

**National Emergency Management System Plan
during the 14th Five-Year Plan Period**

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Abbreviations

5G	fifth generation of mobile communications
AI	Artificial Intelligence
ASEAN	Association of South East Asian Nations
CAPF	Chinese People's Armed Police Force
CFR	National Comprehensive Firefighting and Rescue Force China Fire and Rescue
CISAR	China International Search and Rescue team
CSAR	China Search and Rescue team
GDP	Gross domestic product
IoT	Internet of Things
MEM	Ministry of Emergency Management
R&D	research and development

In accordance with the *Outline of the 14th Five-Year Plan (2021–2025) for National Economic and Social Development and the Long-Range Objectives Through 2035 of the People’s Republic of China*, the plan of China’s emergency management system is formulated to fully follow a series of important instructions by General Secretary Xi Jinping on emergency management and implement the major decisions and plans of the CPC Central Committee and the State Council for improving work safety and disaster prevention, mitigation and relief, thereby furthering the modernization of emergency management system and capacity.

Part I Background

1. Achievements in the 13th Five-Year Plan Period

During the 13th Five-Year Plan period, following the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, all local authorities and all relevant government departments resolutely implemented the decisions and plans of the CPC Central Committee and the State Council. We made major strides in promoting the reform and development of emergency management, and significantly boosted the capacity to prevent and resolve major safety risks. In addition, all of the major targets were achieved and all tasks were fulfilled on schedule.

— Constant improvements were made to the system of emergency management. The reform on the emergency management system was advanced, and the Ministry of Emergency Management (MEM) was established. These endeavors strengthened both the integrated and the whole-process management of emergency, optimized the forces and resources, and fostered a more systematic, integrated and coordinated emergency management. At the same time, an emergency management system with Chinese characteristics was initially formed, featuring unified command, reserves of specialized and regular staff, quick response, and effective coordination among different levels. We deepened the reform of comprehensive administrative law enforcement in emergency

management, set up the National Mine Safety Administration, and intensified the safety inspection on hazardous chemicals. We developed the mechanism on risk consultation and judgment, integrated mechanism on disaster prevention, rescue and relief, preset mechanism on rescue forces, and horizontal command mechanism. We also promoted the formulation and revision of a package of laws and regulations on emergency management and emergency response plans. Finally, a system of all-hazards approach to all types of emergencies was basically formed.

— There was a remarkable increase in efficiency and capacity for emergency rescue. Steady progress was made in the transformation of the Chinese People's Armed Police Force (CAPF) Fire Fighting Force and CAPF Forest Force, based on which the National Comprehensive Firefighting and Rescue Force (China Fire and Rescue, CFR) was established. The development of various forms of rescue teams was supported. Through these efforts, we accelerated the construction of the system of emergency rescue forces with Chinese characteristics, with the CFR as the main force, the professional rescue teams for coordination, military forces for emergency as the spearhead, and non-governmental forces as the auxiliary. To meet the needs of all possible types of disasters, we increased the allocation of advanced, special and specific rescue equipment, fundamentally accomplished a system for disaster relief material reserve, at the central, provincial, city, county and township levels, and improved the national unified disaster reporting system. We also built up the capacity for monitoring and warning, emergency communications and emergency transportation. With the comprehensive emergency response capacities significantly enhanced, China successfully dealt with numerous major and catastrophic accidents and tackled a series of severe challenges.

— There was a steady promotion of work safety. We continued to strengthen the work safety responsibility system, so as to ensure that CPC committees and governments share equal responsibilities, while the CPC leaders and government officials in charge bear responsibilities for both

their posts and work safety, engage in coordination and cooperation, and are held accountable for dereliction of their duties. We assessed the performance of work safety and fire control of provincial governments strictly, and the performance of work safety of members of the Work Safety Committee of the State Council annually, and at the same time, improved the incentive and restraint mechanism. We carried out specialized work safety rectification, focusing on hazardous chemicals, mines, fire control, transportation, urban construction, industrial parks and hazardous waste. The double prevention mechanism, namely the management and control of graded safety risks and the identification and treatment of hazards, was gradually established. Initial success was achieved in the special action of strengthening safety through science and technology. Calculated in comparable terms, the total, major and catastrophic accidents in 2020 decreased by 43.3%, 36.1% and 57.9% compared to 2015, while the corresponding death tolls decreased by 38.8%, 37.3% and 65.9%.

—There was a noticeable enhancement in the capacity for disaster prevention and mitigation. We established an Inter-ministerial Joint Conference mechanism for prevention and control of disasters, implemented nine key projects for prevention and control of natural hazards, launched the first National Comprehensive Survey of Natural Disaster Risks, and promoted the harnessing of major rivers and small- and medium-sized rivers. A number of key projects were carried out, including the nationwide projects on prevention and control of geological disasters, control of flash flood disasters, comprehensive management of key areas with fire hazards, construction of safe roads, renovation of dilapidated houses in rural areas, and reinforcement of houses in earthquake-prone areas, facilitating improvements on the capacity for disaster preparation in urban and rural areas and the comprehensive capacity for disaster prevention and mitigation. Compared with the 12th Five-Year Plan period, the death toll and missing persons, the number of collapsed houses and the percentage of direct economic losses of GDP due to disasters decreased by 37.6%, 70.8% and 38.9% respectively.

2. Challenges behind opportunities

During the 14th Five-Year Plan period, China remains in an important period of strategic opportunity for development. With a view to the overall development of the cause of the Party and the country, the CPC Central Committee with Comrade Xi Jinping at its core, will adhere to the people-centered philosophy of development, balance development and security imperatives with unprecedented priority given to safety, and put forward overall plans on comprehensively improving capacity for ensuring public security, enhancing work safety and improving the national emergency management system, which has provided great opportunities to address the acute and perennial problems in emergency management and promote the modernization of emergency management system and its capacity. However, it should be aware that China is one of the world's most disaster-prone countries. With wide variety, broad distribution and high frequency, disasters in China have caused great losses in terms of human lives and property. China remains in the crucial period during which numerous varieties of potential safety risks are intertwined, and work safety accidents are still likely to occur with high frequency.

—There remain certain acute risks and hazards. The reality of work safety with a weak foundation would be hard to be changed fundamentally for the better in the short term. The safety risks remain acute in traditional high-risk industries such as hazardous chemicals, mines, transportation, construction and fire protection. In addition, security threats and hazards are becoming pronounced which include urban waterlogging, fire, gas leakage and explosion, crowding and trampling due to the massive construction of public service facilities, super-large urban complexes, places of large concentration of people, high-rise buildings, underground spaces and underground pipeline networks. There exhibits a trend of fluctuation and rebound of major and catastrophic accidents among various regions and industries. With the increase of global warming, we are likely to face more disaster risks, namely, there would be more destructive and more frequent extreme weather and more landing of

typhoons with greater intensity. All of these, compounded with the uneven distribution of precipitation, abnormal changes in temperature and other factors, would give more rise to the risks of floods, droughts, high temperature, heat waves, hazardous winter weather of snow, sleet or freezing rain, forest and grassland fires and catastrophic earthquake disasters, resulting in more abrupt and abnormal disasters.

—There is an increasing difficulty for disaster prevention and control. Along with the continuous advancement of industrialization and urbanization, China's central cities and city clusters are developing exponentially. The increasingly concentrated population and production factor, along with the ever more complex industrial chain, supply chain and value chain, make the working and living spaces closely related, thus dramatically increasing the exposure, concentration and vulnerability of diverse disaster-bearing bodies. The broad application of new energy, new craft and new materials, together with the substantial growth of new industries, new business formats and new models, pose new security threats, particularly in some "unexpected and less managed" fields. Furthermore, disasters and accidents occur in a more hidden, complex and tightly-coupled way. Major and catastrophic disasters and accidents often lead to a series of secondary and derivative disasters and ecological environment damages, thus forming a complex and diverse disaster chain and accident chain, which in turn poses more challenges to the prevention and control of risks and response to emergencies. And the rapid development of globalization, informatization and networking may allow disasters and accidents to have greater and deeper increasing impact on society.

—There is still a weak foundation for emergency management. The reform of emergency management system in China needs to be deepened, and some local reforms are still in the running-in period, thus it is urgent that we should build an optimized, coordinated and efficient pattern. The working mechanisms require further improvement on flood control and drought relief, earthquake relief, forest and grassland fire prevention and comprehensive disaster reduction. The responsibilities

must be further rationalized for comprehensive supervision of work safety and industry supervision. There is an acute shortage of emergency forces, especially that of the CFR. In addition, the cultivation of professionals for emergency management has lagged behind, and the development of specialized teams and non-governmental forces must be strengthened. A higher level of scientific and technological informatization must be achieved, so as to facilitate the early perception, identification, warning and release of hazards and risks. Furthermore, a support system of emergency supplies, emergency communications, command platforms, equipment allocation, emergency transportation and remote delivery must be improved. More efforts must be made to boost the emergency response capability at the grassroots level and improve the public awareness of risk prevention and their ability of self-rescue and mutual rescue. With all of these urgent issues yet to be solved, there still remains a large gap between the current emergency management system and capability and the requirements of the modernized national governance system and capability.

Part II General Requirements

1. Guidelines

We will follow the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, fully implement the guiding principles of the 19th CPC National Congress and all the plenary sessions of the 19th CPC Central Committee. We will strengthen our consciousness of the need to maintain political integrity, think in big-picture terms, follow the leadership core, and keep in alignment with the central Party leadership. We will stay confident in the path, theory, system, and culture of socialism with Chinese characteristics. We will firmly uphold Comrade Xi Jinping's core position on the Party Central Committee and in the Party as a whole, and uphold the Central Committee's authority and its centralized, unified leadership. Through the application of systematic thinking, we will work in accordance with

the overall plan for promoting all-round economic, political, cultural, social, and ecological progress, and make comprehensive moves to complete a moderately prosperous society in all respects, to extend reform, to advance the rule of law, and to strengthen Party discipline. We will be committed to the new development philosophy and uphold the underlying principle of pursuing progress while prioritizing stability. We will adhere to the principle of “People first, Life first”, and pursue a holistic approach to national security, ensuring better coordination in pursuing development and upholding security. With pursuing high-quality development as the theme, and preventing and resolving major safety risks as the main task, we will further promote the modernization of emergency management system and capacity, take resolute measures to curb major and catastrophic accidents, and minimize the loss of disasters and accidents. We will spare no efforts to ensure the safety of people’s lives and property and the lasting stability of the country, so as to provide a solid safety guarantee for elevating the Peaceful China initiative to a higher level, and building China into a great modern socialist country in an all-round way.

2. Basic principles

— Upholding the Party’s leadership role. We will strengthen the centralized and unified leadership role of the Party in emergency management, fully implement the Party’s basic theory, line, and policy, and turn the Party’s political and organizational advantages, its strength in its close ties with the masses, and the socialist institutional strength in mobilizing resources for major undertakings into a powerful driving and safeguarding force for developing the cause of emergency management.

—Putting people first. We will adhere to a people-centered philosophy of development, and ensure that our development is for the people and depends on the people, and that its fruits are shared by the people. In addition, we will always give priority to the protection of people’s health, lives and property, and comprehensively improve people’s safety

attainment and emergency awareness, so as to promote the harmonious coexistence between man and nature.

