3 CROSS CUTTING ISSUES IN EPA

3.1. Integration of environmental concerns in economic decisions

124. With the rapid development of China’s economy during the past two decades, the demand for natural resources, energy and environmental “sinks” has been on the rise. This has been true of Yunnan as much as of the rest of the country. How best to promote economic growth without threatening the resource base and environmental services, is an important concern of the central and provincial governments.

3.1.1 Policy and Institutional Integration

3.1.1.1 Institutional structure for environmental protection in PRC and Yunnan

125. The institutional structure of environmental management in PRC was sketched in Section 1.2.4 above. It is important to note that while at the central level, SEPA is a body independent of the executive branch (State Council), provincial environmental protection bureaux (PEPB) though guided technically by SEPA, are agencies of provincial governments. Environmental management in China is a provincial matter, within a PRC-wide framework of environmental laws. Whether the non-independent standing of PEPBs has affected Yunnan’s environmental performance is difficult to say. Over the years, the Yunnan Provincial Environment Protection Bureau (YNPEPB) has had a much greater influence in matters pertaining to economic development, the center of gravity in provincial decision making, but its ability to place environmental safeguards on all the economic decisions in the province may have been compromised somewhat.

3.1.1.2 Institutional strengthening and capacity building

126. In Yunnan, YNPEPB acts through a network of local environmental protection bureaux in 16 prefectures and 90 counties established in the course of the past two decades. They implement national policies and those of YNPEPB to which they are subordinated. In 2002, the local bureaux had a combined total of over 3,000 staff responsible for EIA-related work, environmental planning, monitoring and enforcement. 1,700 of them were technical specialists.

127. By the end of 2004, there were 55 staff in YNPEPB, including 10 with master’s degrees and 36 with bachelor degrees. There were about 350 staff working at the Yunnan Environmental Monitoring Center Station (YNEMCS), Yunnan Environmental Information Center, Yunnan Institute of Environmental Science and other agencies directly under the YNPEPB. YNEMCS was established in 1994, and is technically guided by China National Environmental Monitoring Station. YNEMCS is responsible for the monitoring of environmental quality and pollution accidents in the province, drafting of the Provincial Environmental Quality Report and the environmental monitoring yearbook and other specialized reports, and for staff training and scientific research. YNEMCS’s network covers 16 cities and regions. There are 89 staff in YNEMCS including 76 technical personnel, of which 18 are senior engineers. The staff of 16 local environmental monitoring stations comprises 419 persons, including 63 senior engineers and 174 engineers.
129. In general, the environmental monitoring system of Yunnan boasts strong technical capacity and provides the basis for a good quality assurance system. Nevertheless the experience of this EPA suggests that the approach to monitoring and collection, analysis and dissemination of data does not always focus on the most important objectives of policy and the demands of keeping the public informed. Gaps remain in the coverage and quality of data that make it difficult or even impossible to assess performance in some domains.

130. Yunnan Institute of Environmental Science (YIES), founded in 1976 and located in Kunming City, is one of leading research institutes in China, with 7 research centers, 2 laboratories and 3 environmental consulting, engineering and management divisions specializing in ecology, environment protection, and plateau lake research (rivers and wetlands). YIES is also involved in regional environment planning, environmental impact assessment, clean production and ISO14000 certification. It is strong in hazardous waste management and technology research, environmental engineering design and construction, environmental protection technology development and applications. YIES has 168 staff, of which 7 are professors, 43 are senior engineers and 47 are engineers.

131. By now, YIES has completed a number of key national and international cooperation projects, and over 1000 specialized assignments including basin- and city environmental planning, wetland ecology assessments, development of air pollution information system etc., YIES can offer consultancy services in engineering design, EIA, and other fields. At the same time YIES involvement in policy development and assement has been relatively modest.

132. Yunnan has substantially enhanced the capacity of its institutions to respond to existing environmental challenges but room for further improvement exists, in particular in environmental monitoring and policy analysis and development.

3.1.1.3 Legislative and policy development

133. This EPA is not intended to provide an extensive review of the development of environmental legislation and policy in PRC. This has been done on numerous occasions (e.g in SEF1, Volume II). Briefly, starting with the 1979 Environment Protection Law (EPL) and the 1983 decision of the State Council to make environmental protection a basic national policy in China, a period of intense legislative activity ensued during which the bulk of natural resource protection legislation was developed. EPL itself was amended in 1989.


