

The Role of the Government in Voluntary Environmental Protection Schemes: The Case of ISO 14001 in China

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Increasingly, industry self-regulation, based on voluntary, market incentive environmental policy instruments, has become an essential part of global environmental governance. Among these instruments, the most important and widely accepted program is ISO 14001, an international voluntary standard for environmental management promoted by the Geneva-based International Organization for Standardization (ISO), which had over 74,000 registered facilities as of October 2004. Some international relations scholars have focused on various aspects of ISO 14001, but the role of the government in its implementation—especially in developing countries—has been relatively overlooked. This paper investigates the role of government intervention in ISO 14001 in China. China is an important case because it is the only developing country among the top ten countries in terms of the number of ISO 14001 certifications, accounting for over 70 percent of the total number of certifications worldwide in October 2004. This paper demonstrates that government intervention in ISO 14001 is one of the factors that explain the rapid increase in the number of certifications in China. The Chinese government has not only

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been proactively introducing and facilitating ISO 14001, but has also been directly involved in the implementation of ISO 14001 through various organizational and personal connections. Government intervention has both positive and negative aspects. The positive aspect is that it has facilitated the effective and rapid establishment of a national ISO 14001 system. The Chinese government has promoted ISO 14001 as a national environmental policy, set up an organizational and legislative infrastructure, conducted pilot projects, and encouraged local environmental protection bureaus to promote it at the local level. The negative aspect of government intervention is that it might undermine the credibility and rigor of the certification system, particularly if the government has a bad reputation regarding policy implementation domestically or internationally. Therefore, this paper concludes that government intervention in market incentive environmental protection schemes—especially in developing countries—should be discreet: the government should play a significant role in supporting the scheme but should not directly control it as a main player. The main players should be the firms in the market.

KEYWORDS: ISO 14001; industry self-regulation; China; environmental policy; government intervention.

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Increasingly, industry self-regulation, based on voluntary, market incentive environmental policy instruments, has become one of the essential parts of global environmental governance. Firms set and enforce rules, standards, and accountability mechanisms for their environmental behavior by deploying a variety of approaches and instruments for environmental self-regulation.¹ Among these, the most important and widely accepted is the ISO 14001 program, an international voluntary standard for environmental management promoted by the Geneva-based International Organization for Standardization (ISO), which in October 2004 had over 74,000 registered facilities.²

¹Virginia Haufler, *A Public Role for the Private Sector: Industry Self-Regulation in a Global Economy* (Washington, D.C.: Carnegie Endowment for International Peace, 2001); and Neil Gunningham and Darren Sinclair, *Leaders and Laggards: Next-Generation Environmental Regulation* (Sheffield: Greenleaf, 2002).

²ISO website, http://www.ecology.or.jp/isoworld/english/iso_14k.htm.

As a voluntary environmental protection scheme, ISO 14001 differs from traditional government-led regulatory approaches, such as the "command and control" approach. In the latter, regulators, usually the government environmental protection agency, set regulations, standards, and sometimes specific policy targets, supervise firms' environmental performance, and dictate abatement decisions if firms do not comply with these regulations and standards. In contrast, ISO 14001 is a guideline standard for businesses' environmental management systems (EMS) that firms can choose to adopt primarily on the basis of a cost-benefit analysis. Firms choose to adopt ISO 14001 with the expectation that they can improve their corporate image in the international as well as the domestic market—where consumers increasingly demand green products—by demonstrating the value of their environmental codes of conduct and plans for continuous improvement of their environmental performance. It is especially attractive for multinational corporations (MNCs), which find the necessity of complying with different environmental standards and requirements in different countries costly and a potential non-tariff barrier. ISO 14001 has been conceived to facilitate trade and investment liberalization by harmonizing national environmental standards and practices across countries. In this sense, the adoption of ISO 14001 can be a "preemptive step by MNCs toward regulatory harmonization."³

Some scholars of international relations have paid attention to ISO 14001 because it represents a new form of governance in which individual national governments play a more limited role in the establishment, monitoring, and enforcement of supranational regulatory regimes.⁴ In the discussion of globalization and governance, ISO 14001 can be considered an important case in the sense that it is an example of a transnational corporate network in which firms limit their behavior with regard to en-

³Matthew Potoski and Aseem Prakash, "Regulatory Convergence in Nongovernmental Regimes? Cross-National Adoption of ISO 14001 Certifications," *Journal of Politics* 66, no. 3 (August 2004): 886.

