

# THE PEOPLE'S REPUBLIC OF CHINA



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# 1. NATIONAL PROFILE

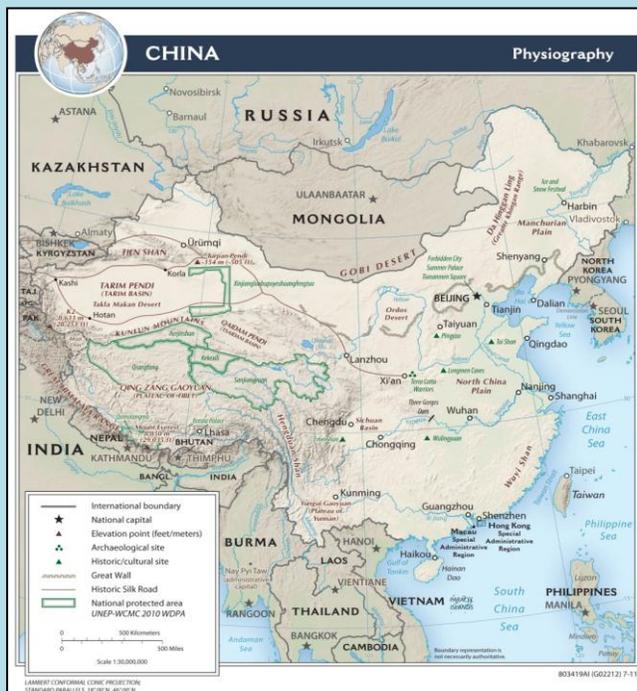
## 1.1 General

The People's Republic of China was established in 1949. While initially founded as a socialist state with a centrally planned economy, it now has a mixed economy, described by its government as “Socialism with Chinese characteristics”.

China is the world's most populous country, with a continuous culture stretching back nearly 4,000 years. China now has the world's fastest-growing economy and is undergoing what has been described as a second industrial revolution.

Economic reform has replaced state socialism with a more capitalist system and generated rapid growth, turning China into one of the world's largest economies, but problems such as growing inequality, pollution, rural poverty and low domestic consumption remain. China has enjoyed almost 30 boom years with GDP growing in double-digits, raising 500 million people out of poverty. In 2008, Beijing was the host nation for the Olympic Games, delivering a widely-acclaimed Olympiad that showcased the country's progress to the rest of the world. Late 2012 saw the CPC's decennial leadership change at its 18th National Party Congress, with President Hu Jintao and Premier Wen Jiabao replaced by Xi Jinping and Li Keqiang respectively.

## 1.2 Physiography<sup>1,2</sup>



China's landscapes vary greatly. Its eastern lowlands parallel the coastline and are the fertile alluvial plains where most people live and that have been subject to flooding for millennia. Moving west the land rises and reaches the edge of a tableland that begins the highest plateau on earth, the Tibetan Plateau (Qing Zang Gaoyuan). Most mountain ranges run east-west, including the Kunlun Mountains which, with the Himalayas

Source: <https://www.cia.gov/library/publications/cia-man->

to the south, enclose the Tibetan Plateau. In the Tian Shan area of the west are rich deposits of ores, coal and oil, many yet to be exploited. The western hinterland is barren while subtropical areas in the south provide two rice crops a year. Between the lowlands and mountains are foothills and mountains, deserts and steppes, sunken basins and frequently flooded plains. The continental scarp not only divides the land topographically but is also the cultural boundary, with dense populations and intense agriculture to the south and east of the scarp.

Geographic coordinates: 35<sup>0</sup> 00' N, 105<sup>0</sup> 00' E

Country comparison to the world: 4

Total Area: 9,596,961 sq km

Land: 9,569,901 sq km

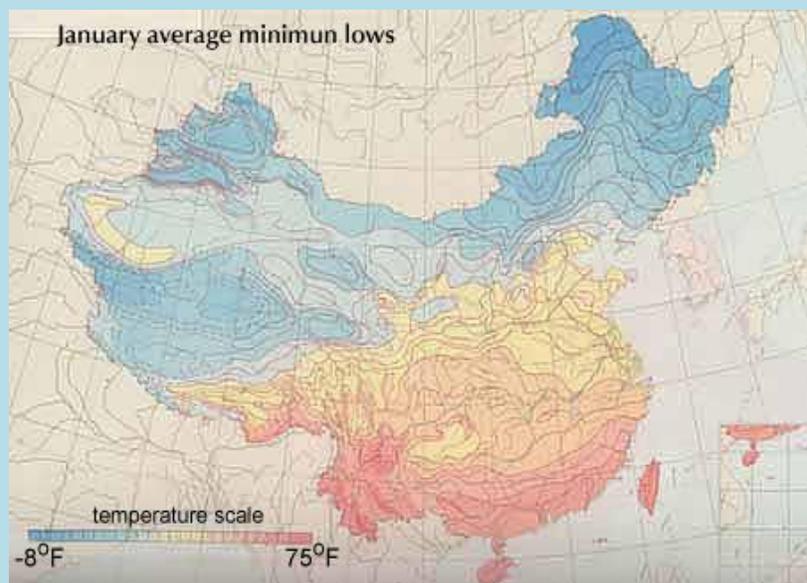
Water: 27,060 sq km

Land boundaries: 22,117 km

Border countries: Afghanistan 76 km, Bhutan 470 km, Burma 2,185 km, India 3,380 km, Kazakhstan 1,533 km, North Korea 1,416 km, Kyrgyzstan 858 km, Laos 423 km, Mongolia 4,677 km, Nepal 1,236 km, Pakistan 523 km, Russia (northeast) 3,605 km, Russia (northwest) 40 km, Tajikistan 414 km, Vietnam 1,281 km regional borders: Hong Kong 30 km, Macau 0.34 km

### 1.3 Climate<sup>1</sup>

China lies between the same latitudes as the United States, and its topography is even comparable. A vast country that stretches from sea level to the towering Himalayas, China has no dominate climate. Temperatures can drop to -40°F in the north and reach 117°F in Turpan (known as the Oasis of Fire) in the south, with extreme



**Average temperature distributions in January**

seasonal changes common in the central Yangtze River valley. Typhoons are frequent on the southeast coast, and monsoon rains in the south can come twice yearly.