SEPA formulated regulations on environmental monitoring systems (1996), administrative penalties for environmental offences (1999), administration of environmental standards (1999), pollution prevention and control in the livestock and poultry sectors (2001), and environmental management of new chemical substances (2004). (see SEF1, Volume II and http://www.zhb.gov.cn/english/index.php3). Taken together this amounted to a formidable leap in the quantity and complexity of the regulatory instruments over a relatively short period of a decade and a half. As in most countries of the world, the pace of legislative activity ran well ahead of the administrative capacity to implement the legislation fully. It is important to note that the existing legislation gives individual provinces the power to set their own environmental standards provided these are stricter than the national ones.

135. Several other provincial or local regulations and statutes have been formulated, namely the Environmental Protection Statute of Yunnan, the Agricultural Environment Protection Statute of Yunnan, Rules for Scientific and Technical Planning of Environmental Protection Projects and statutes regulating the environmental management of key water bodies or related structures (e.g. Xingyun Lake, Dianchi Lake, Yangzong Hai Lake, Dumu Reservoir in Qujing City and others) to mention only the most important.
In terms of policy development, in all of China and its provinces, five-year plans for ecological rehabilitation and environmental protection (FYPERP) supplement five-year plans of socio-economic development (5YPSED). The latest FYPERP were formulated in 2001 to match the 10th 5YPSED. In Yunnan, YNPEPB and Yunnan Provincial Government are at present guided by The Tenth Five-Year Plan for Ecological Rehabilitation and Environmental Protection of Yunnan.

### 3.1.2 Environmental expenditure and financing

When understood much more broadly as activities that extend beyond those managed by YNPEPB, environmental performance is crucially (though not solely) dependent on the amount of financing. Among the departments with large budgets, a portion of which affects environmental outcomes in Yunnan, are (1) Forestry, (2) Agriculture, (3) Water Resources, (4) Land Resources, (5) Health, (6) Earthquake Bureau, and (7) Meteorological Bureau. The volume of funds available for environmental management in Yunnan is furthermore supplemented by the financing by the Central Government of activities that are national in scope but implemented by local authorities.

The 10th FYPERP has a projected expenditure of 7.8 billion Yuan to be invested in 26 projects. The budget is dominated by Dianchi Lake, one of the severely polluted lakes in China, and pollution control in general accounts for about RMB4 billion of the projected expenditure. This represents almost 4% of the total provincial budget during the corresponding period (see Table 3.1 for the overall provincial budget).

### Table 3.1: Yunnan Province Government Budget, 1998 - 2003, (current RMB million)

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<tbody>
<tr>
<td>Yunnan Province total</td>
<td>31,320.1</td>
<td>37,804.7</td>
<td>41,410.7</td>
<td>52,689.1</td>
<td>58,734.7</td>
</tr>
<tr>
<td>government expenditure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The size of the budget alone is clearly insufficient to explain some of the disappointments in the achievement of stated objectives (e.g. the conditions of the plateau lakes, or municipal solid waste disposal) just as it cannot, on its own, explain the successes. It seems clear nevertheless that in an increasingly diversified economy of Yunnan, the ability of the Government to influence environmental outcomes through its own expenditures and own activities is significantly smaller than it was a decade or two ago. A diversified economy with a growing private sector demands a fine mix of regulatory and incentive instruments to achieve the environmental objectives, in addition to adequate funding.

3.2 Implementation issues

3.2.1 Regulatory and economic instruments

The traditional approach to environmental management in China has been one of “command and control”. Command and control remains an important component of policy and practice to this day. At the same time, the limitations of a near-total reliance on command and control in a more complex economy with a strong market based element and a far greater diversity of entities to be monitored became clear early in the 1990s. Formal adoption of the Polluter-Pays-Principle (PPP) early in the 1990s ushered in a broader mix of policy instruments that embraced economic tools such as resource pricing, taxes, pollution charges, subsidies, supervised trading of pollution entitlements and others. In contrast to quantitative regulation of damaging by-products of economic activities (such as harmful emissions) these instruments often operate indirectly giving the polluters more flexibility in selecting damage-reducing strategies that minimise their costs and the society’s overall cost of achieving compliance with standards. Besides, some of the economic instruments generate substantial amounts of revenue that, in principle, can be reinvested in further environmental improvements. The introduction of the pollution levy system in particular has been extensively described and studied in China.