⁴Kelly Kollman and Aseem Prakash, "Green by Choice? Cross-National Variations in Firms' Responses to EMS-Based Environmental Regime," *World Politics* 53, no. 3 (April 2000): 399-430.

vironmental issues by attempting to set and share rules, standards, and even norms, and that these private initiatives are closely associated with the process of globalization in both economic and sociological (or normative) dimensions.⁵ Also, ISO 14001 draws scholarly attention from those who are interested in the environmental impact of economic globalization in developing countries. It can provide evidence against "race to the bottom" arguments, such as the "pollution haven" or "dirty industry flight" hypotheses.⁶ However, more systematic examination is required to find a causal link between ISO 14001 and the level of environmental regulations and standards in developing countries.

Whereas recent literature on ISO 14001 has addressed many important research questions, such as the costs, benefits, and motivations involved in businesses' adoption of the standard, the uneven diffusion of ISO 14001 certifications worldwide, and the relationship between firms' adoption of ISO 14001 and their actual environmental performance, what is relatively neglected is the role of government in the national practice of ISO 14001, especially in developing countries. Although the standards contained in ISO 14001 do not apply to individual governments and do not require any change in domestic law and regulation,⁷ governments and/or domestic political factors influence ISO 14001 practice in many ways. Government-business relations, the stringency of government environmental policies, the characteristics of existing command and control-type government environmental regulations, and the amount of pressure from society on government environmental policy can influence the costs and benefits involved in the adoption of ISO 14001, and thus influence cross-

⁵Potoski and Prakash, "Regulatory Convergence in Nongovernmental Regimes?" 885-86.

⁶For explanations and empirical tests of these hypotheses, see Adam B. Jaffe, Steven R. Peterson, Paul R. Portney, and Robert N. Stavins, "Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us?" *Journal of Economic Literature* 33, no. 1 (1995): 132-63; and David Wheeler, "Racing to the Bottom? Foreign Direct Investment and Air Pollution in Developing Countries," *Journal of Environment & Development* 10, no. 3 (September 2001): 225-45.

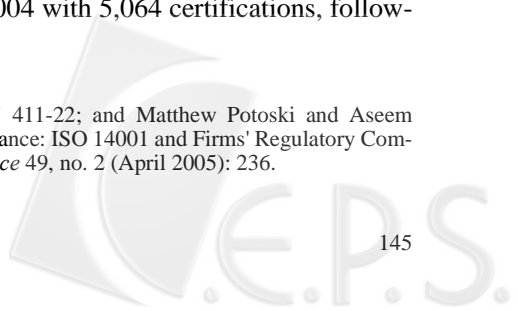
⁷Virginia Haufler, "Globalization and Industrial Self-Regulation," in *Governance in a Global Economy*, ed. Miles Kahler and David A. Lake (Princeton, N.J.: Princeton University Press, 2003), 245.

national variations in the number of ISO 14001 certifications. Particularly in developing countries, it can be said that even voluntary environmental protection schemes like ISO 14001 might be strongly affected by government initiatives if the government, rather than environmental nongovernmental organizations (NGOs) or various forms of civil activism, is the dominant actor in domestic environmental governance, possibly due to a low level of environmental awareness and economic development or, in some cases, political authoritarianism. Some of the existing literature on ISO 14001 has examined the effects of government institutional factors on firms' adoption and implementation of ISO 14001.⁸ However, these examinations have focused on the cases of developed countries, while systematic research that focuses on the role of the government in ISO 14001 in developing countries has been rare. This paper attempts to fill this gap by examining the role of the government in the implementation of ISO 14001 in China.

China is an important case because it is the only developing country among the top ten countries in terms of the number of ISO 14001 certifications, accounting for over 70 percent of the total number of certifications worldwide by October 2004. So far, ISO 14001 has been actively promoted by firms in developed countries due to their relatively high level of environmental awareness, the availability of the resources necessary for the successful implementation of ISO 14001 (such as finance, technological know-how, and consultancy), and, most importantly, the fact that they have existing environmental management systems that reduce the cost of adopting ISO 14001. However, developing countries, especially countries where the level of economic openness is relatively high, have also been increasingly active in adopting ISO 14001, primarily due to their foreign trade concerns.