The western plateau varies from temperate to frigid for long stretches of the year. Drought and destructive agricultural practices have increased expansion of the Gobi Desert resulting in major spring dust storms affecting the entire country as well as Japan and Taiwan.

### 1.4 Socio-economic Profile<sup>3</sup>

<b>Socio-economic Indicators</b>		
GDP: Gross domestic product (million current US\$)	2011	7203784
GDP per capita (current US\$)	2011	5439.0
GNI: Gross national income per capita (current US\$)	2011	5535.0
Population (millions)	2014	1,385.57
Urban (% of population)	2014	53.16
Sex ratio (males per 100 females)	2012	108
Life expectancy at birth (females/males, years)	2010-2015	75.6/72.1
Education: Government expenditure (% of GDP)	2006-2012	1.9

### 1.5 Administrative Setup<sup>4</sup>

**Administrative divisions:** 23 provinces, 5 autonomous regions and 4 municipalities

**Provinces:** Anhui, Fujian, Gansu, Guangdong, Guizhou, Hainan, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan, Zhejiang; (see note on Taiwan)

**Autonomous regions:** Guangxi, Nei Mongol (Inner Mongolia), Ningxia, Xinjiang Uygur, Xizang (Tibet)

**Municipalities:** Beijing, Chongqing, Shanghai, Tianjin

## **2. DISASTER RISK PROFILE**

### **2.1 Natural Disasters<sup>5</sup>**

China is one of the countries that is most affected by natural disasters. Natural disasters occur frequently in China, affecting more than 200 million people every year. They have become an important restricting factor for economic and social development. In the 1980s, 55.5 billion RMB were lost because of natural disasters. In the 1990s, the losses amounted to 112 billion RMB. And, in 2000s, the estimated losses caused by disaster will reach 200 billion to 300 billion.

China contains some historically active volcanoes including Changbaishan (also known as Baitoushan, Baegdu, or P'aektu-san), Hainan Dao and Kunlun although most have been relatively inactive in recent centuries. In the course of recorded history, many types of natural disasters — except volcanic eruptions — have occurred in China. This includes floods, droughts, meteorological, seismic, geological, maritime and ecological disasters as well as forestry and grassland fires. These natural disasters pose serious threats to life and property safety to China and its people, and severely affect the comprehensive, coordinated and sustainable development of that country's economy and society. In addition, such hazards threaten China's national security and social stability. They also stand in the way of economic development in some regions and inhibit poverty alleviation for certain rural populations.

China lies in the world's major seismic belt and has a frequent earthquake occurring; the terrain condition is complicated in China, and the area proportion of the hill region and the plateau region in the whole country reaches 69%, with severe soil and water lost, wind erosion and desertification. This geographic environment determines that natural disaster of China has the following characteristics: multiple natural hazards, high frequency of hazard occurring, significant regional differentiation and seasonal characteristic and severe disaster losses.

The losses caused by these five main natural disasters (flood, drought, earthquake, typhoon and landslide/mudslide ) come up to 80%-90% of the annual disaster-loss

total. The frequency of natural hazards is high, with large-scale drought of the average frequency over 7, floods 5.8, typhoon 7, Low Temperature and Freeze 2.5, each year since 1949.

With the special geographic position of facing the Pacific in the east, China has the monsoon-controlled climate and the southeast coast areas are strongly influenced by typhoon. With the influence of monsoon climate, China has significant regional and seasonal characteristics. The droughts mainly distribute in the Northwest Loess Plateau and the North China Plateau in spring and autumn; the floods mainly distribute in the seven large river basins, especially in the middle and lower reaches of Yangtze River and Huaihe River in summer and autumn. The losses caused by natural disasters are also very severe. In the general year, the natural disaster affected agricultural area is about one third of the nation total farmland area, of which one third is no-crop harvest area; the disaster affected population is around 200 million, and the urgently transferred person number is over 3 million; the collapsed building number is around 3 million.

Technological disasters are also distributed throughout the history of China. There have been countless fire incidents, and more recently, mine safety incidents. Food safety issues, like the Chinese milk scandal, was a mass incident caused by melamine. SARS, avian flu, other pandemics, and endless traffic incidents all become threats to public safety and security as serious concern.

China faces terrorist attacks and other criminal threats as well. The East Turkestan Islamic Movement and East Turkestan Liberation Organization are two of the most active terrorist organizations in China. They participated in several bombings and other attacks in Xinjiang and other cities in North China since 1990s. China has also experienced riots carried out by the Tibetan Independence organization. One of these civil disturbances took place on March 14, 2008 in Lhasa, Tibet.

