China Flood and Drought Disaster Statistics System Introduction

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1. Purpose, meaning and principal
2. Three phases
3. Current statistics system
4. Data verification
5. Prize and punishment
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7. 3S technology application
1. Purpose, meaning and principal

- China water disasters occur frequently, seriously and widely.

- In history:
  - Big flood occurred almost every 2 years.
  - Big drought occurred almost every 3 years.
1. Purpose, meaning and principal

- China water disasters occur frequently, seriously and widely.

- In recent years:
  - Almost 7 tropical storms land China every year.
1. Purpose, meaning and principal

- China water disasters occur frequently, seriously and widely.

- 1998 the Yangze river flood:
  - Big river basin flood occurred in the Yangze river in 1998.
  - Flooded cultivated fields: 239,067 hectare
  - Influenced people: 2.316 million
1. Purpose, meaning and principal

- China water disasters occur frequently, seriously and widely.

- 0608 Saomai Super Typhoon:
  - 2006-08-15, 18:25, landed on Zhejiang province, east China
  - Wind speed 60m/s, 920hpa,
  - Economic losses more than 2.5 billion USD, 458 casualties.
1. Purpose, meaning and principal

- China water disasters occur frequently, seriously and widely.

- 2010 the Southwest China Drought:
  - From the autumn of 2009 to the spring of 2010, severe drought disaster occurred in southwest China, including most part of Yunnan province (the Lanchang River Basin) and other four southwest provinces.
1. Purpose, meaning and principal

- China water disasters occur frequently.

- 2010 the Southwest China Drought:
  - Influenced cultivated fields: 6.7 million hectare
  - Drinkable water shortage people: 20.88 million
  - Drinkable water shortage livestock: 13.68 million
1. Purpose, meaning and principal

Average annual statistics data of flood and drought disasters for every decade in recent 60 years

<table>
<thead>
<tr>
<th>Decade</th>
<th>Flood Disaster Losses</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flooded cultivated land</td>
<td>casualty</td>
<td>Direct economic</td>
</tr>
<tr>
<td></td>
<td>10^3 hectares</td>
<td>1</td>
<td>China Yuan</td>
</tr>
<tr>
<td>1950s</td>
<td>7724</td>
<td>8976</td>
<td>—</td>
</tr>
<tr>
<td>1960s</td>
<td>6963</td>
<td>3733</td>
<td>—</td>
</tr>
<tr>
<td>1970s</td>
<td>5959</td>
<td>5308</td>
<td>—</td>
</tr>
<tr>
<td>1980s</td>
<td>10424</td>
<td>4332</td>
<td>—</td>
</tr>
<tr>
<td>1990s</td>
<td>16085</td>
<td>3744</td>
<td>1261.5</td>
</tr>
<tr>
<td>2000~</td>
<td>11236</td>
<td>1453</td>
<td>1010.3</td>
</tr>
</tbody>
</table>

|                     | Drought Disaster Losses |                   |
|                     | Influenced cultivated land | Loss of grain |
| 1950s    | 11600                   | —                  |
| 1960s    | 17919                   | —                  |
| 1970s    | 26121                   | —                  |
| 1980s    | 24562                   | —                  |
| 1990s    | 24895                   | 206.4              |
| 2000~    | 24772                   | 365.3              |

* “—” : no statistics data.
1. Purpose, meaning and principal

- **Purpose**: try as possible as we can to record disaster faithfully.

- **Meaning**:
  - For the demand of rescue.
  - For the demand of relief.
  - For the post disaster rebuilding and resuming production.
  - For the demand of history record.
1. Purpose, meaning and principal

- **Principal:**
  - Timeliness. Biggest difference between disaster stat. and general national economic stat. and other social stat..

- **Principal:**
  - Exactness.
2. Three phases of China flood and drought disaster statistics

<table>
<thead>
<tr>
<th>Phase</th>
<th>Period</th>
<th>Medium</th>
<th>System</th>
<th>Timeliness Exactness</th>
</tr>
</thead>
<tbody>
<tr>
<td>First phase</td>
<td>Before 1990</td>
<td>Telephone Fax</td>
<td>1980 edition</td>
<td>Need to be improved</td>
</tr>
<tr>
<td>Second phase</td>
<td>1990~1999</td>
<td>Fax computer</td>
<td>1999 edition</td>
<td>Been improved</td>
</tr>
</tbody>
</table>
3. Current statistics system

3.1 Statistics range

- **Flood disaster**: flood and water logging caused by heavy rainfall, typhoon, rainstorm, snow melting, dam or river bank collapse; flash flood; debris flow, etc. Including direct damage or influence on agriculture, fishery, farming, industry, public utilities and people property. Indirect losses are not included.

