



中华人民共和国民政部国家减灾中心

National Disaster Reduction Center of China

Natural Disaster and Disaster Management of China

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National Disaster Reduction Center of China

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1

General conditions in China



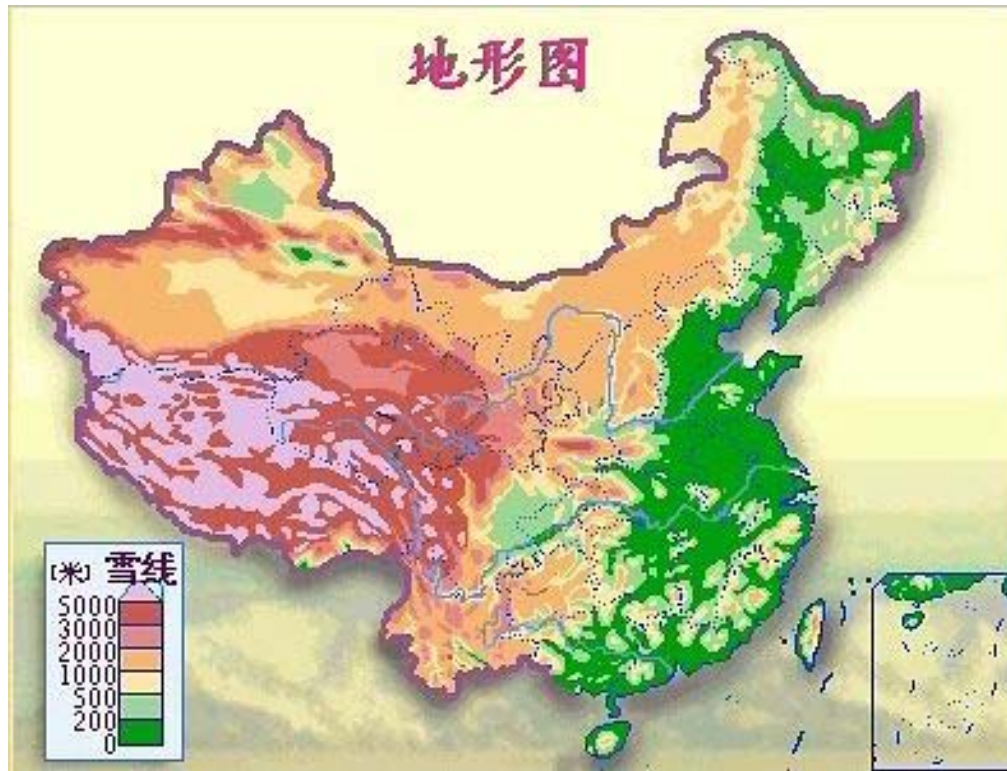
the administrative zone of china



- 4 municipalities directly under the central government
- 23 provinces
- 5 autonomous regions
- 2 special administrative regions
- 34 provincial level regions in total



the terrain of China



❖ 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.





Qomolangma Mount



❖ Height: 8,844.43 meters

❖ world's highest peak





the precipitation of China



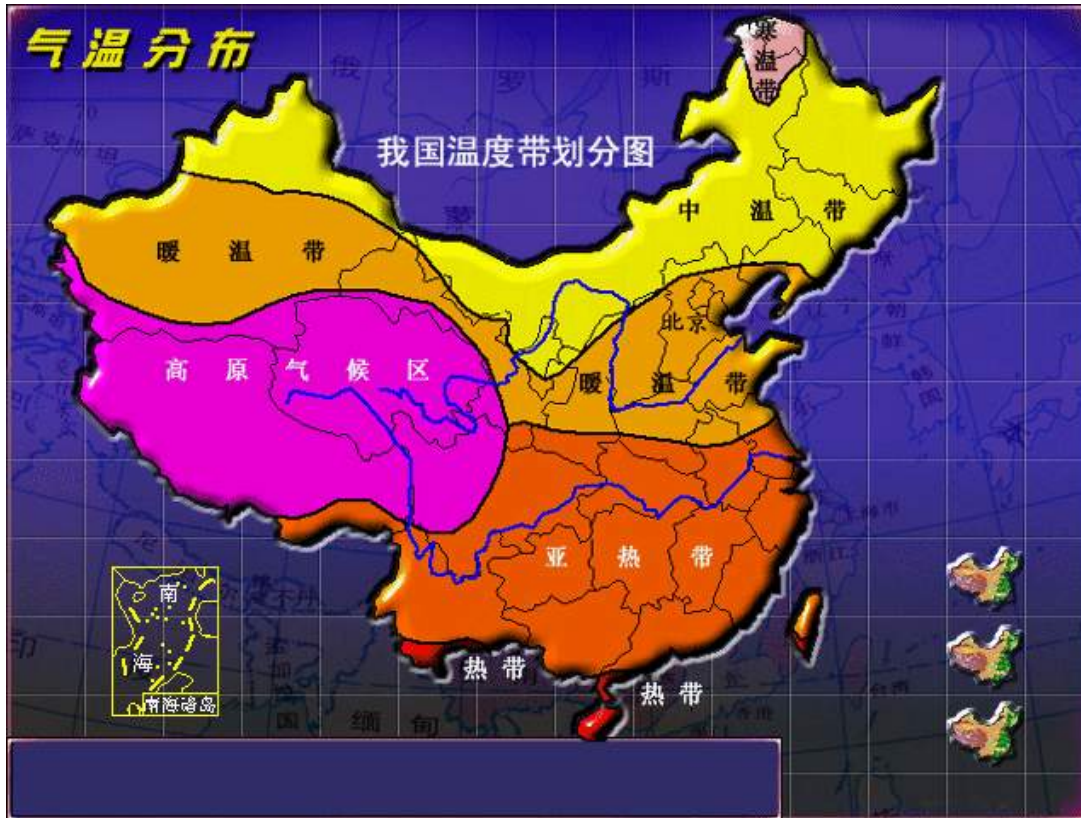
❖ The eastern part of China has more precipitation than the western part of China.

❖ The areas in which annual precipitation is over 1600 mm are located in the southeast of China.





the temperature of China



- ❖ 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.





← The winter in Sanya City
(Hainan Province)



The winter in Haerbin City →
(Hei Longjiang Province)





the population of China

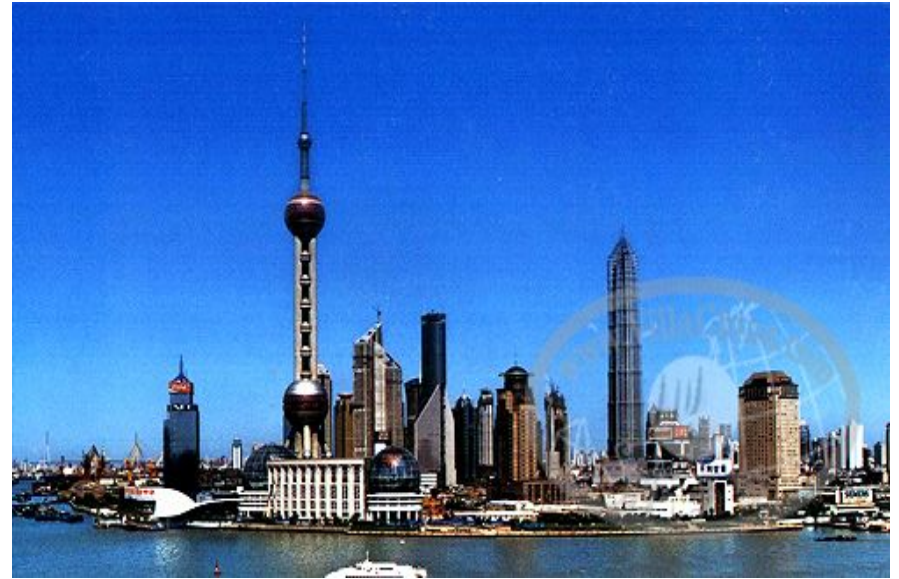
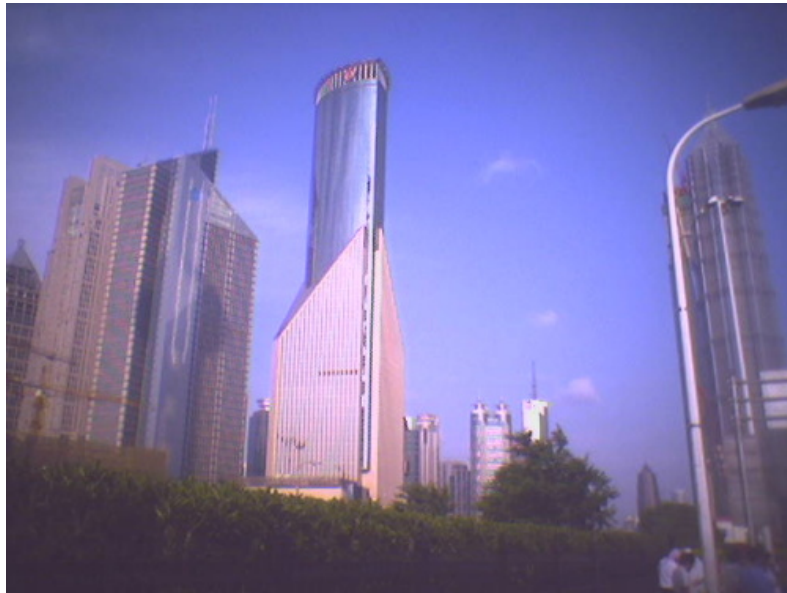
- ❖ China is a developing country with the largest population in the world.
- ❖ China at the moment is defined by large population, resource shortfall and environmental vulnerability.
- ❖ By the end of 2005, China has a population of 1.308 billion and the natural population growth rate was 5.89‰.
- ❖ It remains China's basic state policy to control population increase and improve the quality of new-born population.





