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Country report

1. General information of China

1.1 Geographical data

People's Republic of China is located in the eastern part of the continent of Asia, the Pacific West Coast. Its land area is about 9.6 million square kilometers, is the third largest country in the world, second only to Russia and Canada.

The western part of China is higher than the eastern part of China. The mountains, plateaus and hills cover about 67% of the total land area, whereas the basins and plains make up near to 33% of the total land area. In the west is the highest Qinghai-Tibet Plateau, which stands more than 4,000 meters above the sea level and has been renowned as the “roof of the world”. The Qomolangma Mount, 8,844.43 meters high, is the world’s highest peak. China has 4 municipalities directly under the central government, 23 provinces, 5 autonomous regions and 2 special administrative regions.



Figure1: Administrative divisions of the china

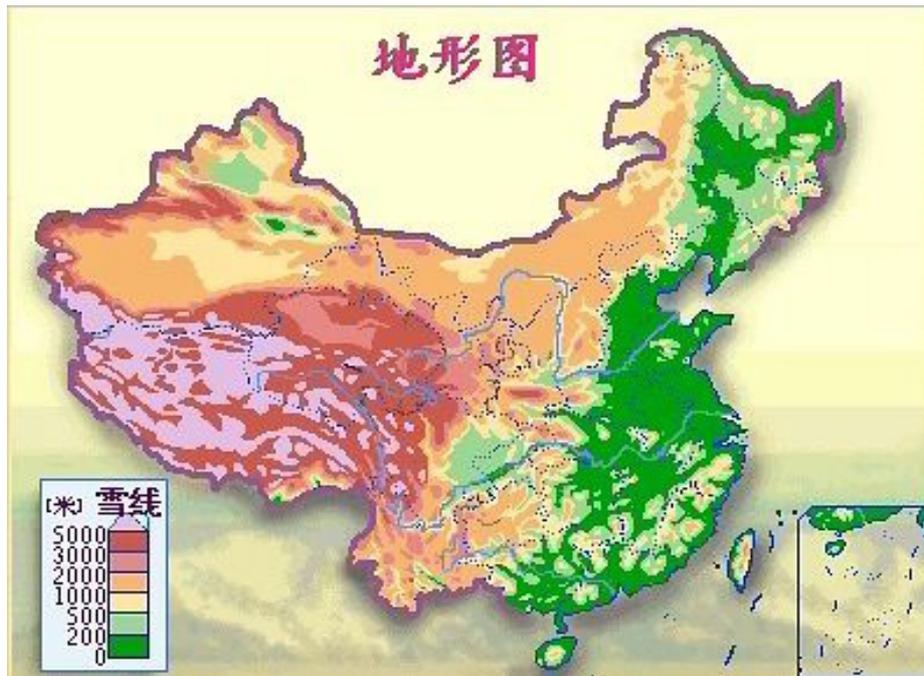


Figure2: the terrain of China

1.2 Climate information

In general, the eastern part of China has more precipitation than the western part of China. The southeast coast up to 1500 mm above, only 200 mm inland northwest. Generally speaking, the south is warmer than the north. The temperature varied greatly from south of China to north of China and the greatest difference is up to approx 50 degree centigrade.



Figure3: the precipitation of China

1.3 Demographic data

China is the most populous country in the world. April 28, 2011, the National Bureau of Statistics released the sixth national census data show that the country's total population of 1.3 billion people.

Index	2010population(million)	Proportion
The country's population	1328.02	100%
Among country: the urban population	606.67	46%
Rural population	721.35	54%
Among country: male	683.57	52%
Female	644.45	49%
Among country: age 0-14	251.66	19%
age 15-59	916.47	69%
age more than 60	159.89	12%

Figure4: the population of China

2. Natural Hazards in China

2.1 Natural Hazards likely to affect the Country(features, tendency)

China is one of the countries in the world that suffers from the most serious natural disasters due to its vast territory, complicated climatic, geographical and geological conditions and fragile ecological conditions. Over 70% of China's cities and 50% of the population are located in the regions frequently hit by major meteorological, seismological, geological and maritime disasters.

