Standardized Management of China Railway Emergency Plan Strategic Ponder

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Abstract

At present, railway emergency plan management system has become the important support to maintain the normal operation of railway transport system in the foreign developed countries. But our country was far behind in emergency management system, and the emergency system is still not perfect. It's already cannot satisfy the current railway transport development needs. This paper analyzes the present situation of China railway emergency plan, and puts forward China's railway emergency plan standardization management strategic thinking in view of the existing problems.

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1. China railway emergency plan management present situation

Along with development of railway towards high-speed, overload, denser, more advanced technology, it proposes higher demands on emergency disposal of railway public emergencies, emergency management in national public management is increasing and improving in recent years. Railway emergency plan management in China begins to be more and more attention.

1.1. Emergency management and command organization at all levels basic establishment.

Various Railway Administration as well as stations under the jurisdiction set up emergency management and command organization, including emergency management leadership team at all levels, emergency management office, emergency rescue center and so on. Emergency management leadership team of Railway Administration (known as emergency management working committee), generally director and the secretary of Party Committee as director, other members of Railway Administration leadership as deputy director, Railway Administration offices, party-all departments, the Public Security Bureau and person in charge of the railway offices as members. Its duty is to lead and organize emergency management. Emergency management leadership team (emergency management committee) consists of the emergency management office, an organization and two signs with Railway Administration general duty room, Its responsibilities include: emergency duty, information dissemination, organization and coordination and so on, and undertakes emergency work and the related work of the duty room.

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Railway Administration emergency response center is an organization and two signs with the Railway Administration scheduling, the main duty is to command emergency rescue work, request for support to the ministerial departments and be in charge of emergency decision-making.

Transportation stations generally has the emergency management leading group, the unit party chief as leader, lead and command emergency management work. Emergency management office generally has office with 24-hour duty (station office, security section and so on), responsible for the daily work of the emergency management.

The establishment of these institutions makes their specific duties and tasks clear, ensure that a clear division of labor, each doing its job, when unexpected events occur.

1.2. The Railway Administration emergency plan system has basically formed.

In the building of the railway emergency plan system, basically form Ministry of Railways, Railway Administration and station three emergency plans system, Railway Administration class emergency plan is divided into Railway Administration comprehensive plans (part of the Railway Administration), Railway Administration specific plans and station plans formulated by business offices. Station emergency plan is divided into station comprehensive plans, station specific plans, station sector plans and station on-site disposal program. At present, Ministry of Railways has “8+1” Ministry of Railways class plans, the business unit formulates the appropriate sector plans against business; Railway Administration has 14 Railway Administration plans; Basic stations have an overall plan and a number of on-site disposal options.

1.3. Plan covering more than 90% hazard

The types of railway emergency plan increase, plans can cover more and more widely hazard, almost any risk situation has the relevant plan as guidance, avoid panic situation caused by some special hazards.

1.4. The more unified form of Railway Administration plans

The survey found that Railway Administration plan is more consistent in format, based on a template of the Ministry of Railways emergency plans, drawn up according to ideas and processes of the preparation. This has two advantages, on the one hand, in the learning and using, the relevant officers can clearly and orderly search plans, contribute to the higher authorities for inspectors and inspection work of plans. On the other hand, since railway accident is inter-provincial city, once the accident happen, it needs coordinate between Railway Administration, the same plan format makes the communication and liaison more convenient, makes the accident disposal more rapid and effective.

1.5. Constitution of emergency plan preparers

According to research, operations personnel were accounted for increasingly large proportion of the plan preparers, their views and ideas are more and more attention. Emergency plan is countermeasures for dealing with incidents, used to guide field operations, reduce blindness of incident response actions. Operations personnel have a wealth of practical experience, they are more familiar with on-site emergency rescue situation, they participate in the preparation of contingency plans, making plan effects more operational and more in line with the sector plan requirements. In the past, because of too much emphasizing on the views of experts, plan preparation process ignores special of this sector and station plan. Operations personnel take part in the preparation of a plan, overcoming many disadvantages, for example, poorly practical of plans content, low operating performance, out of touch with the actual, once accident which inconsistent with the plan occurs, rescue person does not know where to start and so on.

2. China railway emergency plan management problem

As a result of covering a wide range, system complexity and other factors of railway emergency plan management, Railway Administration and basic Stations have some problems and deficiencies in process of establishing emergency plan management system, mainly in the following areas:

2.1. Part-time problem of emergency management agencies, lack of emergency plans management full-time person.

Although Railway Administration and basic stations have become emergency management agencies, they handle official affairs jointly, is an organization and two signs with Railway Administration general duty room as well as station
office (safety division and so on). This requires that emergency management person perform the function of emergency duty, the information summarized and comprehensive coordination, also assume duty and other business functions.

