

ISO 14000 Implementation in the People's Republic of China

© 1997, Keith Hand,
Environment International Ltd.

In October of 1996, the International Organization for Standardization released a set of international standards for environmental management called ISO 14000. According to environmental professionals, the standards should help to improve environmental performance in enterprises and may be adopted as regulatory requirements in some countries. As the following study demonstrates, firms operating in China have several reasons to consider adhering to the standards. First, the Chinese government has taken a positive attitude towards ISO 14000 and is actively experimenting with implementation of the standards. Although the standards have yet to be incorporated into the PRC's regulatory structure, Chinese government officials have articulated an interest in such an incorporation and enterprise managers should thus consider this possibility in their long-term business plans. Second, China's environmental protection laws and recent moves to improve enforcement provide motivations for enterprises to consider voluntary ISO 14000 implementation. Foreign firms are likely to bear the brunt of new Chinese efforts to enforce environmental laws, and the adoption of ISO 14000-certified environmental systems will facilitate compliance with these laws by improving environmental performance and reducing the risk of environmental accidents.

The ISO 14000 Standards¹

ISO 14000 is a set of standards designed to provide a common international language for environmental management systems (EMSs), establish a framework for third-party registration of environmental management systems, and help industries around the world satisfy the demands of consumers and regulatory agencies for corporate environmental accountability. ISO 14000 was developed by the International Organization for Standardization, which is based in Geneva Switzerland. Founded in 1946, the organization is composed of governmental and quasi-governmental member delegations representing over 100 countries, including China. ISO 14000 has followed in the footsteps of its cousin, ISO 9000, a set of international standards for product quality systems management developed in 1987. ISO 9000 has encountered significant worldwide acceptance. Although designed as a set of voluntary standards, certification under ISO 9000 has become a de facto requirement for many companies doing business in the European Union and other regions, where it has been made a condition for the award of contracts and entrance into some regulated markets.

In response to the growth in the number of different environmental management standards being implemented worldwide and the striking success of the ISO 9000, calls began in the early 1990's for the development of a set of standards for environmental management systems. By 1992, a technical committee consisting of 43 active members and 15 observer members had been formed to investigate this possibility and the development of ISO 14000 was underway. China was one of the members of the committee. Draft standards were released in July of 1995, and the first of the ISO 14000 series of standards was officially

adopted by the ISO in October of 1996.

ISO 14000 is a set of standards designed to help corporations establish and objectively evaluate environmental management systems. Contrary to common perception, the standards do not establish a set of quantitative targets for environmental performance levels or specific methods for measuring environmental output. Instead, ISO 14000 focuses on organization by providing a process-driven set of standards and guidelines from which companies can build and maintain an EMS; ISO 14000 describes the type of management framework needed for an effective EMS and how to establish it. Under ISO 14000, companies are required to define environmental policy, set goals for implementing environmental management improvements, create a culture of preparedness and commitment to environmental performance, and conduct objective evaluations of progress or deficiencies in environmental management.

Although companies could conduct internal evaluations and declare themselves in compliance with ISO 14000, the standard has been designed for use in a system of third-party registration. Under this system, an independent third-party would audit the environmental management system of an organization based on the criteria listed above. A certificate of registration would then be issued, demonstrating the compliance of the organization's environmental management system with the ISO 14000 standard. Such certification would be presented to business or regulatory entities to demonstrate the depth and legitimacy of an organization's environmental management system.

While ISO has been designed as a voluntary standard, assessment and implementation of its recommended practices may fast become a necessity for companies doing business in certain regions of the world. As the experience of ISO 9000 has indicated, ISO 14000 registration will likely become a de facto regulatory requirement for firms bidding on contracts and maintaining market shares in certain parts of the world. Moreover, it is considered likely that ISO 14000 standards will be adopted as national standards in many countries. Although the developing world has been characterized as unfamiliar with ISO 14000, countries such as China in which the global marketplace is considered important have been moving to implement the standards.

Besides simply allowing corporations to fulfill legal obligations to governments that may require them to attain ISO certification, implementation of the standards will help businesses to prevent violations of environmental law. Environmental auditing can improve efficiency by uncovering poor environmental practices in such areas as production and waste management. With an internationally recognized environmental risk management and auditing system in place, corporations will also lower the risk of environmental accidents and improve pollution and hazardous waste control. Potential civil and criminal liability for accidents or pollution may in turn be reduced.

