



Environmental Protection in Yunnan

A. Sectoral information

Introduction

Yunnan Province in Southwest China is also known as "Kingdom of Flora and Fauna", the "Kingdom of Non-ferrous Metals" and the "Gene Bank for Biological Species". The region is often regarded as a giant natural museum which attracts millions of tourists every year.

However, the irrational exploring of natural resources have made ecological environment fragile. The situation in most parts of the province is still quite stable, but at the same time serious ecological deterioration in other parts has not yet effectively been halted or reversed. It therefore happens that Yunnan Province is home to some of the 'hottest' biodiversity hotspots in the world and a growing number of nature reserves, but at the same time has Dianchi Lake, reputedly the worst polluted lake in China.

Over the past years Yunnan has been involved in many projects in the field of environmental protection and especially the treatment of polluted waters (most notably Dianchi Lake) and urban and industrial waste. The government, actively promoting Yunnan as a 'green' province has put these issues high on the agenda. Opportunities for Dutch companies are not only to be found in project participation, but also in cooperating with private enterprises in Yunnan.

Resources

Water

In Yunnan Province, among the 53 lakes and reservoirs which are monitored and inspected for water quality, 39.7% reached grade I -II , 20.7% were grade III , 17% were grade IV , 13.2% were grade V and 9.4% were below grade V .

There are a few lakes with excellent or good water quality, namely; Lugu Lake, Fuxian Lake, Yangzonghai Lake, Erhai Lake and Chenghai Lake. In general lakes and reservoirs in Yunnan are lightly polluted. The main contaminants (pollutants) found in Yunnan's lakes are TP and TN.

Among the six larger river systems, when we rank the pollution level from the worst to the lightest, it is: Pearl River, Jinshajiang River, Red River, Mekong River, Nujiang River and Irawaddy River. The major contaminants or pollutants found in rivers were TP, volatile phenol, ammonia nitrogen, BOD and lead.

In 2005, the total amount of sewage discharge in the whole province reached 752 million tons. COD in the sewage was 284,700 tons and ammonia nitrogen was 19400 tons. The amount of industrial sewage was 329 million tons, among which COD was 106900 tons, ammonia nitrogen was 4362.42 tons and other pollutants were 214.40 tons.

The main sectors responsible for industrial sewage discharge were agricultural processing, chemical processing, paper mills, and metallurgy, mining and ore-dressing. The areas with the most industrial sewage discharge are the cities Kunming and Qujing and Honghe Prefecture. Industrial sewage discharge seriously affects the Pearl River, Jinshajiang and Mekong River systems.



-Pollution Treatment of and Investment in the Nine Large Plateau Lakes

During the 10th Five Year Plan (2000-2005), 40 projects were planned with regards to the resource management of Dianchi Lake (possibly the worst polluted lake in China). By the end of 2005, 31 projects were finished and 7 were still being implemented. Another 147 projects were planned under the 'Contract on Target Responsibility System for Environmental Protection (2003-2005)' and were related to Erhai, Fuxian, Xingyun, Qilu, Yangzonghai, Yilong, Chenghai and Lugu Lake. By the end of 2005, 116 projects were finished and 20 were still running.

In 2005, investments concerning the treatment of pollution of the nine large plateau lakes reached RMB 687 million. RMB 260 million of the total amount was allocated for cleaning up Dianchi Lake.

By the end of 2005, 1927 sewage treatment facilities were built by 1561 main enterprises in Yunnan. These facilities possess a total treatment capacity of 6.3537 million tons/day. The rate of reusable industrial waste water was 85.4%. A total of RMB 125.727 million was invested in waste water treatment facilities. Altogether, 107 projects were implemented and 90 projects have already been completed.

Air

When looking at the 18 main cities in Yunnan, the air quality of Kunming, Qujing, Yuxi, Dali, Jinghong, Gejiu and Chuxiong is 'standard'. This means that for more than 90% of the days through the whole year, the air quality in these cities reached grade two. The air quality in Lijiang and Zhongdian is grade one. Baoshan, Wenshan, Simao, Lincang and Liuku have grade two air quality. Kaiyuan, Luxi and Hekong are more polluted and have grade three air quality. The city of Zhaotong has the worst air pollution; the quality of the air is below grade three. The main air pollutant is SO₂.