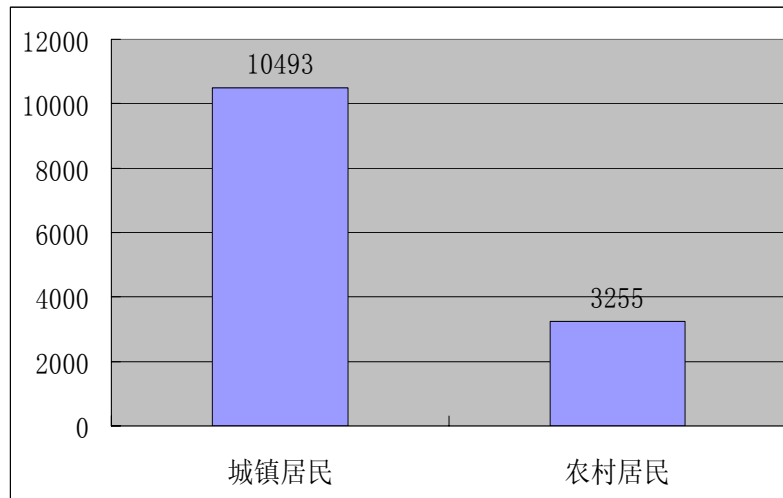
Dynamics of Socio-economic Landscape

- ❖ Socio-economic growth on a fast track: China's economy has maintained an annual 9.7% growth rate.
- ❖ In 2006, its GDP reached 26 trillion RMB, and its economic aggregate ranked fourth of the whole world. The per capita GDP exceeded 2,000 US dollars.

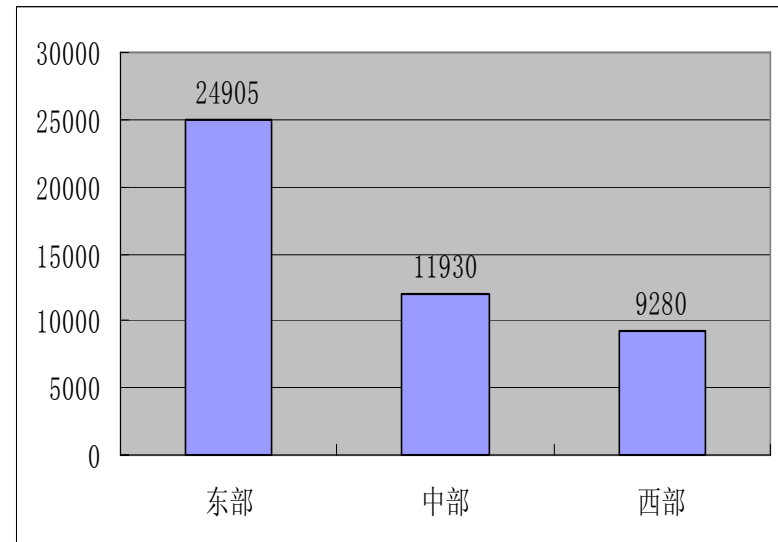




China is challenged by uneven economic development and a huge gap between eastern coast and mid-western regions, between urban areas and rural areas.



Per capita disposable Income of urban and rural residents (urban figure, left; rural figure, right)



Per capita GDP in eastern, central and western China (figures from left to right)





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2

Natural Disasters in China





Brief Introduction on China's Natural Disasters

- ❖ 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.

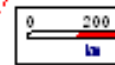


Features of natural disasters in China



- Flood
- Drought
- Windstorm
- Hail
- Dust Storm
- Typhoon
- Low temperature and freeze
- Snow
- Earthquake
- Landslide
- Debris flow

- High frequency
- Multiple types
- Regional discrepancy
- Severe losses





Multiple types, High frequency

- ❖ 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 seven times, flood and waterlog 5.8 times and typhoon seven times each year.





Regional discrepancy

- ❖ 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.





Severe losses which have been on the rise

- ❖ In the past 15 years or so, natural disasters have annually caused about 300 million people affected, 3 million houses collapsed and 8 million people evacuated, leading to the direct losses of nearly 200 billion RMB (28.6 billion US dollars).
- ❖ The greatly destructive disasters in recent years:

- ① Lijiang (Yunnan) earthquake in 1996;
- ② Bachu-Kashi (Xinjiang) earthquake in 2003;
- ③ Typhoon Rananim in 2004;
- ④ the great drought in Sichuan and Chongqing in 2006.





➡ 1. Lijiang (Yunnan Province) earthquake in 1996



- ❖ Date: Feb. 3, 1996 at 19:14 p.m.
- ❖ Magnitude: 7.0 on Richter Scale

- ❖ The dead : 309 persons
- ❖ The wounded: more than 16,000 persons
- ❖ The homeless: hundreds of thousands of persons
- ❖ Economic loss: 4.6 billion RMB (0.66 billion US dollars)





➔ 2. *Bachu-Kashi (Xinjiang) earthquake in 2003*



- ❖ Date: Feb. 24, 2003 at 10:03 a.m.
- ❖ Magnitude: 6.8 on Richter Scale

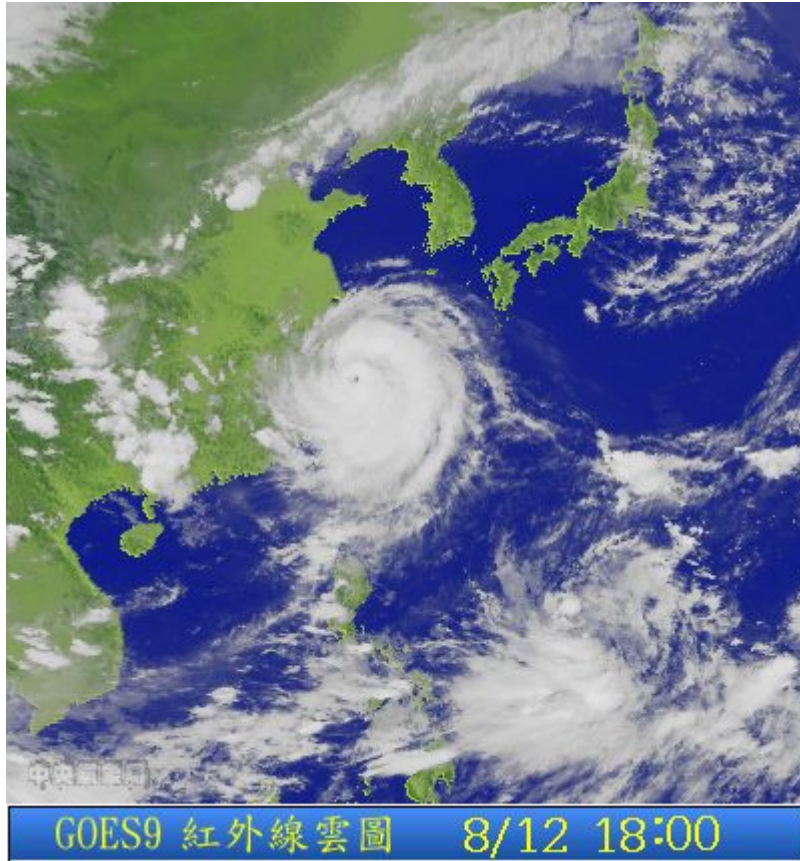


- ❖ The dead : 257 persons
- ❖ The wounded: more than 1000 persons





➡ 3. Typhoon Ranim in 2004



- ❖ Death toll: 182
- ❖ houses totally damaged: 72,000
- ❖ Houses partially damaged: 196,000
- ❖ Economic loss: 19.89 billion RMB





Cities were severely shocked.