China has witnessed such disasters as flood and waterlog, drought, windstorm, hail, dust storm, typhoon, low temperature and freeze, snow, earthquake, landslide, debris flow and so on. Of all the natural disasters, flood, drought and earthquake have led to the most severe losses, accounting for 80% to 90% of the total. Since 1949, major drought would happen more than 8 times, flood and waterlog 7 times and typhoon 8 times each year.

The major hazards are droughts, snowstorms, and earthquakes in western and northern regions. The hazards are mainly floods, landslides, droughts, and earthquakes in northeast, southwest and central regions. The major hazards are floods, typhoons, subsidence, and droughts in southeast regions.

Since 1990 to 2011, natural disasters have annually caused about 400 million people affected, 4 million houses collapsed and 10 million people evacuated, leading to the direct losses of nearly 200 billion Yuan. Natural disasters have become an important factor that restricts the harmonious and sustainable socio-economic development of China.

2.2 Recent Major Disasters(basic data of disasters, damage situation, response, recovery info)

a) wenchuan earthquake

At 14:28 on May 12 2008, 8 Earthquake occurred in Wenchuan County, Sichuan Province. The earthquake is the second serious earthquake disaster since the founding of China. A total of 10 provinces, 417 counties, 4,667 townships and 48,810 villages and 4625.6 million people were affected, 1510.6 million people



Figure5: wenchuan earthquake

emergency relocated, 69,227 people died, 17,923 people missing, 37.4 million people injured, 7967000 houses collapsed, 24543000 houses damaged, tolls 121 billion dollar losses.

At 3:40 p.m. on May 12th, the National Disaster Reduction Committee, Ministry of Civil Affairs to start second emergency response, promoted to first emergency response at 22:15 on the May 12.

b) Low temperature and snowstorm in china

Low temperature and snowstorm disasters affected 21 provinces in January 2008 to February. 136 people died and missing, 166 million people emergency relocated, 485,000 houses collapsed, 1,686,000 houses damaged, 21 billion dollar losses.



Figure6: Low temperature and snowstorm in

January 21 to 28, the National Disaster Reduction Committee, Ministry of Civil Affairs start the four emergency response in 20 provinces.

c) Yushu earthquake in Qinghai Province
At 7:49 on April 14th 2010, 7.1 Earthquake occurred in Yushu Tibetan Autonomous Prefecture of Yushu County .22.3 million people were affected, 2698 people died and 270 people missing, 188,000 emergency relocated, 246,000 houses collapsed, 51,000 houses damaged ,3 billion dollar losses.



Figure7: Yushu earthquake in Qinghai Province

At 9:00 on April 14th, the National Disaster Reduction Committee, Ministry of Civil Affairs to start second emergency response.

d) Zhouqu Mudslides

At August 7, The Mudslides occurred in Zhouqu County, Gannan province, 1434 people died and 331 missing.

At August 7, 2010, the National Disaster Reduction Committee, Ministry of Civil Affairs to start second emergency response.