ISO 14000 Implementation in China

Because the ISO 14000 environmental standards are relatively new, information regarding China's attitudes towards them is somewhat limited. Although drafts of the standards have been available for several years, the first component of the ISO 14000 series was only formally released in October of 1996.² Despite these difficulties, both foreign and domestic sources provide some basis for an initial assessment of the role the

ISO 14000 process will play in the PRC. While several foreign observers portray China's acceptance of ISO 14000 as slow and appear to express some pessimism that ISO 14000 will be adopted as regulatory requirements there, supportive statements by Chinese officials, a flurry of activity in China related to ISO 14000, and enthusiasm in the PRC for ISO 9000 suggest that China has significant interest in ISO 14000 and that the integration of these standards into China's environmental regulatory regime is likely.

Foreign consultants observing the worldwide implementation of ISO 14000 suggest that China's acceptance of the standards may be limited. As the ISO 14000 movement gained momentum in 1995 for example, American management consultants evaluating the implications of ISO 14000 standards for corporate interests concluded that pro-ISO 14000 countries include Canada and much of Europe while China and Russia are less concerned with the standards.³ A similar tone has characterized more recent observations. Writing in January of 1997, Thomas Tang, Technical Director for Environmental Resources Management in Hong Kong, stated that "it appears NEPA [China's National Environmental Protection Agency] has been less responsive compared to other countries in Asia to the standard . . ."⁴ From the perspective of environmental professionals outside of the PRC, therefore, it appears that China may be lagging behind in incorporating the ISO 14000 framework.

Despite such assessments, activity and material from within the PRC suggest that while China's approach to ISO 14000 may be guarded, considerable official enthusiasm for the standards exists. In speeches on environmental protection in the PRC, for example, Chinese officials have expressed significant appreciation for the potential benefits of ISO 14000. Li Chuanqing, director of the State Technological Supervision Bureau, has praised ISO 14000 as having the potential to exert positive effects on economic development, technological exchange, and trade.⁵ Similarly, Xie Zhenhua, director of NEPA, has stated that implementation of the standards will help to save energy, encourage clean production, and cut back on hazardous waste pollution problems.⁶ More importantly, Xie suggested in the summer of 1996 that implementation of the standards within China would contribute to the achievement of the PRC State Council's strategic goals for sustainable development.⁷ Such statements demonstrate that at least certain elements in China's government recognize the potential benefits of implementing the standards and may view ISO 14000 as one tool through which the PRC can begin to march towards national environmental protection goals.

China's positive rhetorical statements regarding ISO 14000 have been backed up to a significant degree with concrete efforts to promote the standards. Internationally, China has contributed to the creation of ISO 14000 through its participation as an active member of the environment and technology committee of the International Organization for Standardization.⁸ Efforts have also been made to begin the process of implementing ISO 14000 in some PRC enterprises. In January of 1997, the PRC government established an environmental management and auditing certification center to deal with ISO 14000 certifications and provide training courses in the standards.⁹ Although some confusion continues to exist as to whether the State Bureau of Technical Supervision or NEPA will be responsible for ISO 14000 certification and supervision, Xie Zhenhua stated late in 1996 that a supervisory committee on the standards will be also formed.¹⁰

Perhaps more significantly, in December of 1996 the State Bureau of Environmental Protection designated

the coastal trade city of Xiamen as the first pilot city to implement ISO 14000.¹¹ Through this pilot program, the City of Xiamen has attempted to build a local environmental protection program that meets ISO 14000 requirements and has chosen 20 pilot enterprises for accreditation under the standards.¹² In early 1997, the first four enterprises were certified, an event which generated considerable fanfare in the Chinese press.¹³ Such achievements, in concert with the supportive statements of Chinese officials, provide strong evidence that the PRC government views ISO 14000 in a positive light and is beginning to experiment with implementation of the standards.