The public infrastructures were destroyed.





Croplands were inundated.





➡ 4. the great drought in Sichuan and Chongqing in 2006



❖ 7.5 million people was in shortage of water supply for daily life.





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3

Disaster management of China





Facing severe disasters, Chinese government took measures as follow:

1. Establishing disaster reduction organization and relevant legal system
2. Integrating disaster reduction into National Development Plans
3. Improving disaster information management
4. Enhancing disaster response management
5. Applying high-technology such as GIS and RS into disaster reduction
6. Elevating public awareness of disaster reduction
7. Developing cooperation mechanism on regional disaster mitigation





1. Establishing Disaster Reduction Organization and Relevant Legal System

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





中华人民共和国民政部国家减灾中心

National Disaster Reduction Center of China

国家减灾委员会
National Commission for Disaster Reduction

办公室
General Office

专家委员会
Board of Experts

国家减灾中心
NDRCC

国务院办公厅
General Office of the State Council

民政部
Ministry of Civil Affairs

外交部
Ministry of Foreign Affairs

国家发改委
State Development and Reform Commission

科技部
Ministry of Science and Technology

商务部
Ministry of Commerce

教育部
Ministry of Education

国防科工委
Commission of Science, Technology and Industry for National Defence

公安部
Ministry of Public Security

财政部
Ministry of Finance

国土资源部
Ministry of Land and Resources

建设部
Ministry of Construction

铁道部
Ministry of Railways

交通部
Ministry of Communications

水利部
Ministry of Water Resources

水利部
Ministry of Water Resources

农业部
Ministry of Agriculture

工业和信息化部
Ministry of Industry and Information Technology

国家广播电视总局
State Administration of Radio, Film and Television

国家广播电视总局
State Administration of Radio, Film and Television

安全监管总局
Administration of Work Safety

国家统计局
State Statistical Bureau

国家质量监督检验检疫总局
State Administration for Market Regulation

国家质量监督检验检疫总局
State Administration for Market Regulation

中国地震局
China Seismological Bureau

中国地震局
China Seismological Bureau

中国地震局
China Seismological Bureau

中国地震局
China Seismological Bureau

国家海洋局
State Bureau of Oceanic Administration

国家测绘地理信息局
State Bureau of Surveying and Mapping

国家测绘地理信息局
State Bureau of Surveying and Mapping

中国人民武装警察部队
Chinese People's Armed Police Force

中国科学技术协会
China Society and Technology Association

中国红十字协会
Red Cross Society of China

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).



2. Integrating 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 11th Five-year Plan for Disaster Reduction*” has been formulated.

National Eleventh Five-Year
Plan for Integrated Disaster
Reduction

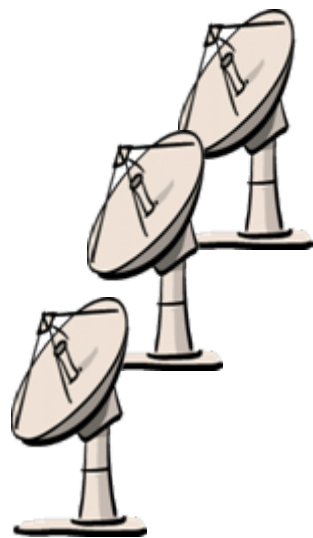
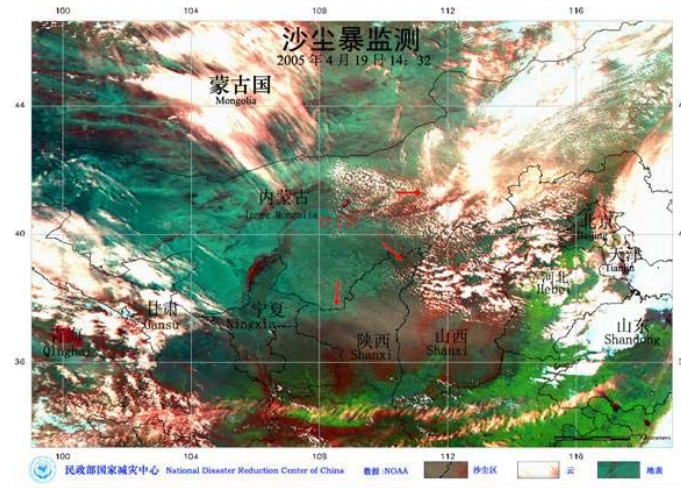
中华人民共和国民政部
二〇〇四年五月





3. Improving disaster information management

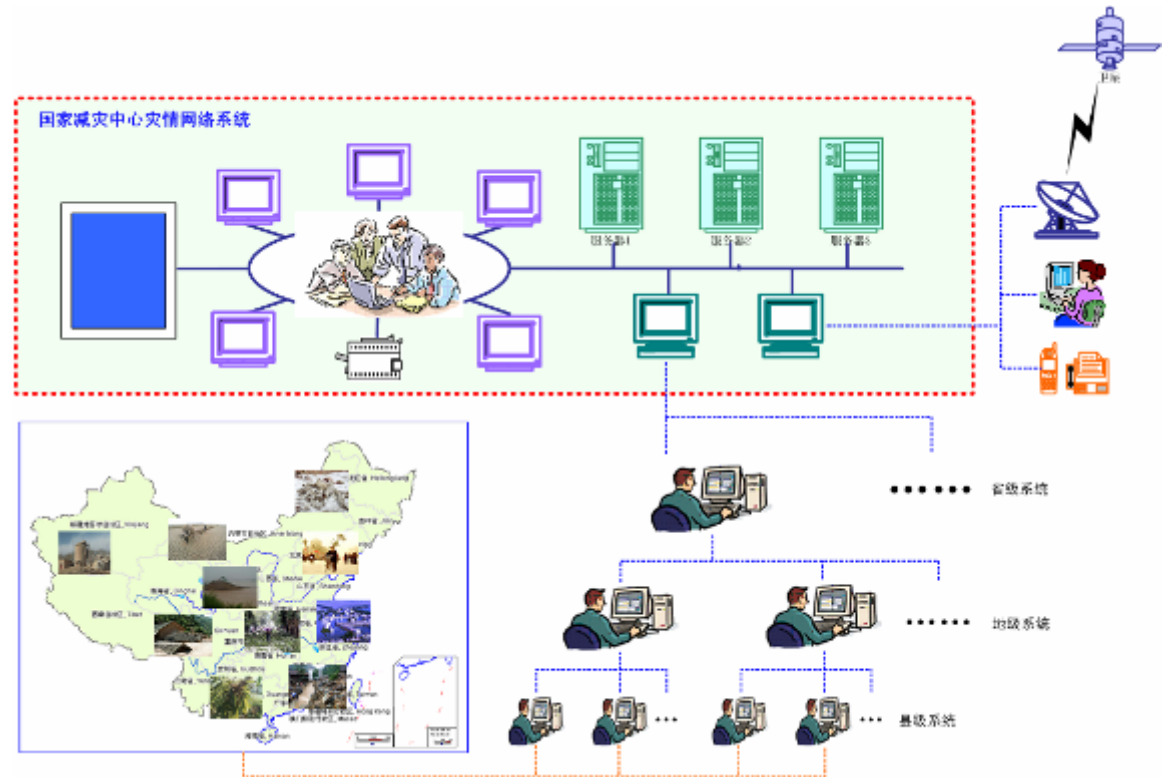
- ❖ Disaster monitoring
- ❖ Disaster information report
- ❖ Disaster situation consulting
- ❖ Disaster database establishment
- ❖ Disaster information release





3. Improving disaster information management

A 24-hour dynamic monitoring on major disaster information has been put in place, which provides disaster-management departments with timely and reliable disaster information.