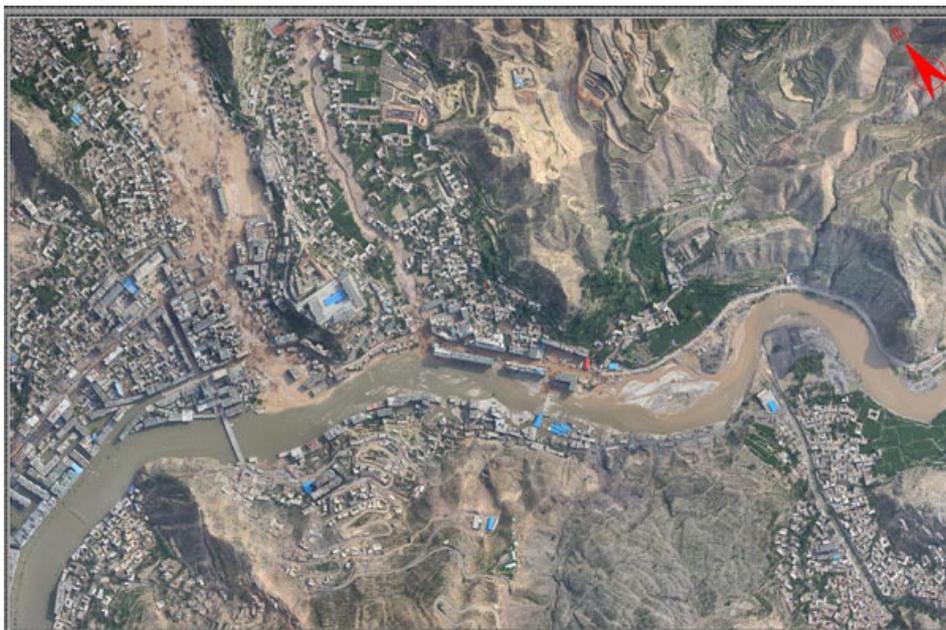


Figure8: Zhouqu landslide

3. Disaster Management System

3.1 Administrative System in china

National Commission for Disaster Reduction (NCDR) is responsible for establishing state policies, regulations, guidelines and action plans on disaster mitigation. Besides, It is also responsible for organizing major national disaster reduction activities, directing local efforts and facilitating cross-border interactions & collaborations.

NCDR is composed of 34 ministries and bureaus, and the standing bodies of it include general office, board of experts and NDRCC (National Disaster Reduction Center of China).

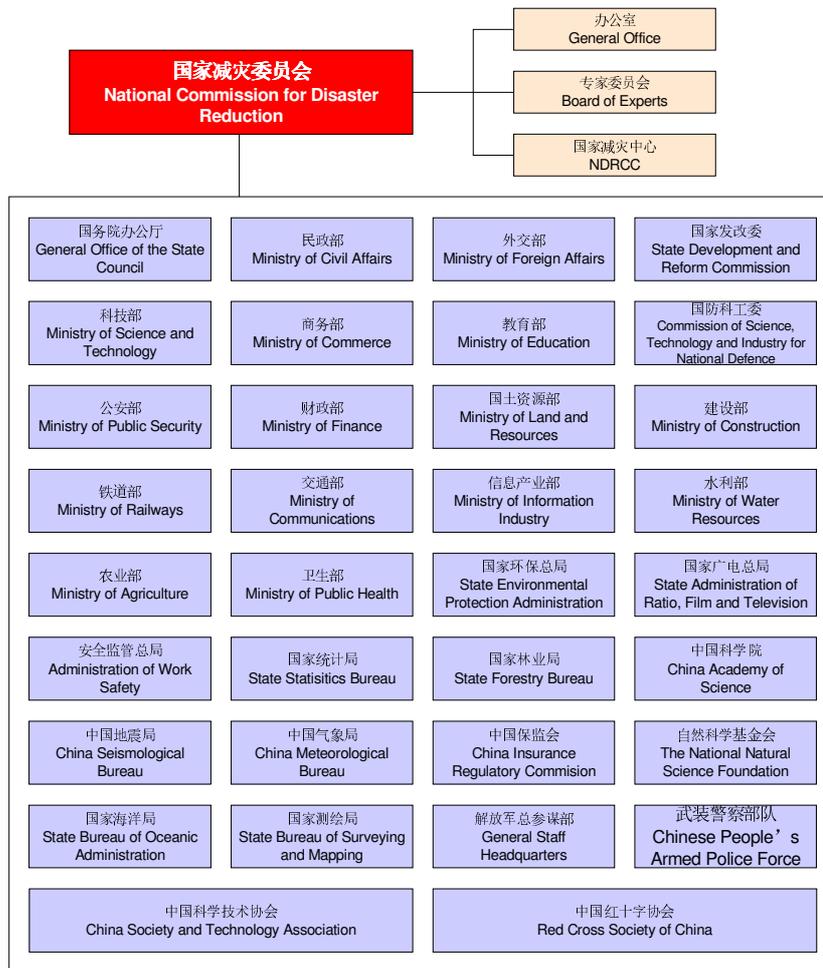


Figure9: National Commission for Disaster Reduction (NCDR)

3.2 Legal System and Framework

The china government enhanced of Disaster Reduction Organization and Relevant Legal System. More than 30 laws and regulations have been promulgated on earthquake preparation, fire prevention, flood preparation, weather forecast and sandstorm prevention and management.