Clearly, the PRC government has expressed some interest in the potential benefits of ISO 14000 implementation. A more practical question for enterprises operating in the PRC, however, is whether the Chinese government will incorporate ISO 14000 standards as national regulatory requirements. China's implementation of the earlier ISO 9000 series of standards dealing with product quality control may provide one clue as to the likelihood of such a change. First introduced by the International Organization for Standardization in 1987, the standards were not used in China until 1993.¹⁴ ISO 9000 certification has not been required by law for all businesses in the PRC. Particular government bodies such as the Ministry of Metallurgy, however, have moved to bring all enterprises under their supervision into compliance with the standards.¹⁵ Moreover, ISO 9000 certification has been strongly encouraged by the government, particularly for the export sector,¹⁶ and by 1997 ten certification bodies had been established within the PRC to conduct ISO 9000 audits.¹⁷ According to Tang, the large number of Chinese companies implementing ISO 9000 suggests that the Chinese government is encouraging certification, a sign it may encourage ISO 14000 certification as well.¹⁸ Using ISO 9000's application as a test case, therefore, it appears that while the standards have not been elevated to the status of legal requirements, they will likely be strongly encouraged by PRC officials. In addition, as the Ministry of Metallurgy's drive for ISO 9000 compliance shows, certification under ISO standards could potentially be introduced as regulatory requirements in selected industrial sectors.

The observations of businessmen in the PRC and the statements of Chinese officials on the integration of ISO 14000 into China's regulatory framework provide a more direct basis from which to judge whether ISO 14000 certification will become a regulatory requirement in the PRC. According to Tang, no current legislation requires companies to be certified under ISO 14000 and no such rules appear to be forthcoming. As such, he concludes, most multinational corporations with operations in the PRC have yet to incorporate ISO 14000 accreditation into their business plans.¹⁹ As several sources suggest, however, some foreign corporations clearly expect ISO 14000 to be required. Germany's large chemical manufacturer BASF, which operates a joint venture in Shanghai, was one of the first four firms in the PRC to receive ISO 14000 certification in January of 1997. In explaining the company's move to certify, BASF executive Hans Geelhar concluded that "the Chinese government now has a very active, powerful policy [environmental policy]... Foreign companies have to know that this [ISO 14000] will be the Chinese standard."²⁰ Even Tang, who doesn't see broad ISO 14000 regulatory requirements as likely in China, admits that ISO certification "could become a requirement in new joint venture programmes which, although not mandatory, would provide a competitive advantage to US and European companies in obtaining approval from local authority bodies . . ."²¹ Clearly, different attitudes exist in the foreign business community in China with regards to the prospect of ISO 14000 certification becoming a regulatory mandate. At the very least, however, there seems to be some consensus that ISO 14000 will have an influence on foreign business operations in the

PRC.

Statements by Chinese environmental officials help to clarify this picture and suggest that while official attitudes towards the standards may be guarded, China does plan to incorporate ISO 14000 into its regulatory requirements for enterprises at some point. In the summer of 1996, for example, Xie Zhenhua declared that "China will turn the ISO 14000 into the country's national standards for environment management in an opportune time."²² A similar chord was struck by Xie in early 1997, shortly after the award of the first four ISO 14000 certifications to enterprises operating in the PRC. "China will take action, but carefully, to expand the use of the ISO 14000 standards with regard to the country's situation," he declared.²³ Chinese officials have also stated that ISO 14000 implementation should take place according to the principles of linkage to the China's practice of environmental protection, putting into practice integrated management, consideration of the different technological, management and development levels in China, and the practical situation of China's enterprises.²⁴ Such a circumspect tone and emphasis on the practical situation in the PRC suggest that Chinese officials have concerns about the costs of implementing ISO 14000 as national standards.²⁵ More recently, however, official statements on the standards have been more assertive. According to a UPI report in May of 1997, Xie stated that a newly established national oversight committee for the environment will focus on enforcing strict ISO 14000 standards and adopting related regulations with the goal of unifying international environmental management and expanding public understanding of environmental problems.²⁶

