
THE OVERVIEW OF WATER POLLUTION CONTROL IN THE HUAIBE RIVER BASIN

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SUMMARY

This paper describes the development of a pollution control program for the Huaihe river basin. The characteristics of the basin are examined and the on-set of pollution problems discussed. The paper then describes the design and implementation of the Regulations and the issuance of control aims. Finally, some results are presented.

1 OUTLINE OF THE HUAIBE RIVER BASIN

The Huaihe river basin is situated in north China between Yangzi River and Yellow River. For a long time in its history, it had been an area of great disaster, low productivity and heavy turbulence. The current basin area totals up to 270,000 km² across four provinces of Henan, Anhui, Jiangsu, and Shandong, 34 regions and 182 counties. The total population density equals 520 people per km². The basin has the most arable land - 740 mu per km² - of any other large basin area in China.

The basin borders on the Huang Sea in the east, Mt. Funiu, Tong Bai, Dabie and Yimeng on the Southwest and Northeast. The broad Huaihe plain between mountains and sea, the area of which takes up 2/3 of the total basin area, acts as the production base of commodity grain, cotton, and oil in China.

The Huaihe basin is divided by the boundary of the old Yellow river bed into two hydrographic nets of Huaihe and Yishusi, with the area of 190,000 km² respectfully. The Grand Canal and Huaishu river are passing through the basin.

The basin rises in Mt. Tongbai of Henan province, passes eastwards through the province of Henan, Anhui, Jiangsu and finally enters the Yahgzi river at Sanjiangying with the total length of 1,000 km and total drop of 200 meters. The upper reach is from the Honghe entrance, 360 km long, 78 meters of drop and the catchment area of 30,600 km². The lower reach is from the Hangs Lake to the Sanjiangying, with the area of 164,600 km² and length of 150 km.

The main natural social and economic characteristics in the Huaihe River Basin include the following:

- a. The distribution of rainfall varies greatly in space and time. The disasters of flooding and drought take place very frequently. The Huaihe River Basin is located between rich rainfall in the south and the dry area in the north. The cumulative mean rainfall totals up to 880 mm per year. The distribution in space and time is very special. It seldom rains in winter and autumn, and the rainfall from June to September always makes up 70%-80% of annual rainfall. The rainfall in bumper years always equals to 5 times that of dry years. Average rainfall in the north along Yellow River is about 600-700 mm for the annual runoff,

creating a dry region short of water in the Basin. But in Mt. Dabie in the south and Mt. Funiu in the west, the area is rich in water resources, with a mean annual rainfall of up to 600-700 mm and 900-1000 mm respectfully. Heavy floods or droughts appear very often in the Basin and there are always successive heavy rain or drought years. Floods and droughts often take turns in one year with floods in the south but droughts in the north.

Flooding in the Huaihe River Basin usually results from a big storm. The scope of rainfall sometimes covers the whole basin.

- b. The Yellow River overflow, makes the disaster and control tasks more difficult. The Yellow River is in flood stage for a long time and competes with Huaihe for water resources.
- c. There are a lot of rivers in the Huaihe River Basin crossing several provinces. Consequently, the water conflicts are great and make the Huaihe river control work more complex.

The topography is low and plain in the Huaihe River Region. The conflicts between upper and down river are very aggressive.

- d. Conditions of resources are so good that economic development potential is very promising. The total arable area totals up to 200 million mu^3 , while the average is 450 mu^3 , both of which are more than in the north. So, the use of the plant stem provides a base for developing paper mills in the future in this Basin.

Generally speaking, flood and drought control are the most important tasks. Water shortage in the Huaihe River Basin is increasingly serious because of the pressure of economic development. The gap between water supply and demand is bigger and bigger now.

Water usage by the agricultural and industrial sectors, both people and livestock are as follows: water in medium dry years totals 50 billion cubic meters, with a water shortage of 4 billion cubic meters. In one very dry year, the water shortage rises up to 10 billion cubic meters.

