

A Research on Heavy Natural Disaster Statistics Emergency Mechanism --with Wenchuan Earthquake as an Example

Jianzhong,Xiong
Statistical Bureau of Sichuan,Chief Economist
108 West Section 1,Second Ring Road
Chengdu(610041),Sichuan,China
E-mail:xiongjz@sc.stats.cn

After the Wenchuan Earthquake, the statistics system in Sichuan has undergone beneficial institutional trials and explorations for heavy natural disaster incidents in the hope of making those trials and explorations as references for other places' statistic emergency mechanism construction and initiation when serious natural disasters strike.

I. Guiding ideas and basic principles of the Heavy Natural Disaster Statistics Emergency Mechanism

(1) Guiding ideas

The statistical function in information, inquiry and monitoring should be displayed, and statistics quick response and handling capacity should be strengthened, and then government departments can make quick and accurate decisions through the disaster emergency management.

(2) Basic principles

1. Emergency principle: i.e. aging principle, which means that a quick emergency plan should be drawn up, force massed, and disaster statistics and disaster information reporting etc. should be done immediately and timely when a heavy natural disaster occurs.

2. Authenticity principle: for disaster statistics and after-disaster statistic monitoring, scientific methods and exact data should be adopted.

3. Operability principle: general statistics and disaster condition statistics should be combined to formulate uniformed statistical standards and contents, and therefore the operability can be emphasized.

II. Statistic emergency organizational management system and duties

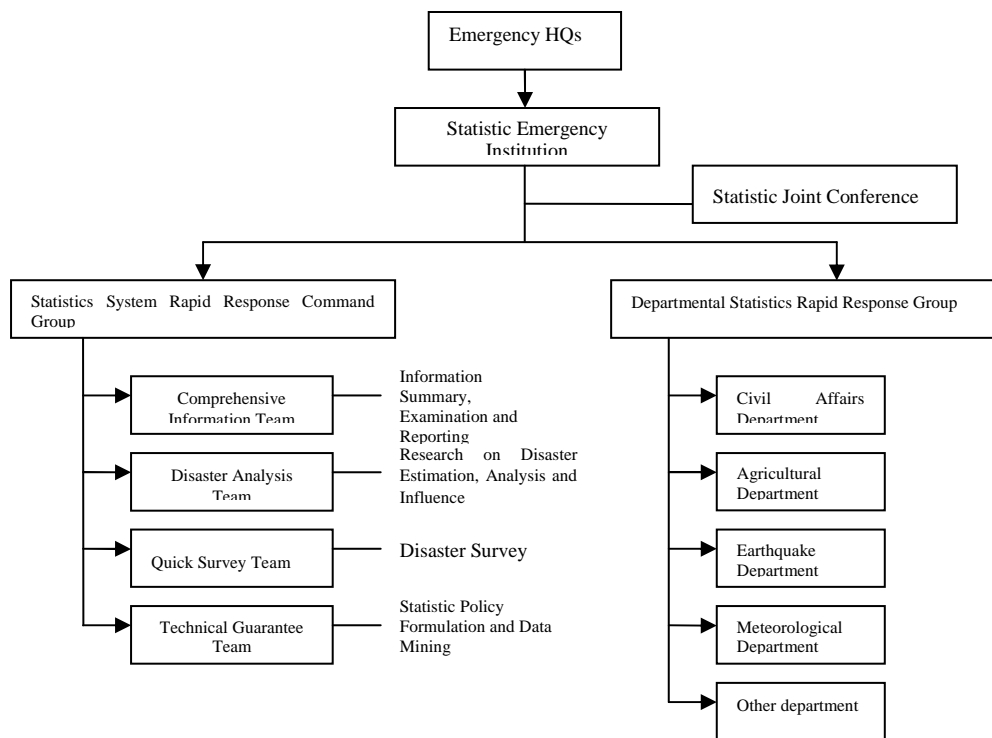


Fig. 1 Statistic Emergency Management Organizational Structure

(1) Statistic emergency command system

The statistic emergency command system should have a four-grade emergency management system at the national, provincial, municipal and county levels. Local statistics bureaus should be authorized by the State Council as emergent statistics agencies with the support from local people’s governments.

