



## The present situation of endemic arsenism in China

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IN CHINA FLUOROSIS and arsenism are the most harmful global chemical diseases which involve the largest population in China. These diseases mainly occur in rural area and the prevention and treatment have become the key problem of getting rid of poverty and enjoying the primary sanitary care. Fluorosis distributes over all provinces, cities and autonomous regions except Shanghai in China. There are 1280 counties, 149,541 villages affected by fluorosis and the affected population is about 109 million. Mild patients have dental Fluor's and severe ones suffered skeletal Fluor's. Due to no effective treatment, the patients may lose labor ability and be disabled for whole lives. Up to now, there are 45.70 million patients of dental fluorosis and 2.72 million patients of skeletal fluorosis.

Since 1980s, Epidemic arsenism suddenly happened in China continent. Now the population in the epidemic regions has exceeded 2 million in four provinces-Xinjiang, Inner Mongolia, Shanxi and Guizhou. The diagnosed patients have been over 20,000. The disease region is still expanding.

### Etiology

There are two types of the diseases regions for both fluorosis and arsenism: drinking water type and burning coal type. In drinking water type regions, people drink the natural shallow underground water in which fluoride concentration is very high. Residents who drink this kind of water for long time suffer from chronic fluorosis. The main cause of burning coal type is the using coal containing high fluoride as fuel for cooking, keeping warm and roasting food (corn and pepper) in kitchen. The fluoride in the coal polluted the air, food and vegetable, and people get chronic fluorosis by eating the polluted food or breathing the polluted air.

In recent ten years, in order to improve the water source and prevent fluorosis, peasants drilled pump well. Because the concentration of arsenic in the water was not tested, the arsenism of drinking water type suddenly became epidemic in the mainland of China. In Guizhou province, the coal for burning is rich of not only fluoride but also arsenic and the burning coal type arsenism also occur in southern area. The patients have dermal pigmentation, depigmentation, palmar and pedal keratosis, skin and other cancer.

The fluorosis and arsenism may involve from fetus to adults, and do severe harm to people's physical and mental health. The population in danger is over 100 million, and the involved areas are throughout the whole country. The

wishes of getting rid of poverty and enjoying the primary sanitary care for everyone will not realized in these areas until the problem of fluorosis and arsenism is resolved. The two diseases have caused highly concern of China government, WHO, UNICEF and related organizations in America and Japan. The prevention of fluorosis and arsenism is considered as a main public sanitary problem in China in the 21<sup>st</sup> century.

### Problems need to be resolved

The Chinese government paid much attention to the prevention of fluorosis and arsenism. Since the 1970's, the government has invested much capital in drilling wells, and set up a perfect series of organization for prevention and treatment from province to counties, thousands of professionals work for it. They have carried out a lot of investigation and prevention in the endemic regions. Because of the large areas and different economic state, culture and habits, the government cannot resolve all the poisoning problems. Since the 1980's, the disease regions and the condition of prevention have varied so much that the situation of fluorosis and arsenism is still very serious. Now the urgent problems need to be resolved are as follows:

- In the areas that the water has been altered, the equipment are already old and worn out, which need to be repaired and renewed.
- Fast, convenient and accurate methods need to be developed to test the fluoride and arsenic in fields.
- Effective, intuitionistic education method should be developed to propaganda the harm of fluorosis and arsenism.
- Small, practical, convenient and cheap equipment for removing fluoride and arsenic from drinking water for household should be developed.
- Most of new staff are lack of experience of prevention and treatment, and no training center is available. So a training center is in urgent need to be set up.

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