

재난 대응을 위한 임시주거시설 관리체계 개선방안

Improvement Measures for the Management System of Temporary Housing Facilities
for Disaster Response

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SUMMARY

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Chapter 1. Introduction

Amid the continuous occurrence of disasters that require national and local government responses, there have been instances where the response, especially concerning facilities, has been inadequate, exacerbating the damage. This is particularly true when considering not just the evacuation of disaster victims but also their temporary residence. Concerning this, the government has prepared management measures such as pre-designating facilities, and has constructed a response execution system for crisis occurrences. Temporary housing facilities are designated according to the "Disaster Relief Act," a system in place to initiate and operate these facilities during a disaster based on related guidelines.

A temporary housing facility, as defined by the relevant legislation, is a facility used to 'relieve those displaced due to the loss of their residential facilities or finding themselves in situations where residing becomes virtually impossible.' Besides modular homes for temporary residence, existing buildings are utilized for this purpose. As of December 2022, 15,026 such facilities have been designated nationwide. However, issues regarding

the procurement of these facilities continue to arise. For instance, there are frequent cases where the safety and convenience of designated facilities during a disaster are questioned, or suitable facilities have to be re-identified. The crux of these issues is not the shortage of facilities or inadequate crisis response but rather the suitability of the facilities for disaster use. The problem arises not from the lack of suitable facilities but from difficulty in determining which regional facilities are warranted.

This study primarily aims to establish improvement measures for the management system concerning the suitability of temporary housing facilities for disaster victims to evacuate and temporarily reside during disasters, focusing on utilizing existing buildings. To this end, we propose policy tasks, implementation strategies, and necessary institutional improvements. According to relevant laws and guidelines, the current management system for temporary housing facilities is divided into pre-disaster facility designation, management, and operation during a disaster. This study focuses on improvements before and after the operation.

Chapter 2. Current Status of Disaster Management and Temporary Housing Facilities

In Chapter 2, the study examined the status of major domestic disasters and disaster areas, regulations regarding disaster response, and the management system of temporary housing facilities, and reviewed domestic and international trends.

A review of the domestic disaster situation reveals that, over the past ten years, damages continuously occurred due to natural disasters such as typhoons and heavy rains and social disasters like wildfires resulting in the displacement of residents. Notably, the areas most vulnerable to disasters are managed by regions and districts, which include flood-prone areas, landslide-prone areas, areas at risk of steep slope collapse, and wildfire-prone areas.

Disaster facility response operates based on the "Framework Act on the Management of Disasters and Safety" and other disaster-type specific legislation. Each legislation has its designation and usage regulations; no overarching legal term exists. In this study, facilities used for emergency evacuation are explicitly termed "evacuation facilities," while facilities used for evacuation and temporary residence are separately discussed as "temporary housing facilities." The latter is governed independently from the type of disaster by the "Disaster Relief Act," and there are differences in purpose, usage timing,

and duration compared to evacuation facilities.

The management system for temporary housing facilities is divided into pre-disaster designation and management and operation regulations during a disaster. As per the "Disaster Relief Act," temporary housing facilities require functions beyond evacuation, such as residence. The guidelines for establishing a 'Disaster Relief Plan Establishment Guidelines' provide the requirements and procedures for pre-designation, management of designated facilities, and operation of temporary housing facilities during a disaster. Designation criteria include convenience for disaster victims, appropriateness of size, facility accessibility, and facility safety. The procedure involves selecting target facilities considering population and accessibility, reviewing whether they meet the designation criteria, and designating them after consultation with relevant agencies. There is no provision for post-operation evaluation.

On the other hand, in foreign countries (USA, UK, Japan), the focus is on strengthening the designation and management of facilities before a disaster; however, in Korea, ongoing issues related to the suitability of temporary housing facilities have been pointed out. Despite operating facilities that have been managed through prior designation according to the guidelines, there are issues with their suitability for safety and convenience. Such issues stem more from deficiencies in the system of designation and management than from the lack of suitable facilities.

Chapter 3. Designation and Utilization of Temporary Housing Facilities

In Chapter 3, by examining the designation status and actual utilization of temporary housing facilities, we identified the characteristics and issues of domestic temporary housing facilities and reviewed the significant considerations for their designation and management.