(2) Departmental statistic rapid response team

When a heavy natural disaster strikes, the emergent statistic plan should be initiated, and civil affairs, water conservancy, agriculture, forest, earthquake, meteorology and marine departments should response quickly and actively. Under the uniformed arrangement of statistic emergency institutions and according to the emergent statistic plan requirements, various departments should cooperate to do a good job of the disaster statistic work.

(3) Statistic system internal rapid response team

The statistic system emergent command group should be composed of work teams for comprehensive information, disaster analysis, rapid survey and technical guarantee. The comprehensive information work team should be responsible for collecting related data to the disaster area, examining, summarizing and reporting various statistic data and doing news promotion works. The disaster analysis work team should be responsible for related data

analysis and estimation, and for offering estimation reports for the economic and social influence of the disaster. The quick survey work team should be responsible for organizing and implementing survey plans, and the technical guarantee work team should be responsible for establishing and regulating related statistical reporting policies.

III. Statistics emergent response

(1) Starting standards for statistics emergent responses and actions

According to disasters' influence scope and gravity, we can divide our country's statistic emergency work into four grades:

Grade I: it means a natural disaster that has a nationwide impact, and the State Statistics Bureau should organize related governmental departments to carry out argumentations and analysis, and then propose starting or ending the Grade-I emergency response for the State Council's approval.

Grade II: it means a natural disaster that has a provincial impact, and the Provincial Statistics Bureau should organize related governmental departments to carry out argumentations and analysis, and then propose starting or ending the Grade-II emergency response for the provincial people's government's approval and to the knowledge of the State Statistics Bureau.

Grade III: it means a natural disaster that has a municipal impact, and the Municipal Statistics Bureau should organize related governmental departments to carry out argumentations and analysis, and then propose starting or ending the Grade-III emergency response for the municipal people's government's approval and to the knowledge of provincial statistics bureaus.

Grade IV: it means a natural disaster that has a county-range impact, and the County Statistics Bureau should organize related governmental departments to carry out argumentations and analysis, and then propose starting or ending the Grade-IV emergency response for the county people's government's approval and to the knowledge of municipal statistics bureaus.

Meanwhile, according to the natural disaster's threat gravity, we can divide the statistic emergency actions into five grades: red, orange, yellow, blue and green.

Table 1 Five-grade Response Actions

(2) Basic work procedures for starting emergent statistics

1. Emergent statistics institutions and related emergent teams should be founded. When a heavy natural disaster occurs, government emergent command HQs should found emergent statistics institutions and authorize related responsible person or department to carry out the statistics command work.

2. Emergent statistics joint conferences should be held. The emergent statistics institutions should quickly hold emergent statistics joint conferences with civil affairs, communications and agriculture departments.

3. Disaster loss statistics and estimation. The statistic emergency plan should be started, and related departments should conduct disaster statistics according to their duties and rights and limits, and the statistic system's comprehensive information team should make a summary of the departmental disaster statistic data.

4. Rapid and specialized survey and social condition civil opinion survey. According to the natural disaster influence and national, provincial and municipal demands, and specialized rapid surveys and social condition civil opinion surveys should be conducted.

5. Statistic data mining. The technical guarantee group should work with various departments to have a secondary development of the past statistic data.

6. Disaster influence analysis and research. The disaster analysis team should work with scientific and technical institutes and universities to conduct analysis, research and estimates of the disaster impact on the national economic development and urban and rural people's living.

7. After-disaster reconstruction statistic monitoring. Emergent statistic institutions should formulate the after-disaster reconstruction statistic monitoring plan so as to determine the scientific monitoring indicators and accurately reflect the after-disaster reconstruction and recovery conditions.

8. Statistic data delivery. Related statistic data should be reported in a real-time way according to the requirements of the emergent statistics command HQs. (see attached Fig. 2)