A variety of opinions exist on China's reaction to ISO 14000 and the extent to which firms operating in the PRC should be concerned about the adoption of these standards as regulatory requirements. As several of the sources discussed above have implied, China's embrace of ISO 14000 has been hesitant and more restrained than that of other countries and foreign firms need not worry extensively about the prospect of legal requirements for certification. An evaluation of Chinese statements and actions related to ISO 14000 suggest that such conclusion should be qualified, however. China's environmental officials have expressed a clear appreciation of the standards' potential benefits to environmental protection efforts in the PRC and have taken steps to set up ISO 14000 certification bodies. Moreover, these officials have suggested strongly that the ISO standards may be incorporated as Chinese standards at some time. While a certain degree of caution has been expressed with regards to the pace of this incorporation, such caution should not necessarily be viewed as foot dragging. As the PRC's ISO 14000 pilot project in Xiamen and official statements show, the government is clearly interested in experimenting with the standards in order to fully understand their costs and benefits. Such caution and experimentation is characteristic of Chinese policy making and may be interpreted as a sign that PRC regulatory bodies are actively pursuing issues surrounding ISO 14000 implementation. Thus, while PRC regulatory requirements for ISO 14000 certification may not be an immediate concern for businesses operating in the PRC, they should be considered as a legitimate possibility.

Environmental Enforcement and Liability in the PRC

Although it is unclear whether ISO 14000 itself will be made a requirement by the Chinese government, the usefulness of the standards in helping enterprises to comply with other Chinese laws on environmental protection provides additional motivation for firms to consider their adoption. Implementation of an EMS

meeting international standards can help to alleviate chronic pollution problems and to reduce considerably the threat of an environmental accident, conditions which in turn reduce criminal and civil liability exposure. The usefulness and cost-effectiveness to firms of implementing the standards, however, depends greatly on the strength of China's environmental enforcement regime and the criminal and civil risks associated with corporate pollution in the PRC.

The degree to which the Chinese government has concentrated on environmental protection since the founding of the PRC has varied considerably during different periods. Under Mao, China focused heavily on industrialization and production and paid little attention to environmental protection, a stance which resulted in significant injury to the PRC's environmental resources.²⁶ The reform period, at least in form, has brought some improvements in the legal regime for environmental protection in China. The PRC's 1982 Constitution, for example, contains articles prohibiting the damage of natural resources and calling on the state to protect the environment and control pollution.²⁷ Legislation related to environmental protection has also been passed. An Environmental Protection Law (EPL) was drafted for trial implementation in 1979 and enacted in 1989, for example.²⁸ In addition to the EPL, between 1979 and 1995 fifteen laws dealing with forestry, water pollution, hazardous waste and other environmental concerns were enacted.²⁹ An extensive bureaucracy under the State Council, China's National Environmental Protection Agency (NEPA) and other ministries has been put into place to enact regulations and enforce these laws.³⁰ As of 1994, the total number of government personnel working in environmental regulation totaled over 80,000.³¹ From having no comprehensive environmental policy in the Mao period,³² therefore, the PRC has established an relatively extensive environmental protection framework in the reform era.

Under China's environmental legal regime, civil, administrative, and criminal remedies exist to handle infractions of pollution laws and environmental accidents. According to Chinese principles of civil law, liability accrues whenever a violation of national pollution protection law occurs.³³ Specific laws also lay down civil liability for environmental damages. The EPL, for example, holds that "A unit which pollutes the environment shall be responsible for rectifying the damage, as well as for compensating any unit or individual directly affected."³⁴ In addition to these civil provisions, a complex system of fees, penalties, and fines exists through which administrative bodies may demand payment from enterprises for the discharge of pollutants.³⁵

Criminal liability for environmental damage exists as well. The EPL contains criminal provisions for environmental pollution accidents that cause significant loss of public property or loss of life.³⁶ Other environmental laws containing criminal provisions include the Water Pollution and Control Law, the Marine Environment Protection Law, the Forestry Law, and the Fisheries Law.³⁷ In addition, while China's 1979 Criminal Law does not contain a specific section dealing with environmental crimes, several articles contain provisions prohibiting environmental degradation.³⁸ In addition to those directly responsible for acts of pollution, corporate officers may be held criminally liable for environmental violations by their enterprises.³⁹ Criminal liability for environmental offenses generally requires that negligence or intent be demonstrated, however.⁴⁰