## 2.2 Data Related to Disaster<sup>6</sup>

### Top 10 Natural Disasters in China for the period 1900 to 2014 sorted by numbers of killed

Disaster	Date	No Killed
Mass Movement Wet	28/Jun/2010	99
Flood	May/1996	96
Flood	02/Jul/1992	96
Flood	29/Jul/2007	96
Storm	02/Oct/2005	95
Earthquake (seismic activity)	22/Jul/2013	95
Flood	01/May/1994	95
Earthquake (seismic activity)	06/Nov/1988	939
Storm	05/May/1993	93
Mass Movement Wet	18/Aug/2010	92

### Top 10 Natural Disasters in China P Rep for the period 1900 to 2014 sorted by numbers of total affected people

Disaster	Date	No Total Affected
Flood	01/Jul/1998	238973000
Flood	01/Jun/1991	210232227
Flood	30/Jun/1996	154634000
Flood	23/Jun/2003	150146000
Flood	29/May/2010	134000000
Flood	15/May/1995	114470249
Flood	15/Jun/2007	105004000
Flood	23/Jun/1999	101024000
Flood	14/Jul/1989	100010000
Storm	14/Feb/2002	100000000

## Top 10 Natural Disasters in China P Rep for the period 1900 to 2014 sorted by economic damage costs:

Disaster	Date	Damage (000 US\$)
Storm	21/Oct/1998	98000
Flood	08/Aug/1998	964000
Flood	20/Sep/2003	9640
Storm	10/Jul/1994	96300
Storm	20/Apr/1992	96000
Earthquake (seismic activity)	07/Dec/2012	96000
Flood	11/Jul/1994	95000
Flood	22/May/2002	943000
Drought	Jun/1988	942887
Storm	27/Aug/1986	940000

### 3. INSTITUTIONAL SETUP

#### Disaster Policy

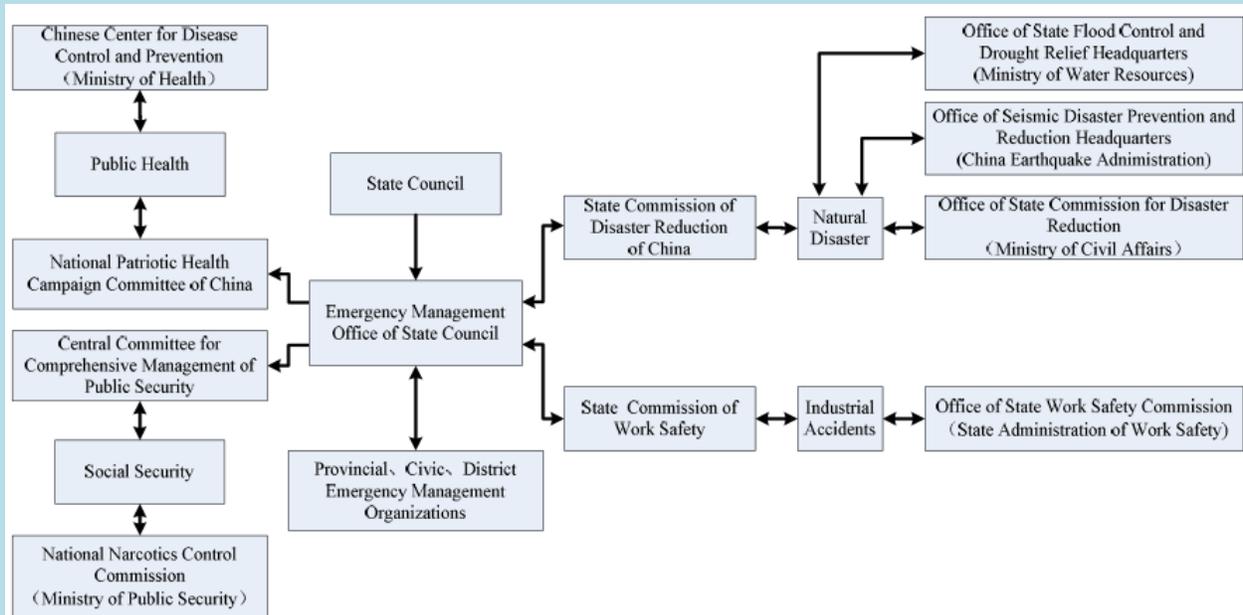
The Chinese government has implemented many efforts to establish a modern emergency management system. These include new laws and local regulations. Before November 1, 2007, there were 35 laws and 37 regulations published in China cover various areas from environmental, safety, health to security. However, these laws were limited in scope, unable to become one systematic program. Therefore, it is said that the real emergency management system in China started after the SARS epidemic in 2003.

On May 12, 2003, the “Regulation on the Urgent Handling of Public Health Emergencies” was published. This regulation put together all that was needed to handle SARS and other similar situation. It has become one fundamental for future development of detail emergency plan in different tactical fields. This is a milestone that emergency management of medical and public hygiene has their general law with top-down authority. In November 2003, “the Emergency Law” was initiated but it has not been published yet. However, the Amendment to the Constitution on March 2004 has changed the terminology of martial law to emergency law, and therefore gives support to the law of emergency state. A

short time later, in December 2005, China established an Emergency Management Office (EMO) and started to build new EM system for China. Following on that, The State Council issued “Master State Plan for Rapid Response to Public Emergencies” in January 2006. Started on May 31, 2006 as a draft, the legislation was finally passed “The Law of the People's Republic of China on Emergency Responses” on August 30, 2007. On November 1, 2007, it came into effect. This law is the major milestone of systemic emergency management in China. By this law, emergency management in China has obtain legal support from all levels authority from central government to local; and by the master state plan, the emergency management system established its own framework of emergency planning.

China was starting to build up all kinds of emergency plans based on this framework. By March 2009, 51 national level emergency plans have been developed for the country. In addition, 138 nationally owned corporations and all mine and chemical related corporations have developed emergency plans as well.