3.3 Structure of Disaster Management

a) National platform for Disaster Risk Reduction

China established the National Commission for Disaster Reduction (NCDR), the Office of State Flood Control and Drought Relief Headquarters (SFDH), the National Disaster Reduction Committee is responsible for all natural disasters Risk Reduction, It composed of 34 ministries and bureaus. Office of State Flood Control and Drought Relief Headquarters (SFDH) only in charge of flood and drought disaster Risk Reduction, It composed of 5 ministries and bureaus.

b) National and Local Organizations for Disaster Risk Reduction

There are 7 national organizations for Disaster Risk Reduction in china. It included the Ministry of Civil Affairs, the Ministry of Agriculture, Ministry of Water Resources, Bureau of Forestry, Bureau of Oceanic, Bureau of earthquake, Bureau of Meteorology, The Ministry of Civil Affairs is responsible for all natural Disaster Relief, the Ministry of Agriculture is responsible for biological disasters risk reduction, the Ministry of Water Resources is responsible for flood and drought disasters risk reduction, the Bureau of Forestry is responsible for forest fires risk reduction, , Bureau of Oceanic in charge of marine disasters risk reduction, Bureau of earthquake in charge of earthquake disasters risk reduction, the Bureau of Meteorology provide other six Ministries and commissions meteorological Technical Support.

4. Disaster Management Strategy, Policy, and plan

Facing with the severe disaster, Chinese government took measures as follow:

4.1 Integration of disaster reduction into national Development Plans

the disaster reduction has been included into the state's development plan. The Chinese government has placed disaster risk reduction as a top priority on the agenda of the state and local socio-economic development plan. A state emergency response system has been gradually built and improved. The "State 12th Five-year Plan for Disaster Reduction" has been formulated.

4.2 Improvement of disaster information management

With the development of disaster management, Chinese government pay more attention to Disaster Information Management. So MCA and NDRCC developed National Disaster Information Management System in 2008. Since 2008, All disaster management using the system submitted the disaster information to the National Commission for Disaster Reduction, each county in China have one user by National Disaster Information Management System, There are 5000 disaster management user at present,.

According to the Regulation on Natural Disaster Statistics, civil affairs departments at county level are required to report disaster information within two hours after the disaster occurs. All

disaster Information will be collected and published by county user in National Disaster Information Management System.



Figure10: National Disaster Information Management System

4.3 Enhancement of disaster response management

The State Council issued the “State Overall Contingency Plan for Emergent Public Events”. The Ministry of Civil Affairs made the “Contingency Plan for Disaster Relief”, the “Operation Procedures for Abrupt Natural Disasters” and the “Operation Procedures for Emergent Disaster Relief”. Contingency Plans at provincial level, city level and county level were issued. Contingency Plans of towns, factories and schools were made. According national contingency plan system, when disaster happened Related stuff were on duty to keep close contact with affected areas. Joint workgroup was established as soon as possible and reached affected areas in 24 hours; Emergency material was disseminated to victims in 24 hours. Central emergency fund was allocated to disaster areas in 72 hours.



Figure11: Disaster response level

Standards of National Emergency Response

Degree	People Died	People Evacuated	houses collapsed	Earthquake Magnitude Scale
I State Council	Above 200	Above 1 million	Above 200,000	Above 5 M.S.
II Minister	100-200	Above 800,000	150,000-200,000	Above 5 M.S.
III Vice-Minister	50-100	300000-800,000	100,000-150,000	Above 5 M.S.
IV Director General	30-50	100,000-300,000	10,000-100,000	Above 5 M.S. 20-50 people dead

Figure12: Standards of National Emergency Response

China has also established disaster relief material reserve system. Central-level stockpiles of disaster relief material have been built in 22 cities including Shenyang, Tianjin, Wuhan, Nanning, Chengdu, Xi'an and so on. Meanwhile, local stockpiles in some disaster-prone areas have also been set up.



Figure13: Central-level stockpiles of disaster relief material

4.4 Application of RS into disaster reduction

China plans to launch two small optical satellites and one small SAR satellite recently, called the "2+1" Project, and also will launch another 4 optical satellites and 4 SAR satellites later.



Figure14: The remote sensing technology in china

The remote sensing technology and geographical information system have been used in disaster monitoring and assessment, which have provided technical support for comprehensive disaster reduction, disaster relief and post-disaster rebuilding.

