

Research on the Construction of Emergency Material Management System for Major Emergencies

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Abstract: In order to reduce the serious harm caused by emergencies to the safety of human life, and to restore the normal, as well as orderly development of the society and economy as quickly as possible, the method of reviewing literature, interviewing with experts and field research is used to explain the process of emergency material deployment. There are some problems and feasible suggestions on how to improve the emergency material management system, which plays an important role in promoting the establishment of a modern emergency management system.

Keywords: Material reserve; Material delivery; Material distribution; Suggestion

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1. Introduction

The rapid economic development of today's world has greatly improved people's productivity and life. At the same time, various hazard factors continue to derive and they are intertwined, also mankind has begun to enter a period of serious disasters in history. Once a major disaster occurs, the society will enter a disordered phase. We are committed to rushing for major dangers and disaster relief. The scientific nature of the emergency material reserve before the disaster, the reasonableness of the emergency material delivery, and the accuracy with which the emergency materials are distributed after the disaster, all become significant factors. This is to establish a scientific and dynamic emergency material management system for the problems that need to be studied and urgently solved.

2. Several Problems Existing in the Material Management System

2.1. The emergency material reserve mechanism is not very scientific

Whether the emergency material reserve base and storage method are scientific and reasonable has a direct impact on the material supplier's supply speed and the disaster affected party's receipt speed. There are two major issues to consider. The question of reserve bases is one among them. Undoubtedly, the closer the emergency material reserve base is to the location of the emergency, the more beneficial it is to reduce the losses caused by the disaster. In recent years, the construction of emergency management information technology has been accelerated to support the identification of hazards, the monitoring and early warning of risks. Since occurrence is a characteristic of emergencies, it is difficult for us to accurately predict where they will occur. The second is the issue of reserve methods. Emergency material reserves have become an issue due to the uncertainty around the location of emergencies. There are two elements to the

manifestations. One is the shortage of emergency materials in wartime, and the other is that emergency materials are idle in peacetime, forming a scientific emergency material reserve mechanism. It must be imminent.

2.2. The emergency material delivery mechanism is relatively unreasonable

The rapid delivery of emergency materials are often a thorny issue. After a local emergency occurs, we need to ensure the normal delivery of emergency materials through transportation facilities and channels. One of the problems of transportation facilities are due to emergencies are in the unconventional operation stage of society, the transportation of emergency materials often has insufficient means of transportation. General purpose airports and drones need to be temporarily requisitioned, resulting in inefficiency in emergency response and rescue. The second is the problem of transportation channels. Due to the suddenness and urgency of emergencies, it is difficult to optimize the emergency material reserve mechanism under unusual circumstances, so emergency management work frequently has large social benefits but low economic benefits, although it is based on emergency rescue and disaster relief. The transportation of materials has become a problem, and the passage mechanism of emergency rescue vehicles cannot be managed.

2.3. The emergency material distribution mechanism is not very transparent

The distribution of emergency materials are the most important link, but often due to opaque distribution, emergency resources are wasted and rescue efficiency is low. The issue of information islands is one example. The disaster-stricken areas of major disasters are often wide, with many and scattered victims and varying levels of physical health, making scientific, accurate, and timely distribution of emergency materials a problem. Second, the opaque mechanism mixes with subjective factors with the material distribution process. Managers may privately obtain public products in order to meet their own interests, thereby disrupting the order of the entire supply chain. In addition, the emergency meeting process is already in a relatively chaotic state, which seriously affects the development of emergency response and rescue work and post-recovery work.

3. Several Countermeasures and Suggestions for Improving the Emergency Material Management System

3.1. Make scientific and reasonable reserves of emergency materials

After major and major emergencies, society has entered a state of disorder. We must have a scientific and dynamic emergency material reserve mechanism so that “normal” materials can be distributed in an orderly manner during “wartime.” First of all, in view of the issue of reserve bases, we must carry out preliminary layout planning, scientific site selection and construction of storage bases: First, based on our own past experience and information technology support, we must find commonalities from the uncertainty of emergencies and analyze the region. In places where emergencies are prone to and frequent, choose the best advantage for construction. Second, we must make full use of idle resources, such as rebuilding on the basis of abandoned warehouses and tailings ponds, as well as build emergency material reserve bases based on the principle of eco-friendly. Third, it is necessary to ensure the smooth and convenient surrounding traffic. You can choose to build an emergency material reserve base in the transportation hub area to ensure that not much time is wasted on the journey during the material transportation process.