By the early 1990's, China had clearly put into place a relatively extensive legal framework for dealing with environmental protection and imposing civil and criminal liability for violations of these laws. As various

sources have documented, some civil and criminal cases have been brought against polluters under this enforcement regime.⁴¹ In general, however, observers of China's legal framework have characterized it as inadequate, particularly in the area of enforcement. Chinese officials have recognized these problems and have concluded that the environmental enforcement system suffers from serious flaws.⁴² Reasons posited for enforcement problems in the PRC include protectionism and corruption by local officials who are responsible for enforcement but more interested in economic development⁴³ and the lack of specific criminal provisions for environmental pollution in the PRC's Criminal Law.⁴⁴ Moreover, the costs of paying fines and fees levied for pollution discharges are frequently much lower than the costs of introducing environmental control measures, a condition which makes pollution more profitable than environmental compliance⁴⁵. In all, as Sinologist Kenneth Lieberthal has concluded, China's environmental problems have become significantly worse since the enactment of economic reforms, and China attracts investment by some foreign firms in part because of corruption and enforcement problems with regards to environmental standards.⁴⁶ Firms operating in this environment have thus had little motivation to consider the implementation of standards such as ISO 14000.

Trends in PRC environmental enforcement in the early and mid-1990's, however, suggest that changes are being made to strengthen China's enforcement regime. Such changes have been stimulated in part by Chinese recognition of the severe magnitude of the environmental crisis there and the potential costs of allowing it to continue. Among China's serious environmental difficulties are critical shortages of safe drinking water, severe pollution in almost every major body of water, and extremely high rates of pulmonary disease caused by air pollution.⁴⁷ To deal with these problems, the PRC government has taken broad initiatives to tighten compliance and enforcement of environmental laws, a movement foreign observers contend will result in a much stricter environmental protection regime and more complex compliance requirements for enterprises in China.⁴⁸

Several significant policy directives and regulatory bodies have been established in order to improve environmental enforcement in the PRC. In 1993, following the issuance of a report by the Central Committee assessing the magnitude of China's enforcement problems, an Environmental and Resources Protection Committee (EPC) was created under the National People's Congress (NPC) and an Environmental Protection Commission approved under the State Council to assist with the implementation of environmental laws.⁴⁹ In 1994, the NPC also moved to increase the scope and severity of fines for pollution and to make it easier to jail offenders and close down polluting enterprises.⁵⁰ Criminal provisions for environmental crimes have been strengthened as well. Increased emphasis has been placed on criminal prosecutions of environmental lawbreakers in recent years,⁵¹ and in the spring of 1996 China's Criminal Law was amended to make "jeopardizing the environment," a criminal offense.⁵² Finally, in 1996 the State Council handed down a set of environmental policy decisions that calls for strict measures to improve environmental conditions, requires all industrial and pollution discharges to meet national standards by the year 2000, and mandates the establishment of fees and penalties for pollution that are more equal to the costs of installing environmental controls to prevent such pollution.⁵³ In a sign of the seriousness of such proclamations, Chinese officials in 1996 closed down over 57,000 enterprises causing serious pollution.⁵⁴

China's movement towards stricter compliance may give enterprises previously unconcerned with the enforcement of environmental regulations pause to consider more effective environmental management. In

particular, improvements in environmental enforcement may have a disproportionately strong effect on foreign firms. "Because many Chinese officials consider international companies to have more resources and more experience in meeting pollution control requirements, they often expect them to be in full and immediate compliance with the requirements," conclude China consultants Julia Klee and Felicity Thomas.⁵⁵ With stricter environmental enforcement requirements put into place, foreign firms may also be a target for local environmental officials seeking to fill their administrative coffers. As William Prince and David Nelson wrote in 1996, "In China, where double-digit growth has stretched resources designed to protect an already environmentally devastated country, Beijing has effectively cut off several provincial environmental protection bureaus from financial help. These bureaus have now been given the green light to act as for profit agencies with budgets generated by fines they collect. Large multinational corporations are the low hanging fruit for these agencies."⁵⁶ Foreign firms may thus be the first to face the brunt of the Chinese government's stricter environmental enforcement efforts. As ISO 14000 environmental management systems are designed to improve the environmental performance of enterprises and reduce the potential for pollution problems and environmental accidents, firms may thus have additional motivation outside of a specific ISO 14000 requirement by the PRC government to consider certification under the standards.