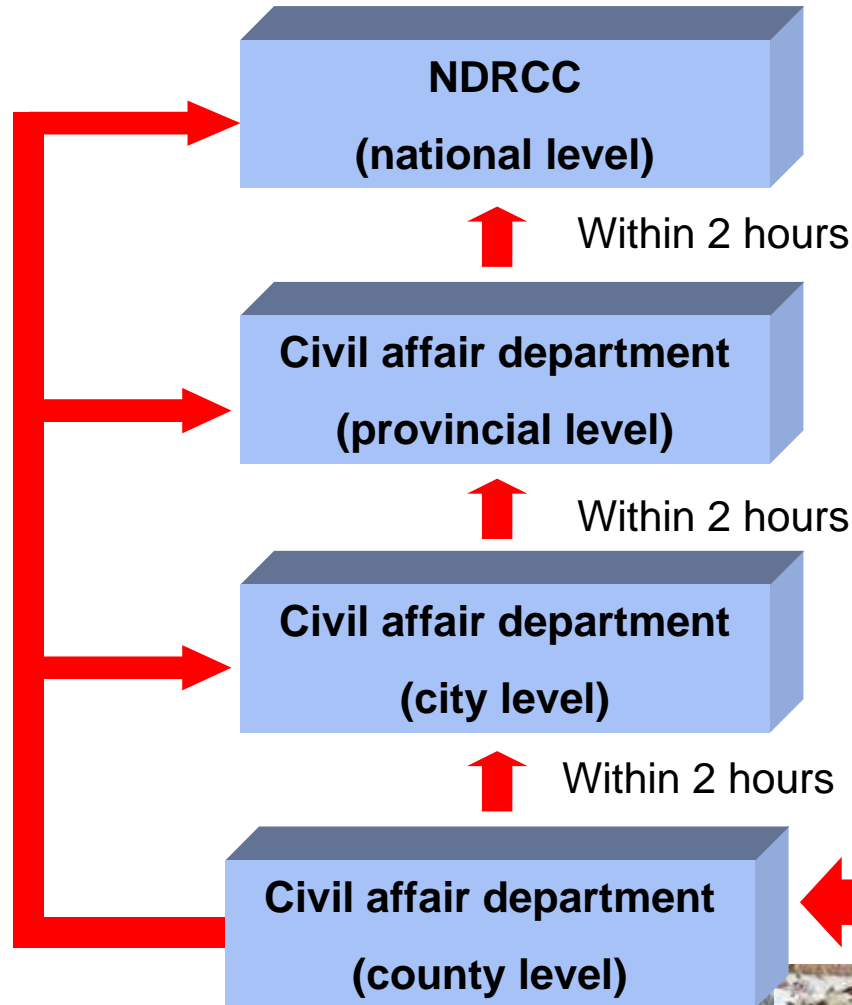




3. Improving disaster information management

When disasters happen

If the number of the dead (or the missing) exceeds 10



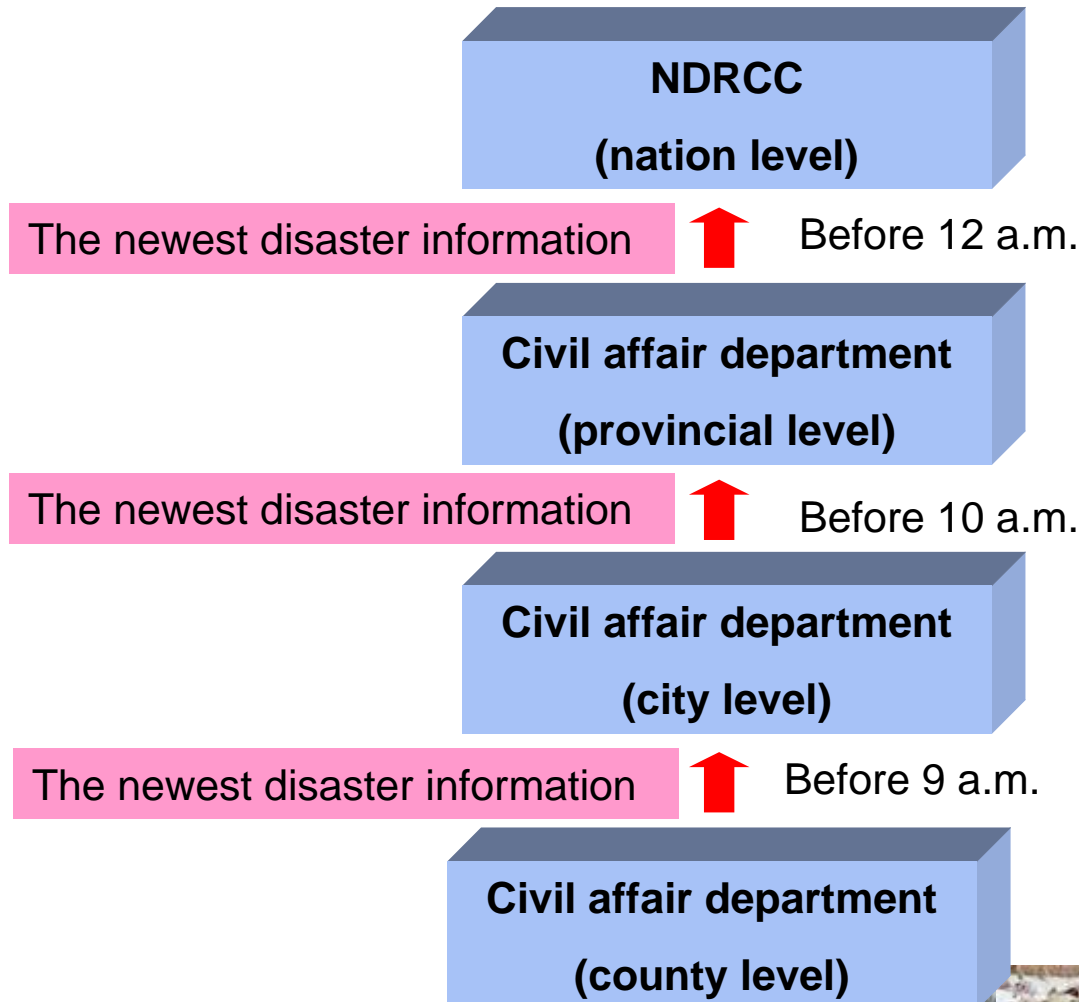


3. Improving disaster information management

During the course of disasters



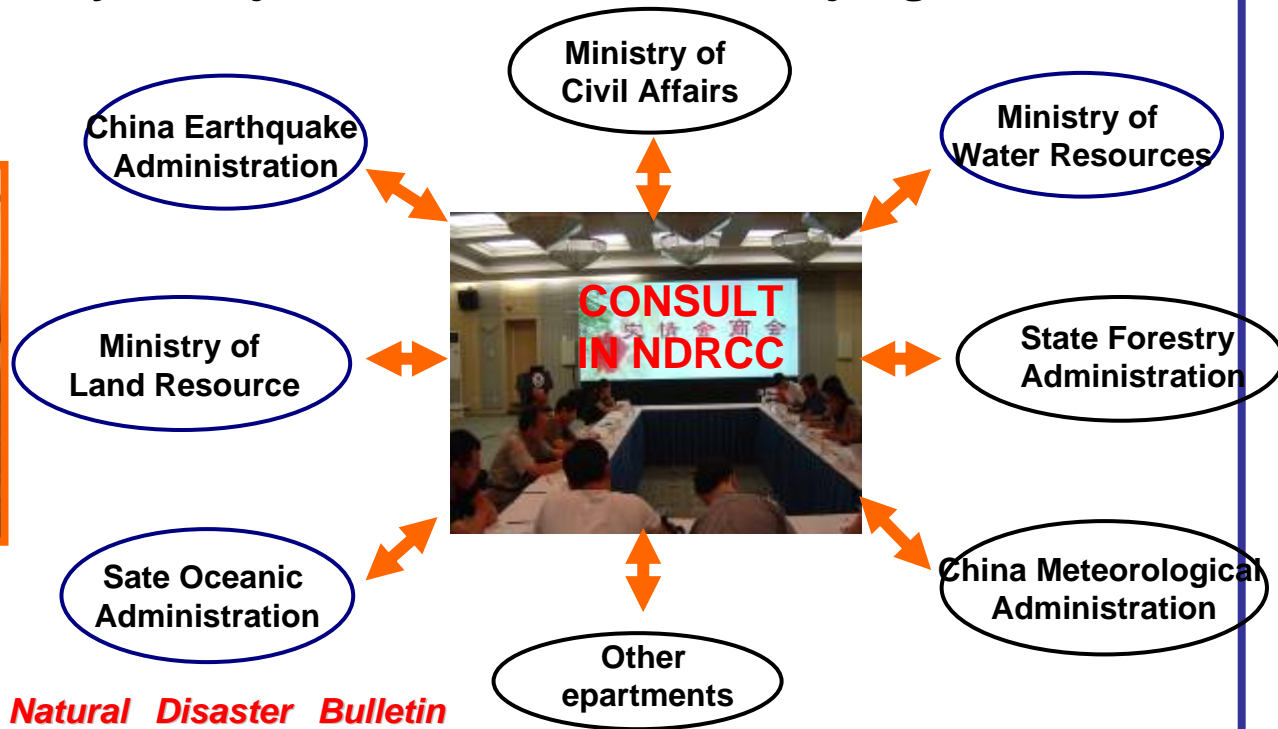
At the end of disasters





3. Improving disaster information management

A joint meeting mechanism has been established among relevant ministries. Every month the NDRCC held a joint meeting with land resource, water resource, agricultural, meteorological and seismic public services and staffs to analyze major natural disasters and judge the trend of disasters.



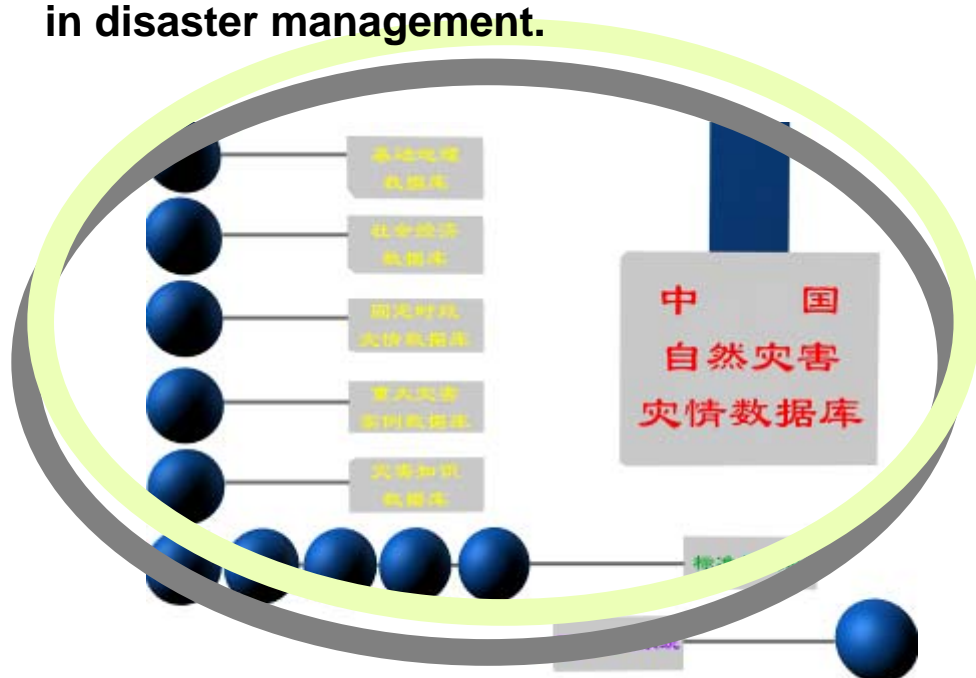
✓ Releasing *China Annual Natural Disaster Bulletin* and *China Monthly Natural Disaster Bulletin* regularly to public.





3. Improving disaster information management

National disaster database and **information management system** have been established, which play an important role in disaster management.



Structure of Natural Disaster Database of China

- ❖ Damage assessment
- ❖ Risk analysis
- ❖ Decision making

| | | | | |
|-----------|--------------|-------------------|----------------|----------|
| 灾害基本情况 | 灾害种类 | | | |
| | 灾害发生时间 | 灾害发生时段 | | |
| | 受灾区域 | | | |
| | 台风登陆地点、编号 | | | |
| | 地震震中经、纬度 | 地震震级、烈度 | | |
| 灾情 | 人口受灾情况 | 受灾人口 | | |
| | | 因灾死亡人口 | | |
| | | 因灾失踪人口 | | |
| | | 因灾伤病人口 | | |
| | | 被困人口 | | |
| | | 饮水困难人口 | | |
| | | 受淹县城 | | |
| | 农作物受灾情况 | 农作物受灾面积 | | |
| | | 农作物绝收面积 | | |
| | | 毁坏耕地面积 | | |
| | 损失情况 | 倒塌房屋间数 | 倒塌居民住房间数 | 倒塌居民住房户数 |
| | | 损坏房屋间数 | | |
| | | 因灾死亡大牲畜 | | |
| 直接经济损失 | | 农业直接经济损失 | | |
| | | | | |
| 救灾工作 | 救济情况 | 需救济救济人口 | 需救济粮数量 | |
| | | 需衣被救济人口 | 需救济衣被数量 | |
| | | 需救济伤病人口 | | |
| | | 需恢复住房间数 | 需恢复住房户数 | |
| | | 紧急转移安置人口 | | |
| | | 已救济口粮人口 | 已安排口粮救济款 | 已安排救济粮数量 |
| | 已救济衣被人口 | 已安排衣被救济款 | 已救济衣被数量 | |
| | 已救济伤病人口 | 已安排治病救济款 | | |
| | 已恢复住房间数 | 已恢复住房户数 | 已安排恢复住房款 | |
| | 救灾资金投入情况 | 本级财政救灾款支出 | 上级财政救灾款支出 | |
| | | 本级救灾物资投入折款 | 上级救灾物资投入折款 | |
| | | 本级直接接收救灾捐赠资金 | 本级接收上级救灾捐赠资金 | |
| | | 本级直接接收救灾捐赠物资折款 | 本级接收上级救灾捐赠物资折款 | |
| 中央财政救灾款支出 | | 省、地、县各级财政救灾款支出 | | |
| | 中央财政救灾物资投入折款 | 省、地、县各级财政救灾物资投入折款 | | |