### 3.1 Emergency Management System in China<sup>5</sup>



#### Disaster Risk Management Organization System of China

China does not have national level emergency management departments like DHS or FEMA. Instead, many departments share their responsibility for emergency

management with a different scope or approach. In general, several of the leading organizations are listed below.

The Ministry of Civil Affairs (MCA) generally leads natural disaster relief, with support from other related departments. It was founded in May 1978. It is responsible for social and administrative affairs. MCA is in charge of registration and administration of association, NGO and foundation. MCA is in charge of registration on marriage, divorce etc. MCA also takes care of the aged, children, orphans, disabled people and retired army personnel.

The National Disaster Reduction Center (NDRC) of MCA is a specialized agency under the Chinese Government engaged in information services in order to support decisions on various natural disasters. It provides reference material for disaster management departments in their decision-making in addition to technical support for China's disaster-reduction undertakings by way of collecting and analyzing disaster information, assessing disasters and emergency relief, and analyzing and studying disasters using such advanced technology as satellite remote sensing.

The State Administration of Work Safety (SAWS), reporting to the State Council, is the non-ministerial agency of the Government of China responsible for the regulation of risks to occupational safety and health in China. The National Workplace Emergency Management Center (NWEMC) of the State Administration of Work Safety and State Administration of Coal Mine Safety is mostly in charge of technology disasters. They are response for several of emergencies ranging from HazMat, traffic incidents, mine safety and others.

The Ministry of Public Security (MPS), headed by the Minister of Public Security, is the principal police authority on the mainland of the People's Republic of China. It is the agency that is responsible for most of the day-to-day law enforcement in mainland China. Furthermore, the MPS is the main domestic security agency in the People's Republic of China, thus making it the equivalent to the National Police in other countries. It controls and administers the People's Armed Police. In general, the MPS does not undertake paramilitary functions, which are within the province of the People's Armed Police, nor does it generally conduct domestic intelligence which is the responsibility of the Ministry of State Security. It should

also be noted that Hong Kong and Macau have their own security bureaus/agencies and police forces.

Local municipal police under the MPS have historically been unarmed in contrast to the agents of the PAP. However, since 2006, a decision has been made to issue a sidearm (a 9mm double-action revolver manufactured by the China North Industries Corporation) to all frontline MPS personnel. The MPS is the leading body in China pertaining to antiterrorist, criminal prevention and other security related crisis responses.

The Ministry of Health (MOH) of China (PRC) is an executive agency of the state which plays the role of providing information, raising health awareness and education, and ensuring the accessibility of health services. It continually monitors the quality of health services provided to citizens and visitors in the mainland of the People's Republic of China. The MOH is also involved in the control of illnesses, diseases, pandemics, food safety issues, and coordinates the utilization of resources and expertise where necessary. It also cooperates and keeps in touch with other health ministries and departments, including those of the special administrative regions and the World Health Organization (WHO).

Beside the above organizations, there are two agencies which provide integrated emergency management. They are the National Civil Defense (CD) and the Emergency Management Office (EMO). The Civil Defense covers aerial defense, CBRN, HazMat and other common accidents in cities. The Emergency Management Office covers emergency planning, natural disasters, technological accidents, public sanitation issues, social security concerns, and recovery and reconstruction activities. The CD has their own resource and tactical team to response, while the EMO has more coordination role between MCA, SAWS, MPS, MOH and other related agencies. The Chinese central government established the EMO in December 2005, which is a milestone of the modern emergency management system.

Under the central government, all local governments follow the same structure to establish a province or city level EMO. This local level EMO has authority to coordinate the same level MCA, SAWS, MPS, MOH and other related agencies in emergency responding, disaster relief and recovery. By the national law, different

levels of emergency lead to escalation onto appropriate level of EMO and government. For example, SAWS has published the regulation of Coal mine production safety incident reporting and investigation. It classifies emergencies into four levels which is typical way in the Chinese emergency management system. These four levels are listed below.

- Level 1, extremely serious, over 30 fatalities, need escalate to the state council
- Level 2, serious, between 10~30 fatalities, escalate to province level
- Level 3, major incident, 3~10 fatalities, escalate to city level
- Level 4, small case, less than 3 fatalities, escalate to local level

Established in the April of 2006, Emergency Management Office of the State Council, at national level works as an operation hinge, which takes charge of the daily work of the national emergency management, responds to the public security events, collects the real-time information and harmonizes the related departments. Since the establishment in 2006, the Emergency Management Office of State Council has carried out some effective work to enhance the disaster emergency management: helped actualize and implement the Master State Plan for Rapid Response to Public Emergencies of China; held the emergency management working meeting of State Council and the management working meeting of enterprise emergency work, to deploy and unify the emergency management, and emphasizes the governments of all levels to enhance emergency ability construction and get prepared for the prevention and dealing for the public security emergencies; started the Key Technologies R & D Program for the emergency platform construction to provide science and technology supporting for emergency management and increase the emergency treatment efficiency.

So far, the Chinese disaster risk (public security) management system has established, namely “one office and four committees”: the establishment of the Emergency Management Office of State Council at the national level and the corresponding organizations with regard to the four public security incidents:-

- i. The National Committee for Disaster Reduction to manage natural disasters,
- ii. The National Committee for Work Safety to manage industry accidents,
- iii. The National Committee for Patriotic Health to manage public health and

iv. The National Committee for integrated management to manage public security.

The four committees are made up of a vice president or a committeeman of the State Council of China as committee director, a minister or vice minister from the related ministries as administrative vice director or vice director, and the vice ministers from the corresponding ministries as committee members.