Conclusions

The release of the ISO 14000 environmental management standards is an event which has captured the attention of environmental regulators and businesspeople worldwide, including those in China. At this early stage, the extent to which ISO 14000 may become a requirement for businesses operating in the PRC is unclear. Chinese officials have made positive statements with regards to the benefits of the standards and have begun to experiment with ISO 14000 implementation. While foreign observers have mixed reactions to the possibility that ISO 14000 certification will be required by PRC regulatory agencies, Chinese officials have also clearly stated an interest in eventually incorporating ISO 14000 as regulatory requirements. As such, while ISO 14000 implementation is not an immediate concern to enterprises, it should be considered in future business plans. Moreover, the Chinese government's recent drive to improve environmental enforcement provides motivation to consider ISO 14000 implementation. Adherence to the standards will improve environmental performance and reduce liability risks that are becoming greater as the PRC government demands stricter compliance to environmental protection regimes.

Notes

1. The information on ISO 14000 provided in this introductory section has been taken from Philip A. Marcus and John T. Willig, *Moving Ahead With ISO 14000*, (New York: John Wiley & Sons, Inc., 1997) and Tom Tibor, *ISO 14000: A Guide to the New Environmental Management Standards* (Chicago: Times Mirror, Higher Education Group, Inc., 1996).
2. Thomas Tang, "ISO 14001 - Threat or Opportunity in the PRC," *China Law for Business* 2 (January 1997), 10.
3. Warren A. Bird, "ISO 14000: How to Decide What is Right for Your Company," *Chemical Engineering* 1023 (September 1995), in LEXIS-NEXIS. Tang, 10.
4. Xinhua, July 12, 1996 in FBIS-China July 15, 1996, p.21.
5. *Ibid.*, 21

6. *Wo Guo Kai Zhan Huanjing Guanli Xilie Biozhun Renzheng* (My country launches environmental management systems standards certification) Renmin Ribao Overseas Edition, July 7, 1996. In the summer of 1996, the State Council handed down a new policy directive concerning environmental protection which called for stricter compliance with national standards. The particulars of this document are discussed in the following section on trends in environmental enforcement in China.
7. Xinhua, December 23, 1996, in LEXIS-NEXIS.
8. "ISO Standards Adopted for Environmental Control," *China Law for Business* 2 (December 1996), 14.
9. *Ibid*, 14; See also Tang, 10.
10. "China's Pilot City for Environmental Protection Standard," Xinhua, December 23, 1996 in LEXIS-NEXIS.
11. *Ibid*.
12. "More Chinese Enterprises Expected to Comply with ISO Standards," Xinhua January 22, 1997, in LEXIS-NEXIS.
13. Guang Li, "China: Firms Face Relentless Challenge of Quality," *China Daily* February 15, 1996, in LEXIS-NEXIS, REUTER TEXTLINE.
14. "Vice-Minister: Metallurgy to Follow ISO 14000 Standards," Xinhua, March 24, 1995 in FBIS-China, March 24, 1995, 43.
15. See "Export Firms Implement International Standards," Xinhua, May 30, 1995 in FBIS-China, June 9, 1995, 64; See also Guang Li, "China: Firms Face Relentless Challenge of Quality," *China Daily* February 15, 1996, in LEXIS-NEXIS, REUTER TEXTLINE.
16. Pan Zhongming, "China: Giant Steel-Maker Earns ISO Quality Certificate," *China Daily*, March 6, 1997 in LEXIS-NEXIS, REUTER TEXTLINE.
17. Tang, 10.
18. Tang, 10.
19. Fons Tuinstra, "ISO 14001: Chinese Standard for Environmental Protection," *Deutsche Presse-Agentur*, January 30, 1997 in LEXIS-NEXIS.
20. Tang., 10.
21. "China to Authenticate Standards for Environmental Protection."
22. "More Chinese Enterprises Expected to Comply with ISO Standards."
23. *Wo Guo Jiang Zhubu Tuixing ISO 14000 Renzheng*, (My Country will push ISO 14000 Certification Step By Step) Renmin Ribao, November 6, 1996.
24. The cost of implementing ISO 14000 can be significant. Hans Geelhar of the German chemical firm operating in Shanghai characterized ISO certification as "a significant investment." See "ISO 14001: Chinese Standard for Environmental Protection."
25. Bryan Bachner, "Regulating Pollution in the People's Republic of China: An Analysis of Enforcement of Environmental Law," *Colorado Journal of International Environmental Law and Policy* 7 (Summer, 1996), 377. See also Kenneth Lieberthal, *Governing China*, (New York: W.W. Norton and Company, Inc., 1995), 280-282.
26. See "China Steps Up Environmental Oversight," Yahoo News, http://biz.yahoo.com/upi/97/05/28/international_news/chinaenvi_1.html, May 28, 1997.
26. See Articles 9 and 26 in the Constitution of the People's Republic of China, translated and reprinted in Lieberthal, 355-381.
27. Lester Ross, "The Next Wave of Environmental Legislation: Special Report: China's Environment," *The China Business Review* 21 (July, 1994), 30.

