

## **China Scientific Data Sharing Progress and Some Consideration for “Agricultural Monitoring System Data Sharing”**

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- 1. Scientific Data Sharing Background in China**
- 2. Scientific Data Sharing’s main Progress under SDSP and NSTI**
- 3. Enlightenment for data sharing in Agriculture Monitoring System**

## **1. Scientific Data Sharing Background in China**

- Matter, energy and information can be deemed to 3 kinds of strategy resources for human development in 21 century.
- Long term collected and accumulated scientific data has been the rarity asset and strategy resources for the innovation of science and technology.
- Recent years, many countries have began to construct data sharing environment, including data sharing policy.

## Scientific Data Sharing Program (SDSP) in China

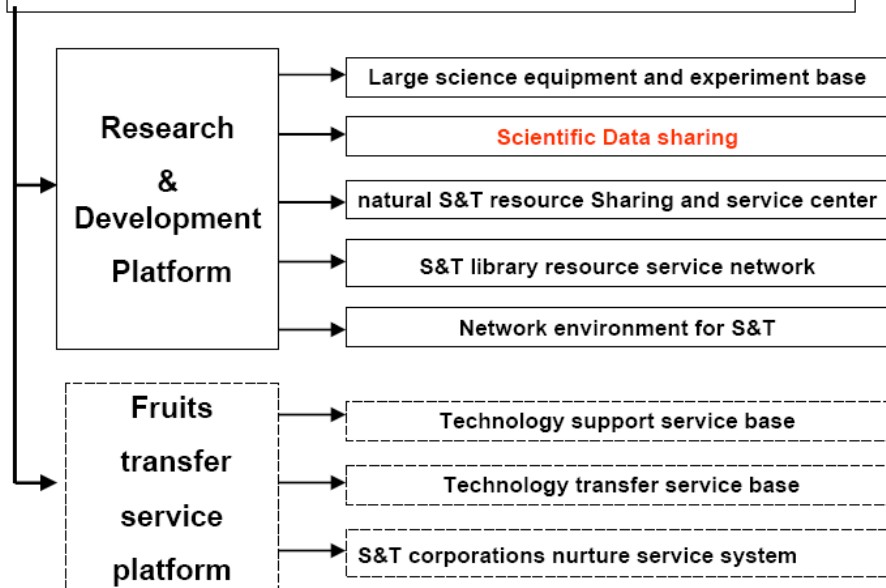
- Many insight pioneers called for and began to promote scientific data sharing in the end of 20<sup>th</sup> century.
- After the first pilot project for Meteorology data sharing was selected and started in the end of 2001, SDSP was launched by MOST in 2002.
- According to SDSP's plan, there will be 40 national data centers, cover 300 master databases, in 6 fields at the end of 2020.



## National Science & Technology Infrastructure (NSTI)

- Two years later after SDSP, NSTI was launched in 2004 supported by MOST, Ministry of Finance of China, Ministry of Education, and State Development and Reform Commission.
- Data sharing is the core of NSTI
  - SDSP is one of important parts in NSTI
- Data sharing portal: <http://www.escience.gov.cn>

### National Science and Technology (S&T) Infrastructure Platform



## 2. Scientific Data Sharing's main progress under SDSP and NSTI

## Scientific Data Sharing in China

- More than 18 scientific data sharing projects were funded by MOST after 2001.
  - Cover Resource and Environment, Agriculture, Population and Health, Basic and Frontier Sciences, Engineering and Technology, Regional Development fields in 24 departments.
  - Establish the data sharing environment, including policy, standards, data products, data sharing platform, etc.
  - Promote the data sharing for all society

## Scientific Data Sharing in China

### (1) Data Sharing Policy and Rules

- National level
  - Add scientific data sharing section to China Scientific and Technological Progress Law
- MOST and Participant departments
  - 40 rules and regulations on data sharing made by relevant departments in various domains
  - For example, Meteorology Data Sharing Management Specification Published by CMA. National Key Basic Research Program (973) Data Archiving Specification on Resources and Environment fields.