In Yunnan, too, the pollution levy has become an important tool of policy. Initially applied only to large industrial enterprises, its coverage was extended in 1996 to the increasingly important township & village enterprises (TVEs) and its application to wastewater discharged was further extended. From 1998, the sulfur dioxide levy was imposed in the acid rain control region, mainly the overwhelmingly coal-dependent north and center of the country (i.e. not in Yunnan). The proceeds of the pollution levy from 1995 to 2003 in Yunnan are shown in Figure 3.2.

The RMB120 million collected annually in Yunnan is a significant sum, about 7 per cent of the annual environment budget of the provincial government in recent years. In principle the sum collected is reinvested in pollution reduction activities via subsidies to industrial enterprises for pollution-reducing investments.

**Figure 3.2: Proceeds of the Pollution Levy, 1995-2002**

[Graph showing proceeds of the pollution levy from 1995 to 2002]
The application of the system in Yunnan has contributed to improved pollution abatement performance by enterprises and to improvements registered in areas such as the quality of river waters or energy intensity described in Part II of this EPA. However, the reach and application of the system was not enough to improve the quality of most severely polluted lakes in the Province. Polluters (especially the enterprises but some households also) continue to pay only a portion of the environmental cost they impose on the society at large.

Water pricing is another important indirect tool of environmental policy and some of the achievements of the provincial Government in reducing wastewater discharges and improving river water quality have their origin here. Higher water tariffs promote water saving, wastewater treatment and water re-use. The latest increases in water tariffs adopted in 2002 brought household tariffs to RMB1.8 per cubic meter (including a wastewater treatment surcharge of RMB0.5, industrial tariffs to RMB2.5, and commercial tariffs to RMB 2.3 (inclusive a wastewater surcharge of RMB0.6 in the last two cases). A new block structure of tariffs is to be adopted in 2008 to combine the demands of protecting the weakest in the society with the imperatives of efficient use of scarce water. In this way the Provincial Government has been shifting the cost of pollution abatement (especially the construction of centralized WWT plants) onto the polluters.

Sensibly, in most areas of environmental management, the Provincial Government has opted for a mix of policies. In its approach to land degradation, for instance, the Provincial Government has used—with partial success—policies combining command (enforcement of zoning provisions) with economic incentives (e.g. subsidies to local population to compensate them for abandoning farming on steep slopes).

### 3.2.2 Enforcement

Enforcement of regulations is a necessary (though not always sufficient) condition of improved environmental management. In Yunnan, some of the key regulations serving as a basis for enforcement (The Yunnan Nature Reserve Management Rules, Yunnan Agriculture Pollution Regulations, logging ban in Jinsha river basin and in Xishuangbanna, and others) were adopted during the 9th Five-Year Plan of Socio-Economic Development (1995-2000). The results have been mixed and difficult to judge simply by reported numbers of environmental offences investigated and the amounts of penalty fees collected.

#### 3.2.2.1 Environmental management system

Environmental impact assessment (EIA), attention to pollution control throughout the life of enterprises (“three simultaneities” system), and pollution permitting are three pillars of the environmental management in China. In Yunnan, all three have played a role.

From 1995 to 2003, the coverage of EIA has been extended to practically all new or reconstruction projects in the province (see Figure 3.3).

**Figure 3.3: EIA Compliance 1995-2003**

![EIA Compliance Chart 1995-2003](chart.png)

- **Rate of EIA implementation**
- **Coverage:** 0% to 100%
149.  The “three simultaneities” system requires that pollution control measures be taken into consideration by enterprises at the design, construction and operation stages rather than opportunistically grafted later on. As shown in Figure 3.4, from 1995 to 2003, the compliance with the system fluctuated around 90%.

150.  The pollution permit system in China is anchored in the policy of capping the total quantities of pollution in a given area (and gradually lowering the cap). Target totals of permissible pollution for selected management areas are then allocated to enterprises. This in principle opens the way for (future) trading in emission entitlements among the enterprises. In Yunnan, the majority of emission permits are wastewater related. As shown in Figure 3.5, from 1999, the number of enterprises holding an emission permit increased significantly after 1997.