—Giving priority to prevention of risks and hazards. We will improve the mechanism to prevent and dissolve risks at earlier stages and more localized levels, strengthen control on the source, and consolidate the safety foundation. We will strive to solve problems in advance through effective risk assessment, hazard screening, monitoring and early warning, and application of prevention practices involving people, materials, and technologies.

—Adhering to the rule of law. Taking into account the principles and approaches of the rule of law, we will accelerate the development of an emergency management legal system with appropriate laws, regulations and standards to clarify authority and responsibility, so that all practices can be carried out by law. We will also raise the public awareness of rule of law concerning emergency management, while realizing the institutionalization, legalization, and standardization of emergency management.

—Applying targeted governance. We will recognize and understand the causes of disasters and accidents in a scientific and systematic manner, so that we can coordinate all efforts before, during and after an event, and employ targeted and context-specific strategies and measures in publicizing early warning, response and rescue, rehabilitation, reconstruction, inspection and law enforcement.

—Advocating social co-governance. We will practice the mass viewpoint and mass line throughout our work, and bolster and adopt new approaches in social governance, thereby giving full play to the role of market mechanism, enhancing collective and coordinated prevention and control, popularizing safety knowledge, cultivating safety culture, and constantly promoting the safety awareness of the whole society to build a strong people's line of defense for disaster prevention, mitigation and relief.

3. Primary objectives

Overall goals: By 2025, significant progress shall be achieved in the modernization of emergency management system and capacity building. We will build an emergency management system with Chinese characteristics, featuring unified command, reserves of specialized and regular staff, quick response, and effective coordination among different levels. We will establish an authoritative and efficient national emergency response capacity system based on unified leadership and parity of authority and responsibility and constantly improve the system and mechanism for preventing and resolving major safety risks. The emergency rescue forces will be strengthened in an all-round way, and the law-based emergency management with sufficient applications of the state-of-the-art technologies and the overall supportive capabilities will be greatly improved. A positive trend will appear in the improvement of work safety and comprehensive disaster prevention and mitigation, and social preparedness and response capacities for disasters and accidents will be significantly enhanced. By 2035, we will establish an emergency management system with Chinese characteristics, which is compatible with China's long-range goal of realizing basic socialist modernization, and practising law-based, scientific and smart emergency response, thereby shaping a new pattern based on collaboration, participation, and common interests.

Box 1 Main Indicators during the 14th Five-Year Plan Period			
Serial Number	Indicator	Expected Value	Attribute
1	Death toll from work safety accidents	15% decrease	Mandatory
2	Number of major or catastrophic work safety accidents	20% decrease	Mandatory
3	Death rate from work safety accidents per unit of GDP	33% decrease	Mandatory

4	Death rate from work safety accidents per 100,000 employees in industry, mining, commerce, and trade	20% decrease	Mandatory
5	Death toll attributed to disasters annually, per 1,000,000 population	<1	Anticipated
6	Number of affected people attributed to disasters annually, per 100,000 population	<15,000	Anticipated
7	Average annual direct economic loss attributed to disasters in relation to GDP	<1%	Anticipated

— There will be improved emergency management system and mechanism. More rational arrangement will be made in the leadership system, command system, function allocation, organizational structure, and coordination mechanism. In addition, significant advancement will be achieved in cultivation of personnel, capacity building and regulating conduct. The infrastructure, equipment, efficiency and performance of emergency management departments at different levels will be improved in an all-round way. The proportion of standardized equipment allocated will reach 80% for administrative law enforcement by emergency management departments at or above the county level.

—There will be more efficient prevention and control of disasters and accident risks. Continuous improvement will be made in mechanism on management and control of classified safety risk. Enhancement will be achieved in capacity for hazard screening and management, comprehensive monitoring of various disasters and chains, early risk perception and identification, forecasting and early warning. There will be large promotion of urban and rural infrastructure in capacity for disaster prevention as well as the level of work safety in key industries.

Major and catastrophic safety accidents will have been curbed effectively as to hazardous chemicals, mines, transportation, construction and fires. Secondary environmental incidents shall be strictly prevented, which may be caused by emergency disposal of work safety accidents. Information of disasters and accidents will be reported in a timely and accurate manner, and the coverage of early warning message released to the public shall reach 90%.

—A quicker response to major and catastrophic disasters with better preparedness will be achieved. With well-balanced composition and positioning of comprehensive rescue, professional rescue and aviation rescue forces, the efficiency of emergency rescue will be significantly improved, and the supportive capacities in emergency planning, communications, equipment, materials, broadcasting, and transportation will be further strengthened. Additionally, the deployment of aviation emergency response forces to the disaster-prone areas will be able to be completed within 2 hours, and the basic life restoration of the affected people shall be shortened to less than 10 hours after the occurrence of a disaster.

—There will be more effective allocation of factors and resources for emergency management. The allocation of scientific and technological resources, human resources, information resources and industrial resources will become more reasonable and effective. Major breakthroughs will be made in basic research, key technologies and the research and development (R&D) of important equipment. The emergency management talent team will develop to a reasonable size with high-quality and innovative personnel. More scientific and technological advances will be applied, and the level of informatization will be markedly elevated. Continuous improvement shall be made as to the mechanism on the Belt and Road International Cooperation Framework for Disaster Risk Reduction and Emergency Management. Professionals will be made to account for 60% in emergency management departments at and above the county level.

—An emergency system of social governance will be enhanced out of collaboration, participation, and common interests. With public safety attainment significantly enhanced, the public will be more aware of emergency preparedness and response, and be able to conduct self-rescue and mutual rescue. Precise measures will be implemented in social governance. An orderly, well-regulated, and dynamic environment will be built for the development of non-governmental emergency services, and a social governance pattern will be established based on collaboration, participation, and common interests. Finally, 100% of newly enrolled employees will receive training on safety skills in enterprises above designated size in key industries.

Part III Deepening the Reform for an Optimized, Coordinated, and Efficient Governance Pattern

1. Improving the leadership and command system

We will establish a coordinated command system between the national headquarters and provincial, municipal, and county departments to integrate regular management and emergency responses. In line with the principles of comprehensive coordination, classified management, graded responsibility, and territorial jurisdiction, the graded response mechanism shall be improved, thereby clarifying the respective duties of the central and local governments for various disasters and accidents at different levels, and streamlining the command system for flood control, drought relief, earthquake relief, forest, and grassland fire prevention and control. We will integrate the fire and rescue forces and the forest firefighters into a single standardized, specialized, and professionalized CFR, which will be strictly disciplined and organized in a quasi-active service and quasi-military manner. We will establish a headquarters for the unified leadership and command. The leadership system will be improved, featuring unified leadership and hierarchical command. The establishment of a modernized command system, combining the authorities and the professionals, will be accelerated. Staffing of the

entire system shall be optimized to meet the requirements of China's economic and social development. Administration of emergency management authorities at all levels shall be improved, and the quasi-military management shall be implemented to all of the forces.

2. Improving the supervision and inspection system

We will carry out further reform in the comprehensive administrative law enforcement of emergency management. The responsibilities of supervision and law enforcement will be reorganized; a comprehensive administrative law enforcement force will be established; and the supervision and law enforcement system will be improved. More authority shall be allocated to the grass-roots levels and the front-line units, putting stress on the dynamic inspection patrol, case-handling and other front-line law enforcement actions. A guidance catalogue of comprehensive administrative law enforcement matters will be formulated; a multi-department collaborative mechanism for law enforcement concerning fire safety will be developed; and a new supervision mode for fire safety will be created. A capacity building plan for work safety supervision and inspection will be formulated and implemented; and departments responsible for work safety supervision and inspection shall enhance their strengths to ensure effective performance of their duties. The capacities of mine safety inspection authorities at all levels shall be strengthened, and the mine safety supervision and inspection system shall be improved, with the State responsible for comprehensive supervision and administration, the local authorities for supervision within their respective scopes of duties, and the enterprises for the implementation of the relevant regulations. We will promote the capacity of local mine safety regulatory agencies and provide technical support for regulatory work through purchase of services by governments.

3. Optimizing the coordination mechanism on emergency response

—We will improve inter-departmental coordination. We will give full play to the overall planning role of relevant bodies for deliberation and coordination, utilize the comprehensive advantages of emergency management departments and the relevant specialized departments, and clarify the responsibilities of various departments in accident prevention, disaster prevention, information dissemination, emergency rescue, environment monitoring, logistics, rehabilitation and reconstruction, and maintenance of social stability. We will improve the coordination mechanism for preventing and resolving major safety risks and on-site command and coordination mechanism for responding to disasters and accidents.

—We will enhance inter-regional coordination. We will improve regional coordination and collaboration mechanisms in high-risk areas for disasters, as well as in the Beijing-Tianjin-Hebei region, Yangtze River Delta, Guangdong-Hong Kong-Macao Greater Bay Area, Chengdu-Chongqing urban agglomeration, and Yangtze River and Yellow River basins. We will standardize the procedures and operations of emergency management, strengthen joint prevention and control of major risks, conduct cross-regional and cross-basin risk surveys and formulate joint emergency response plans. We will also develop joint command, disaster notification, resource sharing, cross-regional rescue and other operations, organize comprehensive emergency exercises, and strengthen mutual assistance and deployment.

4. Ensuring the fulfillment of duties for emergency management

— We will ensure that local governments fulfill their regulatory responsibilities under their jurisdiction. We will establish an accountability system for emergency management in which Party committees and governments share equal responsibilities, while the Party leaders and government officials in charge bear responsibilities for both

their posts and work safety, make coordination and cooperation, and are held accountable for dereliction of their duties. The building of emergency management system and capacity will be used as the KPI in comprehensive assessment and evaluation of local Party and government leading officials at all levels. We will promote the implementation of responsibility system of work safety for local Party and government leading officials through formulating work safety responsibility lists and annual work lists, and incorporating work safety into the evaluation system for high-quality development. We will improve the responsibility systems of local governments for prevention and emergency preparedness, investigation, monitoring, and early warning of risks and hazards of disasters and accidents, as well as emergency response, rescue and disaster relief, so as to promote the building of systems and capacities for local emergency management.

—Regulatory duties of the competent government departments shall be defined. By meeting the requirements that the supervision of work safety must be involved in the supervision of an industry, of a business, and of production and operation, we will consolidate the duties of relevant departments for work safety inspection in hazardous chemicals, new fuels, places with high concentrations of people and other related industries in accordance with laws and regulations. In addition, we will strengthen the safety management of government bodies, organizations, enterprises and public institutions, and tighten the chain of responsibility with more coordination of efforts for a joint force of supervision, so as to prevent systemic risks in key industries and major risks and hazards, and resolutely curb major and catastrophic accidents.

—Efforts shall be made to ensure that production and operation entities shoulder primary responsibility for work safety. We will improve the governance mechanism for work safety, in which the production and operation entities bear safety responsibility with participation by employees, supervision and management by the government, self-discipline by industries, and supervision by society. The principal person in direct charge of a production and operation entity shall be listed as the

primary person responsible for the work safety of the unit. Based on improving the corporate governance system of modern enterprises, a responsibility system for work safety will be established for all employees of enterprises. The “double reporting” system will be improved, which demands the investigation and handling of serious potential accidents by production and operation entities be reported not only to the departments responsible for the supervision of work safety, but also to the workers’ congress. Enterprises above designated size in key industries will be encouraged to set up management and technical teams for work safety, and improve the professional capacities of enterprises to fulfill their main responsibilities. An action plan, in which a rational proportion of fees for prevention of industrial injury will be determined in the industrial injury insurance fund according to regulations, will be implemented for industrial injury prevention.

