

Outlook of Sharing Arsenic Information and Knowledge

China Geological Survey

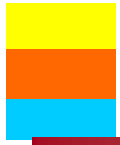
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Catalog

- **1. Background of Endemic Chronic Arsenic Poisoning in China**
- **2. Related Organizations Preventing and Controlling Arsenic Poisoning**
- **3. Data Sharing and Problem**
- **4. Multilateral Cooperation and Outlook**



1. Background

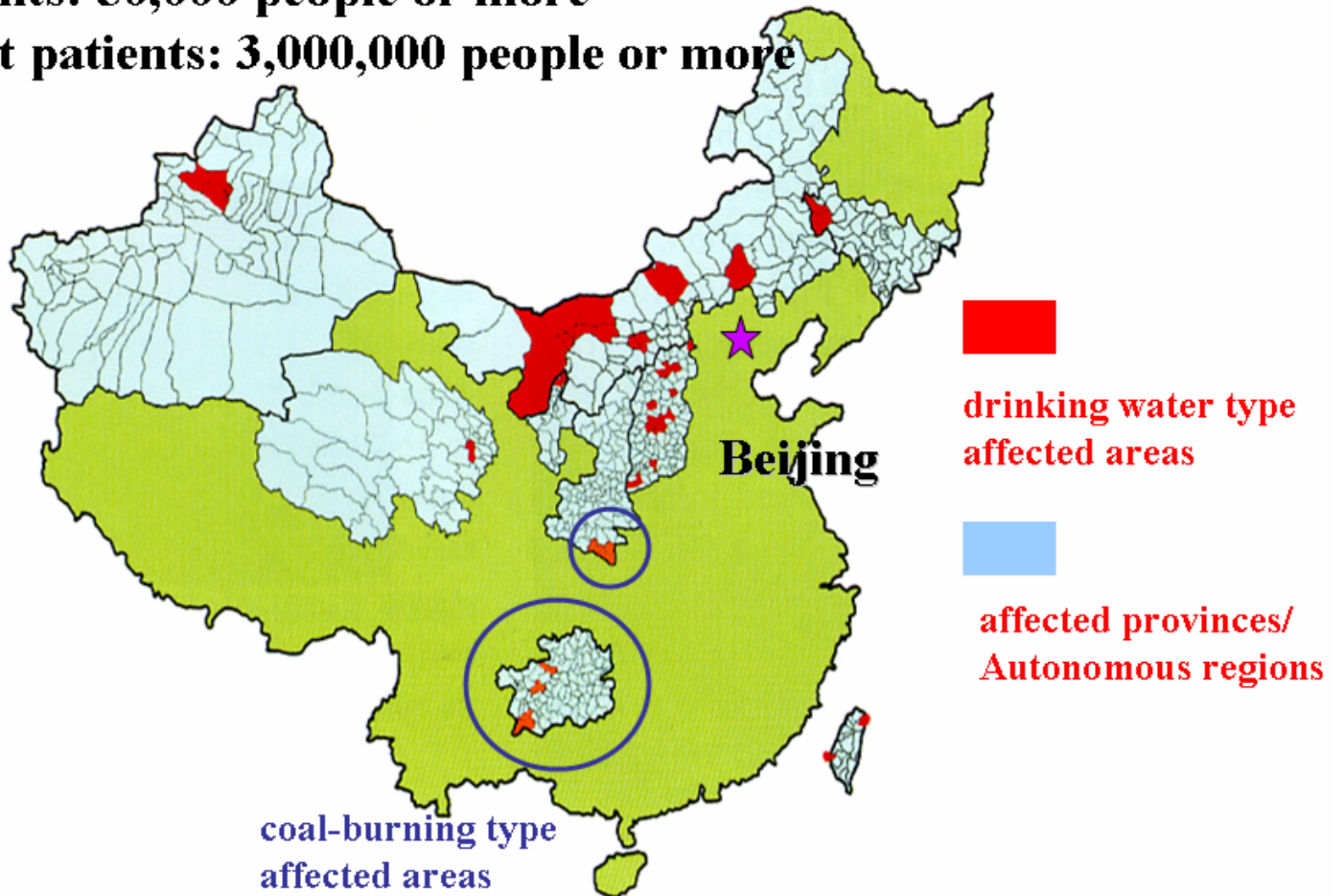
Background of endemic chronic arsenic poisoning in China

Chronic arsenic poisoning in China has resulted in endemic arsenicosis in vast areas, much of it rural. It was first observed in the 1950s and then in the late 1970s and early 1980s in various localities .