Fifteen key cities in the province are monitored for acid rain pollution. Acid rain falls in 11 cities: Kunming, Qujing, Yuxi, Zhaotong, Lijiang, Lincang, Simao, Gejiu, Kaiyuan, Jinhong and Chuxiong. The average pH value of rain ranges from 4.62 - 7.22. The average pH value of acid rain ranges from 4.40-5.56. The city of Chuxiong sees acid rain fall most frequently. Around 80% of the acid rain falls from March to September.

In 2005, the total emission of industrial waste gas was 544.42 billion m³. The emission of pollutants in waste gas included 521900 tons of SO₂, 226700 tons of smoke dust, and 155300 tons of industrial dust. The biggest emitters of waste gas and its pollutants are the non-metallic mineral manufacturers, metal smelters and the metal processing industry, and companies involved in thermo power generation and the chemical industry. Waste gas emissions are highest in Kunming, Qujing, Zhaotong, Honghe Prefecture and Wenshan Prefecture.

By the end of 2005, 4182 facilities for waste gas treatment were built in Yunnan, with a total treatment capacity of 1.132.999 million m³/hour. Among the facilities, 345 were engaged in desulfurizing processes with a total capacity of 2975.17 tons/hour. In the same year the total investment in waste gas management and treatment projects amounted to RMB389.577 million. A total of 233 projects were implemented and 197 were finished.

Industrial Solid Waste



In 2005 the total amount of industrial solid waste was 46.6149 million tons. Hazardous waste amounted to 304100 tons. In total 706.600 tons of industrial solid waste and 0.25 ton of hazardous solid waste was emitted. The main industries responsible for this discharge were mining (ferrous as well as non-ferrous metal and coal), chemical industry, and agricultural food processing. The waste was mostly exuded in Kunming, Zhaotong, Baoshan and Wenshan prefecture and Nujiang Prefecture. During the 10th Five Year Plan (2000-2005) a total of RMB 301.78 million has been invested in the treatment of industrial solid waste. The daily capacity of the treatment facilities is 248500 tons.

Urban waste

In 2005 a total of 423 million tons of urban consumer sewage was discharged of which 177800 tons were COD and 15000 tons were ammonia nitrogen. Urban households in Yunnan produced 93000 tons of SO₂ and 55900 tons of smoke dust. Urban solid waste amounted to 5.1 million tons in Yunnan in 2005. Approximately 2.13 million tons of this amount was treated innocuously.

In Yunnan Province 42 sewage treatment plants are established or under construction. The total treatment capacity is 1.2205 million tons per day. With regards to the processing of urban solid waste Yunnan Province built 35 waste treatment plants. Most of these facilities are landfill plants (31), but there are also compost plants (4). The total treatment capacity reaches 9332 tons per day.

International cooperation

Yunnan Province has quite some experience in the field of international cooperation/foreign investment with regards to environmental protection projects. The province cooperated with the Netherlands a number of times.

In January 1998, the Dutch government approved and funded the 'Integrated Environmental Master Plan of South Yunnan Lakes'. This project ended in June 2000. In 1999, the Dutch government funded a three year project on 'Cleaner Production Auditing Demonstration in Town & Village Industries (TVIEs) of 3 Sectors' in Anhui and Yunnan Province. Dutch companies DHV and Royal Haskoning are currently working together with the Chinese Ministry of Construction to implement a large scale development and demonstration project; Feasible Technologies for Environmental Infrastructure (FTEI) in China's Western Small Cities. In Yunnan project sites are in Lijiang and Binchuan. The main aims of this project are to boost the development of environmental infrastructure facilities in the designated project areas (strong focus on wastewater and solid waste treatment) while at the same time realize goals such as capacity building and poverty alleviation.

From 2000 till 2005, Yunnan was involved in 20 international cooperation projects and accepted grants of approximately RMB 121 million, RMB 2.4 billion of loans and over RMB 20 million of preferential loans. Cooperation partners included Asian Development Bank, World Bank and other international organizations, foreign governments and NGO's. European countries such as the United Kingdom, The Netherlands and Sweden carried out projects in Yunnan.



Future development

Future Plans:

In the 11th Five Year Plan (2006-2010), a number of projects are planned with regards to environmental protection issues:

- Investment of RMB 370 million to various projects with regards to environmental inspection, information, promotion and education, as well as scientific research and international cooperation in this field;
- Investment of RMB 5.1 million in projects aimed at the protection of drinking water resources, as well as the management of Dianchi Lake and 8 other lakes;
- Implementation of medical wastes and hazardous waste treatment projects. Three waste treatment facilities will be built in Kunming, Honghe and Qujing with a treatment capacity of 110.000 tons per year. Thirteen medical wastes treatment facilities with capacity of 69.5 tons per day will be built in other prefectures or cities. Total investment will be RMB 640 million;
- Implementation of various projects concerning urban environmental infrastructure construction, including building waste and sewage treatment facilities. The total investment will be around RMB 11.9 billion;
- Implementation of projects of regarding treating industrial pollution with a total investment of RMB 560 million;
- Expansion of nature reserves;
- Development of projects to construct eco-towns and demonstration areas, land protection and soil pollution prevention.