—Accountability shall be strictly enforced. We will improve the direct reporting system for disasters and accidents with strict investigation of the accountability for concealing or omitting dereliction of duty or certain facts, giving false reports, or delaying submission of report. Mechanisms will be developed for investigation and assessment of major disasters and for investigation of accidents, and the principle of “four musts” shall be followed in the investigation and handling of accidents, which requires that the cause of an accident must be identified, the persons responsible for the accident must be penalized, people involved must learn from their mistakes, and the corrective actions for the accident must be taken. Priority will be given to accident investigations, which will be extended to the formulation of policies, the revision of regulations, the management of systems, and improvement in standards and technologies. More will be done for investigations and analyses of near-misses and personnel injury accidents to strictly tackle minor hazards that may lead to major accidents. Improvements will be made to the evaluation index system and incentive mechanism for emergency management responsibilities, and regular actions will be taken to carry out “looking back activities”, namely assessing the effects of corrective actions after the investigation and handling of major accidents. Meanwhile, we will strengthen the

supervision and assessment of the implementation of work safety responsibility, by combined use of such means as inspection patrols and supervised inspections.

Part IV Fostering Environment with Good Law, and Good Governance to Lay a Solid Foundation for Rule of Law in Emergency Management

1. Improving the legal and regulatory framework

We will improve the supporting regulations of the Work Safety Law, and advance the formulation and revision of laws and regulations in such fields as emergency management, disasters prevention and control, emergency rescue organizations, national fire and rescue personnel, mine safety and hazardous chemicals safety, thereby promoting the establishment of a system of laws and regulations on emergency management with Chinese characteristics. Local governments shall be supported to formulate and revise local laws and regulations on emergency management based on local conditions. Continued efforts will be made to push forward refined legislation and improve mechanisms for initiation, drafting, argumentation, coordination, and deliberation of emergency management legislation, as well as mechanisms for evaluating its implementation after being legislated. Improvements will be made to the systems of formulating, supervising, and managing emergency management regulations and normative documents, and regular clearance, and special review of normative documents shall be carried out. We will improve the mechanism to open more channels for public participation in government legislation. Efforts will also be made to launch a variety of activities to popularize knowledge of the law and increase publicity on typical cases.

2. Ensuring strict law enforcement on work safety

We will intensify law enforcement on work safety in key industries such as hazardous chemicals, mining, industry and trade, transportation and construction, thus continuing to promote “Law enforcement with Internet Plus” initiative. We will strengthen key troubleshooting and surprise inspections through combined use of such ways as “going straight to the production and operation entities and workplace without giving notices or information, listening to reports, accompanying or reception”, cross-enforcement in between different jurisdictions, and “double randomness with one openness (randomizing inspectors and inspecting areas yet publicizing the results)”. We will develop the reporting system of typical law enforcement cases of work safety, and severely crack down on illegal production and operation. The three procedures of public announcement of administrative law enforcement, record of the whole process of law enforcement and legal review of major law enforcement decisions are to be strictly followed, and it is necessary to fully implement the system of notification and commitment of fire safety inspection for public gathering places before they are put into use and open for business. We will improve the standards for the discretion of administrative penalties on work safety and refine the levels of administrative penalties. We will strictly investigate the accountability for serious illegal acts before accidents, strictly follow the legal standards and procedures of transfer, and standardize the implementation of the linkage mechanism between administrative law enforcement and criminal justice. In addition, we will further strengthen supervision for law enforcement and improve internal and external supervision mechanisms.

3. Advancing administrative decision-making according to law

The whole process of administrative decision-making in emergency management will be brought into the track of rule of law, and general and major administrative decisions will be managed out of categorization. Legal procedures and supporting systems concerning public

participation, expert demonstration, risk assessment, legitimacy review, and collective discussion and decision will be improved and the mechanism for retrospective investigation and accountability for major administrative decisions in emergency management will be improved and implemented. The catalogue and standards of decision-making items will be formulated and updated on a regular basis, and will be released to the public according to law. An emergency decision-making system will be established in accordance with the law, regulating the details of initiating conditions, implementation methods, and exemption from accountability after due diligence. We will further reforms to streamline administration and delegate power, improve regulation, and upgrade services for emergency management to strengthen supervision before, during and after an event to build local governments' capacity to handle emergencies, and actively foster a market environment for fair and orderly competition.

4. Promoting the construction of standards for emergency management

An action plan will be implemented for upgrading standards in emergency management through establishing a standard system with complete structure, clear hierarchy and proper classification. Standardization technical organizations will be developed for emergency management, mine safety, and other related fields. In view of weak links in standards exposed by disasters and accidents, work will be carried out to accelerate the formulation and revision of a number of national standards and industry standards to support the effective implementation of laws, and develop standards for the application of new technologies such as big data, Internet of Things (IoT) and Artificial Intelligence (AI) in the field of emergency management. In addition, social groups will be encouraged to formulate standards for emergency products and services. We will accelerate the formulation and revision of mandatory standards on work safety and fire rescue, formulate standards for firefighting capacity building in port areas as soon as possible, and

evaluate the effectiveness of the implementation of national standards related to emergency management. We will promote in-depth integration of enterprise standardization and enterprise work safety governance system, and carry out pilot projects of national-level emergency management standards. Advanced enterprises will be encouraged to establish international emergency management standards, helping to promote mutual recognition of standards and rules between China and the world. There will be increased supply of foreign language versions of standards for emergency management.

Part V Weaving a Dense Network for Disasters and Accidents to Prevent and Resolve Major Risks

1. Focusing on prevention, management, and control of risks at sources

—Risk assessment shall be strengthened. Based on the first National Comprehensive Survey of Natural Disaster Risks, a zoning map for risk prevention and control of disasters will be formulated. More actions will be taken for the fine detection of seismotectonic environment and exploration of active faults in key areas and cities. Efforts will be made to advance fire risk investigation around cities and towns. We will improve the management system of safety risk assessment, urge enterprises in key industries and sectors to establish management systems for safety risks, comprehensively carry out risk assessment of urban safety, carry out safety risk assessment in key areas, major projects and large oil and gas storage facilities regularly, and formulate and implement risk management and control measures. A comprehensive survey of industrial parks nationwide will be carried out on emergency resources and capacity to guide and promote the construction of databases of emergency resources for industrial parks across China.

—Ensuring sound planning with proper layout. We will attempt to establish a red line constraint mechanism on natural hazards. The integration of disaster risk zoning with all kinds of planning at all levels will be strengthened and the consultation mechanism on risk assessment of planning safety will be improved. We will strengthen risk prevention and control during the governance of super-large and mega-cities, coordinate the planning and construction of towns and villages at the county level, strictly control the level and capacity of regional risks, and carry out relocation projects to avoid geological hazards, accelerating the formation of a spatial pattern and layout of ways of working and living that may effectively prevent and control major safety risks. The land demand of infrastructure for urban disaster prevention, mitigation, and relief will be included in the annual local land use plan and guaranteed with priority. We will improve the planning and layout of emergency shelters, as well as standards for shelter construction and post-evaluation mechanisms, while any arbitrary change shall be strictly prohibited in the nature of use of emergency shelters and emergency infrastructure.

2. Strengthening the capacity for risk monitoring, early warning, and forecasting

We will make full use of such technologies as IoT, the industrial Internet, remote sensing, video recognition, and the fifth generation of mobile communications (5G), so as to improve the capacity for monitoring and perception of disasters and accidents, optimize the layout of monitoring stations and networks for disasters, and improve emergency satellite observation constellations to build an integrated network of monitoring and early warning for disasters and accidents with a whole coverage of air, space, land, and sea. Intelligent, networked, integrated, and miniaturized sensing terminals will be widely deployed, and a safety monitoring and controlling system for high-risk industries will be networked nationally or regionally within provinces (autonomous regions and municipalities directly under the Central Government). The comprehensive risk early warning system will be improved, the ability to

identify risks at early stages will be enhanced, a refined system for early-warning and prediction of meteorological disasters will be developed, the business of predicting the trends of long, medium, short, impending, and post-earthquake periods will be optimized, and the level of public services for security risk early warning will be improved. We will establish a standard system for the release of emergency early warning information, optimize the release mode, increase channels and languages for release, improve the coverage, accuracy, and timeliness of release, and strengthen the capacity for precise release targeting specific regions, specific groups, and specific time. We will formulate a risk warning and notification system for major events and a system of suspension of work, schooling and business in major disastrous weather, with clear risk levels and requirements for safety measures. The sharing of early warning information on disasters and accidents will be promoted across departments and regions.

3. Resolving major work safety challenges at the root causes and the toughest spots

— Enforcing strict safety access policy. We will strengthen safety management in key areas such as industrial parks, formulate “prohibition, restriction and control” catalogs for hazardous chemicals, fireworks and firecrackers, mines, industry and trades, improve the database for registration and management of hazardous chemicals and the function of dynamic statistical analysis, promote the establishment of a joint safety approval system for construction projects in high-risk industries, and strengthen the life cycle management of hazardous chemicals under special control. We will establish a more stringent and standardized safety access system, strengthen the safety management of mining and fire protection equipment and materials, and optimize the safety technology and safety allocation of transportation and fishing vessels. The strict system of simultaneous design, construction, production, and operation of safety facilities for construction projects will be implemented, and the mechanism of safety risk assessment for decision-

making of major projects will be improved. Actions will be taken to promote the implementation of the Globally Harmonized System of Classification and Labeling of Chemicals.

—Taking more actions to eliminate hazards. We will improve the standards for hazards screening and management in work safety by level and by type, formulate a list of hazards that must be identified and controlled, and achieve the closed-loop management of self-examination, self-correction, and self-reporting of hazards. A reporting system shall be established for abandoned hazardous chemicals. The management of local major hazards must be supervised and handled by one-level-upper emergency management departments, the case must be closed in time once rectified, and the effect of rectification must be evaluated. We will promote the incorporation of enterprises' work safety information into the information platform of government regulatory departments, build a dynamic database of risks and hazards featuring multi-level and multi-lateral interconnection between the government and enterprises, comprehensively analyze and judge various kinds of risks, and track the rectification and clearance of hazards. We will carry out feasibility study to include the classified control of safety risk and hazard screening and management within the scope of enterprise work safety expenditure.

—Making greater efforts for special rectification action. We will take actions to improve safety conditions in key industries such as hazardous chemicals, mines, fire protection, transportation, construction, civil explosives, special equipment, and large commercial complexes, strengthen the weak links and solve prominent problems affecting and restricting work safety, and urge enterprises to strictly manage safety, increase investment in safety, and implement risk control measures. Combining with the deepening of supply-side structural reform, we will push enterprises to exit the market if they have weak safety foundation, low safety capability and fail to meet the standards after rectification. Overall consideration will be given to the relocation of hazardous chemicals enterprises and the examination and approval of relevant

project construction, while priority will be given to qualified enterprises with relocation land. We will continue to promote work safety standardization in enterprises, and ensure the standardization of safety management, operation behaviors, facilities and equipment, and working environment. Outdated technologies, processes, materials, and equipment will be phased out, and the inspection and testing of key facilities, equipment, and instruments will be intensified. We will promote various financial institutions to introduce preferential loans and other financial products, set up efforts to boost new technologies, processes, materials, and equipment, implement the transformation to intelligent mines, intelligent plants, and digitalized workshops, and carry out pilot demonstrations of intelligent operations and robot substitution for dangerous jobs. We will strengthen the supervision of the whole life cycle of hazardous waste, dynamically revise the *National Catalogue of Hazardous Waste*, and revise the standards for hazardous waste identification and storage as well as pollution control on co-processing of solid wastes in cement kiln, while also developing the list of key units whose hazardous waste is supervised. We will establish a mechanism on supervision, cooperation and joint law enforcement of hazardous wastes such as wasted hazardous chemicals, and strengthen the capacity building of hazardous waste supervision and technical support for emergency disposal.