Provinces and autonomous regions affected by the drinking water type and coal-burning type of chronic arsenic poisoning in China

patients: 50,000 people or more

latent patients: 3,000,000 people or more





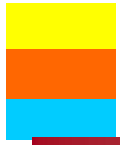
symptom



**The
pictures
show the
arsenicosis
symptoms**



Serious and terrible!



type

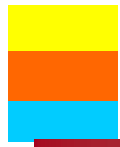
Chronic arsenic poisoning in China can be classified into two types, based on the source:

Drinking water type

Which is due to the consumption of groundwater in medium and deep wells containing high levels of arsenic.

Coal burning type

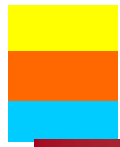
Caused by the consumption of foods that have dried by burning coal containing high levels of arsenic in open stove.



Drinking water type areas

Chronic arsenic poisoning was reported in **Taiwan** province in the 1950s. But that incidence was associated with the so-called “black foot disease” and seems to have been restricted to Taiwan province only.

In the late 1970s and early 1980s, arsenic specific coetaneous changes were diagnosed in **Xinjiang** autonomous region and subsequently in **Inner Mongolia** autonomous region and **Shanxi** province.



Coal burning type areas

The Coal burning type of chronic arsenic poisoning occurs mostly in south-western China. In 1953, the first patient was diagnosed in **Guizhou** province, but not until the 1980s were more patients identified. Endemic coal-buring arsenicosis has spread to five counties in **Shaanxi** province.

In 1992 Ministry of Health asserted formally **arsenicosis was a kind of new endemic disease**, and list in the national prevention and cure plan of key disease.



2. Related Organizations Preventing and Controlling Arsenic Poisoning

United Nations Children's Fund (UNICEF)



- United Nations Children's Fund: United Nations Children's Fund was established in 1946, the purpose is to help the poor children of developing countries.
- China / United Nations Children's Fund undertakes the project lightening arsenicosis and dangers (2001-2005)
- Survey arsenic in the water (hygiene department disease and/or disease controlling centre).



The China Geological Survey (CGS)

- **The China Geological Survey is a vice-ministerial level public institution directly under Ministry of Land and Natural Resources, according to national territory resources investigating plan:**
- **responsible for disposing and organizing implementation of country's basic public beneficial strategic geology and mineral products and reconnoitring work in unison**
- **offer the basic information material of geology for national economic and social development**
- **and offer the public beneficial service to the society.**



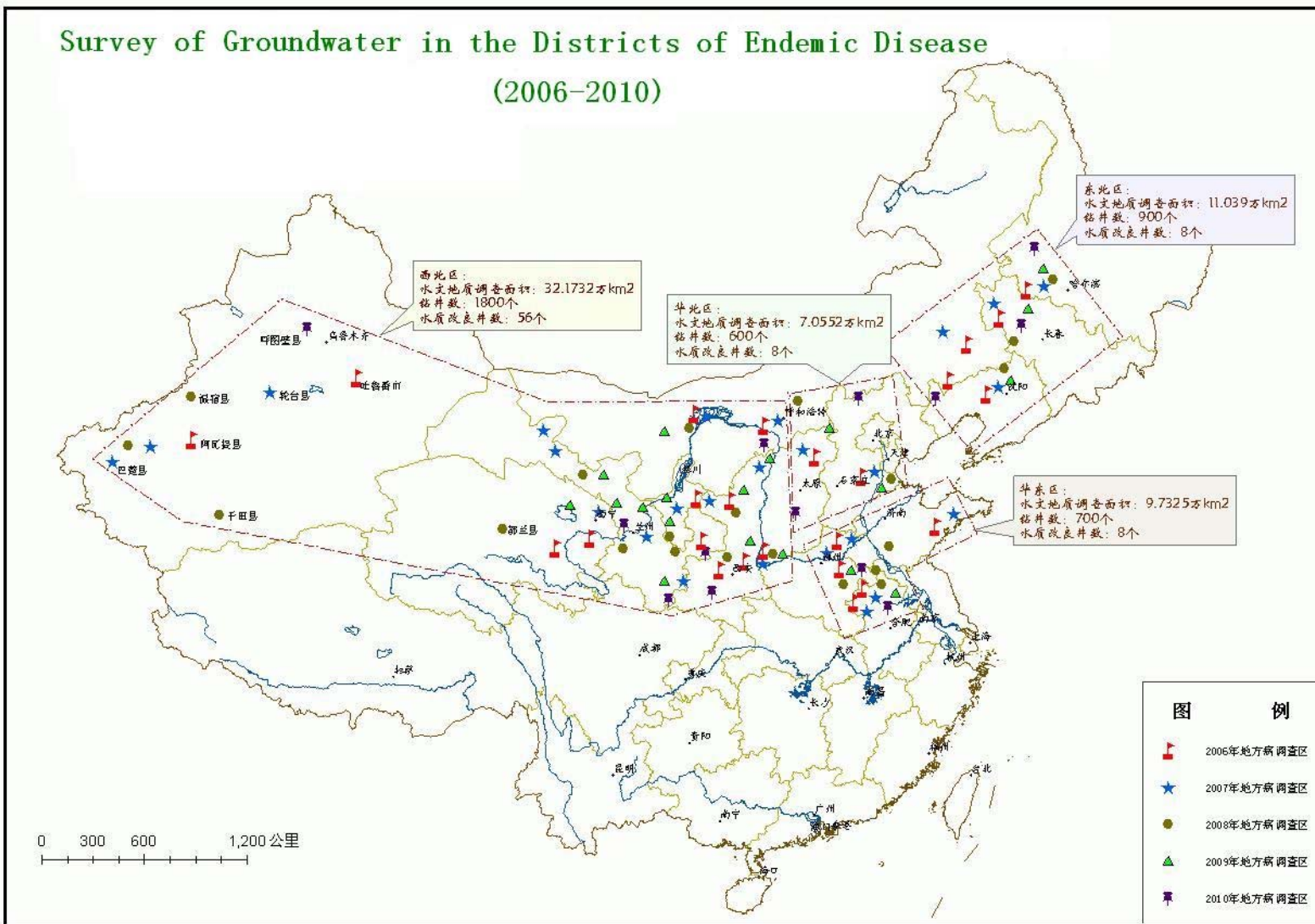
The China Geological Survey (CGS)