This management model is not conducive to the effective implementation of plans, because business of emergency management person is too much, they do not throw themselves into the work of emergency management. Furthermore, with the leap-forward development of China railway, emergency management person should master professional knowledge, such as railway business knowledge, safety engineering technology, laws and regulations and so on, and predominate professional knowledge and skills, for example computer, network information system and so on, therefore, greater need for professional personnel.

2.2. Operability of the existing plan is weak, lack of response standard.

Emergency response is more intense subjective, most of plans are drawn up by Ministry of Railways plans template, lake of characteristics combining the actual situation of Railway Administration, so it may be a lack of operational and problem-solving efficiency in the actual operation. In addition, implementation work of plans should be pointing to a relatively fixed position, rather than a specific officer of strong liquidity.

2.3. Emergency management does not form a set of mature methods.

Emergency management process including plan preparation, approval, publishing, amendment and so on, do not have the complete and standardized model. Since the actual work time carried out by emergency management is limited, do not form systematic emergency management method in the emergency areas, so railway emergency plan management research is a very important issue, it has impact on the development of China's railroad industry in a wide range.

2.4. Hazard management is irregular.

Hazards’ investigation work of most units only started in some sectors, for example, Railway Administration freight sector does well in hazards’ investigation work, but information of hazard classification is limited to dangerous goods transport, not associated with the preparation and revision of emergency plans.

2.5. Lack of emergency plans evaluation method.

For the preparation or amendment of emergency plans, at present, do not form the popular evaluation method in the whole railway range, it causes that the reasonableness of a plan formulation or revision turning into full subjective opinion, the development of emergency management and emergency management science needs break through the bottleneck. In addition, most of the Railway Administration simple to understand emergency response capacity, evaluation is only the internal evaluation, and most of members are the designated business personnel and emergency office personnel, there is not scientific evaluation through organizing professional authority organization. Furthermore, the failure to establish regular evaluation system of emergency plan management, no specific safeguard mechanism, the system cannot guarantee the rationality of contingency plans; Plans are lack of dynamic properties, cannot rapidly adopt reasonable response measures when unexpected events occur; Comprehensive plans do not regularly review, update, affecting precise formulation and maintenance of the specific plans, sector plans and other plans.

2.6. Emergency management information support technology is more delayed, should strengthen to input scientific and technological.

Most of Railway Administration wants to enhance capabilities and standards of emergency management by emergency management information support technology, to make up for understaffing problems, and establish and improve the emergency management system. Now some of Railway Administration has some information support in accordance with their business needs, but because of the lack of a unified management, can only deal with daily plan management, and not some powerful features. Therefore, the next step should strengthen science and technology investment, achieve resource sharing of emergency plan management, improve decision-making speed, establish database of emergency plan management, provide a friendly platform for the resources accumulation emergency plan management, provide emergency resource sharing channel for the upper and lower. Particularly the system provides powerful query capabilities, builds a global emergency information resource high-speed access for decision-makers.
3. The establishment of a standardized management framework

To achieve standardization of the railway emergency plan management, need establish emergency plans system standardization and emergency plans management process, clear railway emergency plan preparation method.

3.1. Emergency plan system standardization

The railway emergency plan system is divided into three levels: Ministry of Railways level plans system, Railway Administration class emergency plans system, station class emergency plans system. The Ministry of Railways class emergency plans system includes specific plans and sector plans.

Although appellation of railway Administration class emergency plan system is different, in essence, they can be attributed to Railway Administration class comprehensive plans, Railway Administration class sector plans and Railway Administration class specific plans. Railway Administration class comprehensive plans are usually formulated by Railway Administration emergency office based on the plan types and templates, combined with the practical features of the Railway Administration. Railway Administration class sector plans are affiliated by business offices, usually only used in the internal operating system, no cooperation problem of multi-sector. Railway Administration class specific plans is plans or programs formulated for specific types of accidents, hazards and emergency protection.

Station emergency plan system is divided into station comprehensive plans, workshop (sector) plans and on-site disposal methods and so on. They are formulated by station leadership and related person, as action reference of normal production of station and workshops at station, or when unexpected event occurs, as shown in figure 1.

![Diagram of China railway emergency plan system](image)

Figure 1 China railway emergency plan system

3.2. A. Emergency plan management process standardization

Railway emergency plan management is mean to manage the whole life-cycle process of the railway emergency plan. The whole life-cycle process of the emergency plan includes plan preparation, approval, amendment and publishing.

Emergency office is responsible for Railway Administration class plan preparation, according to the requirements of the Ministry of Railways emergency office, combination of the actual situation, for example more prone to sudden events, to prepare: Sector plan preparation is usually required by a leading, Head of the relevant business assign one or more staff members within the department to do specific work; Station plan preparation usually consult Railway Administration class plan preparation, but there is handbook or emergency card prepared based on field experience in the actual job site, the emergency card or handbook cannot be known as the plan, however, as part of plan, play a significant role at the station emergency work.