 《自然灾害情况统计公报》填报的指标
 《(半)年报》填报的指标
 两类报表均填报的指标



Index system of Nature Disaster Statistics System



3. Improving disaster information management

- ❖ On November 11th, 2006, the National Website for Disaster Reduction (www.jianzai.gov.cn) was formally launched, and it became the platform of the most authority in present China for the distribution and collection of the comprehensive information of natural disasters and has widened the scope of the distribution of disaster information to include the general public.

The screenshot shows the homepage of the National Disaster Reduction Center website. The main banner features the text "国家减灾网" (National Disaster Reduction Center Website) and "关注:第十二次民政工作会议" (Attention: 12th National Civil Affairs Work Conference). The navigation bar includes links for "首页" (Home), "动态信息" (Dynamic Information), "灾情信息" (Disaster Information), "应急救援" (Emergency Response), "防灾备灾" (Disaster Prevention and Preparedness), "教育宣传" (Education and Publicity), "交流合作" (Exchange and Cooperation), "政策法规" (Policies and Regulations), "救灾工作" (Disaster Relief Work), and "论坛话题" (Forum Topics). A search bar is located on the right side of the navigation bar.

The main content area features a large headline: "全国自然灾害灾情会商会 评估7月份灾情 预测8月份灾害趋势" (National Natural Disaster Disaster Assessment Conference, Assessment of July Disaster Situation, Prediction of August Disaster Trends). Below this headline is a list of news items:

- 应对“帕布”困、粤提前转移群众32.2万..
- 陕西安康两区(县)遭受山洪灾害(续)
- 黑龙江省丹江市遭风雹袭击
- 攀枝花市仁和区发生雷击灾害
- 广西部分地区遭受严重旱灾
- 2007年救灾应急响应登记表(截至8月6..)
- 陕西省安康市汉滨、岚皋两县区遭受暴雨山洪..
- 四川省广元、绵阳两市遭受暴雨洪涝灾害
- 云南省怒江傈僳族自治州发生山体滑坡
- 湖北省部分地区发生风雹灾害(续)
- 澳门红十字会向内地灾区捐款125万元人民币
- 安徽再次下拨救灾资金4000万用于保障灾民生活

On the right side, there is a "新闻 图片" (News Images) section with several news items:

- [国内] 十年罕见暴风雨突袭北京房山
- [国内] 双热带风暴影响福建 全省5..
- [国内] 安徽全面展开灾后重建 确..
- [国内] 交通部召开紧急会议 部署..
- [国内] 水利部要求做好防“帕布”..
- [国内] 国土资源部紧急部署 预防..
- [国际] 孟加拉国洪灾死亡人数升至..
- [国际] 科摩罗出现霍乱疫情 已逾..
- [国际] 印尼发生强烈地震
- [国际] 尼日利亚洪灾导致至少14..
- [国内] 东海发生6.4级地震

At the bottom of the page, there is a "灾害管理公共合" (Public-Private Partnerships for Disaster Management) logo and a row of small images showing various disaster scenes.