4.5 Elevation of public awareness of disaster reduction

In order to spread disaster prevention knowledge, enhance the public awareness of safety

and help people have the knowledge on first aid and mutual aid. Central government issued the “Overall Implementation for Publicity of the Knowledge Concerning Emergency Management”. Central government initiated a nationwide campaign to “reduce disasters at communities”. NCDR, Ministry of Education and Ministry of Civil Affairs jointly distributed the “Views on Improving the Work of Disaster Reduction in Schools”. NCDR compiled the “Handbook of Disaster Prevention and Self-Rescue”.

4.6 Development of cooperation mechanism on regional disaster mitigation

Since 2008, the annual level disaster officials over the Minister to attend the International Conference on Disaster Reduction at least 25 more times to strengthen the communication and cooperation between the organization of the International Disaster Reduction.

5. Progress of the implementation of Hyogo Framework for Action(HFA)

Hyogo Framework for Action identified five actions as the priorities to be fulfilled that requires countries, regions and international organizations as well as other stakeholders to reflect the five actions and to discharge them in accordance with their own conditions and capacity. In recent years, China has operated a great amount of disaster reduction activities within this framework.

5.1 To ensure the disaster risk reduction prioritized in the governmental and local work and to build the firm institutional foundation for implementation.

- a) Build and enhance the disaster reduction and relief working system.
- b) Incorporate disaster reduction into relative plans
- c) Legislation development of disaster prevention and reduction
- d) National comprehensive disaster reduction demonstrative communities building

5.2 Clarification, assessment and monitoring with early-warning intensified

- a) Sound disaster risk management mechanism
- b) Nature disaster monitoring and early-warning system
- c) Plan the comprehensive investigation of disaster risks and disaster reduction capacity in key areas

5.3 Disaster reduction awareness increasing though knowledge spreading and innovation and education

- a) The “National day for disaster prevention and reduction” was settled
- b) Publicity and education activities to carry out disaster prevention and mitigation
- c) Scientific support system for disaster prevention and reduction
- d) The relevant standards of disaster reduction relief

5.4 Underlying risk reduction

- a) Disaster reduction project to increase the comprehensive disaster prevention capacity
- b) Strengthen the social security network construction
- c) Explore to carry out disaster insurance

5.5 Strengthen the disaster preparedness and precaution measures

- a) Establish emergency disaster relief emergency response system, and improve emergency response capabilities
- b) Enhance the contingency plan development and focus on community disaster reduction

capacity

c) Disaster emergency relief materials reserve

d) Professional personnel development and improve the work quality of disaster reduction personnel's

6. Recent Major Projects on Disaster Risk Reduction

6.1 National survey projects on comprehensive risks of natural disasters

Making full use of the existing information on various disasters, China will establish an index system of comprehensive risks and disaster prevention capacities, conduct national surveys on the comprehensive risks of natural disasters and disaster reduction capacities, establish a database, a model base, an approach base and a technical system for the national assessment of the comprehensive risks of natural disasters, and carry out risk assessments of typical disasters, comprehensive risk assessments of multi-disasters and disaster chains. It will also start the evaluation of disaster reduction capacities in different regions, and set up a national normative and technical systems for the cartographic standard of the comprehensive risks of natural disasters.

China will draw up disaster risk maps at three levels, with the scales being 1:1,000,000 for the national level, 1:250,000 for the provincial level, and 1:50,000 for the municipal level and counties. The risk maps will provide scientific supports for the central government and local governments' efforts in development plans, natural disaster prevention, major project construction, and emergency rescue and disaster relief.

6.2 Informatization construction projects on national comprehensive disaster reduction and risk management

To ensure a smooth coordination in disaster relief and resource sharing, the Chinese government will speed up informatization efforts based on the country's unified electronic administration network, population database, legal entities' information database, and geographical information database. Both the central government and local governments' capabilities of obtaining, analyzing and judging information about disaster situation and disaster relief, as well as the abilities of consultation and decision-making on disaster relief and reduction will be improved, and relevant governmental departments' cooperation in disaster prevention and reduction will be streamlined.

6.3 Construction projects on national command system of emergency relief of natural disasters

China aims to build up a command system of emergency relief in order to ensure timely delivery of messages about disasters, decisions, instructions, and dispatching of materials. It also plans to establish an information system concerning loss assessment and emergency plan maneuvers, which will furnish the basis for strategic decisions in emergency relief efforts. Real-time messaging regarding emergency relief will then be processed quite

effectively and communication of instructions will be significantly streamlined and improved.