- **The China Geological Survey is launching "China's geological environment and endemic disease (2006-2100) " investigation. The content includes: China's endemic disease distribution, geological environment of endemic disease district ,etc..**
- **(1) Geological Survey of the arsenic area**
- **(2) Safe water supply and water quality improvement project**
- **(3) Change water plan and change water to prevent disease optimization in arsenic areas.**



Endemic Disease Geological Survey

north-west 、 north of China 、 north-east 、 east of China





Center for Endemic Disease Control (CEDC)

Center for Endemic Disease Control is lead by Chinese Center for Disease Control and Prevention is the professional organization of preventing endemic disease of China.

It is a national technological instructing center of endemic disease medical business. Its predecessor is China endemic disease prevented and cured research center, was established in 1987.

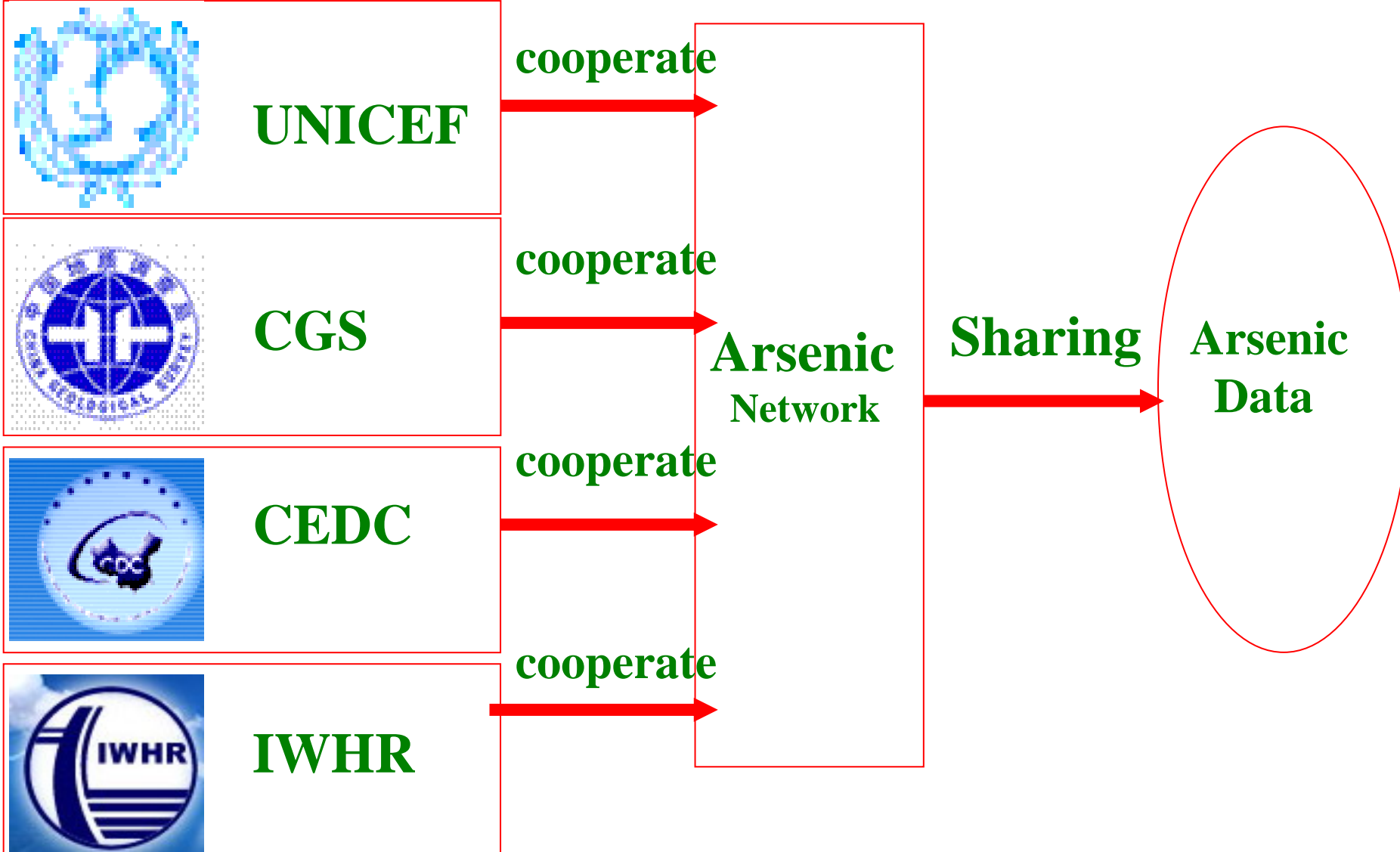


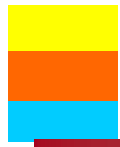
The China Institute of Water Resources and Hydropower Research (IWHR)

- **The China Institute of Water Resources and Hydropower Research (IWHR) is the center of water conservancy, water and electricity scientific research technological development of China, undertake scientific research task to be put forward in a lot of domestic important water conservancy and power project, national key scientific and technical brainstorm project and the key scientific research tasks of Ministry of Water Resources, State Power Corporation.**
- **Responsible for the design of change water work in endemic disease district, and change water etc.**



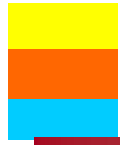
DATA SHARING PROCESS





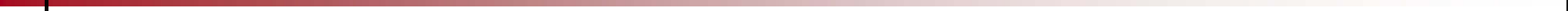
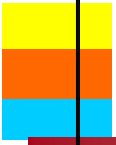
3. Data sharing and problem

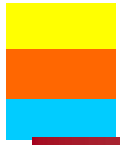
- ✦ **status quo and highlights of data sharing**
- ✦ **At present, some data of arsenicosis have been collected and come into database in China. We set up the relation of different departments which connect with arsenicosis by sharing data resources. Data resources sharing can make use of the advantage of function and technique of different departments sufficiently . It avoids the null work, improves the work efficiency, saving the manpower and material resources.**



