Executive Summary

A Study on Disaster Risk Management of the Aquaculture Industry

1. Purposes

○ This study aims to establish a policy direction for disaster risk management, setting up a phased strategy (prevention, response, preparedness and recovery) for disasters in the aquaculture. For this purpose, the study redefines the concept of disasters in the aquaculture, while categorizing types of risk management.

2. Methodologies and Features

1) Methodologies

〈Table〉 Characteristics of the Methodologies

Characte ristics	Major contents	Data collection	Reasons for selection
Basic analysis	– Collecting and analyzing domestic and foreign preceding studies, relevant reports and policy data – Studying the status and cases of disaster and risk management in Korea's aquaculture industry – Case study of disaster risk management in foreign countries	– Literature study – Statistical analysis – Domestic and foreign case studies	– Multilateral analysis is required because domestic and foreign studies on disaster response in the aquaculture are insufficient

Characteristics	Major contents	Data collection	Reasons for selection
Expert consultation	– Scope of disasters in aquaculture, problems and improvement measures for establishing a phased strategy of risk management response	– Expert consultation and hearing of the opinions	– Investigating the concept and scope of disasters in aquaculture as well as problems and improvement areas for establishing a phased strategy for risk management response in order to suggest effective policy measures
AHP analysis	– Analyzing the importance by types of aquaculture disasters, risk levels and aquaculture methods	– AHP analysis by experts	– Categorizing various types of disasters in aquaculture and utilizing it for establishing a phased response strategy based on the assessment of its importance

2) Features

○ This study presents implementation strategies for disaster risk management in aquaculture as well as phased countermeasures. For this purpose, it suggests the concept and scope of disasters in the aquaculture industry, analyzing the importance by types of disasters.

- The study conducts an investigation for the status of aquaculture disasters as well as domestic and foreign cases on the response of its risk management.
- Having performed the AHP analysis by experts, the study analyzed the importance of aquaculture disasters based on its types, levels of disaster risk management and aquaculture methods. Hence, the results of the analysis are utilized as a basic data for establishing phased countermeasures.
- Expert consultations have produced problems and improvement measures by risk levels. Based on this information, it seeks for risk management countermeasures by the level of aquaculture disasters

3. Results

1) Summary

○ Disasters in the aquaculture industry bears a significant importance in various perspectives; sustainable growth of the aquaculture industry, stable supply of protein and price stability and balanced regional development by generating income source for fisheries households.

- For the last 11 years, a total of 150 billion won has spent for disaster relief fund, which is about 14 billion won on an annual basis. This fund is paid for the damages done to aquaculture products and relevant equipment caused by natural disasters in the aquaculture industry.
- Aquaculture disasters, occurring every year, impede fishery communities from generating stable income. Furthermore, if the aquaculture industry, which accounts for more than half of Korea's fishery production, were hit by natural disasters it would have an impact on the domestic supply of fishery products.

○ Disasters in the aquaculture industry have become increasingly common and complex. In order to respond aquaculture disasters effectively, it is essential to come up with a phased strategy consisting of prevention, preparedness, response and recovery. In addition, multi-dimensional disaster risk management is necessary based on the characteristics of a disaster (frequency, impact etc.), spatial features of aquaculture (onshore, offshore, coastal), and types of governance in disaster response.

○ Recently, the distinction between natural disasters and social disasters has become ambiguous and disasters are becoming increasingly complex. Reflecting this trend, the scope of disasters in aquaculture not only includes natural disasters including adverse events resulting

from natural processes of Earth and fishery disaster, but also contains social disasters, which have an immediate impact to the aquaculture industry.

○ Several problems have been identified with regard to a phased risk management system for disaster prevention, preparedness, response and recovery; insufficient number of organizations and workforce, the lack of comprehensive governance and management system for aquaculture disasters, areas prone to natural disasters and facilities exceeding the standards and substandard facilities against disasters.

- Following measures are required to address these problems: establishing an organization specializing in disasters, setting up a comprehensive management system and governance for aquaculture, improving the infrastructure of areas prone to natural disasters and standardization of aquaculture facilities and establishing certification standards in preparation for disasters.

○ The study conducted AHP analysis on the importance by the type of disasters having an impact to the aquaculture industry. According to the result, the importance of natural disaster is higher than that of social disaster. Of natural disasters, extreme weather conditions have the most significant impact on the aquaculture, followed by unusual water temperature and harmful organisms. In addition, waterborne infectious diseases have the highest impact to the industry in social disasters.

- The study carried out an analysis on the importance of disaster risk management. The result shows that the importance of prevention and preparedness turns out to be higher than that of response and recovery.

○ Basic directions for the risk management of natural disasters in the aquaculture industry are suggested as follows; minimizing the damage

of aquaculture households and swift recovery, shifting the target of policy from damage recovery and compensation to prevention, enhancing the utilization of scientific technology in forecast and management of aquaculture disasters, establishing various forms of government structures, invigorating investment and insurance by facility standardization and risk forecast and preemptive prediction and preparation for potential disasters for the future.

○ The following nine projects are suggested for the stages of prevention, preparedness, response and recovery.

- For prevention and preparedness stages, the following six projects are presented; setting up a mid-to-long term plan for disaster risk management in aquaculture, writing a manual for disaster risk management in the aquaculture industry and conducting training, improving the structures of aquaculture farms prone to disasters; implementing R&D for promoting the safety of the industry; establishing standardization and certification standards of aquaculture equipment, and writing a risk map per aquaculture disasters and vulnerability profiles.
- The following three projects are applicable for the stages of response and recovery. These projects include the establishment of a department specializing in disasters of fisheries and aquaculture sectors, the adoption of a management system in public fisheries and aquaculture industry and the operation of an organization in charge of disaster monitoring and prevention.

2) Policy contribution

○ The study can be utilized as a basic material for establishing a strategy for risk management of aquaculture disasters by establishing the concept and scope of aquaculture disasters and analyzing the

importance by its types.

○ Having extracted problems based on the levels of response for disaster risk management and improvement measures, the study comes up with a basic policy direction and implementation strategies for disaster risk management in aquaculture. Therefore, it contributes to the establishment of policy for effective response of potential aquaculture disasters in the future.

3) Expected benefits

○ Strengthening an effective response system for aquaculture disasters by adopting a policy by risk levels of disasters.

- Reinforcing disaster response of the aquaculture industry and minimizing disaster damages by highlighting preemptive response including improving the structures of aquaculture farms and standardization of aquaculture equipment.

○ Creating jobs and improving swiftness and effectiveness of disaster response by establishing an organization specializing in aquaculture disasters and introducing a management system for public fisheries and aquaculture sectors.