6.4 National relief material reserve projects

Based on the principles of overall planning, reasonable distribution and resource integration, China will build or rebuild a batch of relief material reserve pools at the central governmental level. Local governments of areas that are vulnerable to disasters and frequently hit by disasters will be asked to set up relief material reserves at three administrative levels (provincial level, municipal level, and the county level) in accordance with actual and estimated needs. Therefore, a four-level network of relief material reserves adapting to China's national conditions and featuring level-to-level administration, rapid response, reasonable layout, appropriate scale, adequate functions, and potency assurance will be established.

China will strive to improve its reserves of materials which can ensure critical life support to people affected by disasters, epidemic prevention, emergency traffic support, and forest fire prevention. Besides, it will strengthen the relief material reserve efforts in the central and western regions, and optimize the management and utilization of relief materials through enhancing information management capabilities. To boost material delivery, China will gradually build up a national relief material transportation network that covers transportation scheduling, resource supply and vehicle maintenance.

6.5 Construction projects on satellite constellation for environment and disaster reduction

China is set to strengthen its three-dimensional monitoring of natural disasters and advance the construction of spatial information infrastructure for disaster prevention and reduction. It will perfect the small satellite constellation for environment and disaster monitoring, enhance the demonstration of index system on the integration of land monitoring, space monitoring and disaster scene monitoring, and advance the establishment of "4+4" constellation that consists of four optical satellites and four radarsats. All of these can ensure a monitoring capabilities featuring flexibility, high density, high accuracy, wide coverage, and combined means, and a 12-hour consistent monitoring of disasters. The consistency of satellites' orbits and the sustainable development of ground application systems will then be possible. In addition, China vows to strengthen the link between satellites for scientific research and the ones for disaster monitoring, take advantage of the satellites both domestic and abroad, and realize high resolution integrated monitoring of emergency responses. To promote the process, analysis and service level of operation system, China will upgrade its disaster remote sensing application model, as well as user applications and related regulations. What's more, the mechanism for disaster monitoring, early warning, disaster assessment, emergency response, and reconstruction will become more advanced. The feasibilities of

establishing a space information service platform for disaster prevention and reduction will also be demonstrated.

China will further utilize satellites in disaster reduction by means of intensifying demonstration and generalization of applied technology. Making full use of resources such as the national remote sensing calibration field, target detection field, and comprehensive experimental field, China will advance the study of the quantification of disasters, upgrade the cooperation mechanism in the combined monitoring through satellites for catastrophic natural disasters and aerial remote sensors, promote regional and provincial capacity building of application of technologies key to disaster reduction, better the existing centers of satellites for disaster reduction in certain regions and be more skilled in applying the technologies to disaster reduction.

6.6 Construction projects on national simulation system for large and catastrophic natural disaster prevention

China will use numerical simulations in studies which include mechanisation of occurrence and evolution of disasters, scenario analysis, and emergency coping to better prepare the country in the event of large and catastrophic natural disasters. More attention will be given to disaster chains such as earthquake-geology, typhoon-rainstorm-floods, high temperature–drought-sandstorm, and low temperature-freeze-cold front. A computer simulation system will be set up after the integration of existing resources in order to realize a multi-dimensional visual simulation of disaster risk early warnings, emergency response maneuvers and optimized decision making. This system will function as a platform and provide scientific supports for the assessment of devastating natural disasters and the decision-making in disaster relief efforts.

China is also set to conduct experiments to simulate disasters like flood and earthquake, establish a large-scale experimental platform and operating environment for the study of typical natural disasters, and deepen the research and cooperation in disaster prevention and reduction strategies.

6.7 Construction projects on comprehensive disaster-reduction demonstration communities and shelters

China plans to build 5,000 “national comprehensive disaster-reduction demonstration communities” in accordance with national standards, and establish shelters equipped with emergency supplies, escape instructions, emergency broadcast facilities, domestic disaster relief apparatus and life preservers near rural and urban communities for emergent evacuation and temporary stay. Both urban and rural communities will have their own emergency response plan and disaster risk map, and conduct disaster relief drills and build their own rescue teams from volunteers.