- **Drought disaster**: drought caused by lacking of rainfall, water resources shortage, water pollution, etc.
3. Current statistics system

3.2 Statistics content

- Flood related disaster:
  - Basic content table
  - Agricultural, farming, fishery losses table
  - Industry and traffic, power, communication facility losses table
  - Irrigation and flood defending works losses table
  - Death toll
  - Flooded city losses table
  - Flood defending materials consumption table
  - Effectiveness of flood defending and control table
  - 9 tables, 113 statistics indicators
3. Current statistics system

3.2 Statistics content

- Drought disaster:
  - Agriculture drought ravage dynamic statistics table
  - Agriculture drought relief action table
  - Agriculture drought losses and drought relief effectiveness table
  - City water shortage and water sources table
  - City water shortage and drought relief action table
  - Basic and water usage information of water shortage city
  - Water supply sources information of water shortage city
  - 7 tables, 101 statistics indicators
3. Current statistics system

3.3 Timeliness

- Characteristics of flood related disaster: hard to forecast, occur suddenly.
- Periodic report: monthly report, annual report. To reflect flood disaster’s monthly change and inter annual change.

- Dynamic report. First report 3 hours after disaster occur. Everyday report or twice or more report till the disaster finished.
- Process report. First 2 working days after disaster finished.
- Monthly report. First 3 working days every month.
- Annual table. First 5 working days every year.
3. Current statistics system

3.3 Timeliness

- Characteristics of drought disaster: occur and get worse gradually, last long time, wide influence.
- Periodic report: ten-day report, monthly report, annual report.

  - Ten-day report. On the 11th, 21st, 31st (or the last day) day of every month.
  - Monthly report. On the 1st working day of every month.
  - Annual report. Before the final working day of every year.
3. Current statistics system

3.4 Organization

- From local level to central level, gathering data at every administrative level.

<table>
<thead>
<tr>
<th>Administrative level for Cambodia, Thailand and China</th>
</tr>
</thead>
<tbody>
<tr>
<td>China (中国)</td>
</tr>
<tr>
<td>Central (中央)</td>
</tr>
<tr>
<td>Province (省)</td>
</tr>
<tr>
<td>City (市)</td>
</tr>
<tr>
<td>County (县)</td>
</tr>
<tr>
<td>Village (村)</td>
</tr>
<tr>
<td>Cambodia</td>
</tr>
<tr>
<td>Khétt、Krŏng</td>
</tr>
<tr>
<td>Srŏk</td>
</tr>
<tr>
<td>Khum</td>
</tr>
<tr>
<td>Changwat</td>
</tr>
<tr>
<td>Amphoe</td>
</tr>
<tr>
<td>King amphoe</td>
</tr>
</tbody>
</table>

*Are the administrative levels corresponding to each other?
4. Data verification

4.1 Why do we need to verify disaster data?

What problems do we often encountered?

- Exaggeration.

- Malicious omission.

- Innocent omission, unintentional omission.

- Unintentional mistake.
4. Data verification

4.2 How do we verify disaster data?

- Sending working parties to carry out field survey.
- Organizing technicians to make assessment.
- Multidivisional joint meeting. Meeting mechanism on fixed time within several administrative sectors.
- The third party checking out. Insurance company, disaster research institutes.
5. Prize and punishment

5.1 Management method

- Annual work evaluation.
- Advanced experiences spreading.

5.2 Law method

- Statistic law
- Flood defending law
- Flood defending regulation
6. Data Publish

6.1 Publish

- Disaster data can only be released or published by government authority or the authorized government administration.

6.2 Bulletin

- China flood and drought disaster bulletin.
- Release from 2006.
7.3S technology application

7.1 What is 3S technology?

- GIS (Geography Information System)
- RS (Remote Sensing)
- GPS (Global Positioning System)

7.2 Application

- GIS, RS, GPS technologies are widely used in the fields of flood, drought, soil moisture regime and disaster monitoring, verification, simulation and assessment. (The end)
Thank you!