29. These are the Marine Environmental Protection Law (1982), Forestry Law (1984), Water Pollution Prevention and Control Law (1984), Grasslands Law (1985), Fisheries Law (1986), Mineral Resources Law (1986), Air Pollution Prevention and Control Law (1987), Land Management Law (1988), Water Law (1988), Wildlife Conservation Law (1988), Environmental Protection Law (1989), Water and Soil Conservation Law (1992), Agriculture Law (1993) and Solid Waste Prevention and Control Law (1995). See Ross, 30. See also Ellen R. Spitalnik, "Getting A Grip on Solid Waste," *The China Business Review* 23 (March-April 1996), 36.
30. Ross, 30.
31. *Ibid.*, 30.
32. Bachner, 377.
33. Mary Riley, "Liability Which Can Arise From Technology Transfer in China," *China Law Journal* 1, 16.
34. Article 41, The Environmental Protection Law, translated and published in *China Laws for Foreign Business*, Volume 2, (CCH Australia Ltd., 1991), 17,888.
35. Shelly Clarke, "Wastewater Fees, Penalties, and Fines: Definitions and Compliance Issues," *China Law Briefing* 1 (June 1995). 8-10.
36. The Environmental Protection Law, Article 43.
37. See John Head, "Using Criminal Sanctions to Fight Environmental Damage in the PRC," *East Asian Executive Reports* 17 (November 15, 1995), 17-8.
38. *Ibid.*, 17.
39. *Ibid.*, 14.
40. *Ibid.*, 15.
41. See Riley, 16; Head, 16.
42. Bachner, 376, 378, 386.
43. Lester Ross, "The Next Wave of Environmental Legislation: Special Report: China's Environment," *The China Business Review* 21 (July 1994), 30 in LEXIS-NEXIS; Homer Sun "Controlling the Environmental Consequences of Power Development in the People's Republic of China," *Michigan Journal of International Law* 17 (Summer 1996,) 1015-1049 in LEXIS-NEXIS.
44. Ross, 30.
45. Clarke, 10.
46. See Lieberthal, 282, 289.
47. Lieberthal, 284.
48. Ross, 30.
49. Bachner, 378; Julia Epley Klee and Felicity C. Thomas, "An Evolving Environmental Framework," *The China Business Review* 24 (January-February 1997), 34.
50. Josephine Ma "Environment Law Breakers to Face Prison," *South China Morning Post*, August 12, 1994, p.9 in LEXIS-NEXIS; Zhu Baoxia, "China: Closure Threat to Polluters," *China Daily*, February 5, 1994, in LEXIS-NEXIS, REUTER TEXTLINE.
51. Head, 17.
52. Klee and Thomas, 39.
53. "*Guowuyuan Guanyu Huanjing Baohu Ruogan Wenti de Jueding*" (State Council, Several Issues Concerning Environmental Protections Decision), *Jinrong Shibao*, August 16, 1996 reprinted in *China Law Library: Full Texts of National and Regional Legislation from China*, taken from *China Law*

and Practice 10 (December 1996/January 1997).

54. "More Chinese Enterprises Expected to Comply With ISO Standards," Xinhua, January 22, 1997, in LEXIS-NEXIS.

55. Klee and Thomas, 39. In contrast to foreign firms, Klee and Thomas conclude, state enterprises can be expected to be given much more deferential treatment.

56. William Prince and David Nelson, "Developing an Environmental Model: Piecing Together the Growing Diversity of International Environmental Standards and Agendas Affecting Mining Companies," Colorado Journal of International Environmental Law and Policy 7 (Summer 1996), in LEXIS-NEXIS.