Box 2 Major Targets and Tasks for Work Safety
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| <p>1. Hazardous chemicals. Chemical industry park intrinsic safety improvement, enterprise classified management and rectification, illegal “small chemical plants” renovation, major hazard control, safety risk control of ammonium nitrate, and other high-risk chemicals, and fine chemicals and other high-risk process, automation control, special operation safety management, chemical pipelines, oil and gas stations, and other flammable, explosive, and highly toxic facilities in urban areas; transportation, use and disposal of chemicals.</p> <p>2. Fireworks. Production, storage, and transportation facilities, and others; production, operation, import and export, transportation, discharge, destruction, disposal, and other links.</p> |
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3. Mines. Coal mines with serious hazards such as coal and gas outburst, rock burst, complex or extremely complex hydrogeological types, coal mines outputting less than 300,000 tons per year, large- and medium-sized coal mines with mining depth exceeding 1,200 m; metal and non-metal underground mines with more than 30 people entering the shafts and work performed at depths of more than 800 m, metal and non-metal open-pit mines with a slope height of more than 200 m, tailings reservoirs with "overhead reservoirs", tailings reservoirs without production and operation entities, and tailings reservoirs with long-term suspension of use.

4. Industry and trade. Metallurgical enterprises that have high temperature molten metal and gas process links, enterprises with more than 30 workers exposed to metal dust and wood dust, aluminum processing (deep well casting) enterprises, and major accident hazards in agricultural markets.

5. Fire protection. High-risk places such as super high-rise buildings, large commercial complexes, urban underground rail transit and petrochemical enterprises; places with dense personnel, "three-in-one (living, working, and catering)" places, subdivided rental houses, production and processing workshops, and other places prone to fire; cultural relics and cultural heritage protection sites such as museums, cultural relics and ancient buildings, ancient cities and villages, and relocation sites for poverty alleviation; electric vehicles, electric bicycles, electrochemical energy storage facilities and cold chain warehouses, ice and snow sports and entertainment, and other new industries and new formats of business; ships, ship locks, marine fueling stations and other waterborne facilities.

6. Road transport. Road sections and locations with sharp bends and steep slopes, near water and cliffs, long, downward slopes, dangerous bridges, dangerous tunnels, crossing villages and towns, rural road markets, etc.; illegally operated passenger cars, school buses, "big tonnage with small labels", overloaded, illegally refitted trucks, and other transport vehicles; variant tractors; normal pressure liquid dangerous goods transporting tankers.

7. Other transportation (civil aviation transportation, railway transportation, postal express delivery, water transport, and urban rail transit) and fishing vessels. Civil aviation transportation: controlled flight into terrain, mid-air collision, transportation of dangerous goods, runway safety, airport clearance safety, bird strikes, general aviation safety; railway transportation: environmental safety along the line, transportation of dangerous goods, highway and railway parallel intersection section, off-road injury safety; postal express delivery: terminal vehicle safety, work safety; water transport: collision of merchant or fishing vessels, illegal maritime transport by inland river vessels, passenger transport at ports and transport of dangerous goods; urban rail transit: patrol of operation protected area, illegal construction, unauthorized construction, stacking of inflammable and explosive dangerous goods, etc.; fishing vessels: vessels out of inspection and out of control, unseaworthy, insufficient manning, presumptuous operation independent of a coordinated fleet of vessels at sea, overstaffing and overloading, risky navigation beyond the wind level and navigation area, unqualified crew, negligence of watch keeping.

8. Urban construction. Renovation of existing buildings into hotels, restaurants, schools, gymnasiums, and other places where people gather; high-rise building projects, underground projects, renovation and reinforcement projects, demolition projects, bridge and tunnel projects; illegal subcontracting; safety management of urban gas and gas facilities.

9. Industrial parks and other functional areas. Safety risk assessment and classification of chemical industry parks; safety management of warehousing and logistics parks; safety management of functional areas such as ports and wharfs.

10. Hazardous waste. Storage, utilization and disposal of hazardous wastes; illegal stockpiling, random dumping and private landfill of hazardous wastes.

4. Strengthening comprehensive management of disasters

—Improving basic conditions for urban and rural disaster prevention. We will carry out seismic resilience evaluation and reinforcement of important urban buildings, infrastructure systems and communities, and improve the level of disaster tolerance and preparedness of public service facilities such as schools and hospitals as well as residential buildings. We will strengthen facility construction for urban flood control, drainage and storage, and optimize and expand urban flood containing space. The ability of public facilities to cope with storms and geological disasters must be enhanced, and the emergency shelter functions of public facilities and buildings must be improved. We must perform overall planning and construction of public firefighting facilities, and increase fire and rescue stations. We will carry out the renovation of dilapidated houses in rural areas and the seismic renovation of rural houses in areas with high seismic intensity, and gradually establish a long-term mechanism for housing safety for low-income rural people, while improving rural road safety facilities. We will promote the relocation and avoidance of residents in high-risk areas of disasters, and guide the rural population with high disaster risk level, poor infrastructure conditions and weak disaster prevention and mitigation capabilities to migrate to areas with low disaster risk in an orderly manner.

— Improving fortification level of major facilities. The engineering standards will be improved for disasters prevention such as earthquake disasters, geological disasters, meteorological disasters, floods and droughts, marine disasters, forest and grassland fires, and the fortification standards for relevant key infrastructure. We will strengthen urban water logging control, implement pipeline network and pump station construction and renovation, drainage channel construction, and rainwater source emission reduction projects, while planning the layout of fire emergency roads and fire barrier networks in a rational manner. We will improve the spatial layout of network-based infrastructure, actively promote the application of intelligent prevention and control technologies, enhance substitutability, and enhance the capability to

resist damage or ruin and instant resilience under extreme conditions. We will accelerate the transportation construction with multiple channels, modes and paths in urban agglomerations, key ports, major industrial and energy bases, and areas prone to disasters, and enhance the resilience of the transportation network system. We will work to tackle potential hazards of major geological hazards and carry out maintenance and reinforcement of existing projects. We will carry out joint early warning of storm surge overtopping of dikes in key coastal areas, promote the construction of seawalls and shelters in coastal areas, and build a coastal anti-tide and anti-typhoon disaster reduction system. We will strive to build more national water supply bases for emergency rescue. We will put forth effort to prevent major environmental risks such as marine oil spills and leakage of hazardous chemicals, and manage to deal with marine disasters and environmental emergencies. We will accelerate the comprehensive prevention and control of subsidence in the Beijing-Tianjin-Hebei plain, along with the safety management of geological disasters within the area.

Part VI Strengthening Emergency Response Forces with More Competence to Tackle Emergencies

1. Building stronger main force and national team for emergency rescue

Ensuring the Party's absolute leadership role over the CFR, and practicing the spirit of the important precepts of being "loyal to the Party, strict with discipline, fearless in face of harm's way, and serving the people wholeheartedly", the CFR must position itself as the main force and the national team of emergency rescue, comprehensively improve the level of regularization, specialization and professionalization with strict education, training, management, and discipline. We will actively adapt to the comprehensive rescue needs of "a system of all-hazards approach to all types of emergencies", optimize the layout and formation of the

forces, fill the gap in terms of rescue forces, accelerate the improvement of shortcomings in the capacity building of the CFR, and increase support for the construction of the CFR in central and western China. We will strengthen firefighting capacity for high-rise buildings, large commercial complexes, urban underground rail transit and petrochemical enterprises, and strengthen professional rescue forces for earthquakes, waters, mountains, nuclear, biological, and chemical industries, with the development of numerous mobile and spearhead forces. Giving full play to the advantages of mobile forces, and clarifying the authority and procedures of mobilization, the relationship with the local government and the channels of support, we will increase the allocation of advanced and applicable equipment, strengthen professional training for multiple disasters, improve the forces' comprehensive rescue capabilities under extreme conditions, and enhance the ability to prevent secondary environmental emergencies in emergency rescue of major accidents. We will reinforce full-time firefighters working with the government, as well as volunteer firefighters, and encourage the development of urban fire stations and township fire brigades. We will strengthen the capacity of transnational (cross-border) rescue forces, and actively participate in international emergency rescue and emergency humanitarian assistance for major disasters. To meet the needs of quasi-active-service and quasi-military standards and the career traits with high risks and great sacrifice, we must improve the special mechanism on guarantee of the CFR and enhance its sense of professional honor and social respect.

2. Improving the professionalism of rescue forces in industries

We will further develop professional rescue forces in various industries and sectors affiliated to relevant departments, local authorities and enterprises, and set up a certain scale of professional emergency rescue teams, large-scale engineering rescue teams, and cross-regional mobile rescue teams. We will perfect the standards for developing rescue forces in terms of their size, layout, equipment, and infrastructures, improve the command management system, combat readiness training and mission implementation, strengthen the practical training of commanders,

technicians and rescue personnel, and improve the standardized management as well as the technical and tactical level of the forces. We will strengthen resource sharing, information exchange, and joint training of various kinds of rescue forces. We will improve the mechanism for the government to purchase emergency services, establish a diversified funding mechanism for the government, industries, enterprises and all sectors of society, and accelerate the establishment of a multi-channel logistic support model for emergency rescue teams. We will strengthen the capacity building of work-safety emergency support for major projects, such as key international railways, transnational energy channels, and deep-sea oil and gas development.

3. Accelerating the building of aviation emergency rescue forces

We will optimize existing resources, coordinate long-term development, and accelerate the construction of an aviation emergency rescue force system with agile emergency response, reasonable function and structure, appropriate scale and force, and active participation by all parties. By guiding and encouraging large civil aviation enterprises and air cargo logistics enterprises to build professional aviation emergency teams of a certain scale and purchasing large and heavy aircraft, we will improve aviation emergency capabilities such as rapid transportation, comprehensive rescue, and plateau rescue. By means of direct investment and purchase of services, we will improve the layout of aviation emergency stations, strengthen the deployment of regular aviation forces, increase the number and source of forest fire airplanes (helicopters), and achieve fundamental coverage of key areas for forest and grassland fire prevention and control. We will improve the airspace support mechanism for aviation emergency rescue and the coordination mechanism for cross-regional aircraft rescue actions. We will support the development of supporting specialties for aviation emergency rescue, and strengthen the training of aviation emergency rescue professionals.

4. Guiding the orderly development of non-governmental forces for emergency response

We will formulate and promulgate opinions on strengthening the development of non-governmental forces for emergency response, make institutional arrangements for team building, registration management, participation methods, safeguard means, incentive mechanism, and compensation for requisition, and standardize and guide the participation of non-governmental forces in emergency rescue operations. We will carry out training in emergency theory and rescue skills for non-governmental forces, strengthen their joint exercises with the CFR, regularly hold national and regional skills competitions for non-governmental emergency services, and organize graded and classified evaluations. Non-governmental forces are encouraged to go deep into grass-roots communities to investigate hazards, popularize emergency knowledge, and participate in emergency response nearby. We will promote the inclusion of non-governmental forces in disaster prevention, mitigation, relief and emergency response into the scope of government purchased services and insurance, and provide necessary support in road traffic and logistical support to non-governmental forces for emergency response.