In terms of the absolute number of ISO 14001 certifications, China stood third in the world in October 2004 with 5,064 certifications, follow-

⁸Kollman and Prakash, "Green by Choice?" 411-22; and Matthew Potoski and Aseem Prakash, "Green Clubs and Voluntary Governance: ISO 14001 and Firms' Regulatory Compliance," *American Journal of Political Science* 49, no. 2 (April 2005): 236.



ing Japan (16,696) and the United Kingdom (5,460). Although the number is less impressive when one considers the size of its national economy, China's speed in promoting ISO 14001 is remarkable given the fact that it is, like many other developing countries, still deficient in the key conditions for effective implementation of ISO 14001 mentioned above. What explains the rapid increase in ISO 14001 certifications in China? There is no doubt that China's high degree of economic openness (measured by trade as a percentage of GNP and the amount of foreign direct investment) is the most important factor that explains China's rapid adoption of ISO 14001. However, as large-N analyses of cross-national variation of ISO 14001 adoption illustrate, economic openness is not the only determinant. Other factors such as income, pressure from civil society, productivity, and state intervention also affect the variation to a certain degree.⁹

This paper focuses on the role of the government in promoting ISO 14001 in China. It examines the impact of government initiative on the process of firms' adoption and implementation of ISO 14001. The specific research questions are:

1. What are the factors that explain the rapid growth of ISO 14001 in China?
2. What is the exact role of the Chinese government in the process of ISO 14001 and what are the motivations for the government to promote ISO 14001?
3. If the government plays a significant role in ISO 14001 in China, is this a form of co-regulation, rather than industry self-regulation?
4. What implications does China's case have in the study of global diffusion of standards, rules, and norms of environmental protection?

⁹Potoski and Prakash, "Regulatory Convergence in Nongovernmental Regimes?"; and Eric Neumayer and Richard Perkins, "What Explains the Uneven Take-up of ISO 14001 at the Global Level? A Panel-Data Analysis," *Environment and Planning* 36 (2004): 823-39.

ISO 14001: A Voluntary Standard for Environmental Management

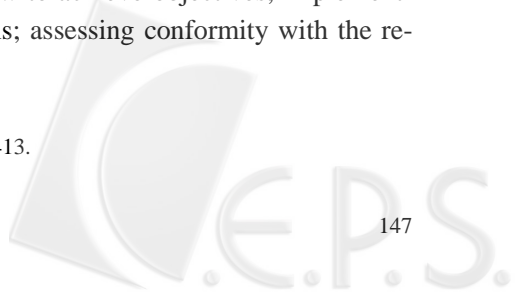
What is ISO 14001?

ISO 14001 was first published in 1996 by the ISO as part of a set of standards for environmental management generally known as the ISO 14000 series. This series contains a set of standards and guidelines for EMS, which forms a framework that allows firms to prescribe and implement environmental goals, policies, and responsibilities, and continually improve their environmental performance. The ISO 14000 series also includes environmental auditing, environmental performance evaluation, environmental labeling, life cycle analysis, and environmental aspects of product standards. These standards and guidelines do not specify any quantitative target for environmental performance or methods for addressing environmental problems. Instead, the ISO 14000 series provides firms with a process-driven set of standards and guidelines that are not product standards, and therefore do not violate the World Trade Organization (WTO) rules.

ISO 14001 is the only mandatory compliance standard within the ISO 14000 series. It calls for the establishment of an environmental management system whose criteria must be met in order to receive certification from the outside verifier.¹⁰ Firms that apply for ISO 14001 certifications have to use a registered auditor in order to verify that they conform to the internationally recognized standards for an EMS. Through this third-party accreditation system, firms can demonstrate their continual efforts to improve their EMS to domestic consumers and foreign trade partners.

The ISO 14001 standard specifies a number of basic components of an EMS: defining an environmental policy; identifying legal obligations; creating environmental planning objectives; establishing an environmental management program; specifying how to achieve objectives; implementing the EMS and operational controls; assessing conformity with the re-

¹⁰Kollman and Prakash, "Green by Choice?" 413.



quirements of the standard and taking corrective action in cases of nonconformity; conducting internal EMS audits; and conducting a management review of the EMS. Therefore, if a firm applies for an ISO 14001 certification, an independent third party, which is officially accredited by the national accreditation board, audits and evaluates the firm's EMS based on these basic components, and then a certificate of registration is issued, demonstrating that the firm's EMS is in compliance with the ISO 14001 standard.