Observing the designation status of 15,026 temporary housing facilities nationwide, about 1 to 5 facilities are designated per square kilometer, while in 192 towns and districts, none are designated, revealing regional discrepancies. Approximately 35.7% of the facilities have adopted earthquake-resistant designs, with six broad regions showing only about 10 to 20% of such facilities. Most designated sites are public buildings like schools, government offices, village halls, and community centers, with fewer private facilities and accommodations/research facilities designated. Irrespective of the

accommodation capacity, there were more small-scale facilities like senior centers and village halls than larger ones like schools. Particularly concerning accommodation capacity, many facilities had excessive estimations of area and population, and the existing criteria for facility type distinction were unclear, leading to errors in regional classifications.

Through the operational history survey of 51 local governments and on-site surveys of 6 local governments, when considering utilization, there are requirements like disaster risk and vulnerable area assessments, understanding the age and earthquake-resistant design of the building, using BF-certified facilities for convenience, and evaluating the need for external annexes for safety. As previously mentioned, the need to re-estimate accommodation capacity is urgent regarding scale appropriateness. Regarding accessibility, considering the primary users of temporary housing facilities—the vulnerable population—is essential. In particular, considering operating differences depending on the presence or absence of external parking spaces when designating facilities is necessary. The need for a management system to assess facility appropriateness, considering disaster and operational history, was also raised.

In summary, when designating a temporary housing facility, some issues needed further specification and addition concerning convenience, scale appropriateness, accessibility, and safety. We have identified the need to establish standards and procedures for reviews related to facility types, disaster risks, vulnerable areas, accommodation capacity, and vulnerable populations.

Chapter 4. Suitability Analysis of Temporary Housing Facilities

In Chapter 4, based on the findings from Chapter 3, we conducted a suitability analysis by establishing the primary considerations, methods, and procedures when designating temporary housing facilities. Considering disaster characteristics and the current state of provisional housing designation and usage for our analysis, we selected Gangneung City in Gangwon Province, representing urban and county regions with less than 500,000, and Nam District in Busan Metropolitan City, representing metropolitan regions with populations over 500,000.

In Gangneung City, Gangwon Province, 87 temporary housing facilities have been designated. We checked the status of 282 public buildings in the area. Among them, 30

(34.5%) and 120 (42.5%) of the total facilities were found unsuitable as it was located in disaster-prone and vulnerable areas. Accordingly, we identified a list of 219 facilities (57 currently designated and 162 newly eligible for designation). When the capacity was calculated at 30% of the floor area ratio for each facility, the presently designated facilities can accommodate approximately 7.95% of the vulnerable population. Including the new facilities raises the capacity to around 23.88%. Upon classification based on designation criteria, 56 facilities (25.6%), including 24 currently designated ones, are buildings over 30 years old. For earthquake-resistant design, only 23 (10.5%), including 7 current facilities, were found to have implemented it. When classifying based on ease of use, 20 facilities (9.1%) have earthquake-resistant design and external parking, only 1 (0.5%) has earthquake-resistant design but lacks exterior parking, 127 (58.0%) do not have earthquake-resistant design but have external parking, and 56 (25.6%) neither have earthquake-resistant design nor external parking; the latter were considered a lower priority for use.

In Nam District, Busan Metropolitan City, there are currently 21 designated temporary housing facilities. We reviewed the status of 157 public buildings in the district. Of them, 4 (19.0%) and 35 (22.3%) of the total were found unsuitable from a safety perspective. We identified a list of 139 facilities (17 currently designated and 122 newly eligible). In terms of capacity, the presently designated facilities can accommodate approximately 15.51% of the vulnerable population, and with the new facilities, this rises to about 26.85%. In both the Nam District of Busan Metropolitan City and the previously mentioned Gangneung City, accommodating the vulnerable population using current and new facilities appears challenging. Group classification revealed that 70 facilities (50.4%), including 6 currently designated, are old buildings constituting more than half of the total facilities. Earthquake-resistant design has been implemented in only 20 (14.4%), including 12 current facilities. When categorized by groups, 16 facilities (11.5%) have earthquake-resistant design and external parking, none have earthquake-resistant design but lack exterior parking, 48 (34.5%) lack earthquake-resistant design but have external parking, and 5 (3.6%) lack both.