Part VII Enhancing Preparedness for Disaster Response by Pooling

Joint Efforts of Guarantee

1. Bolstering preparedness of emergency plans

—Improving the mechanism for managing emergency plans. We will revise the management measures for emergency response plans, improve the classification and grading standards for emergencies, and standardize the classification of early warning and emergency response. We will reinforce the unified planning, coordination, and classification management of the emergency plans, and improve the mechanism of

regular evaluation and dynamic revision of the emergency plans. We will emphasize the rigid constraint of the emergency plans, clarify the responsibilities and tasks of all parties according to the types and levels of emergencies, and strengthen the effective connection between relevant plans made by superiors and subordinates, departments at the same level, the military and local governments, governments and enterprises, and adjacent local governments. We will build a digital management platform for emergency plans and strengthen the preparation and management of supporting documents for emergency plans.

—Speeding up the formulation and revision of emergency plans. We will formulate guidelines for making emergency plans, and strengthen risk assessment, scenario construction, and emergency resource investigation in the process of plan formulation and revision. We will revise the overall national emergency plan for emergencies, organize and guide the revision of specific, departmental and local emergency plans, and prepare emergency plans for the safety of important targets, major sources of danger, major activities, and major infrastructure. We will formulate targeted catastrophe response plans and assess the capacity for emergency response.

—Strengthening the exercise and evaluation of emergency plans. We will formulate the management measures for the evaluation of emergency response plans and for emergency exercise, and improve the evaluation procedures and standards for emergency plans and drills. According to the plan, we will strengthen the inspection and evaluation of emergency forces' capacity, equipment and materials, and logistics measures to ensure that the tasks and measures stipulated in the plan can be implemented quickly after the emergency response is launched. We will strengthen the dissemination and training on emergency plans, formulate and implement emergency drill plans, and organize and carry out combat-oriented emergency exercises. Various regular emergency exercises which are economical and efficient will be encouraged, with a

focus on emergency exercises for serious disasters and accidents. We will promptly improve emergency plans on the basis of emergency exercises.

2. Strengthening preparedness of emergency supplies

—Optimizing the management of emergency supplies. To meet with the peak material demand at the central level for emergency material support dealing with catastrophic disasters and accidents, as well as the material demand at the local level for emergency material support to launch level II emergency response in the local administrative region, we will improve the emergency material support system, and establish an emergency material reserve model consisting of the central and local governments, government and society, physical stockpiles, and capacity of emergency production, so as to strengthen the management of emergency supplies. We will establish and improve the reporting system of material use and management. We will establish a cross-sectoral interactive mechanism of emergency material support, and improve the cross-regional coordination mechanism of emergency material support. We will improve a law-based government emergency procurement system during the emergency response period, and optimize the process and simplify procedures. We will reinforce the standards of government procurement demand for various kinds of emergency supplies, refine technical specifications and parameters, and strengthen the classification and coding of emergency supplies and IT-based management. We will improve the management standards for the classification, production, storage, loading and unloading, transportation, recycling, scrapping, and replenishment of emergency supplies. We will improve the management and distribution mechanism of donated emergency supplies, and standardize the approval process for imported donated goods.

—Strengthening the physical reserve of materials. We will improve the distribution of material reserves at the central, provincial, municipal, county and township levels, establish and improve the list of emergency material reserves, including important commodities for people's livelihood, and rationally determine the types, scale, and structure of

reserves, and dynamically adjust them. We will establish and improve the renewal and rotation mechanism of emergency supplies. We will expand the reserve scale of emergency supplies in densely populated areas, high-risk areas of disasters and accidents, and areas with inconvenient transportation, enrich the variety of reserve materials, improve the layout of reserve warehouses, and focus on meeting the needs of emergency supplies for 20–50-year floods in river basins, super typhoons, and catastrophic mountain torrents. We will support the government and enterprises to co-build, or entrust enterprises to build emergency material reserves.

—Enhancing the capacity for the guarantee of material production. We will formulate lists of emergency material production capacity reserves, strengthen the dynamic monitoring of production capacity, and grasp the distribution of important material enterprises' supply chains. We will implement a project on production capacity reserve for emergency products, and build regional emergency material production support bases. We will select qualified enterprises to be included in the scope of capacity reserving enterprises, and establish a dynamic update and adjustment mechanism. We will improve policies to encourage and guide key enterprises with production capacity reserve for emergency material to expand their capacity, and continue to improve the industry chain of emergency material. We will strengthen the prediction and identification of material demand for serious calamitous and accidents, and improve the mechanism of emergency material reserve and centralized production and dispatch.

Box 3 Layout and Priorities for Reserve of Emergency Supplies

1. Central relief materials for daily use: The existing 20 central relief supplies reserve bases for daily use and 35 comprehensive warehouses will be rebuilt and/or expanded. Seven comprehensive national reserve bases will be built in transportation hub cities, densely populated areas, and areas prone to serious disasters.
2. Comprehensive fire and rescue emergency supplies: Eight central warehouses will be built in Beijing, Shenyang and other places; 31

provincial warehouses will be built relying on the training and logistics support brigades of the fire and rescue corps; and 227 prefecture-level warehouses will be constructed in the cities where the fire rescue brigades of Class III and above are located.

3. Emergency supplies for forest fire fighting: Seven central storehouses will be built in Chengdu, Hailar and other places; five provincial storehouses will be built relying on the forest fire corps; and 36 municipal storehouses in the places where the forest fire brigades are located.

4. Local emergency supplies: Existing emergency material reserves will be rebuilt and/or expanded. The construction of county-level emergency material reserves will be promoted, focusing on supporting the building of reserves in the central and western regions, and economically underdeveloped high-risk areas.

3. Reinforcing preparedness of emergency transport

We will strengthen regional coordination and allocation, and develop a comprehensive emergency transport management and coordination mechanism with multi-sectoral linkage, multi-mode coordination, and multi-subject participation. We will formulate supporting policies for the allocation, requisition, and post-disaster compensation of transportation resources, and improve the settlement method of transportation expenditures.

We will improve the linkage mechanism of emergency transportation and implement emergency transportation support measures for railways, highways, and aviation. Relying on large backbone logistics enterprises, we will establish emergency transport reserve forces covering various modes of transport, such as railways, highways, waterways, and civil aviation, and give full play to the advantages of high-speed rail, so as to build a rapid transport system by which to ensure the rapid and efficient delivery of emergency resources for serious and catastrophic disasters and accidents.

We will improve the mobilization mechanism for social emergency transport forces. We will accelerate the establishment of an emergency logistics system with sufficient reserves, rapid response and resistance against strong impact. We will optimize the spatial layout of emergency transport facilities, accelerate the transformation and functional embedding of specialized facilities, and improve the construction standards of emergency logistics bases and distribution centers. We will give full play to different modes of transport with advantages in scale, speed and coverage, and build a comprehensive emergency transport network with fast access, powerful coordination, adaptive functions, safety, and reliability.

We will strengthen the capacity for emergency repair of the traffic line, and further improve the emergency transport capacity. We will strengthen the construction of express lines for emergency transport and improve the priority mechanism for transporting emergency supplies and personnel vehicles.

We will build a dispatching and command platform for emergency transportation linking governments and enterprises, improve the efficiency of matching supply with demand, streamline the links of material transshipment, and improve the level of dispatching and control of transportation, distribution, delivery, and use of relief supplies. We will promote the use of high-tech distribution equipment such as intelligent robots and unmanned aerial vehicles, promote the unitized development of containerized storage and transportation equipment for emergency supplies, and improve the efficiency of scheduling for emergency transportation.

4. Strengthening the preparation for rescue and recovery

—Improving the mechanism of disaster relief. We will improve the mechanism on dynamic adjustment of standards for disasters relief. We will improve the mobilization mechanism of disaster relief resources by strengthening the connection between post-disaster relief and other

specific relief projects, promoting cooperation between the government, social organizations and enterprises, and supporting the Red Cross and other charities to participate in disaster relief work according to the law. We will improve the mechanism for relocating and relieving the affected people during transitional period by strengthening the infrastructure construction of temporary shelters, water, electricity, roads, communications, radio and television, and ensuring the basic livelihood of the affected people. Tending to the characteristics of children, priority relief and rehabilitation measures must be taken to strengthen the care and protection of vulnerable groups such as pregnant and lying-in women. Minors with no guardians caused by disasters will be rescued and protected. Psychological assistance and social work services will be guided to participate in disaster response and rehabilitation actions, and psychological assistance will be provided to the affected people.

—Regulating post-disaster recovery and reconstruction. We will improve the mechanism for post-disaster recovery and reconstruction under the overall guidance of the central government, with local governments being the main operator, and participation of people in disaster-stricken areas.

We will scientifically carry out disaster loss assessment, secondary derivative disaster hazard screening and risk assessment, housing and building damage identification, and the evaluation of environment resource carrying capacity. We will improve assessment standards and procedures, and scientifically formulate post-disaster recovery and reconstruction plans. Priority will be given to rebuilding infrastructure such as power supply, communications, water supply and drainage, roads, bridges, and reservoirs, as well as public service facilities such as schools, hospitals, and radio and television stations.

We will improve the subsidy policies of fiscal taxation, finance, insurance, land use, social security, industrial support, and flood storage and detention area for post-disaster recovery and reconstruction. We will strengthen the supervision and evaluation of the implementation of

recovery and reconstruction policies. We will strengthen the management of funds for post-disaster recovery and reconstruction, guide domestic and foreign loans, domestic counterpart support funds, and social donation funds to participate in post-disaster recovery and reconstruction, and actively encourage the work-for-relief approach.

Part VIII Optimizing the Allocation of Factors and Resources to Generate Momentum for Innovation-driven Development

1. Breaking through major bottlenecks

— Furthering basic research on application. We will strengthen interdisciplinary theoretical research focusing on the fundamental issues of preventing and controlling disasters and accidents. Scientific expeditions and survey of major disasters will be carried out. We will integrate and leverage advanced scientific and technological resources of central and local governments, enterprises and other sectors to strengthen independent innovation and tackle key technical bottlenecks. We will implement national science and technology programs, such as the prevention and control of major disasters and accidents, and disaster risk assessment of key infrastructure. We will formulate national guidelines for making breakthroughs in key technologies of emergency management, and accelerate research regarding proactive safety technologies.

—Developing advanced and applicable equipment. We will accelerate the development of intelligent, practical, and lightweight specialized rescue equipment that withstands extreme environments such as high altitude, special terrain and primitive forest areas. We will encourage and support the promotion and application of advanced safety technology and equipment in various professional fields of emergency management, and improve the dynamic adjustment of the *Catalogue of Promoting Advanced and Eliminating Outdated Safety Technology and Equipment*. Efforts will be made to promote unified allocation, certification and

accreditation, commercialization, and demonstrative application of selected key technologies and equipment. We will accelerate the transfer and transformation of military technology and equipment related to aerospace, aviation, ships, and ordnance to the field of emergency response.