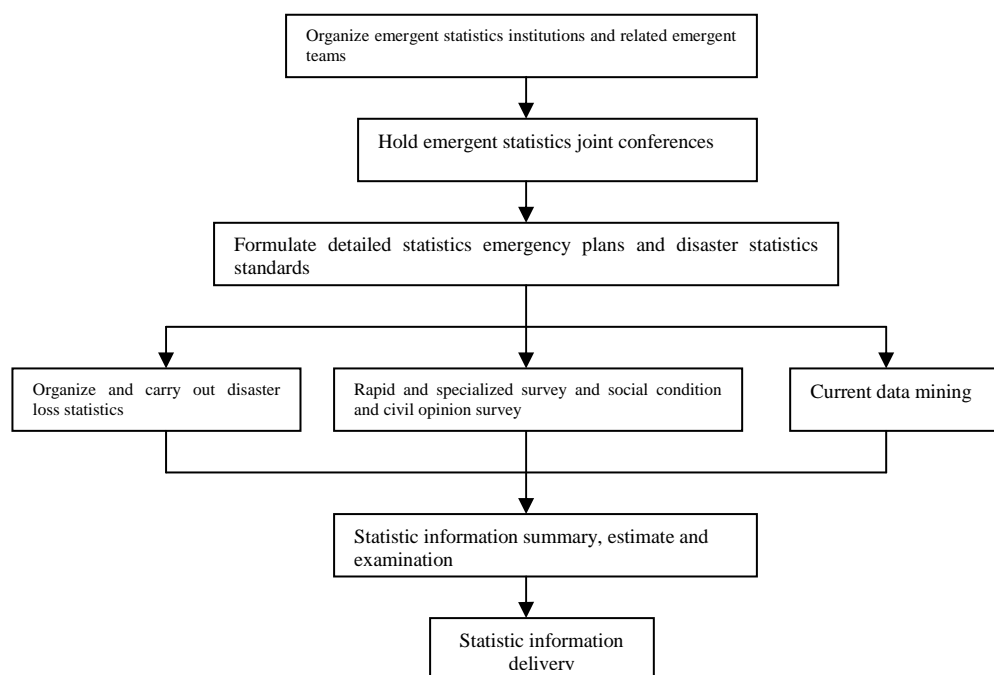


Fig. 2 Basic Workflow of Emergent Statistic Responses

IV. Construction of an Emergent Statistic indicator System

(1) Disaster statistics indicator system

1. Basic conditions of the disaster area, mainly includes disaster name, disaster striking area, occurring time, disaster nature, scale, disaster area, etc.

2. Casualty rescue. It mainly reflects the conditions of afflicted scope, caused casualty and settlement, with the major indicators as afflicted city (prefecture) number, county (city, district) number, township (town) number, death number, buried number, missing number, injured number, temporarily settled number, injured hospitalized number, orphan number, lonely old and disabled number, etc.

3. Residents' property loss. It mainly includes house damage and other property damage, specially reflecting rural house collapse number and total collapse area, seriously damaged household number and total area, direct economic loss, urban residents' house collapse (damage) house number and area.

4. Various industries' loss. It includes direct economic loss and indirect economic loss, with the former including fixed assets loss, current assets loss, etc. Fixed assets loss mainly includes infrastructure, production equipment, workshop, etc. and current assets loss mainly includes production-use raw material, fuel, semi finished product and finished product loss,

etc. The indirect economic loss is the loss brought by disasters. It mainly includes decreased agricultural products due to afflicted agriculture, operational loss due to corporate stop, and economic loss resulting from water, power and traffic cut, etc.

5. Relief material and capital statistics. The country's relief material should be obtained by civil and social donation. The relief material should mainly be food, cloth, daily articles, medical instrument, engineering machine, etc.

(2) After-disaster reconstruction monitoring indicator system

1. Personnel placement, employment, income, consumption and mental recovery, reflecting society and international society's care and material and spiritual assistance.

2. Industrial economic recovery and reconstruction, and first is the traffic & communications, water supply and drainage, power and gas supply, and other infrastructure reconstruction, and second is the first, second and third industries' recovery and reconstruction, especially for key construction projects and local pillar industries' recovery and reconstruction.

3. Social basic service facilities' recovery and reconstruction, mainly including education, health care & disease prevention, broadcasting & TV, culture and sports, etc.

4. Natural resource and environment's recovery and reconstruction, mainly including national land and natural disasters, secondary disaster repair and natural protection area recovery.

5. Historical relics and natural heritage protection and maintenance.

6. Construction relief from provinces (cities) for seriously afflicted counties (cities, districts), sufficiently reflecting the relief results.

(3) Construction of an emergent statistics database

A complete natural disaster statistics basic database should be established, and all disaster and reconstruction-related research materials and analytical statistic materials should be handled and provided by the statistics basic database.