Furthermore, we reviewed the significant disaster history for each region and examined scenarios based on the capacity to accommodate vulnerable populations in hypothetical disaster situations. Setting a radius of 500m, 1km, and 1.5km from the center of the disaster area and determining the list of facilities that can accommodate 30%, 50%, and

70% of the vulnerable population, the results show that for Gangneung City, 13, 20, and 39 facilities are required to operate at 30%, 50%, and 70% capacity, respectively. The numbers for Nam District in Busan City are 3, 11, and 13 facilities for 30%, 50%, and 70% capacities, respectively.

Chapter 5. Improvement Measures for the Management System of Temporary Housing Facilities

In Chapter 5, fundamental directions and policy tasks for enhancing the temporary housing facility management system were established, along with implementation strategies and suggestions for system reform.

The primary direction for enhancing the management of temporary housing facilities is to designate appropriate temporary housing sites to improve their suitability during disasters. The policy tasks discussed to achieve this include re-establishing criteria for designation, constructing a designation process, and the necessity of a post-evaluation system, each with its specific implementation strategy.

Firstly, the designation criteria need to be re-established in categories of convenience, size appropriateness, accessibility, safety, and operational feasibility. The research suggests the following criteria: For convenience, facilities are categorized into general convenience and vulnerable convenience. General convenience includes heating/cooling, ventilation, meal provision, water supply, toilets, showers, garbage collection areas within the temporary residence, and external annexes (such as storage medical functions) outside the building. The criteria related to vulnerable convenience facilities should be verified through a Barrier-Free (BF) certification. The appropriateness of size is divided into regional and building unit capacity. In regional units, a minimum accommodation rate of at least 20% (calculated as 30% per facility) for vulnerable populations (aged 65 and above) will be ensured. In building units, facilities such as auditoriums and gymnasiums should be checked. Accessibility is divided into vehicle access and access for displaced persons. For vehicle accessibility, including external parking spaces is essential, and for the latter, facilities that can accommodate within a minimum of 500 meters per administrative region should be considered. Safety is categorized into regional safety and building safety. Regional safety excludes disaster-prone and vulnerable areas, whereas building safety focuses on

applying earthquake-resistant designs and ensuring the building's age is under 30 years. Operational feasibility should encompass matters related to the onset of disasters and the possibility of temporary occupation.

Secondly, based on the criteria, there is a need to develop a designation process. The research suggests a four-step approach: 1) Review of regional primary status, 2) Selection of appropriate temporary housing facilities, 3) Classification of appropriate temporary housing facilities, culminating in a final list that includes both current and potential new facilities, and 4) Pilot utilization of appropriate temporary housing facilities, which then creates a detailed regional execution list. In the first step, the local status and disaster history are reviewed to identify regional disaster characteristics and additional possible facilities via a review of public buildings. The second step involves excluding unsuitable facilities by reviewing disaster risks and vulnerable areas and identifying other private facilities that need to be designated by reviewing accommodation appropriateness. The third step entails deriving the final designation list, for which classification standards are established and facilities are grouped and classified by their type of utilization. The fourth step focuses on examining the accessibility of designated facilities based on regional vulnerabilities and accommodation sizes.

Thirdly, a post-evaluation system needs to be established for the buildings utilized during disasters to manage the designation list continuously. This involves diagnosing the suitability of a facility for temporary housing based on feedback during operation, reflecting this in the designation list, and maintaining an operational history.

Five aspects of the system require improvement: amendments are needed in the 'Disaster Relief Plan Establishment Guidelines' related to re-establishing the criteria for temporary housing facilities; the 'Disaster Relief Act' and its executive order and guidelines for re-establishing facility types; the National Disaster Management Information System and the 'Disaster Relief Plan Establishment Guidelines' related to the development of a designation procedure; the 'Disaster Relief Act' concerning prior designation regulations for temporary housing; and the 'Disaster Relief Plan Establishment Guidelines' for post-evaluation regulations.

Chapter 6. Conclusion

Recently, the government has presented establishing a disaster safety management system as a national agenda. This research holds significance because it points out the core issues of facility response and offers solutions within the management framework. The data analyzed in this study on temporary housing facilities can be a foundational resource for assessing the domestic situation. Notably, based on this research's temporary housing facility designation procedure, regions can designate and manage suitable temporary housing facilities. Matters that need improvement, including relevant guidelines, have also been identified in this study. However, since it is impossible to include all methods for deriving the final designated action list within the guidelines, providing these through separate guidance has been proposed for future research.

Keywords

Temporary Housing Facility, Disaster, Calamity, Evacuation Facility, Public Building, Designation Criteria, Designation Procedure, Post-Evaluation