## Scientific Data Sharing in China

### (2) Standardization

- Develop 32 standards and criteria, 23 have been completed
- Based on the top design, relevant departments have made 81 data management standards in various industries and domains

## Scientific Data Sharing in China

### (3) Establish large of Accessible Databases through Data Integration

- Till the middle of 2008, integrated 3616 databases, available datasets online accumulated to over 35.5TB
  - In situ and long term monitoring data in departments, e.g., Meteorology, Seismology, Oceanography, Water resources, Survey and Mapping, Land resources, etc.
  - Scientific research data in interdisciplinary, inter-departments fields, e.g., Agriculture, Forestry, Earth System Science, Human Health, etc.

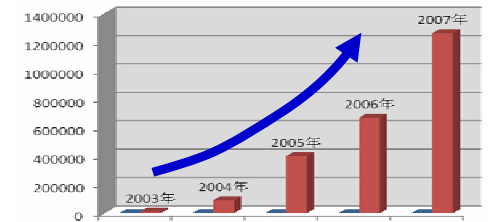
### (4) Services Effect

- With incomplete statistics, by the middle of 2008:
  - The number of accessing users: over 17 million totally
  - Registered users: over 77 thousands
  - Downloaded data volume: over 24TB
  - Supported more than 1500 research projects and engineering. (e.g., Qinghai-Tibet plateau railway, Manned Astronautical Engineering, etc.)

### E.g., User of Data Sharing Network of Earth System Science

From 2004 to the end of 2008,

- Registered Users: 35,000. Homepage Visitors: 5,815,901
- Customized services for more than 3,866 people
- Customized services for more than 600 Projects and engineering



### (5) Social and Economic benefits

- Shared large volume of data from research projects, funded more than 25 billion Chinese Yuan in past decades.
- Popularized scientific data sharing idea for public
- Enhanced the data sharing in departments and scientific research projects area
  - E.g., National Basic Research Program (973) Data Archiving on resources and environment field pilot project was launched in 2008.

### 973 project data archiving

- In March, 2008, MOST published the specification for “National Basic Research Program (973) Data Archiving Management on Resources and Environment Field
- Establish the Data Archiving Center based on LREIS (State key lab)
- In 2008, Data Archiving Center has archived more than 620GB data from 24 “973 projects”

### **(6) International cooperation**

- In July, 2005, 9 sub centers of World Data Center (WDC, ICSU) in China were highly praised by WDC review team.
- Cooperate with Committee on Data for Science and Technology (CODATA, ICSU) for data sharing every year.
- Continue Sina-America data sharing policy discussion and exchange since 2005.

## **3. Enlightenment for data sharing in Agriculture Monitoring System**

### **(1) Agriculture data sharing policy and rules**

- Establish a common data sharing idea
- Define the Responsibility, Right, Benefits for every stakeholders in the system
- Publish the data sharing rules
  - Including data scope, management, archiving, infrastructure, sharing and protection measurement, Legal Responsibility, etc.

### **(2) Scientific research data archiving and sharing**

- “973 projects” data archiving on resources and environment fields provides a strong basis for data sharing
- Establish the international scientific research data archiving center for Agriculture Monitoring System maybe helpful.

### (3) Data sharing stated from yourself

- One experiment for scientific research data sharing in SDSP and NSTI is to share your datasets firstly in the beginning stage.
  - For instance, The host agency of Data Sharing Network of Earth System Science is IGSNRR. It has accumulated large amount of research data in the past decades. When this project was launched in 2002, its own data in IGSNRR were shared firstly. Consequently, more and more research team in many other institutes or universities are influenced and joined the data sharing union.

### (4) User is core

- Provide convenient user services as soon as possible
- Provide multi-kinds of user services, such as datasets download service, data navigation service, custom-made service, etc.
- Besides passive user services, provide more positive user services, e.g., tracking service
- Encourage user shared their production data based on the shared data

### (5) Build high quality data sharing team

- A stable, multi-discipline, multi-knowledge structure talent team are needed.
- The team includes 3 kinds of person:
  - professional person. They are specialized in data standard, data sharing policy, database rebuilding and standardization, data service, etc.
  - IT person. They are specialized in web portal, data interoperability, distributed network maintain, etc.
  - Research experts. They are specialized in data products research, and know what's the user required.

### (6) Funding is necessary

- National funding support will play very important role for data sharing.
- Funding may come from many channels.

**In general**

- Scientific data sharing under SDSP and NSTI will continue.
- We hope we can do more for data sharing in Agriculture Monitoring System of Systems

*Thank you!*

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