In emergency plans at all levels, Railway Administration class plan approval process is more stringent, need to be submitted to the Ministry of Railways emergency office by Railway Administration emergency office, checked by all
relevant departments and experts organized by the Ministry of Railways emergency office, put forward recommendation for the unreasonable place and submit to the Railway Administration to modify, signed by relevant departments after meeting emergency management related request, issued by the leadership and archived by the Ministry of Railways; Applied range of sector plan is a little small, its approval process is less standardized, department leaderships usually issue, experts and researchers are also less participation, there is no clearly defined for archiving in Railway Administration emergency office, but this approval form does not exist a long cycle-level features of Railway Administration class plan approval, help enhance the effectiveness of plan; Comprehensive plans in the station plan need be checked by Railway Administration leaderships, but approval method of other plans do not be clearly limited.

The plan amendment process is similar as plan preparation process, plan preparation sector is usually plan amendment sector, the emergency office is responsible for Railway Administration plan amendment, the related business sector is in charge of sector plan amendment, the emergency office of stations is responsible for station plan amendment. Amendment is usually conducted 1-2 years, according to the instructions of the leadership of the higher authorities or the change of relevant emergency elements.

3.3. A. Railroad emergency plan preparation standardization

To implement the "Suggestion of State Council on the overall strengthening of emergency management ", instruct railway production units to improve preparation of railway emergency plan, regulate the preparation of railway production units emergency plans, enhance quality of preparation of railway production units emergency plans, according to existing relevant laws and regulations, develop preparation method of railway emergency plan. The preparation method includes preparation method of purpose and scope of plan, preparation method of plan process, preparation method of railway emergency plan architecture, preparation method of plan content and so on. The plan content relates profile, hazard analysis, organizational structure and responsibilities, prevention and warning, emergency response, information release, post-disposal, training and drill, rewards and punishments and Supplementary Provisions, etc. The main content of emergency plan is as follows:

![The main content of emergency plan](image)

Figure 2 Structure of China railway emergency plan

4. I. The current work process

At present, standardization work of the railway emergency plan management carried out in the following areas:

4.1. A. Classification of railway emergency plan

According to potential hazards in Railway Administration departments and on-site disposal program, summarize common types of accidents in various departments and preventive measures, classify plan on the basis of types of accidents. In addition, by risk analysis of risk sources and data obtained from historical accident statistics, put harmful levels, affected area and probability of incident in order, and to further classify, organize, probability of large, high degree of hazard events
as intermediate category, the other as small category, thus form a more comprehensive and more unique emergency plan system.

4.2. B. Arrangement of standardized preparation method of railway emergency plan

To simplify and guide the preparation of railway emergency plans, making the preparation plans to more standardized, design to introduce standardize preparation method of the railway emergency plan. According to the basic requirements of railway accident emergency plan prepared railway production units, for example procedures, content and elements and so on, combined with the characteristics of comprehensive plans, specific plans and on-site disposal program, preparation method separately provides advice for preparation of the appropriate plan. At present, preparation of railway emergency plans meet requirements of integrated format and complete the core elements, but the quality of preparation is not good. The main reason is that preparation person is lack of understanding for mechanism and discipline of the major incidents, considering the relevant factors only by experience, inevitably missing factors and links. In view of these problems, we should further improve analysis and description of the accident causes, accident characteristics, accident rule (including secondary accidents, derivative accident, etc.), accident prevention, warning and disposal measures, to ensure integrity and science of elements of the railway emergency plan.

4.3. C. Formulation of the process of railway emergency plan management

Regulate the whole life-cycle management of Railway Administration plans, station plans and on-site disposal program. Draw up process of emergency plan at all stages, including plan preparation, approval, publishing, filing, amendment and so on, besides, formulate the composition of staff during the preparation, detailed process in the approval stage and expert composition and so on, clear plan management process, improve the quality of plans management.

4.4. D. Evaluation of the railway emergency plan

In view of the quality of emergency plans, establish evaluation methods of railway emergency plan, separately build evaluation factors table about comprehensive plans, specific plans, sector plans, on-site disposal program, and set up form evaluation factors table to examine the integrity of the content and normative of the format of emergency plan. Simplify the objective of comprehensive and performance evaluation of railway emergency plan.

4.5. E. Exploitation of the railway emergency plan management system

According to needs which various Railway Administration and stations propose and recommendations of the relational experts, design modules of the digital railway plan management system, determine functions need achieve and evaluation process of emergency plan, on the basis of system design program, basically complete development work of system, at present, system is running in the test, after debugging end, design to application widely in the whole Railway Administrations.

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