At the local levels, there are corresponding disaster risk (public security) management organizations with accordance to the national level. The local emergency management centre and the committees for the four public security incidents management have been gradually established.

In order to enhance the disaster risk management work, in these related ministries and commissions, the corresponding management centers have been established, such as the Chinese Center for disease control and prevention (Ministry of Health), the National Disaster Reduction Center of China ( Ministry of Civil Affairs), the Chinese Supervision Center for Work Safety (State Administration of Work Safety), etc.

In conclusion, China has started disaster risk (public security) management work on the basis of traditional disaster management and reduction, and has formed the primary disaster risk management framework of related professional fields. The China Association for Disaster Prevention also established the first professional organization for risk research, which has been named as the Risk Analysis Specialty Committee; many Chinese universities and research institutes have been doing research on natural disasters, engineering hazards, economic risk, crisis management and disaster risk management, and so on.

### **3.2 The Institutional Framework<sup>7</sup>**

While the descriptions are dissimilar in different periods, the basic principles of Chinese government to disaster management are always consistent, which are as follows:

(1) Prevention first, and giving equal weight to prevention and mitigation. Such prevention work should be strengthened as monitoring, forecasting, early warning, risk surveys, engineering fortifying, propaganda and education and so on. Ways of

disaster prevention, resistance and relief should be combined to advance every aspect of disaster management.

(2) Government dominant, public participating. Governments at all levels should play the leading role in disaster prevention and mitigation, all departments should coordinate, and all society should participate in disaster prevention and reduction.

(3) People first, mitigating disasters in scientific way. Disaster prevention and mitigation should care about livelihood, and follow natural laws. Protection of people's life and property should be taken as the fundament in practice, and the basic living allowances of stricken area should be emphasized. The science and technology of disasters should comprehensively be improved to orderly launch the work of integrated disaster prevention and mitigation.

The operational mechanism of disaster management system in China can be summarized as: unified leadership, graded response and functional division, based on local government, supplemented by central government. Unified leadership means the government issues policies, regulations and planning, and makes decision, commands, supervises and coordinates in the course of implementing disaster management measures. Graded response means central government is responsible for management of catastrophe relief, and local government for disaster management in their administrative areas. For example, the central government takes responsibility for major disasters, provincial government for large-scale, municipal government for medium-scale, and county government for minor disasters. Functional division is that relevant departments of the government shall be responsible for relevant work of disaster management in accordance with their respective duties. The practice and expenditure mainly depend on local government and supplemented by central government. Since the People's Republic of China (PRC) was established, Chinese government has been attaching importance to disaster management, and has built a "single-style" disaster management system, which means management of a kind of disasters is conducted by a specified department. In the phase of disaster cycle, different government departments take responsibilities according to their functions.

At present, the permanent disaster management departments include China's State Flood Control and Drought Relief Headquarters, State Headquarters for Earthquake Resistance and Disaster Relief, State Headquarters for Forestry Fire

Prevention. In addition, the temporary headquarters are set up when other disasters occur.

### **3.3 Disaster Prevention and Mitigation**

Flood prevention and mitigation has been taken seriously since PRC was established, and the Ministry of Water Resources is responsible for it. Since 1950, China has started constructing the dam and reservoir, and so far, 85,160 reservoirs have been constructed, and the total capacity reaches 554.2 billion cubic meters. Of all the reservoirs, there are 460 large reservoirs and 2,870 medium reservoirs, which have reduced the annual flood disasters in east China. Meanwhile, the effective irrigation area has expanded from 16 million hectares in 1950 to 58.47 million hectares at present, which effectively improves the ability in agriculture to resist drought. The XiaoLangDi reservoir built in 2001 is the largest reservoir for flood control in China. Its completion makes the standard that flood occurs in lower reaches of Yellow River from every 60 years increased to every 1,000 years and has essentially eliminated the harm of flood. The Three Gorges Dam, the largest reservoir in the world enhanced the design standard for flood prevention in the lower reservoir from every 10 years to every 100 years. At present, many medium and small reservoirs built in 1960–1970s have been in a dangerous condition. In the next 5 years, The Ministry of Water Resources of PRC is going to invest 4 trillion to repair and reinforce these water projects.

From 1966 to 1976, 14 earthquakes of over 7.0 Richter scales occurred in China, which caused Chinese government to take the measures to prevention and mitigation, and set up the management institutions. In 1971, the central government established China Earthquake Administration, which manages the earthquake affairs such as the prediction and prevention of earthquake, and China has been the only country that establishes earthquake management institution in government administrative department. So far, each provincial government and all vulnerable areas' counties governments have established Earthquake Administration. In the construction of earthquake monitoring and prediction system, digital earthquake precursory observation network has been built which is composed of state digital seismic network consisting of 48 seismic stations, 23 provincial regional digital telemetric seismic networks, and 25 continuous

operating reference stations and more than 400 stations. Seismological departments explore scientific methods of earthquake prediction and encourage people to predict earthquake based on experience. Owing to above methods, China has successfully predicted many earthquakes, such as Haicheng earthquake with magnitude ( $M = 7.3$ ) in 1975, Longlin earthquake with magnitude ( $M = 7.3$ ) in 1976, Songpan earthquake with magnitude ( $M = 7.2$ ) in 1976. These successful predictions have greatly reduced the loss in earthquakes.