Secondly, in view of the problem of storage methods, we should carry out the “rigid and flexible” method for storage according to the types of materials: First, the storage base stores disaster relief materials Sufficient emergency materials are stored in strict conformity with national standards for disaster management, food and material reserves, health, urban management, water conservation, and other relevant

departments responsible for emergency material reserves. The second is the storage base for living supplies. Mainly related to daily necessities such as grains, oils, food, bottled water, storage bases, large-scale supermarkets, and production companies signed storage agreements, the government provided funds for storage, and enterprises ensure that the government can use them at any time. The third is to purchase materials required by the storage base agreement. In the event of a major disaster, the storage base can establish agreements with appropriate emergency material production firms inside and beyond the province to ensure that emergency materials are adequately supplied. At the same time, it can also ensure that emergency materials are adequately supplied in the event of a major emergency. In the event of emergency supplies, the price of the needed supplies will not increase arbitrarily.

3.2. Efficient and quick delivery of emergency materials

After major emergencies occur, in response to the shortage of material transportation facilities, transportation facilities such as trucks and drones can be temporarily requisitioned to ensure that emergency materials can be received as quickly as possible in the disaster affected area. During this period, because the basic rights and obligations of citizens are involved, we must strengthen the compensation and reward mechanism for the basic rights of citizens after the event. Disaster affected areas and non-disaster affected areas are both part of social and economic development. In response to the problem of transportation channels, the rapid commissioning system of transportation should be improved, and the rapid transportation of high-speed rail, aviation, highways and emergency rescue vehicles should be established^[1]. When necessary, implement a free passage mechanism for emergency rescue vehicles, and temporarily requisition major transportation channels such as general airports to ensure that emergency supplies quickly reach the disaster area.

We need to establish an efficient and convenient emergency material delivery mechanism. At present, the Emergency Management Department has signed a strategic cooperation framework agreement with Jingdong Group. The two parties have carried out in-depth cooperation on the national emergency material support, the national emergency resource management platform, and the emergency warehousing logistics main laboratory. The construction of the emergency resource management platform is supported by new infrastructure such as blockchain, 5G, and big data, also makes full use of the “two codes and one chain,” that is, material codes, pass codes, blockchains and other core key technologies to assist emergency supplies. Normal delivery^[2]. In the next step, we must strengthen the cooperation between the relevant agencies and departments for the transportation of emergency materials, as well as establish and improve the management mechanism for the transportation of emergency materials.

3.3. Open and transparent distribution of emergency materials

Any advancement in science and technology will ultimately need to fall into the path of industrialization. In the future, to accelerate the feasible implementation of application cases in emergency rescue work based on blockchain technology, not only need to optimize system efficiency and strengthen data protection, but also need to consider its supporting facilities and applicable scenarios, as well as increase the number of Internet companies and emergency management related departments, also project cooperation between security companies.

To solve the problem of opacity in the distribution of emergency supplies, we mainly use advanced information technologies such as blockchain, big data, and cloud computing to assist in the distribution of emergency supplies. Either it is the material supplier, the material receiver, the material turnover party, or all the nodes of all parties. Data is transmitted on the chain through the chain. In the next step, government departments, logistics companies, charitable organizations, hospitals and other relevant parties should conduct reasonable demand analysis and technical preparations, incorporate decentralized application

(DAPP) into the work chain of the unit, automatically capture data from major positions, and strengthen the blockchain in the daily work of the unit. Use, accelerate the layout and implementation of blockchain technology in the e-government system, and aim to achieve the online distribution of emergency material allocation business as soon as possible. In doing so, on the one hand, the various operations of the nodes of all parties can be traced, the process remains traceable, and cannot be tampered with. On the other hand, the relevant regulatory agencies and legal institutions can also fully supervise the entire process of material issuance, which can fully restrict the behavior of relevant participants, achieve an open and transparent distribution of emergency materials, also ensure the authenticity of information before it is on the chain and data sharing between business departments.

4. Conclusion

In general, the deployment of emergency supplies involves the participation of multiple departments and multiple links. In the future, we must strengthen the pragmatic cooperation between various agencies and improve the emergency coordination and linkage mechanism, so as not only to achieve full production of emergency materials, but also sufficient reserves. As well as achieve fast delivery and accurate distribution, also achieve the modernization of the national emergency management system and capabilities as soon as possible.

Disclosure statement

The author declares no conflict of interest.

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