**Figure 3.4: Rate of Compliance with the “Three Simultaneities” System, 1995-2003**

![Graph showing compliance rate](image)

**Figure 3.5: Number of Enterprises with an Emission Permit, 1996-2003**

![Bar chart showing number of enterprises](image)
Table 3.2: Rate of Compliance with the decision to close and ban 15 types of Small Enterprises

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage of compliance</th>
</tr>
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<tbody>
<tr>
<td>1996</td>
<td>55.10%</td>
</tr>
<tr>
<td>1997</td>
<td>81.40%</td>
</tr>
<tr>
<td>1998</td>
<td>87.25%</td>
</tr>
<tr>
<td>1999</td>
<td>93.40%</td>
</tr>
<tr>
<td>2000</td>
<td>98.20%</td>
</tr>
</tbody>
</table>

3.2.2.2 Special pollution control actions

151. Some specific actions were taken in Yunnan to control pollution, especially industrial pollution control.

152. Fifteen kinds of the most polluting small enterprises (cooking plants, small paper mill, tanneries, and others), without room for efficient pollution control, were closed starting in 1996. By 2000, 98.2% of such enterprises had been closed (and some relocated to new industrial parks with centralized treatment facilities) with a major positive impact on water resources.

153. The policy of targeting 100 principal industrial pollution sources for special attention started in 1997. It introduced a number of tasks for adoption by the enterprises. The campaign ended in 2000 when the majority of the required steps had been adopted. In 1999, Yunnan Province selected 1,042 enterprises for an environmental audit. In the first year, only 24.4% of them had met existing environmental standards and 62 were ordered closed. By January 2001, 1038 enterprises (99.6% of the selected sample) had met the standard and four had been ordered closed.

154. In 2001, 186 additional enterprises were included in a program designed to bring them up to existing environmental standards. By the end of 2002, 98 of them had complied and 48 were ordered closed, transformed or moved.

155. These resolute actions were a strong complement to the pollution levy system and together, they have lessened the pollution load on the Province’s water bodies.

3.3 Environment and civil society

3.3.1 Environment, health and safety

156. Environmental conditions and health are closely related. Good health influences the productivity and welfare of a person. The major environmental causes of poor health are unsafe water and sanitation, exposure to disease carriers and to toxic substances; dirty air inside the home and in urban areas. These account for 19% of illnesses and deaths in the developing world. From 1999, respiratory disease ranked fifth among the causes of mortality in China.

157. In the past eight years, the public health and medical conditions improved in Yunnan. All principal health indicators show improvement. This does not mean that improvements were evenly distributed across the province, but it does suggest that the Government succeeded in maintaining or improving the overall quality of environment at a time of rapid economic growth. Therefore, the positive impact of higher incomes on health (via better nutrition, for instance) was not negated by deteriorating conditions of the environment.

3.3.2 Access to information and public accountability

158. YNPEPB is the principal source of environment-related data in the province. Yunnan Environmental Information Center (YEIC) was established in 2002 as YNPEPB’s information management and technical support department. Its major responsibilities include drafting the environmental information development plan and technical criteria for environmental information; managing and updating the provincial environmental information network; information and data collecting, processing, transmission, storage and sharing data about the provincial environmental protection system; building and managing provincial environmental databases and developing related software; monitoring via the geographical information system (GIS), remote sensing (RS) and other technical applications. It is also responsible for environmental information sharing for cooperation.
159. Despite the ambitious mandate of YEIC, the data available to YNPEPB in Kunming (let alone to others) falls well short of the standards of advanced (as well as some other) countries, as the experience of drafting this EPA demonstrated. The situation is not fundamentally different at other provincial departments whose activities have a bearing on environmental outcomes. Most of these departments may have developed their own websites for the purpose of disseminating information about their own activities but the information available electronically is too sketchy to facilitate analysis. Unpredictable newspaper reports or personal notebooks of key staff of government agencies continue to serve the function of unsystematic, out-of-context and incomplete updating of vital environmental information.

160. Information is not exchanged easily and often not without payment even among government agencies. Complex procedures necessary to obtain information from other government agencies add to the already strong incentives not to exchange and improve information within the Government. Information is guarded to extract influence and money. As to the degree of public access to environmental information, this has improved considerably during the last decade but from a very low base. However, documents such as the publicly available Yunnan State of the Environment 2003 Report constitute the first general review of the environmental situation in Yunnan for the non-specialized reader. The vastly improved Internet access in China has also created an opportunity for a growing section of the public to access some documents dealing with environmental conditions in Yunnan and PRC and related subjects.

161. The tradition of taking a longer view of environmental outcomes is surprisingly weak in Yunnan, as reflected in an apparent inability of most Provincial Government agencies to generate long enough and compatible time series of some key environmental variables. It is hoped that this EPA will help to change this situation by creating demand for a different style of working.