China Earthquake Administration also undertakes the managing function in seismic fortification. In 1950s, China issued the first edition of the Seismic Intensity-Zoning Map. The second and the third editions revised in 1977 and 1992, respectively. In order to adapt new requirements of seismic fortification, in 2001, China released the Seismic Ground Motion Parameter Zoning Map as the fourth seismic intensity-zoning map, with the scale of 1:4 million. The fourth edition adopts the probabilistic seismic hazard analysis and chooses the risk level-probability of exceedance is 10% in 50 years as the seismic zoning map's seismic fortification criterion. The fourth seismic zoning map, which is scientific, advanced, and applicable, is the first seismic zoning map expressed in seismic motion parameters in China. The execution of the fourth seismic zoning map, expressed in seismic peak ground acceleration zoning map, characteristic period of the seismic response spectrum-zoning map, and adjustment sheet of period of the seismic response spectrum, indicates that the theory and application of seismic zoning in China has reached the advanced international level.

The prevention and mitigation of meteorological disasters is mainly responsible by China Meteorological Administration, which established in December 1949. So far, a meteorological service system has been set up in China, which consists of weather forecast, climate prediction, weather modification, drought and flood monitoring and forecasting, thunderstorm and lightning prevention, agro-meteorology and ecology, and climate resource exploitation, etc. In recent years, with the development of science and technology, and socio-economy, the meteorological service and disaster prevention and mitigation have quickly developed in the fields such as atmospheric composition analysis and warnings, space meteorology, sand/dust storm monitoring and forecasting, lightning device testing and designing, health meteorology, emergency response to unexpected

public events, etc. The meteorological services and disaster prevention and mitigation have covered almost all sectors of national economies, social communities and state securities.

Prevention and mitigation of geological disasters used to be responsible by Ministry of Geology before Ministry of Land and Resources established in March 1998. In 1992, China made a nationwide investigation of geological disasters, compiled prevention plan of geological disasters, and completed a national investigation on the distribution of the geological disasters. Since 1995, the geological disaster monitoring and prevention system has been gradually set up. In 1999, Management Measures to Geological Disaster Prevention were executed, which can be followed in practice (Liu 1999). From June 2003, during the flood season (from May to September), geological disasters forecast is made by China Meteorological Bureau and Ministry of Land and Resources.

Active duty soldiers are in charge of fire disaster, they are fire brigades under the Ministry of Public Security and forestry armed police force co-led by State Forestry Administration and China's People's Liberation Army, respectively. The two forces are basically isolated of each other. Fire brigades at province, city and county levels take charge of fire disasters of their own administrative regions. Forest forces are responsible for forest and grassland fires. With regard to nuclear power plants and large petrochemical enterprises, they have their own professional fire brigades. Fire department was only responsible for fire disasters before 2008, which was a "single-style" job. According to the new enacted Fire Prevention Law of PRC, fire brigades began taking on responsibility for the emergency rescue of large-scale disasters and other job like saving lives in 2008. In fact, fire brigades are the dominated force to cope with all kinds of major disasters currently.

In order to comprehensively deal with natural disasters, response to the call of the United Nations "International Decade for Natural Disaster Reduction" (IDNDR), and coordinate disaster mitigation work in China, the International Decade for Natural Disaster Reduction Committee of China (IDNDRCC) was established in April 1989. It was mainly led by the State Council and composed of 28 relevant departments. In October 2000, IDNDRCC was renamed as the China International Disaster Reduction Committee and renamed again on April 2, 2005 as the National

Committee for Disaster Reduction. Its main task is to study and make the policies and strategies for national disaster reduction, coordinate the major activities of disaster reduction, guide local disaster reduction and promote international communication and cooperation (International Decade for Natural Disaster Reduction Committee of China 1998). IDNDR activities play an important role in the history of disaster prevention and mitigation in China. Firstly, those activities improved the understanding of disaster prevention and mitigation, and popularized the idea that disaster prevention and mitigation is a part of sustainable development of society. What's more, those activities promoted the coordination and cooperation of different departments, and improved the comprehensive capacity in disasters prevention and mitigation. At the same time, the residents' awareness of disaster was significantly improved, and community disaster reduction achieved a big breakthrough.

In March 1994, the State Council promulgated the China Agenda 21, which emphasized the importance of disaster mitigation in sustainable development, that is, disaster mitigation is the basis of national sustainable development, the important guarantee of improvement to national living quality. In April 1998, the State Council promulgated PRC Mitigation Plan (1998–2010). This plan proposed the guidelines, the main objectives, tasks, measures and actions in national disaster mitigation, and emphasized the importance of disaster mitigation in the economic development and engineering disaster prevention. Through the implementation of this plan, a large number of national disaster prevention projects were built and improved. Monitoring and warning system on meteorological disasters, oceanographic disasters, hydrological disasters, geological disasters, seismic disasters, crop pests and diseases, forest fire and pests and diseases, has been strengthened. For example, the Three Gorges Project on the Yangtze River, the Xiaolangdi Project on the Yellow River, the Northwest-North-Northeast Shelter Forests Belt Project, and Beijing-Tianjin Sand Source Control Project, so that the capabilities of regional and municipal disaster prevention and mitigation have been effectively improved.

During implementing the plan, the international strategy for disaster mitigation experienced significant changes from single to integrated disaster mitigation, from the simple disaster mitigation to its combination with sustainable development,

from disaster reduction to disaster risk reduction and enhancing the risk management. Considering the changes, the plan had been stopped implementing in August 2007. At the same time, the National Integrated Disaster Reduction Eleventh Five-Year Plan (2006–2010) had been issued, which was based on the National Economic and Social Development Eleventh Five-Year Plan. This new plan clearly stated that eight aspects of ability construction and eight key projects would be completed. The eight aspects of ability to cope with disaster includes risk and information management, the monitor and forecast, the comprehensive defense capacity, emergency and rescue, the comprehensive response to catastrophe reduction in urban and rural communities, scientific and technological support for disaster reduction, and education on disaster reduction. The eight key projects include national integrated disaster risk and disaster reduction capacity survey in key areas, the national four-level disaster emergency command system, national disaster relief material reserves, satellite disaster reduction, community disaster reduction model, Asian regional catastrophe research center, technological innovation and transfer of disaster reduction, and education on disaster reduction. Those measures played an important role in improving the capabilities of the national integrated disaster reduction.