Sample of data sharing

Environmental hydrogeology bureau of Jilin province and the NO.1 endemic institute of Jilin province have fulfilled the reconnaissance of arsenicosis in the west plain of Jilin province successfully, and also have established part of database of arsenicosis by data sharing. The following picture give us a intuitionistic explanation about the distribution of the pollution area of arsenic in groundwater in different deep.





Problem of data sharing

- **This kind of data sharing is confined to a few departments.**
- **Districts that have realized the data sharing are minority.**
- **It has a lot of difficulties to realize real data sharing of arsenicosis in nationwide scale. At present many departments are working in their own special field, they have not touched with other departments or touched a little. It not delay the development of the prevention and cure of arsenicosis but also make a great loss in finance and material.**



4. Multilateral Cooperation and Outlook

- **With The help of associate professor Ms. Zheng Yan, Lamont-Doherty Earth Observatory of Columbia U. & Queens College, City University of New York, in 2005 CGS and UNICEF China office exchanged ideas on the problem of arsenic poison many times and reached some mutual recognitions.**



4. Multilateral Cooperation and Outlook

- **On January 6, 2006, CGS held a symposium on endemic disease and the geological environment relations in Beijing. Present to the symposium were:**
- **UNICEF project officer Oluwafem B.C. Odediren**
- **associate professor Ms. Zheng Yan, City University of NY**
- **Xinjiang Centers for Disease Control and Prevention researcher Wang Shengling,**
- **Experts from The Institute of Hydrogeology & Engineering Geology Techniques, CGS**
- **Experts from the Institute of Chinese Geology Environmental Monitoring, CGS.**



4. Multilateral Cooperation and Outlook

- **Ms. Zheng Yan reported**
- 1) The results of her research in the past 5 years in Bangladesh on the relations between arsenic poison and geological environment
- 2) Her research project on arsenic poison in New England, USA
- Compared the endemic disease geological environment in Bangladesh to that in the southwest of China.