— Building platforms for scientific and technological innovation. Spearheading the development of national laboratories, we will accelerate the strengthening of the proactive safety technology system, and improve the supporting chain of science and technology for emergency management. We will integrate and optimize relevant emergency management technology platforms, promote the accessibility and sharing of science and technology innovation resources, coordinate the layout of emergency science and technology support platforms, and build more than 10 new disaster and accident technology bases with pilot scale experiment conditions or above. We will institutionalize the use and disposal proceeds of emergency management technologies, and boost incentive mechanisms that encourage the inclusion of innovation factors such as know-how, technology, management and data, in profit distribution. We will also implement the system for profit sharing of technological achievements and the incentive mechanisms of equity and options.

— Promoting international exchanges and cooperation. We will strengthen cooperation with international organizations such as the United Nations Office for Disaster Risk Reduction, and promote the establishment of international and regional disaster risk reduction networks. We will develop the Belt and Road International Cooperation Framework for Disaster Risk Reduction and Emergency Management, and continue to organize the Belt and Road Ministerial Forum for International Cooperation in Disaster Risk Reduction and Emergency Management. We will promote cooperation with ASEAN in emergency management, and actively participate in the construction of large international scientific installations and research bases (centers).

Box 4 R&D Priorities for Key Technologies and Equipment
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1. Fundamental science: Dynamic evolution, prevention and control of large-scale compounding disasters and accidents; causes, prediction, forecast and risk countermeasures of catastrophes and disaster chains; formation and evolution mechanics of polar meteorological disasters; seismogenic dynamics of seismic belts of concern; evolution of high-intensity fires and secondary disasters; risk monitoring, early warning, prevention, and control of work safety accidents; prevention and control of deep mining and coupling disasters; and theoretical research on fire prevention and firefighting basics.

2. Emergency preparedness: Numerical simulation of major disaster and accident processes; simulation, forecast, analysis, and assessment of multi-hazard coupling disasters; intelligent sensing and preemptive identification of major disasters and accident risks; quantitative risk assessment for major disasters and accidents; common technology for hazard screening of key infrastructure; disaster chain analysis of key urban infrastructure; and intelligent unmanned safety operation technology.

3. Monitoring and early warning: Evolution process monitoring, prediction and forecast of mega earthquakes; monitoring and early warning of sudden large tsunamis; smart monitoring and early warning of major meteorological disasters and extreme weather and climate events; monitoring and early warning of lightning fire; risk monitoring, prediction and early warning of urban fires; real-time monitoring and nowcasting of high-impact weather events such as dense fog and road icing; intelligent sensing, early warning, and forecasting for major disasters and accidents, such as mine gas, rock burst, flooding, fire, roof fall, rib spalling, slope collapse, and tailings dam break; accident monitoring and intelligent warning of early overflow in oil and gas exploitation platforms; and offshore oil spill drift prediction and volume assessment.

4. Response and rescue: Emergency communication and transportation in complex environments; demolition, intelligent search and rescue, and unmanned rescue in complex environments; equipment for personal protection and function enhancement in extreme or special environments; on-site emergency medical response of major disasters

and accidents; new explosion-proof technologies and equipment for inflammable and explosive storage and transportation facilities and equipment; emergency rescue and response for major compounding and cascading disasters; emergency decontamination and firefighting of coupling accidents including fire, explosion and poisonous substance; efficient fire extinguishers and special fire fighting vehicles; forest and grassland fire extinguishers, equipment for setting up isolation zones, and personal protective equipment at fire sites; response of time-sensitive emergencies such as dam collapse, dike break, and barrier lake; dam inspection and emergency repair; large-scale life rescue on water, deep underwater scanning, search and salvage, salvage of large-tonnage sunken ships, saturation diving, shoal salvage, and large-scale oil spill recovery and removal; rapid response of dangerous chemical accidents; response of long-distance oil and gas pipeline accidents; rapid rescue for tunnel accidents; rescue for offshore oil and gas accidents; emergency rescue for major mine accidents; emergency rescue for serious nuclear accidents; and advanced technology and equipment for emergency transportation.

5. Assessment and recovery: Precise investigation and assessment technology for disasters and accidents; post-disaster rapid assessment, recovery, and reconstruction technology; disaster damage assessment and recovery for major typhoon and tornado; tracing, rapid assessment, and recovery for accidents such as fire, explosion, poisoning, collapse, and traffic accidents; and rapid assessment, response and production recovery for out-of-control blowout accidents in deep sea or far-out maritime positions.

2. Building a talent pool

— Cultivating more professionals. We will establish a catalogue of emergency management professionals, expand the education and supply of urgently needed expertise, and improve the professional evaluation system. We will implement the program of training top science and technology talent in emergency management. We will strengthen the building of think tanks for emergency management, and explore the

establishment of an expert advisory committee for emergency management and chief expert system for catastrophic emergencies. We will incorporate emergency management into all types of vocational training and strengthen hands-on exercises and practices. We will strengthen the management of professional certifications such as registered safety engineers and fire engineers, and explore a mechanism for mutual recognition between engineering education certification and national professional qualifications. Building on the institutions affiliated to the emergency management system, we will explore the establishment of universities of emergency management according to procedures and standards. We will also continue to develop China Fire and Rescue Institute. Local authorities will be encouraged to build emergency management academies and vocational colleges by pooling their existing resources. We will strengthen the discipline and curriculum development for emergency management, and encourage colleges and universities to set up majors related to emergency management. Efforts will be made to cultivate more professionals for emergency management with comprehensive, inter-disciplinary, innovative, and application abilities, as well as practical skills. We will also take actions to improve the safety skills of employees in high-risk industries, strictly implement the system of qualified safety skills training and certification for special operators, and encourage enterprises to actively equip talents and experts with comprehensive skills. We will enhance the multilingual ability of emergency responders, and build professionalized emergency language service teams with support of universities, scientific research institutes, medical institutions, volunteer service organizations. etc.

—Building a quality team of officials. We will adhere to the principle of “the Party’s supervision over officials”, follow the standards for personnel selection, and implement the Party’s organizational line in the new era, so as to establish and improve the system of “selection, education, management and assignment” with the professional characteristics of emergency management. We will encourage the officials’ sense of responsibility and pragmatic characters for concrete achievements, and build strong and quality teams to lead emergency management work at

all levels. Emergency management will be included in the mandatory learning for local Party and government leaders, and emergency management capacity training courses for leading officials at all levels will be developed. We will build a quality training system for emergency management officials, establish regular training and continuing education plans, and improve the political awareness and professional ability of emergency management officials. We will promote the recruitment and training of professionals and increase the proportion of professionals in emergency management officials. We will boost the exchange of officials within the emergency management sector and the CFR, and strengthen the discovery, training, selection, and deployment of outstanding young officials. We will improve the benefits and entitlements of officials in line with the professional characteristics of emergency management, and improve the policies to award outstanding officials with professional honors, recognition, and additional vacation time.

3. Boosting the safety and emergency industry

—Optimizing the structure of the industry. With market as orientation and enterprises as main players, we will enhance the integration between science research, industrialization and education of emergency management, and upgrade safety and emergency industry to middle or high level. Social resources will be guided to invest in advanced, applicable, and reliable safety emergency products and services through recommended catalogues and encouragement lists. We will accelerate the development of safety and emergency service industry, strengthen community services such as intelligent early warning, emergency rescue and protection, and encourage enterprises to provide integrated and comprehensive safety and emergency solutions and products.

—Promoting the clustering of industries. We will develop safety and emergency industry clusters with different characteristics in areas where conditions permit, strengthen the construction of national safety and emergency industry demonstration bases, and form regional innovation

centers and research achievement commercialization centers. We will give full play to the national safety and emergency industry demonstration base, enhance the comprehensive support capacity for major emergencies, form sub-national safety and emergency industry chains, and improve the R&D, manufacturing, and service provision of safety and emergency technologies.

—Supporting the development of enterprises. We will guide enterprises to increase investment in emergency response capacity building, support capable enterprises in the field of safety emergency response to grow stronger and better, build large business corporations with strong competitiveness in the international and domestic markets and encourage micro-, small-, and medium-sized enterprises with distinctive features and innovative ability to accelerate development using their existing funding channels.

Box 5 Priorities for Promotion of Safety and Emergency Products and Services

1. High-precision monitoring and early warning products: Dynamic risk assessment, monitoring and early warning products for disaster and accident, hazardous chemicals detection products, etc.
2. High-reliability risk prevention and control and safety protection products: Protection products for rescue personnel, protection systems for important facilities, engineering and construction safety protection equipment, protective materials, etc.
3. New emergency command communication and information perception products: Emergency management and command dispatch platform, emergency communication products, emergency broadcasting system, disaster site information acquisition products, etc.
4. Special emergency traffic support products: All-terrain rescue vehicles, large-span pontoon bridges, large tunnel rescue products, ice and snow removal products, marine rescue products, railway accident emergency disposal products, etc.
5. Important fire-fighting and rescue products: Firefighting products for rail transit, airport, high-rise building, underground engineering,

chemical industry, forest and grassland fire prevention and control, fire detection products, occupational health products for firefighters, training products for firefighters, high-performance green flame-retardant materials, environment-friendly fire extinguishing agents, etc.

6. Key equipment for emergency rescue of disasters and accidents: Personnel search and object positioning products, oil spill and hazardous chemicals accident rescue products, mine accident rescue products, mine safety and protection products, special equipment emergency products, emergency power support products, high-mobility all-terrain emergency rescue equipment, high-flow drainage equipment, multi-functional emergency power supply products, portable mobile rescue equipment, smoke exhaust equipment in confined space, life detection equipment, key equipment for accident and disaster medical response, etc.

7. Intelligent unmanned emergency rescue equipment: Long-endurance and large-load unmanned aerial vehicles, large fixed-wing aircraft, unmanned boats, individual assistant exoskeleton robots, dangerous gas inspection robots, mine rescue robots, underground rescue robots, amphibious robots for post-disaster search and rescue, etc.

8. Emergency management support services: Risk assessment services, hazard screening services, inspection and testing certification services, etc.

9. Professional and technical emergency services: Disaster prevention and control technical services, fire technical services, work safety technical services, emergency surveying and mapping technology services, safety technology services, emergency medical services, etc.

10. Non-governmental emergency rescue services: Aviation rescue services, emergency logistics services, road rescue services, marine oil spill emergency services, maritime property rescue services, safety education and training services, emergency exercise services, catastrophe insurance, etc.

4. Strengthening information support and guarantee

We will attract all relevant parties to participate in promoting IT application in the development of emergency management, and intensively build information infrastructure and information systems. We will promote connectivity, information sharing, and business collaboration between different departments at various levels across numerous regions. We will strengthen the application of digital technology in disaster and accident response to comprehensively enhance the ability of monitoring, early warning, and emergency response. We will step up the building of an emergency communication network that integrates air, space, land and sea to improve emergency communication support capabilities under extreme conditions. We will build eco-friendly and energy-saving high-server-density data centers, advance the construction of cloud computing platform for emergency management, and optimize multiple data centers to make unified arrangements and provide emergency safeguards for vital operations. Through systematically promoting “smart emergency management”, we will establish an emergency data management system that follows the development laws of big data, and serves functions as a system for supervision and management, monitoring and early warning, command and rescue, disaster management, statistical analysis, information release, post-disaster assessment, and social mobilization. We will upgrade a high-performance computer resource pool that supports meteorological core businesses, and build a meteorological data platform and a smart processing system for big data. We will promote the large-scale application of autonomous core technologies with independent IPR in key software, hardware and technical equipment, implement safety protection policies covering different levels and categories of information system and data, and build a new-generation intelligent operation and maintenance system and an information network security system with in-depth defense capabilities.