4. Enhancing disaster response management

- ❖ National contingency plan system
- ❖ Disaster relief material reserve system





4. Enhancing disaster response management

National contingency plan system

1. The State Council issued the “*State Overall Contingency Plan for Emergent Public Events*”.
2. Contingency Plans at provincial level, city level and county level were issued too.
3. Contingency Plans of towns, factories and schools were being made.





4. Enhancing disaster response management

Training on contingency plans

- ❖ Provincial level
- ❖ City level
- ❖ County level
- ❖ Community level





4. Enhancing disaster response management

According to national contingency plan system, when disaster happened:

- ❖ Related staff must keep close contact with affected areas;
- ❖ Joint workgroup was established as soon as possible and reached affected areas within 24 hours;
- ❖ Emergency material was disseminated to victims within 24 hours;
- ❖ Central emergency fund was allocated to disaster areas in 72 hours;





4. Enhancing disaster response management

Standards of National Emergency Response

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





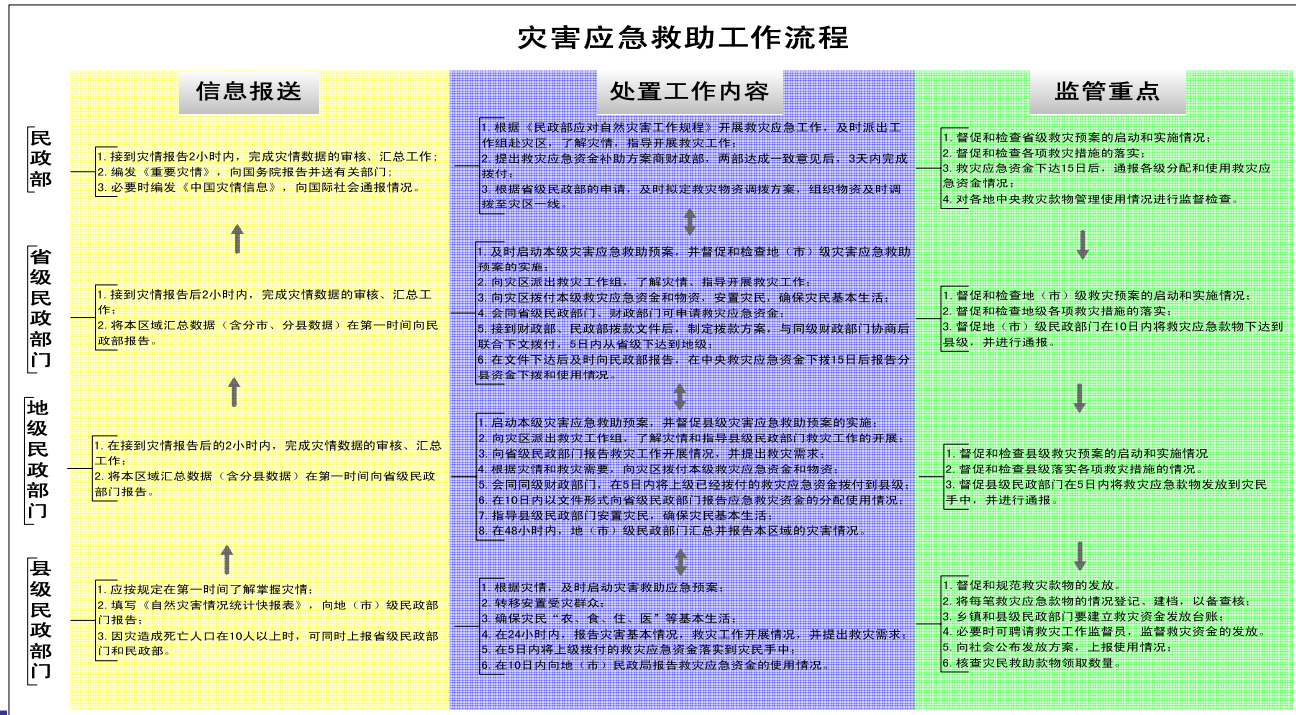
4. Enhancing disaster response management

National contingency plan system

Establishment of a well-regulated disaster emergency response system

Phone Network 10-8355-9999

the connection With the bureaus of civil affairs of all levels





Disaster relief material reserve system

- ❖ China has also established disaster relief material reserve system. Central-level stockpiles of disaster relief material have been built in 10 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.





Disaster relief material reserve system

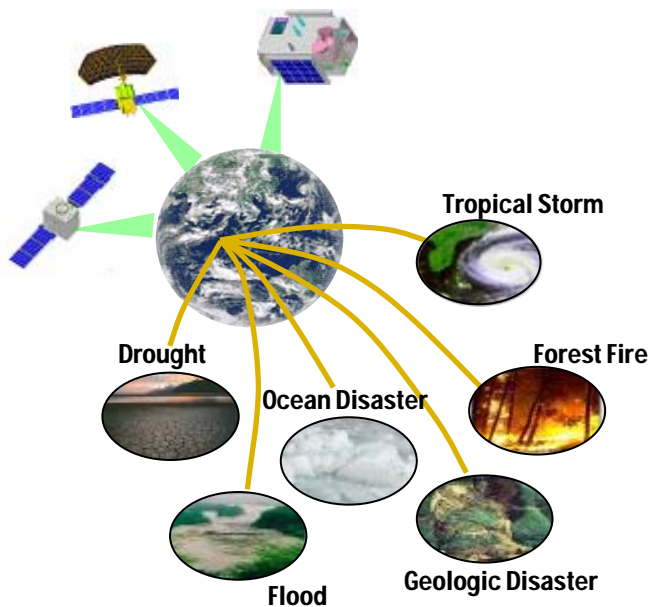


- ❖ Tents
- ❖ Blanket
- ❖ Life raft and other equipments for lifesaving
- ❖ Food
- ❖ others