3.3.3 Environmental awareness and education

162. The importance of public participation in environmental protection is recognized in China. Chinese people’s immense efforts country-wide to undo some of the legacy of environmental neglect or mismanagement of the earlier days speak for themselves. Over time, and building on the provisions of the Environmental Protection Law 1988 and Decision of the State Council on Several Issues Concerning Environmental Protection (1996), SEPA has broadened its approach to environmental management by going beyond the activities of the State and enterprises and reaching out to the public to participate in various environmental management activities. Environmental NGOs and individuals have begun to play a role. The pollution-related legislation of the late 1990s includes provisions authorizing and even demanding consultation with the residents of prospective locations of evaluated projects.

163. By 2004, there were several dozens environmental NGOs in Yunnan, such as the Center for Biodiversity and Indigenous Knowledge (CBIK), Kunming EarthWatch, Institute for Sustainable Development of Natural Resources, Yunnan Participatory Rural Association (YNPRA), Yunnan Econetwork (YEN), etc. World Wildlife Fund (WWF), The Nature Conservancy (TNC), and Oxfam Hong Kong have divisions or project office in Yunnan.

164. WWF developed the Integrated Conservation and Development project in Baima Jokul in Yunnan in 2000.

165. The Nature Conservancy has been working in Yunnan Province to protect some of the Province’s unique natural and cultural diversity. In collaboration with Chinese local and state government agencies, the Conservancy established the Yunnan Great Rivers Project, which protects an area about the size of Switzerland. The Conservancy is now assisting with one of the most ambitious projects—a nationwide assessment of China’s biodiversity that will result in a plan to protect the country’s most important natural resources for future generations.

166. CBIK is a participatory learning organization, dedicated to biodiversity conservation and community livelihood development, as well as documentation of indigenous knowledge and technical innovations related to resource governance at community and watershed levels, which is supplementary to government activities. The organization was established in 1995 as a membership non-profit organization. It has finished several reports focusing on Sustainable Agriculture for Livelihood Development in Uplands of Yunnan, Enhancing the Livelihoods of Agro-pastoralists in NW Yunnan, Value of Forest
Resources in a Miao community, etc. These outputs arouse people’s interest in biodiversity and traditional culture.

167. Kunming EarthWatch Institute for Sustainable Development of Natural Resources was established in 1995 as a NGO. It focuses on the natural resources and environmental protection, cares for the aboriginals’ survival and development. Its priority fields are the renewable energy utilization, the development and environment of West of China, sustainable use of forest, and others.

168. The environmental education in youth and pupils is an important part of environmental education in Yunnan.

169. The Yunnan Youth League developed the “Protect Mother River — Ecological monitoring and protection in 9 lake basins” Project in 2003. By now, 2000 youth volunteers and 6000 pupils in primary and middle school have participated in this project. 17 ecological monitoring stations in Chenggong Country (Dianchi Lake), Jiangchuan Country (Xingyun Lake), Yuxi City (Fuxian Lake, Xingyun Lake) and other counties have been set up. More than 400 environmental protection information sessions were organized and nearly 2 million inhabitants in lake basins were influenced and began change their attitudes and working practices. Furthermore, this project gifted schools handbooks on environmental protection to enhance the environmental awareness of pupils.

170. In 2003, Building Green Schools Project was developed in Yunnan. By 2003, 66 schools were conferred a “Green School” label.

171. Every year, various publicity activities are conducted on World Environment Day and Earth Day, and after new environmental laws and regulations have been promulgated.

172. The participation by non-governmental and individual stakeholders in environmental policy-making and implementation is on the rise following a long period of limited participation. The participation of Oxfam Hong Kong in the drafting of this EPA is an encouraging development. There are many similar examples. As a result, environmental awareness especially among the young generation of Yunnan has grown and this has had a positive effect on the overall performance.

173. The late 1990s saw a growing interest among industrial enterprises in voluntary environmental compliance schemes such as the ISO 14000 Environment Management standard and in clean production initiatives. By 2003, 30 enterprises were designated “Clean Production Audit Pilot Enterprises”. Many enterprises in Yunnan have applied for the Environmental (“green”) Label. Simao Hongta Timber Industry Ltd. and Yunnan Jinggu Forestry Industry Ltd. are two of the enterprises that were “green-certified” in 2004.