Ministry of Civil Affairs issued the National Comprehensive Disaster Prevention and Mitigation Twelfth Five-Year Plan (2011–2015) in 2011. This plan proposed ten aspects of disaster management and seven key projects. Ten aspects will be strengthened including national monitoring, warning and assessment, the national risk management, national disaster information, engineering defense ability, disaster prevention and mitigation of the regional and the urban and the rural areas, emergency response and recovery, application of science and technology, the cultural foster of disaster prevention and mitigation, the social support ability, and soft ability on disaster prevention and mitigation. Seven projects include: the comprehensive risk survey project for natural disaster, information platform for comprehensive disaster reduction and risk management, the national disaster emergency command system, the national reserves of relief materials, satellite to environmental disaster mitigation, national simulation system of natural disaster, disaster education and model community of integrated disaster reduction. The implementation of this plan is to enhance the national comprehensive disaster prevention and mitigation ability, effectively restrain the increasing trend in natural

disaster risk, minimize the natural disaster losses, improve public literacy on disaster prevention and mitigation, and reduce the effect of natural disaster on the national economic and social development.

In the years 2006–2010, disaster reduction of Chinese community made remarkable achievements. The Ministry of Civil Affairs promulgated Disaster Mitigation Model Communities Standard in 2007 and National Integrated Disaster Mitigation Model Communities Standards (modified) in 2010. Now there are more than 1,100 communities, which obtained the title of model communities to disaster mitigation.

### **3.4 Disaster preparation and emergency rescue**

In China, preparation for and emergency response to disaster is mainly responsible by Emergency Management Office of State Council and Ministry of Civil Affairs. The State Plan for Rapid Response to Public Emergencies was promulgated in Jan. 2006. In addition, later 25 special emergency plans and 80 plans to deal with disasters, compiled by various departments of State Council, were issued by State Council, which constituted the emergency program system in national level. In the plans, all kinds of public emergencies are divided into four levels according to features, severities, control abilities and influences. From the aspects of organization, operating mechanism, emergency support, supervision, and administration and so on, a working plan was put forward in response to particular public emergencies beyond the ability of provincial government. Each province, municipal city and county has also put forward their own emergency plan. In April 2006, Emergency Management Office of State Council was established being an operation center responsible for the emergency, information collection and comprehensive coordination. When disaster occurs, it coordinates various departments of the State Council for emergency or starts special standing command organizations, such as the national earthquake relief headquarters, flood control and drought relief headquarters and so on, or builds temporary command organization. In November 2007, Chinese government promulgated Emergency Response Law. This law is actually a repetition and affirmation of the emergency planning, and it builds the basis for disaster emergency management.

Ministry of Civil Affairs undertakes large portions of the work in disaster preparation and emergency rescue, such as collection, evaluation and release of information; allocation of relief fund and emergency resources; and evacuation and resettlement of victims and so on. In 1998, Ministry of Civil Affairs started to establish central material reserve system to disaster relief. And so far, there are ten material reserve sites to disaster relief, such as Shenyang, Haerbin, Tianjin, Zhengzhou and so on. Some regions where disasters are prone to occur have established local disaster relief material reserve warehouse.

In recent years, China has made some achievements in the construction of emergency professional rescue teams. Eight state professional emergency rescue teams, with 100 thousand people, are constructed, such as, Flood Emergency Rescue Team, Earthquake Emergency Rescue Team, Biological or Nuclear Emergency Rescue Team, Air Emergency Transport Service Team, Transportation Emergency Rescue Team, Marine Emergency Rescue Team, Emergency Mobile Communications Support Team, Medical Epidemic Prevention Rescue Team. When disasters occur, China can proceed to rapid rescue, and minimize the losses.

### **3.5 Recovery and reconstruction**

According to Emergency Plan of National Natural Disaster Assistance, Ministries of Civil Affairs at various levels are responsible for recovery and reconstruction. The basic principle of recovery and reconstruction is that victim's self-reliance and complemented by state relief and support. That is, government finances the recovery and reconstruction of infrastructure, and the Ministry of Civil Affairs distributes daily supplies. The damaged houses are repaired and reconstructed mainly by the dwellers with financial aid from the government. The central and local governments promote the social and economic development in disaster area through preferential tax, industry support and formulating the specific recovery regulations. In recovery and reconstruction of natural disaster in China, a very successful way is one-to-one assistance, that is, one developed city unaffected by disaster assists one village in disaster area. The mode has played an important role in a large number of disaster recovery and reconstruction.

## 4. INITIATIVES<sup>7</sup>

### 4.1 Chinese legal system construction in disaster management

In the process of disaster management, a clear legal guarantee is necessary on effective operation of disaster management system, and it is the foundation to carry out disaster prevention and mitigation. Chinese government attaches great importance to legal system construction in disaster management. With the rapid development of economic construction and the construction of democracy and legal system, the pace of legislation in disaster management is also gradually speeded up, which greatly improves the legalization of disaster management. Nearly 100 laws and decrees related to disaster prevention and mitigation have been issued in China from 1949 to 2010. These major laws and decrees are involved in the following aspects.