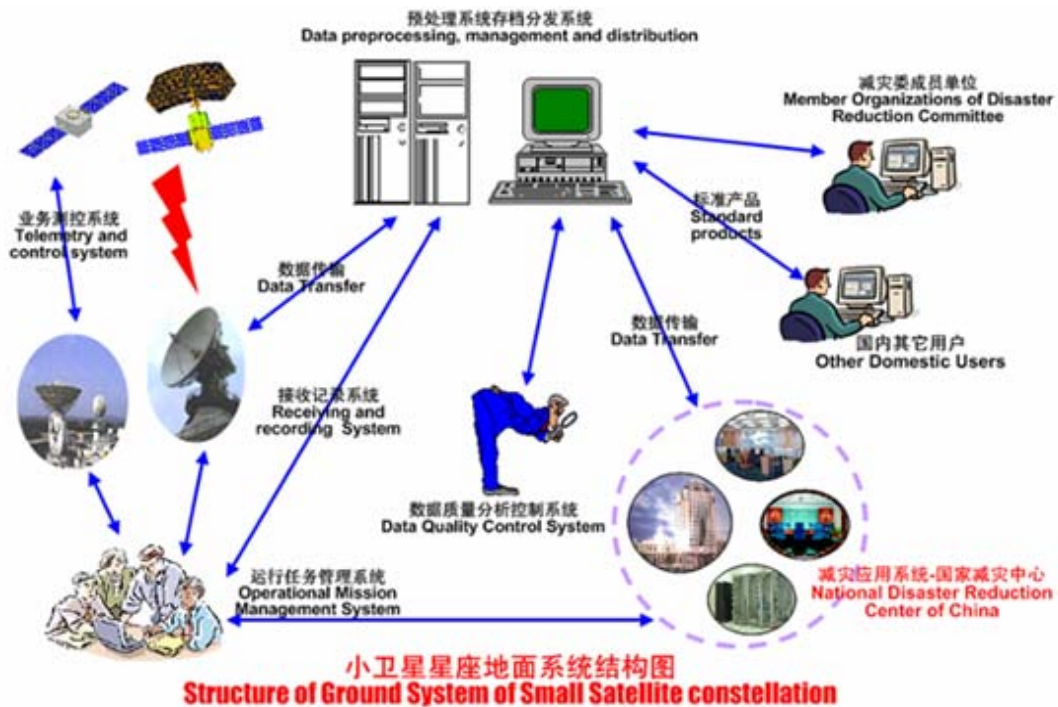


5. Applying high technology such as GIS and RS into disaster reduction



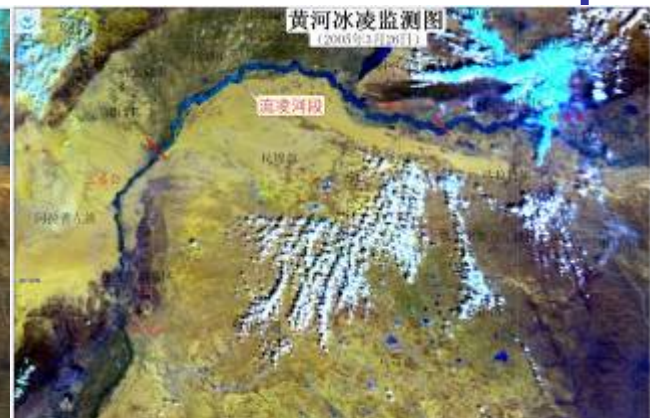
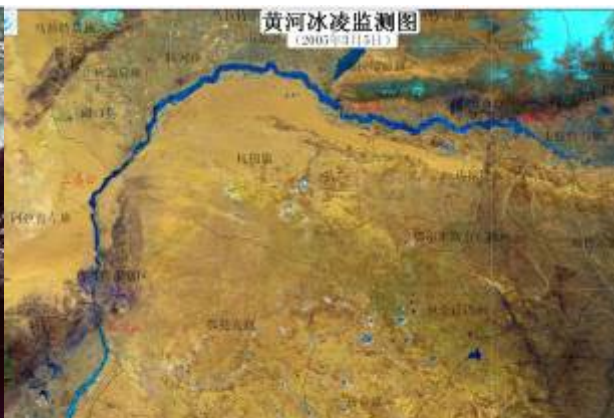
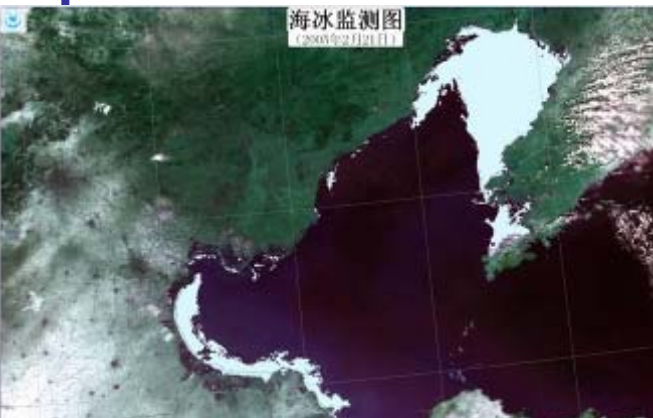
China plans to launch two small optical satellites and one small SAR satellite recently, called the "2+1" Project, and also will launch another 4 optical satellites and 4 SAR satellites later.

Plan of Small Satellite Constellation for Environmental and Disaster Monitoring and Prediction

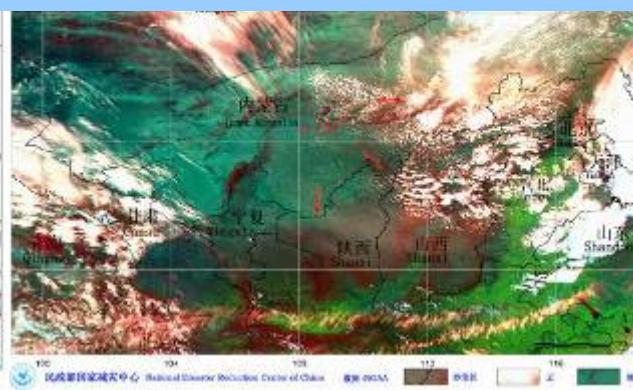




5. Applying high technology such as GIS and RS into disaster reduction



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.

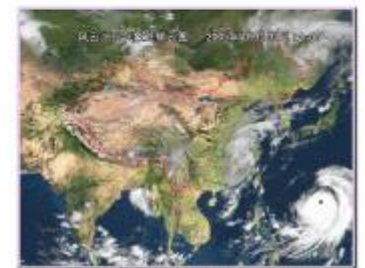
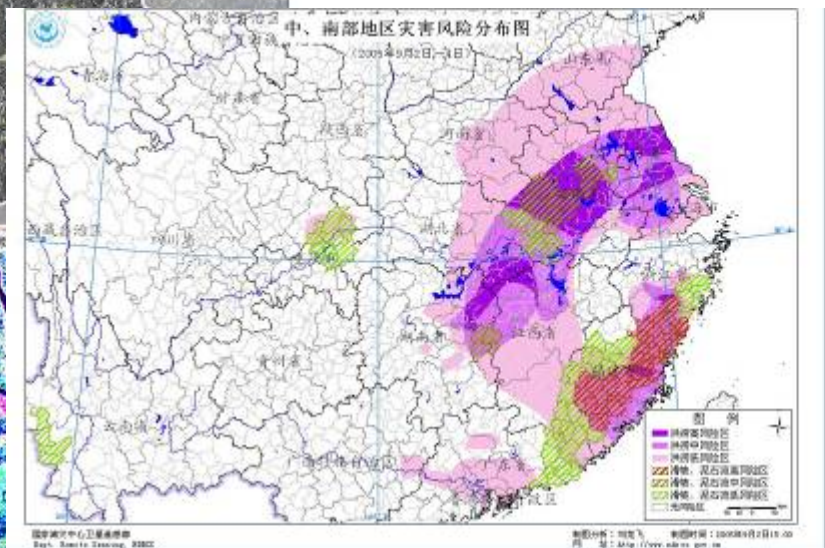
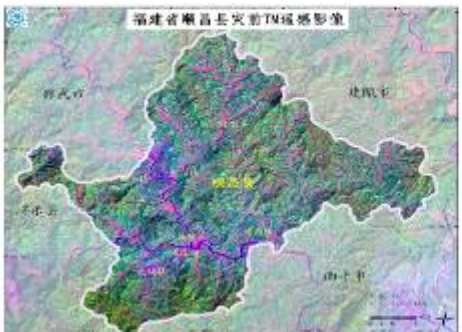




5. Applying high technology such as GIS and RS into disaster reduction

2005年6月17日-22日,福建省北部地区连降暴雨,部分地区出现特大暴雨,34个县(市区)遭受严重洪涝,山体滑坡和泥石流等灾害。根据“应对突发性自然灾害遥感技术响应工作规程”,民政部国家减灾中心卫星遥感部启动了遥感灾害监测三级响应,并订购6月26日6:11时的Radarsat雷达影像,对顺昌县进行灾情监测评估。经实地验证,遥感监测评估结果与统计上报数据基本一致。

Damage Condition Assessment using RS Technology



台风“泰利”监测与灾害风险分析
Monitoring and risk analysis of typhoon 'Tali'



Disaster Risk Assessment



6. Elevating public awareness of disaster reduction

- ❖ Overall Implementation for Publicity of the Knowledge Concerning Emergency Management (**guideline**)
- ❖ Reduce disasters at communities (**nationwide activity**)
- ❖ Views on Improving the Work of Disaster Reduction in Schools (**guideline**)
- ❖ Handbooks of Disaster Prevention and Self-Rescue (**manual**)



- ▶ to spread disaster prevention knowledge
- ▶ to enhance the public awareness of safety
- ▶ to help people have the knowledge on first aid and mutual aid





6. Elevating public awareness of disaster reduction



Release the magazines on disaster reduction to public





6. Elevating public awareness of disaster reduction



The opening ceremony of “reduce disasters at communities”