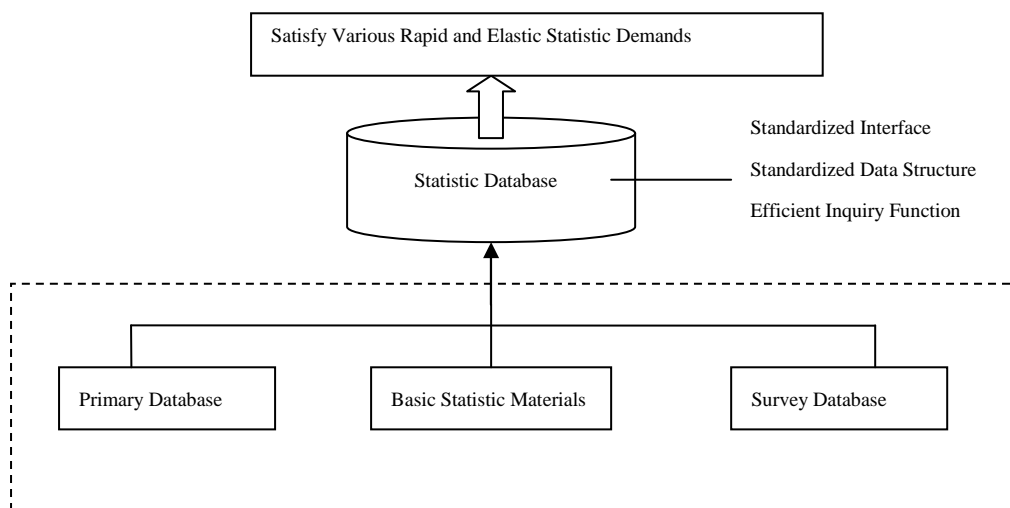


Fig. 3 Emergent Statistics Database

V. Ways to implement the emergent statistic mechanism against heavy natural disasters

(1) Improvement of an emergent statistic organizational management system

The emergent statistic organizational management system should be established under the principles of “united leadership, graded responsibility, integrated management and local administration”. The emergent statistic management should be guided by a statistic work team, completed with departmental coordination and the combined efforts of the government comprehensive statistic institutions and relevant departments’ statistic institutions according to the disaster type and influence.

(2) Founding and improvement of an emergent statistic legal system

First, a disaster-related infrastructure data reserve system should be established, second, a disaster influence statistic system for heavy natural disasters should be established, third, a after-disaster reconstruction and recovery statistic monitoring system for heavy natural disasters should be established, fourth, a relief material statistic system should be established, fifth, a (disaster) civil opinion survey system should be set up, and sixth a (disaster) statistic data information report, delivery, examination, release, revelation and usage system should also be established.

(3) Strengthening of an emergent statistic team

Comprehensive statistics, departmental statistics and social statistics should be established as interdependent aspects for the emergent statistic team that will also absorb full-time and part-time statistic teams and social volunteers for emergent statistic training and drill and improved capacity in dealing with emergent statistic tasks.

(4) Establishment of a statistic emergency information platform

For convenient departmental communication and coordination, we should on the one hand integrate the data and information from various departments (including comprehensive statistics, departmental statistics and folk statistics), standardize the statistic information and construct a support platform for statistic data and information exchange and share; on the other hand, we should display the statistic information and provide different statistic information service according to the demands of governments, corporations and society on statistic information.

(5) Active development of emergent statistic theoretical study

While strengthening disaster-related data and information integration and filing and daily management and maintenance, we should utilize the data to develop statistic theoretical study and improve the guiding force of theory for the emergent statistic practice.

(6) Strengthening of emergency promotion

We should popularizing the knowledge about statistics and information collection by improving the emergent statistic management and promotion work, enhancing the public’s acceptance and cooperation in the statistic information collection, promoting various statistic

plans and compiling statistic emergency knowledge books and reading materials. By doing these, we can mobilize various social forces to actively participate in the emergent statistic management, and invite the whole society to join in the emergent statistic management.

RESUME

Personal Information:

Name: Jianzhong Xiong

Age: 49

Gender: Male

the political landscape: Communist Party Member of China,

Education: university graduate

Professional: Statistician

Position: Chief Economist and Party members of Sichuan Statistics Bureau

Experience:

Aug. 1983 to Aug. 1996 Statistics Bureau of Ganzi

Aug. 1996 to Present Statistics Bureau of Sichuan