- Laws and regulations on emergency management, such as Emergency Response Law of PRC, State Emergency Plan of Natural Disaster Aids, Aid Regulations of Natural Disaster.
- Laws and regulations on safety in production, such as Production Safety Law of the PRC, Law of PRC on Prevention and Control of Occupational Diseases, Law of PRC on Safety in Mines, Provisions of the State Council Concerning Ascertaining Administrative Responsibilities in Extraordinarily Serious Safety Accidents.
- Laws and regulations on geological disasters, such as Law of PRC on Protecting Against and Mitigating Earthquake Disasters, Rapid Report Regulation of the Situation of Earthquake (Trial), Work Rules in Earthquake Field (Trial), Work Rules of Seismic Losses Assessment (Trial), Work System of Earthquake Emergency Inspection, Emergency Ordinance of Destructive Earthquake, Management Regulations of Earthquake Prediction, Protection Ordinance of Facilities for Earthquake Monitoring and Environment for Seismicity Observation, Management Methods of

Geological Disaster Prevention, Law of PRC on Water and Soil Conservation.

- Laws and regulations on meteorological disasters, such as Meteorology Law of PRC, Law of PRC on Prevention and Control of Desertification, Management Measures of Lightning Disaster Mitigation, Regulations of PRC on Meteorological Services, Interim Measures for the Administration of Issuing Weather Forecast, Opinions on Further Strengthening the Short-term Forecasting Service Work of Sudden Weather, Management Regulations of Weather Modification, Interim Provisions of Dust Weather Warning Business Service, Safety Management Regulations of Weather Modification, Management Regulations of Gust and Typhoon Prevention for Large Port Machinery.
- Laws and regulations on flood and drought disasters, such as Water Law of PRC, Flood Control Law of PRC, Flood Control Regulations, Regulations of PRC on the Administration of River, Interim Measures for the Administration of Large-scale Subsidy for Flood Control and Drought Relief, Safety Management Regulations of Reservoir and Dam, Central Management Measures for the Administration of Materials and Reserve Funds for Flood Control, Management Regulations for the Quality of Water Conservancy Project, Interim Measures of Raising Water Conservancy Construction Fund and Access Management.
- Laws and regulations on marine disasters, such as Marine Environment Protection Law of PRC, Management Regulations of Marine Environmental Forecast and Inform of Marine Disaster Forecasting Warning, Implementing Measures for Marine Emergency Monitoring Organization of the State Oceanic Administration, etc.
- Laws and regulations on biological disasters, such as Grassland Law of PRC, Forest Law of PRC, Regulations for the Implementation of Forestry Law of PRC, Forest Pest Control Regulations, Management Regulations of

Forest Pest Control Subsidy, Interim Measures for the Administration of Crops Insect Forecast.

- Laws and regulations on fire disasters, such as Fire Prevention Law of PRC, Forest Fire Prevention Regulations, Prairie Fire Prevention Regulations.
- Laws and regulations on environmental protection, such as Law of PRC on Prevention and Control of Water Pollution, Law of PRC on the Prevention and Control of Atmospheric Pollution, Marine Environment Protection Law of PRC.
- Laws and regulations on epidemic prevention, such as Animal Epidemic Prevention Law of PRC, Law of PRC on the Prevention and Control of Infectious Diseases, Report Measures of Public Health Emergencies and Epidemic Monitoring Information, Management Methods of Infectious SARS Prevention.
- Laws and regulations on disaster relief of the Red Cross, such as Law of PRC on Red Cross Society, Working Regulations on Fund Raising and Donations Receiving for the Red Cross of China.

## **4.2 Laws and Regulations**

China has promulgated and implemented more than 100 laws and regulations related to disaster management. Although China has promulgated many “single-style” disaster related laws, such as Flood Control Law, Earthquake Disaster Mitigation Act, Fire Prevention Law, Meteorology Law. They are enforced by different disaster management departments. For the establishment of legal system to disaster prevention and mitigation, even if all the “single-style” disaster laws are established, they cannot replace the role of a state basic law of disaster management. The basic law of disaster management mainly states the basic policy, management system, basic task, responsibility, organization and procedures, etc. Unfortunately, there is no such a law in China. The implementation of reduction actions largely depends on the governmental authority, rather than the law. The

basic law of disaster prevention and mitigation is to regulate the basic content, basic principle, management system, management organizations and key policies, to specify the responsibilities of the central government, local government, societies, and individuals. However, there is no such a comprehensive law in China, which results in the lack of completed legal system in disaster management, and the insufficient legal support in national disaster management.

### **4.3 Disaster Emergency Plan**

Disaster emergency plan is the basis for rapid emergency rescue. The State Emergency Plan System has been built by State Council in January 2006. Each province, city and county has also made their own emergency plan in a very short time. However, at present, there exist many problems in disaster emergency plan below the provincial level, such as, low quality, insufficient analysis on local disaster features, deficiency of specific emergency measures, and lack of practical operation. In the next 5 years, Chinese government will develop a nationwide investigation on the disaster risk and assessment to find out various disaster risks in all regions, and to improve the disaster emergency plan.

In April 1998, the Chinese Government promulgated the National Natural Disaster Reduction Plan of the People's Republic of China (1998 -2010), the first national disaster reduction plan formulated in accordance with the Ninth Five-Year National Economic and Social Development Plan and the 2010 Long-term Objective<sup>8</sup>. The Disaster Reduction Plan identified includes: disaster reduction should be deeply considered in national economic and social development; prevention should be taken as the priority in combination with resistance and relief; The role of science, technology, and education should be incorporated in disaster reduction; the central and local governments as well as all social sectors should be to reduce disasters; and international exchange and cooperation should be strengthened.

### **References**

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