6. Elevate public awareness of disaster reduction



The drill on disaster reduction in the school





6. Elevating public awareness of disaster reduction



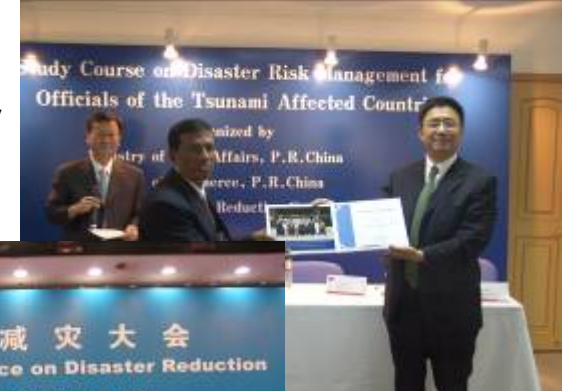
National TV disaster reduction competition
(CCTV)





7. Developing Cooperation Mechanism on Regional Disaster Mitigation

- ❖ In September 2005, *the Asian Disaster Reduction Conference* was held in Beijing, passing the Beijing Action Plan for Asian Disaster Reduction.
- ❖ In September 2006 in Qingdao, *the Disaster Relief Conference of the sixth ASEAN Regional Forum* was held to discuss the key areas and ways of disaster relief cooperation.
- ❖ In November 2006, *the Second Conference of Disaster Relief Department Chiefs of Shanghai Cooperation Organization* was held in Beijing. The meeting passed the “Action Plan for SCO Member States 2007-2008 Cooperation in Disaster Relief”.





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4

priorities of follow-up steps





the main countermeasures for the next step

- 1. Comprehensive survey over disaster risks all over the country**
- 2. Improvement of natural disaster monitoring, early warning and forecasting abilities**
- 3. Reinforcement of the construction of major disaster reduction projects**
- 4. Advancement of non-project disaster mitigation activities**
- 5. Elevation of the comprehensive research on greatly destructive disasters**
- 6. Better application of science and technology into disaster reduction**
- 7. Improvement of international cooperation to cope with global climatic changes**





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5

welcome to China



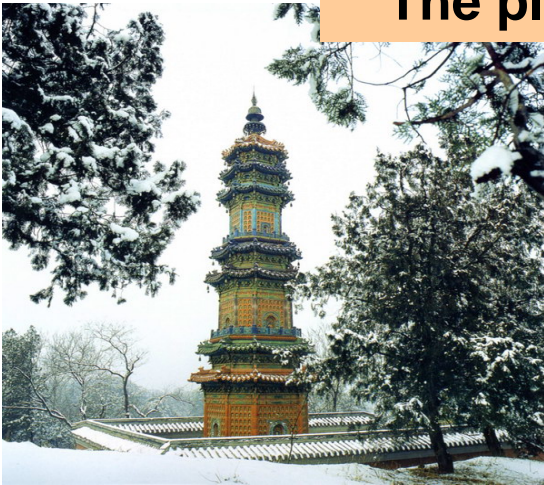


The Great Wall(万里长城)



The Imperial Palace(故宫)

The places of interest (名胜地)



The Summer Palace(颐和园)



The Temple of Heaven(天坛)





The Beijing Opera(京剧)





The Paper-cut(剪纸)



The Porcelain made in Jingde Town(景德镇瓷器)



The Clay Figurine(泥人)

The civilian art (民间艺术)





Kung Tze (孔子)
Educationalist
The period of the Spring
and Autumn(春秋时期)



Li Bai (李白)
Poet
Tang Dynasty (唐代)



Lu Xun (鲁迅)
Writer





Length: more than 2 kilometers

Height: about 200 meters

Reservoir storage capacity : 31 billion cubic meters



Three gorges dam which is the largest dam in the world





No.

Length: 36 kilometers
Completion: May 1, 2008



Hangzhou Bay Bridge which is the longest sea-crossing bridge in the world





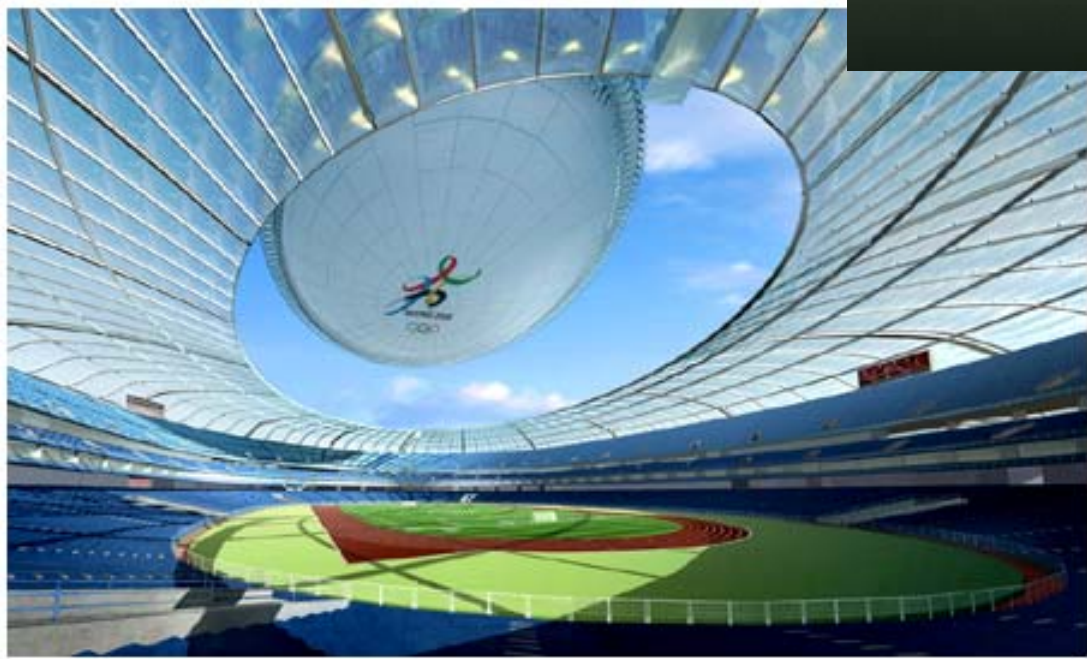
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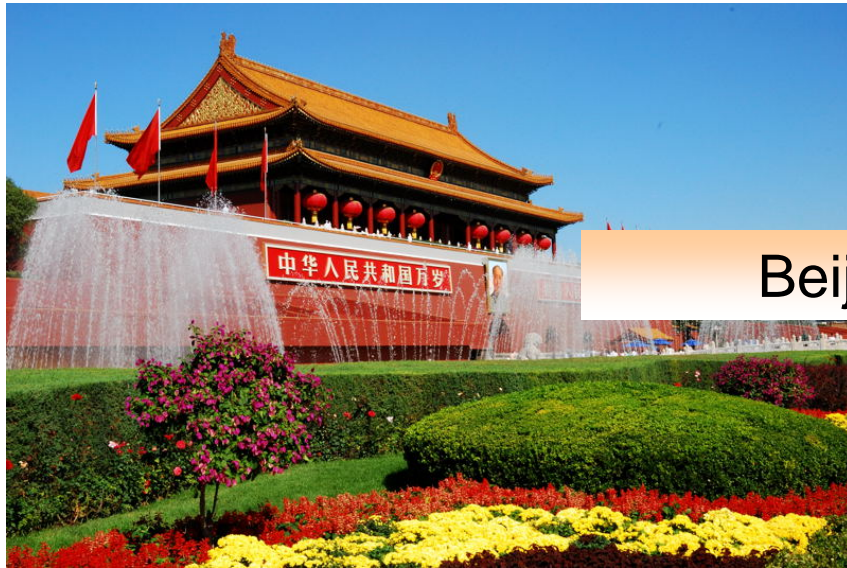
中国民声网

www.minsheng.org.cn



The gymnasium for Olympic Game of 2008





Beijing



Tekin.cn



Shanghai

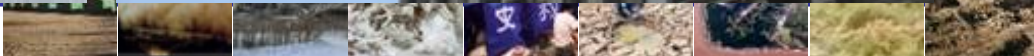




Hong Kong



Macao





Panda (大熊猫)
National animal of China



Peony (牡丹)
National flower of China



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有朋自远方来,不亦乐乎!

How happy we are, to meet friends from far away!

Welcome to China!





中华人民共和国民政部国家减灾中心

National Disaster Reduction Center of China

Thank You For Your Kind Attention!



谢谢!

Zhang Yunxia

(Visiting Researcher ADRC 2008)

Disaster Information Department of
National Disaster Reduction Center of
China