Part IX Working Together to Strengthen the People's Line of Defense for Disaster Prevention, Mitigation and Relief

1. Promoting governance capacity at community level

Taking grid management as the breakthrough point, we will improve community-level emergency management organization system, strengthen the staffing, clarify the duty, right and responsibilities of primary-level emergency management, and ensure that governments and relevant departments at the primary level implement such responsibilities. We will strengthen and regulate comprehensive emergency rescue teams and micro fire-fighting stations at the grass-roots level, promote the establishment of community and village emergency service stations, train and develop emergency management information reporters and social supervisors for work safety at grass-roots level, and develop the "first responder" system. Grass-roots organizations and units will be guided to revise and improve contingency plans. We will steer the orderly development of disaster prevention and mitigation infrastructure in towns (streets) and villages (communities), and refine comprehensive service facilities in urban and rural communities to play greater roles in response to emergencies. We will coordinate disaster prevention, mitigation and relief with consolidating and expanding the achievements of poverty alleviation, so that people are not reduced to or returned to poverty as a result of disasters. We will promote national safety development demonstration cities, national comprehensive disaster reduction demonstration counties (cities, districts, or banners) and communities. Our goal is to increase more than 3,000 new such communities, and give full play to their leading role. Furthermore, we will guide production and enterprises to strengthen emergency management organizations and extend supervision and services to cover micro and small enterprises.

2. Facilitating progress in safety culture

We will deepen theoretical research, systematically elaborate the rich connotation, core concepts, and major tasks of emergency management in the new era, and compile and distribute explanatory books on theories of emergency management. We will select and publicize heroes and role models to give full play to their role of spiritual guidance, and set them as good examples. We will incorporate education on safety capability and awareness into national education system, and take the popularization of emergency knowledge, self-rescue and escape drills as indispensable elements. We will boost safety culture undertakings and industries, expand the supply of high-quality products, and increase channels for social resources to contribute to promoting safety culture. We will establish green channels for media to raise public awareness on safety culture, and strengthen Internet-based education and training that is more practical, lively and interactive. We will promote safety publicity into enterprises, rural areas, communities, schools and families, open fire rescue stations to the public, and carry out various forms of publicity activities in conjunction with National Day for Disaster Prevention and Mitigation, work safety month and National Day for Fire Prevention and Control. We will build emergency rescue training system for the public, push forward the construction of “the Integrated Community Resilience”, and develop mechanisms on self-rescue, mutual rescue and neighborhood assistance at the village (community) and family level. Schools, shopping malls, subways, railway stations and other crowded places will be equipped with first aid kits and external defibrillators. We must perform well in news publication and public opinion guidance under emergency conditions, and actively respond to social concerns.

3. Improving social services system

We will implement the classified management system of enterprise work safety credit risk, establish the enterprise work safety credit repair mechanism, publish the list of entities with bad faith in the field of work

safety according to laws and regulations, and implement joint penalties for dishonesty. We will support trade associations in formulating rules and regulations, self-discipline norms and professional ethics, and develop professional norms and incentive mechanisms. Industry associations, professional technical service institutions and insurance institutions will be encouraged to participate in risk assessment, hazard screening, management and consultation, inspection and testing, contingency planning, emergency exercises, as well as education and training, among others. We will promote the market-oriented reform of inspection and testing certification institutions, support the development of third-party inspection and certification services, and foster markets for new types of services. We will strengthen the positive role of insurance and other market mechanisms in risk prevention, loss compensation, recovery and reconstruction, explore a multi-channel and multi-level risk sharing mechanism, and vigorously develop catastrophe insurance. Enterprises will be encouraged to join work safety liability insurance and enrich the types of personal safety insurance for emergency rescue personnel.

Part X Implementing Major Projects to Consolidate Safety Foundation for High-quality Development

1. Project to promote management and innovation

1.1 Building emergency rescue command center

The National Emergency Command Headquarters will be built, and facilities, equipment and systems for dispatching and command, consultation and judgment, simulation and deduction, and operational support will be improved. In accordance with the principles of nearby deployment, rapid action and orderly rescue, we will promote the building of regional emergency rescue centers, and improve command sites, comprehensive rescue capability, material reserves, training and

exercises, equipment reserves, aviation support sites and supporting facilities. We will build a comprehensive emergency drill base and improve facilities and equipment for indoor theoretical teaching, outdoor practical training and simulated rescue drills. We will also improve the working conditions of National Emergency Medical Research Center. Moreover, we will set up integrated command and dispatch platforms at national, provincial, municipal and county levels, as well as local emergency command platforms that serve as an exemplary role, so as to realize interconnection and coordination between governments at all levels, relevant departments and key rescue teams. We will build coordinated dispatch platforms for emergency rescue in key city clusters and metropolitan areas.

1.2 Enhancing the capacity for work safety inspection and supervision

We will formulate standards for the allocation of law enforcement equipment to coordinate and strengthen the equipment of work safety inspection and law enforcement teams at all levels and in all sectors, and to continuously improve conditions for law enforcement. We will improve the application of big data to work safety inspection and law enforcement. We will build bases with technical support for the prevention and control of major accidents in such sectors as hazardous chemicals, mines, urban safety, metal smelting, oil, and gas. We will upgrade and optimize the registration management system of hazardous chemicals. We will complete the construction of safety access analysis and verification laboratory for new mining equipment and materials, and a fire accident investigation and analysis laboratory, and improve certification and traceability management system for equipment life cycle. We will make full use of existing facilities to improve the testing, verification, maintenance, and checking platform of supervision and law enforcement equipment, together with a digitalized decision-making support platform for inspection and supervision in mine work safety. We will also refine provincial and sub-regional laboratories under work safety technology support centers.

2. Project to improve risk prevention and control

2.1 Risk zone mapping of disasters and accidents

We will carry out nationwide exploration of seismically active faults, and compile the sixth generation of national seismic zoning map. We will move forward with the National Survey on Geological Hazard Risk, and compile two zoning maps that respectively identify national geological hazard risks and prevention and control measures. We will organize risk surveys on meteorological disasters such as typhoons, rainstorms and snowstorms, as well as marine disasters such as storm surges and tsunamis, and compile risk distribution and risk assessment maps at different scales. While carrying out special investigations in key industries of work safety, we will also promote R&D for key technologies such as regional comprehensive risk assessment, disasters, and accident disaster coupling risk assessment. We will formulate relevant technical standards such as urban public safety risk assessment, major risk assessment, and scenario setting. We will build a database which includes data related to disaster, accident and risk investigation, typical risk and hazard screening, and build a disaster assessment and zoning system at the national level.

2.2 Building networks of risk monitoring and early warning

We will implement IT application projects related to disasters monitoring and early warning, build a national risk monitoring, perception and early warning platform, improve the network of disasters monitoring stations for earthquakes, geology, meteorology, forest and grassland fires, oceans and agriculture, increase the density of core basic disasters monitoring stations and regular observation stations in key areas, and improve the information reporting system of potential disaster risks. We will build an information management platform for emergency response to sandstorm disasters, and establish automatic sandstorm monitoring stations in major sandstorm source areas on a pilot basis. We will upgrade the monitoring and early warning network covering key

enterprises, including those of hazardous chemicals, mines, fireworks, tailings reservoirs, industry and trade, and oil and gas pipelines. We will promote the construction of urban and rural safety monitoring and early warning networks for urban lifelines such as power, gas, water supply, drainage networks and bridges, as well as hidden geological hazards and major hazards. We will accelerate efforts to improve public information platform for monitoring and early warning of urban and rural safety risks, integrate monitoring systems in the fields of work safety, disasters and public health, and gather perception data, business data and video surveillance data via IoT, so as to achieve the model of “management under one network” for monitoring and early warning of urban and rural safety risks. We will build a new generation of early warning information release system at the national level for emergencies, a system based on cloud technology. Meanwhile, we will also enhance satellite remote sensing networks, develop the comprehensive application system and the operational management platform of the Emergency Management and DRR Satellites, and promote the application of space-based satellite remote sensing networks in disaster prevention, mitigation, relief, and rescue management.

2.3 Improving infrastructures in urban and rural areas for disaster prevention

Public facilities such as schools, hospitals, gymnasiums, libraries, nursing homes, public welfare institutions for children, relief and protection institutions for juveniles, mental health welfare institutions, and relief management institutions in earthquake-prone areas, as well as rural housing, will all be reinforced against earthquakes. We will set up a smart management platform for flood control and drainage based on the information model of certain cities. In key city clusters, metropolitan areas, disaster-prone areas and key counties, comprehensive emergency shelters with functions of emergency command, emergency exercises, material reserve and resettlement will be built by leveraging existing facilities. We will strengthen the construction of public firefighting

facilities in urban and rural areas, along with forest, grassland fire prevention facilities around cities and towns. Full-time fire brigades affiliated to governments and the private sector, as well as local auxiliary forest and grassland fire brigades, will all be improved, so as to meet relevant standards. We will strengthen farmland and fishing port infrastructure, restore rural roads, tunnels, and ferries in villages and towns, and implement highway safety and life protection projects, upgrade the guard rails along expressways, and reconstruct dangerous bridges across highways in rural areas. We will further promote the demonstration project on “traffic lights and speed bumps” at rural highway level crossings. We will carry out fire safety demonstration projects in entities of relevant industries, renovate fire control systems in key places such as high-rise buildings, large commercial complexes, urban underground rail transit, petrochemical enterprises, old residential areas, and relocation sites for poverty alleviation, and clear up fire truck passages and evacuation passages inside buildings to ensure unimpeded “life passage”.

2.4 Taking actions of prevention for work safety

We will initiate safety upgrading actions for chemical industrial parks and safety renovation projects for hazardous chemicals enterprises, focusing on the improvement of intrinsic safety and automation of hazardous processes, filling of safety protection gaps to meet standards, and building of hazard monitoring and early warning systems, to promote the establishment of demonstration parks in chemical industry and build risk assessment and multi-level management and control platforms. We will make greater efforts to relocate and transform enterprises of hazardous chemicals production in densely populated urban areas. We will take comprehensive control measures on coal mine gas and such major disasters as hydrological and meteorological disasters, fires and rock bursts. We will come close to achieving the safety governance of the “overhead reservoir” for underground mines, and closing the tailing’s reservoir both with no ownership for operation and under long suspension of use. We will implement projects that integrate “industrial

Internet plus work safety”, build sub-centers for relevant industries and data support platforms, and establish a work safety data catalogue.

3. Project to enhance the capacity for coping with catastrophic disasters

3.1 Building up the CFR

Relying on the CFR, we will organize a number of national special disaster rescue teams, regional mobile rescue teams, and professional rescue teams with search and rescue dogs, and build professional emergency rescue teams for petrochemical and coal chemical industries in the places where key chemical industry parks and port areas with large storage of hazardous chemicals are located. We will implement the modernization project of comprehensive firefighting and rescue equipment, supplement conventional rescue equipment, upgrade individual portable protective equipment and advance professional equipment that is suitable for extreme conditions and special disasters and accidents, such as the equipment used for individual real-time monitoring, remote water supply, high-rise spraying, demolition and smoke ventilation, obstacle clearance, and excavation. We will support the development of firefighting and rescue equipment and materials in regional central cities, the central and western regions and the three northeastern provinces, and support the firefighting and rescue stations in the most impoverished “three regions and three autonomous prefectures” (in western and southwestern parts of China) equipped with special vehicles such as plateau rescue vehicles. We will build national comprehensive fire and rescue training bases, as well as national professional training bases for earthquake rescue, water rescue, chemical rescue, forest and grassland fire prevention and control, aviation firefighting and rescue, flood fighting and rescue, and numerous regional logistics support bases.