- **An expert , CGS reported**
- The development of the research on the relations between endemic disease and geological environment and the ground water surveying work by CGS in the future.



4. Multilateral Cooperation and Outlook

- On March 25, 2006, Beijing
- Seminar was subsidized by UNICEF China Office, Medical Department Disease Controls Bureau
- China Geological Survey (CGS)
- Preventing Endemic Disease Control Center (CDC)
- Chinese Water Conservation Water and Electricity Academy of Science
- Seminar was held on Establishing China Arsenic Network and Enhancing the Correlation Scientific Research Ability Construction.
- **The theme of the seminar:**
Setting up China Arsenic Network, and promoted the cooperation between departments and nations in order to enhance the scientific research ability.



4. Multilateral Cooperation and Outlook

- **The goal of the Seminar:**
- to understand each other in the work on endemic disease by discussing and communicating, to discuss arsenic work collaboration and the mechanism, help solving the potable water security problem.
- **Subject of the Symposium :**
- A. Summary on endemic disease and arsenic poison preventing disease and water quality improvement method, the successful experiences as well as the work in the next stage were introduced.



4.1 Multilateral Cooperation

- **B. Special Topics:**
- **a. Arsenic poison investigation and condition classification;**
- **b. Arsenic poison pathogenesis mechanism and preventing measures;**
- **c. Technological methods on the assessment of prevents disease and the water quality improvement effect;**
- **d. Function of human's behavior in slowing down endemic disease condition;**
- **e. Relations between geological environment and endemic disease;**
- **f. The pathogenesis ion concentrates and the migration rule in the ground water;**
- **g. Technological methods on ground water investigation and exploitation.**



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Go

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Human

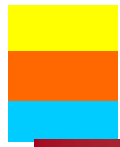
- Therapeutic
 - Topical [ps
 - Systemic [
- Occupation
 - Smelter, p
- Poisoning
 - Accidental
- Environment
 - Water, diet

2006 3 25



4. Multilateral Cooperation and Outlook

- At the meeting, 20 experts have carried on the academic exchanges and the discussion in view of respective endemic disease research area present situation and the existence problems.
 - **The Medical Department Experts Introduced**
 - 1)China arsenic poison present situation and the problems, the influence of arsenic exposition on children's intelligence and the growth
 - 2)The influence of arsenic exposition before and after the water intervention on health and the prevention mechanism of coal burning arsenic poison in Guizhou Province.
- CGS and Jilin University's experts reported**
The achievement in preventing disease and the water quality improvement, precautionary measures against endemic disease, and related geological work in the 11th five-year plan.
- Jilin University's experts reported**
The relations of China geological environment and endemic disease
- Experts from Water Conservancy Department introduced**
The state quo and the challenge in China water resources, the state quo of potable water in the country and the plan and measures taken.
- Experts from the US Columbia University introduced**
The research achievement on arsenic poison and the health influence in the Bangladesh.



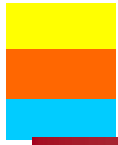
4.2 Data Exchange and Outlook

- **A. China arsenic (fluorine) network was established, and persons in charge in hygienic, geological and water departments were decided. And the platform was set up to promote multilateral cooperation.**
- **B. Hygienic, geological, the water conservancy department experts fully realized the importance of cooperation and raising the arsenic (fluorine) research level. This seminar has made a good start for the future tripartite cooperation. Arsenic (fluorine) problem would be solved by co-working with exterior experts, referring to each other's research results, and sharing data and information.**



4.2 Data Exchange and Forecast

- **C. From now on every year a seminar will be held under the UNICEF China office subsidization by tripartite of the Health, the Geology, the Water Conservation departments to exchange academic questions with the purpose of strengthening the cooperation between departments and international organizations, thus to enhance the scientific research ability, and promote arsenic (fluorine) research both at home and abroad.**
- **D. The UNICEF China office Project Officials indicated that they will always offer financial support to the China arsenic (fluorine) work.**



4.2 Data Exchange and Forecast

- **E. China Arsenic Network will do the research into building the open-type database and interacting and feed backing of information. Precautionary measures will also be taken against arsenic poison, and to promote the development of a harmonious society and provide the government with technical support with the best social and economical effects.**



Thanks!

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