In the Beijing-Tianjin-Hebei area, Yangtze River Delta, Pearl River Delta and the emerging developing zones in the central and western regions, China will, referring to the cities' population distribution, layout and their development plans, make use of schools and large public service areas and green zones in downtown or areas with dense populations to build up emergency shelters where emergency command and medical care can be given. In the countryside vulnerable to disasters, China will utilize existing schools, stadiums and other public places to build or rebuild more emergency shelters on the basis of local layout, population distribution and disaster risk situation.

6.8 Projects on publicity, education and popularization of science for disaster prevention and reduction

China aims to build or rebuild at least one publicity and education base for disaster prevention and reduction in each province. More support will be given to the central and western regions that are frequently hit by disasters. Multi-media equipments and apparatus for disaster prevention and reduction will be installed, and the public there will get access to free cultural services related to disaster prevention and reduction. Also, China will develop a national website for the publicity and education on disaster prevention and reduction. Programs on the schedule also include the establishments of a resource database, an expert database, and a national digital library for disaster prevention and reduction, thus resource sharing, online communication, and distance education can be realized.

As for the popularization of science, China plans to develop a series of popular science readings, wall charts, and audiovisual products, and publish training materials for different groups on disaster prevention and reduction. It will also organize various campaigns about disaster prevention and reduction and professional training.. By conducting emergency drills in response to natural disasters and training officials at all levels, China hopes to reinforce the public's awareness of disaster prevention and reduction, and help people improve the skills of self-aid and mutual aid.

7. The main countermeasures for the next step (Research Topic)

7.1 Improvement of natural disaster monitoring, early warning and forecasting abilities

Developing a full-fledged network of natural disaster monitoring, early warning and forecasting by modernizing meteorological, hydrological, seismic, geological, marine and environmental monitoring infrastructure and properly increasing monitoring frequency. Building a satellite remote-sensing disaster monitoring system to raise the data gaining and applying ability. Applying new science and technology into disaster relief so as to build an all-round natural disaster monitoring system. Building a sound pre-warning information release mechanism in order to issue timely information.

7.2 Reinforcement of the construction of major disaster reduction projects

Putting in place special plans of disaster resilience and giving more weight to comprehensive harness of medium and small-sized rivers & reservoirs and areas vulnerable to landslide and mud-rock flows

Focusing on backbone projects of disaster mitigation including programs for flood control, drought relief, earthquake prevention & emergency response, typhoon & storm surge prevention, sand prevention & control, plant diseases & insect pests control, forest & grassland fire control and Sanbei Shelter Forest Project & coastal shelter forest initiatives

7.3 Advancement of non-project disaster mitigation activities

Compiling the countryside disaster reduction, industrial and urban disaster reduction and key area disaster prevention plans to raise the comprehensive prevention capacity. Four-level command system should be improved to establish an orderly, efficient and quick-response management and operation system. The central and local disaster relief material reserve networks and their equipment and facility construction should be intensified. The construction of backbone, professionalized and volunteer relief teams such as the civil-affairs disaster relief team, army, armed police, public security firefighting teams should be strengthened so as to build up and better the public mobilization mechanism. Community disaster-reduction knowledge should be better publicized to raise the public's self-rescue abilities.

7.4 Elevation of the comprehensive research on greatly destructive disasters

Asian Greatly Destructive Disaster Research Center will be set up to study the causes and routines of greatly destructive disasters and the relationship between them and their subsequent disasters; and simulation of mutations of major natural disasters and simulation experiments on emergency response to greatly destructive disasters will be carried out.

Sound systems, mechanisms and policy measures will be developed and improved to deal with greatly destructive disasters. Contingency plans should be made for the city clusters in the Yangtze River Delta, the Pearl River Delta and the Pan-Bohai area and other key cities and disaster-prone areas. Relevant disaster relief drills should also be conducted.

7.5 Improvement of international cooperation to cope with global climatic changes

The Chinese Government has instituted & promulgated China's National Climate Change Program. A portfolio of policy-measures will be taken to facilitate economic restructuring and transform economic growth pattern. Efforts will be made to achieve energy conservation & efficiency, develop renewable energy and deliver ecological improvement projects. All these will help fight climate change. China is on target to boost exchange and collaboration with other developing countries.