3.2 Building up national-level professional emergency rescue teams

Relying on the disasters engineering rescue agencies of the MEM and large enterprises in the fields of water conservancy and hydropower construction, building construction, the regional engineering emergency rescue teams will be built in the areas with frequent floods and geological disasters. Relying on the backbone forest fire fighting forces of forest industry enterprises and local governments, we will strengthen the regional mechanized forest firefighting forces in key forest areas such as the Greater Khingan Mountains in Heilongjiang, Greater Khingan Mountains in Inner Mongolia, Changbai Mountain in Jilin, Kunming in Yunnan, and Xichang in Sichuan. We will vigorously enhance the rescue capacity of geological and seismic disasters in earthquake-prone areas such as Sichuan, Yunnan, Tibet, and Xinjiang. Relying on central enterprises and key local state-owned enterprises, we will step up the development of emergency rescue teams for mine drainage, hazardous chemicals in key areas, major oil and gas reserve bases and depots, water in the upper and middle reaches of the Yangtze River, key railway tunnels, and offshore oil and gas exploitation. We will supplement and update the key rescue equipment of the national work safety emergency rescue team. We will strengthen the building of on-site technical support forces for emergency rescue of disasters and accidents. We will improve the basic training, aviation rescue, water search and rescue, emergency medical rescue, and other training facilities of CSAR and CISAR, and equip them with professional rescue vehicles and equipment.

3.3 Building up local comprehensive emergency rescue teams

Combining with the development of regional emergency rescue forces, and relying on the existing work safety, disaster prevention and mitigation emergency rescue teams, and government full-time fire brigades, we will focus on adjusting and optimizing provincial and municipal comprehensive emergency rescue forces, and improving emergency rescue equipment storage and transportation facilities and

physical fitness, professional techniques and tactics, equipment practice, special disaster environment adaptability, and other training facilities. Through equipping with gears suitable for general emergency rescue, emergency communication, emergency survey, personal protection, and other tasks, we will expand rescue functions for these forces to earthquake search and rescue, flood fighting, and firefighting.

3.4 Building up aviation emergency rescue teams

We will enhance the comprehensive aviation rescue capability, and build the aviation emergency rescue and aviation oil and aviation materials emergency supporting teams, with the capabilities of plateau rescue, heavy-duty hoisting, and remote reconnaissance. We will improve the emergency rescue aviation dispatching information system, and build an aviation emergency research base. A number of transport and general airports will be improved, equipped with aviation firefighting, meteorological support, aviation oil reserve, night navigation aid, maintenance, and other support facilities and equipment. New emergency rescue aircraft maintenance bases will be built, as well as comprehensive aviation emergency service bases integrating aviation emergency rescue training, educating, drilling, support, and service functions. We will improve the layout of aviation forest protection stations, renovate existing aviation forest protection stations, and build a number of full-function aviation terminals and forest protection airports. In key forest fire areas, we will rationally set up field aprons, temporary helipad, firefighting water intake, and field gas stations.

3.5 Ensuring emergency supplies and equipment

We will make full use of storage resources and rely on the existing central and local material reserves to build the comprehensive emergency material reserve. A number of comprehensive national reserve bases will be built in transportation hub cities, densely populated areas, and areas prone to major disasters. We will build and improve the emergency

material reserve and combat logistics support station for the CFR. We will build the emergency material distribution platforms and regional distribution centers in the key logistics hubs, and build numerous comprehensive emergency material logistics bases relying on large express logistics enterprises. We will improve the national emergency resource management platform and the emergency material support database, to gather and manage information on emergency supplies.

4. Project to maximize comprehensive supporting capacity

4.1 Advancing scientific and technological innovation-driven actions

We will establish national and ministerial laboratories for comprehensive prevention of major disasters risks, prevention and control of major and serious work safety accidents, prevention and control of complex chain disasters, urban safety and emergency response, major mine disasters governance, emergency technology for flood control and drought relief, and emergency medical rescue. We will build the earthquake science experimental site and national key laboratory of earthquake dynamics. We will implement a program for building catastrophe scenarios. We will build research bases for fire prevention and treatment, fire and rescue equipment, flood control and drought relief and meteorological disaster prevention and treatment, emergency rescue robot detection, UAV actual combat verification, IoT for emergency communication and emergency equipment, fire rescue of large oil storage tanks, prevention and treatment of urban cross-category disasters and accidents, rock burst prevention for deep coal mining, and gassy and outburst coal mine disaster prevention. We will improve the support platform for safety research of hazardous chemicals with help from existing institutions, and optimize the layout of national field scientific observation and research stations in the field of disasters. We will build a national service platform for sharing scientific and technological resources in the field of emergency management and comprehensive technical support platform for disaster prevention and mitigation in the key disaster areas. We will

improve the simulation system of the regional earth surface and the mechanism of catastrophe gestation and occurrence, as well as the international disaster information management platform.

4.2 Furthering the application of IT in emergency communication and emergency management

We will build a satellite communication management system based on Tiantong, Beidou, satellite Internet and other technologies to achieve unified scheduling and comprehensive application of emergency communication satellite resources. We must improve the overall reliability of the public communication network, and enhance the coverage and networking capacity of the emergency short wave network. We will implement the smart emergency big data project, build a main data center in Beijing and a backup data center in Guiyang. We will upgrade the cloud computing platform for emergency management, strengthen the development and intelligent renovation of emergency management application systems to build a “smart brain for emergency management”. We will adopt 5G and short-wave wide area diversity technologies to improve the broadband wireless dedicated communication network for emergency management and command. We will promote the pilot integration for emergency management dedicated network, e-government extranet and WAN. We will build a high-throughput satellite emergency management system, and expand the capacity of the satellite emergency management integrated service system. We will set up the demonstration for the emergency management capability of the Beidou system.

4.3 Implementing education and training programs for emergency management

We will improve the teaching, training, and scientific research facilities of the University of Emergency Management (currently in preparation),

China Fire and Rescue Institute, Emergency Management Training Academy for Leadership, and so on. We will renovate the North China comprehensive training base for national work safety inspection, supervision, and law enforcement, and supplement the supervisory and training facilities and equipment for work safety in professional fields such as oil and gas pipelines, urban underground gas pipelines, underground space, as well as the fields of industry and trade, construction, etc. We will improve the conditions for the qualification examination venue for work safety inspection and law enforcement personnel. We will build a rehabilitation base for the CFR, and improve the equipment and facilities for training injury prevention and treatment, rehabilitation and medical treatment, psychological counseling, rotation training, and recuperation.

4.4 Implementing demonstration programs for promoting the application of safety emergency equipment

We will set up pilot demonstrations for the work safety emergency equipment applications and carry out the promotion of accident prevention equipment in high-risk industries, and lead enterprises in the key areas of high-risk industries to upgrade their safety equipment. In key industries, such as hazardous chemicals, mines, oil and gas pipelines, fireworks and firecrackers, industry and trade, we will set up the demonstration of using robots in dangerous posts, and build a number of unmanned intelligent demonstration mines. Through the integrated application of the advanced equipment and information technology, demonstration projects, such as risk prevention and treatment of smart mines, risk prevention and treatment of smart chemical industry parks, smart fire protection and earthquake safety risk monitoring, will be implemented. In view of the major hazards, such as earthquakes, landslides, debris flows, barrier lakes, dike breaches, and forest fires, we will strengthen the R&D and application of solar-powered long-endurance and high-load UAVs and robots, which are suitable for plateau, and lightweight, intelligent, and high-mobility equipment, and increase

the allocation and application of advanced emergency communication equipment, such as 5G, high-throughput satellites, shipborne and airborne communications, and UAV communications.

5. Project to improve the social capacity for emergency response

5.1 Promoting the capacity for emergency management at the grass-roots level

We will implement the plan to enhance grass-roots emergency response capabilities, carry out the standardization of grass-roots emergency management capabilities, equip grass-roots emergency management staff with universal emergency rescue equipment and personal protective equipment, and select areas with superior conditions to build grass-roots mobile command centers and grass-roots comprehensive emergency rescue service stations. We will compile and improve the emergency management training program, assessment standards, and related teaching materials, and carry out professional knowledge training for emergency management staff at all levels. We will promote the construction of emergency broadcasting systems, and carry out training and information release exercises for the rural emergency broadcasting users. In villages and towns with inconvenient transportation or high risk of disasters and accidents, the construction of emergency material reserve points (warehouses) will also be carried out.

5.2 Implementing programs for dissemination and education of science in emergency response

We will implement the excellent scientific popularization program by using traditional media, websites, and new media platforms, so as to develop and promote emergency scientific popularization textbooks, related readings, animation, games, films and television dramas, short videos, and other products for various social groups. We will build a

public service platform of digital education resources for disaster prevention and mitigation, along with a standardized emergency knowledge database, public science education platform, and virtual emergency experience center. We will build theme parks and experience bases for work safety, by using abandoned mines, former sites of relocated chemical enterprises, and legacy industrial facilities. We will build a number of safety culture and education bases with the functions of disaster and accident popular science education, laws and policies publicity, emergency experience, self-rescue and mutual-rescue simulation, and others, by relying on science and technology museums, urban forest parks, disaster sites parks, and other facilities. We will build numerous emergency and fire science education bases at various levels.

Part XI Organization and Implementation

1. Strengthening organization and leadership

All local authorities and all relevant government departments will, in accordance with the responsibility and division of labor and in light of the realities, formulate plans involving implementation of their main objectives and tasks, specifying measures, fulfilling responsibilities, strengthening coordinated implementation of the Plan and their annual plans, and clarifying the schedule and stage objectives of all tasks. We will improve the mechanism for coordinating the implementation of cross-regional and cross-sectoral plans, closely link efforts, and strengthen overall coordination, to ensure the orderly progress of implementation, the effective implementation of major initiatives, and all objectives being achieved on schedule.

2. Ensuring investment

We will give full play to the leading role of key projects, strengthen the overall planning of resources in accordance with the principle of matching authority with expenditure responsibility, and improve fiscal

and financial policies on the basis of making the best use of existing resources. Governments at all levels must reasonably guarantee the implementation of the Plan in the light of fiscal revenue and expenditure. We must coordinate the use of funds, integrate and optimize resources and form a policy synergy. We will give full play to the role of policy guidance, strive to eliminate the differences between regions and between urban-rural areas, and guide diversified capital investment.

3. Strengthening monitoring and evaluation

We will strengthen inspection and evaluation of the Plan's implementation which will be used as the KPI for supervising, inspecting, and evaluating the performance of local authorities and relevant departments. Local governments must strengthen the supervision and inspection of the implementation of their respective plans. The MEM must organize annual monitoring, mid-term evaluation, and summary evaluation of the implementation to track progress, analyze existing issues, propose requirements for improvement, strengthen supervision and implementation, and make timely report of key matters to the State Council.