Total investments for environmental protection are calculated to RMB 31 billion. The money will come from the National and various local governments, the World Bank (loan) and private enterprises.

B. Relevant organizations

Yunnan Environmental Protection Bureau

Address: 27 South Xiyuan Road, 650032 Kunming

Tel: 0086 871 4100896 4104963 (International Cooperation Dept.)

Fax: 0086 871 4100896

Website: www.ynepb.gov.cn

Kunming Environmental Protection Bureau

Address: 52 South Xiyuan Road, 650032 Kunming

Tel: 0086 871 4141273

Email: kmhbj@163.com

Website: www.kmepb.gov.cn

The Environmental Protection Bureaus are government departments responsible for environmental protection and management in Kunming and Yunnan Province. Their responsibilities include implementing (national) environmental protection laws, regulations and policies, formulating the provincial and municipal environmental



protection plans and programs, controlling environmental pollution and protecting the ecological environment.

Yunnan Institute of Environmental Science (YIES)

Address: 23 Wangjiaba, Qixiang Road, Kunming

Tel: 0086 871 4142876

Fax: 0086 871 4150483

Email: office@yies.org.cn

Web site: www.yies.org.cn

YIES was founded in 1976 in Kunming and is one of leading research institutes in China. The institute specializes in environmental protection research, plateau lake research (also rivers and wetlands), regional environmental planning, environmental impact assessment, clean production and ISO14000 system certification consultation, hazard solid waste management and technology research, environmental engineering design and construction, environmental protection practical technology development and application.

C. Relevant activities

Information on relevant events or exhibitions in 2007 has not been published yet. NBSO Kunming can be contacted for further details in due course.

D. Relevant legislation and subsidies

Environmental protection is high on the agenda in Yunnan and foreign investment and/or international cooperation is warmly welcomed. Yunnan companies as well as local and provincial governments often lack technology, knowledge and appropriate funds to start up projects.

Local authorities usually publish relevant project information to invite investors on their websites or bulletins. They can be contacted directly for more information:

The Economic Cooperation Office of Yunnan Provincial Government

Address: Zhengtong Mansion, 85 Guanshang Zhong Road, Kunming

Tel: 0086 871 7195605 7195601

Fax: 0086 871 7195603

Website: www.yn-invest.gov.cn

In order to attract more foreign investors to China and to Yunnan in particular, the Central government of China and the Yunnan provincial and local governments have put in effect a series of preferential policies. Relevant information can also be found on the above mentioned web site.

E. Regional Information

Yunnan is an inland province, situated in the south-western part of China. It borders on Myanmar, Laos and Vietnam. Its total land area amounts to 394.000 km². Yunnan consists for 94% of mountains and highlands. Yunnan is one of China's major forest zones, with its forested area accounting for 24% of the country's total. In 2005, Yunnan's total population amounted to 44.504 million.



In 2005, Yunnan's GDP reached RMB 347.2 billion. Its industrial value added amounted to RMB 120 billion. The province's industrial areas are mainly located around the cities of Kunming, Yuxi, Qujing and Honghe.

In 2005, the total contract value of foreign direct investments in Yunnan amounted to USD 456 million. Hong Kong is the biggest investor in Yunnan province. Other major investors include the US, Japan, the UK, Taiwan, Myanmar and the Netherlands. Major sectors for foreign investment include horticulture, metallurgy, machinery industry, electronics, textile industry, light industry, printing industry, agriculture, food industry, timber processing industry, animal husbandry and the service sector, specifically tourism, transport, post & telecommunication and real estate. The capital city of Kunming is the major city in Yunnan to attract foreign investment.

To boost the development of the central and western regions in China, the State Council has granted further tax incentives to foreign-invested enterprises (FIE's) in China. The new policy allows FIE's in the central and western regions to enjoy a second three year term of preferential tax rate when the initial preferential term expires. The tax rate can be further reduced to 10% if an enterprise is proved to export more than 70% of its annual output in terms of value.

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