2 WATER POLLUTION CONTROL SITUATION IN THE HUAIHE RIVER BASIN

There was no water pollution in the 1950's. However in the 1960's pollution began to be a problem and in the 1970's heavy water pollution resulted from more industrial waste water and discharges of agricultural chemical and fertilizer with the development of industrial and farming production. Watersheds have lost their value. Many cities were threatened by pollution and the lack of safe drinking water had become an emergency.

Pollution in the Huaihe River basin had began to create serious problems at the end of the 1980's, threatening the safety of drinking water in the urban and rural areas along the Huaihe River. The water supply was cut off for a week in 1994 and 1995 because of a sudden pollution episode which had a very negative impact on production and peoples' lives. In 1995, the Chinese Government was determined to control pollution starting with the Huaihe River Basin.

2.1 Transitional Regulation of the Huaihe River Basin Pollution Control

Regulations were designed and announced in 1995. It was the first regulation about river basin affairs approved by the state council. The aims of water pollution control included in the Regulation are as follows:

- Discharge of all industrial pollutants are to be within the national discharge standards before 1997;
- The quality of water in main river parts, and some main reaches of the river to conform to the regulation before 2000. The Huaihe River Basin will be clean again.

That was the first time in the history of Chinese legislation that control aims were issued.

The responsibilities of the Lead Group for River Basin Protection were stipulated in the regulation. The Lead Group was established in 1994, consisting of the National Environmental Protection Authority and the Ministry of Water Resources both acting as lead members; the concerned departments of the state council and local governments in Huaihe river Basin became the member units of the group. The group is responsible for coordinating the problems of water resource conservative and water pollution control, supervising and checking water pollution control work and carrying out other charges appointed by the State council.

The duties of Local governments were also defined in the Regulation. All the responsibilities are assigned by the State Council to insure sound coordination.

The Basin Water Resources Protection Bureau was placed in charge of sectional water quality control under the regulations and four main floodgate dams were to be dispatched and managed by the Basin committee. The limits of basin authority were strengthened from the aspects of water quantity and quality.

The regulations also stipulated that the total amount of pollutants be controlled in the entire Basin, and forbid any new, heavily polluting enterprises to be built in the Huaihe River Basin. So the concerned governmental departments can supervise and manage the pollution control in accordance with the legislation.

The three years of practical experience with the Huaihe River work has tested that Regulation.

2.2 According to the regulation, the Huaihe River Basin Water Pollution Control Program and 95 Plan is designed.

The State Council gave an official blessing to this Program, which provides the specific standard for pollutant discharge until 1997. The maximum permitted COD discharges are less than 890,200 tons, the distribution of which among four provinces is also clearly stipulated. Until the year of 2000, the maximum discharge amount is no more than 368,000 tons, a set of preferred projects are listed and it is announced that some small-scale polluting plants are to be closed before June 1996. The polluting discharges are to be cut off 10% in 1995, 15% in 1996 are based on the data of 1995.

3 RESULTS

The Huaihe River Basin pollution controls are spot checked. Plants within the Huaihe River Basin have been inspected three times by the leadership of Songjian. This measure promoted the process of pollution control. Through inspection and mass-media average, those plants which discharge the pollutants with no profits have been forced to shut down and began to search for the new opportunities of economic growth.

From the point of view of these measures and effects, Huaihe pollution control is one of the more successful examples in Chinese water pollution control. There are, however, many questions from the local public and plants on the process of the Huaihe River Basin pollution control. Here is a brief introduction:

- a. New pollution resources have been identified when controlling old pollution. It points to insufficient law enforcement to control new pollution sources.
- b. New economic growth points should be found when plants close. So some township enterprise can transfer from the past producing form of heavy pollution and low benefits. In this aspect, there is a lack of advanced technical knowledge and application in China.
- c. Basin management has not really been carried out. Because the conflicts among departments in the management system of China, they have not played a great role. The authority of basin departments needs to be strengthened.
- d. Public participation is not deep enough. At present, the problems of rural areas are influenced by local and neighboring areas. However, public participation is limited by the conflicts among regions.