it in the Seoul Administrative Ordinance**

The prior consultation system for safety budget management legally binds organizations responsible for disaster control to submit the plan, list of priorities, and budget requirement for their projects to the national government. Then, the apparatus overseeing all safety budget-related matters consults each Ministry about the budget. SMG does not have the authority to control every safety budget allotted to each of its department. Nevertheless, it recognizes the need to conduct the prior consultation about the safety budget with related departments and has been doing so. Unfortunately, such work has not been going smoothly, for some officials working at the department that has sought the safety budget are not fully committed to undertake the prior consultation. They tend to regard the required prior consultation as a one-time deal rather than regular, constant work. SMG needs to state the necessity of conducting prior consultation regarding the safety budget in the Seoul Administrative Ordinance.

##### **2) Ensure that the Safety Budget Team of the Safety Management Authority fully devotes its efforts to handling every work related to the safety budget**

Since the Sewol ferry disasters and the outbreak of MERS (Middle East Respiratory Syndrome), Seoul citizens have become increasingly concerned about

their safety. They have been showing ever-growing interests in the policy of the department responsible for disaster control. Recognizing the public concern, the SMG has undertaken the organizational reform to more methodically organize disaster management functions and enhance their capacities to deal with crises. The two central changes made in the organization are that: (1) the City Safety Management Office, which was formerly in charge of the safety budget management, has been reorganized into the Safety Management Authority, and (2) the Water Circulation Safety Bureau has been established.

Amid such organizational reform, there has arisen the need of a new direction for safety budget management. One significant characteristic of any organizations is that it evolves. Therefore, it takes a certain amount of time until an effective budget management system firmly settles in the organizations. In such a process, the system's dualistic structure may cause conflict and fail to achieve a clear delegation of responsibilities. SMG should address these problems while employing additional workers and increasing the work efficiency based on the strategy of "choose & Concentrate."

SMG needs to ensure that the Safety Budget Team is fully committed to overseeing all works related to the safety budget, including safety project planning. The government is expected to select tasks that it should focus its human resources. This would boost the efficiency of their work.

### **3) Further divide the main categories of the safety budget classification criteria into sub-categories. Continue to work on the details**

Applying the current national safety budget classification system to SMG's safety budget categorization is not feasible provided that the former does not reflect the unique disaster and safety characteristics of Seoul. To avoid confusion between two systems, this research has introduced new classification criteria for SMG's safety budget.

Yet, there still exists the possibility that SMG's safety budget classification system has vulnerable areas. Moreover, it lacks evidence for its effectiveness as it is

in the early stage of implementation. Therefore there exist some limitations in applying the system to sort projects. We recommend that SMG improves the safety budget classification system in the following directions.

First of all, consider every stage of disaster and safety management activities (i.e. prevention, preparedness, response, and recovery) stipulated in the Seoul Administrative Ordinance.

Second, identify disasters or accidents that occur frequently in Seoul likely to inflict great damage and loss. Next, continue to improve and reflect them in the safety budget classification system with flexibility.

Third, educate and train all the officials in charge of the safety budget so they can classify the safety budget according to the same criteria. It is necessary given that every bureau and division within the government deals with the safety budget in some way.

Lastly, carefully consider various changes made in the city's capacity to manage disasters as well as the emerging issues regarding disaster and safety. Then, alter and supplement the safety budget classification system so that it can effectively explore and pursue new projects.

#### **4) Develop new diagnosis indicators that can be used to determine the effect of the safety budget allocation**

In the prior consultation regarding the budget, evidence must be provided to the related parties to decide the priorities and measure the outcome of allocating the budget. SMG shares the evidence called performance indicators with every bureau, division and department when planning the budget and performance management. However, such indicators lack scientific grounds to be applied to the safety budget. Nor is there enough proof to confirm the connection. Given that, SMG should make sure that it sorts the safety budget projects by project type. In addition, the SMG needs to develop new diagnosis indicators that can serve as a reference point to determine if the safety budget spent on the project has borne any fruit.

### **5) Efficiently manage and execute the safety budget in each step of disaster control - prevention, preparedness, response, recovery**

Every stage of disaster control is important, yet priority must be set for efficient budget distribution. This report lists below what should be prioritized and emphasized in each stage.

Prevention stage: (1) Implement a control tool to avoid imprudent expenditure, (2) Utilize the existing resources, (3) Revise law and institution to induce the participation of various entities.

Preparedness stage: (1) Efficiently distribute the budget, (2) Identify and secure available resources, (3) Secure the budget for education and training.

Response stage: (1) Strengthen the capacity for early response, (2) Invest in the installation of information system prior to other areas, (3) Distinguish safety budget projects from those that are not, (4) Specify the safety budget categories necessary for the establishment of cooperative systems.

Recovery stage: (1) Organize a reserve fund and distribute the recovery budget in a timely manner, (2) Clarify the criteria for rescuing and compensating victims, (3) Forestall excessive budget expenditure in the process of rescue and relief operation, (4) Reinforce the tie with prevention measures

### **6) Ensure transparency in planning and executing the safety budget, and establish a communication channel**

The foremost task in organizing and distributing the budget would be to ensure transparency. Budget allocation may be interpreted as the distribution of limited resources. Therefore efficient management is necessary. More importantly, transparent disclosure must be ensured to avoid any corruption. This is especially the case for the safety budget as it is directly related to the lives of people.

However, efficient budget allocation may not be as easy. It is largely because that the criteria and recipients of the budget are ambiguous, whereas disasters and accidents can hardly be anticipated with absolute certainty. To deal with such difficulty in the safety budget allocation, SMG should induce the participation of

various entities and reflect their opinions in the decision making process. They may provide the public sector with insights about circumstances that it could not have thought of on its own. Their participation would reduce the level of uncertainty and inefficiency involved in the safety budget management as well as disaster control.

SMG has made the information regarding how it governs Seoul open and accessible to the public. It also has been welcoming ideas, opinions and insights from the citizens in decision making. As for the budget management, SMG discloses its annual budget report. In addition, it runs the Civil Participatory Budget System, in which Seoul citizens can have a say in the budget organization.

However, the Civil Participatory Budget System has some limitations: First, it only allows the citizens to participate in the budget planning stage. Second, it handles a mere one percent of SMG's total budget. Third, not every information is disclosed.

In order to secure transparency in the safety budget management and induce public participation, SMG should improve the current institutional measures in the following directions.

First, SMG should transparently disclose its safety budget management and ensure that it takes accountability for the work. In the entire process of managing the safety budget, from planning to execution, every decision needs to be formed based on scientific evidence and various opinions. In addition, the decision making process should be documented and made public to the citizens.

Second, SMG needs to establish a discussion channel. At present, it is difficult to discuss a wide range of budget-related issues that require expertise. By disclosing the information and promoting social inclusion, SMG would be able to ensure transparency in its safety budget management. Not only that, the channel may pave the way to solve the problem of the absence of long-term budget plan. A political motive often plays in drafting the safety budget, which usually ends up becoming one-time expenditure. As a result, there is almost no long-term plan for the safety budget. SMG would be able to address this issue by establishing a discussion channel.