Firms can voluntarily choose to apply for ISO 14001 certification based on the expected benefits, both reputational (improving corporate image as a green company) and economic (increasing access to foreign markets). Increasingly, ISO 14001 certification is becoming a prerequisite for international trade, and some governments, including the European Union (EU), are giving preference in contracting to ISO 14001 certified companies.¹¹ As Prakash and Kollman explain, supranational EMS norms could facilitate international trade by replacing country-specific standards with a supranational standard,¹² and thus the rapid increase in the number of ISO 14001 certifications worldwide is closely associated with increased trade and investment liberalization. During the nine-year period from 1995 to 2004, the number of certifications¹³ grew from 257 to 74,004. Promotion of ISO 14001 has been active in countries like Japan, the United Kingdom, China, Spain, Germany, and Italy, in terms of the absolute number of certifications (see table 1).

Since developed countries and their transnational corporations were the major participants in creating the ISO 14000 series and setting its specific standards, it is not surprising that a majority of ISO 14001 certifications are held by firms in developed countries, although there is variation among these countries in terms of the number of certifications. As

¹¹Susan Summers Raines, Tan Rong, and Xu Fei, "Costs, Benefits, and Motivations for ISO 14001 Adoption in China and Around the World," *Chinese Public Administration Review* 1, no. 3/4 (July/December 2002): 240.

¹²Kollman and Prakash, "Green by Choice?" 415.

¹³The number of certifications corresponds to the number of certified facilities, as a firm can apply for multiple certifications if it has multiple facilities.

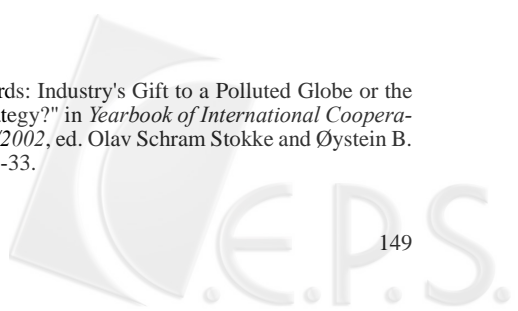
Table 1
The Number of ISO 14001 Certifications—Top Twenty Countries as of October 2004

Ranking	Country	Number of Certification
1	Japan	16,696
2	United Kingdom	5,460
3	China	5,064
4	Spain	4,860
5	Germany	4,320
6	Italy	4,318
7	United States	3,890
8	Sweden	3,404
9	France	2,344
10	Korea	2,041
11	Brazil	1,500
12	Canada	1,484
13	Taiwan	1,417
14	Switzerland	1,266
15	Australia	1,250
16	India	1,250
17	Netherlands	1,162
18	Czech Republic	950
19	Thailand	908
20	Finland	888
	Total	64,472
	World Total	74,004

Source: http://www.ecology.or.jp/isoworld/english/iso_14k.htm.

some scholars have pointed out, the discrepancy in certification rates might reflect unequal participation in setting the standards,¹⁴ and this confirms fears that ISO 14001 might become a barrier to trade for developing coun-

¹⁴Jennifer Clapp, "ISO Environmental Standards: Industry's Gift to a Polluted Globe or the Developed World's Competition-Killing Strategy?" in *Yearbook of International Cooperation on Environment and Development 2001/2002*, ed. Olav Schram Stokke and Øystein B. Thommessen (London: Earthscan, 2002), 27-33.



tries.¹⁵ However, the discrepancy does not necessarily mean that developing countries are less enthusiastic about ISO 14001 certification. They are increasingly aware of the international trend toward standards harmonization and the need to encourage firms to adopt ISO 14001 for both environmental and foreign trade purposes. In some developing countries, at least, the government might actively promote ISO 14001 as one of its environmental policy instruments due to its importance as a "green passport."¹⁶ Governments in developing countries not only try to create favorable conditions for effective implementation of ISO 14001, they are also, in some cases, directly engaged in the whole process of ISO 14001. In China, for example, government environmental agencies at both the central and local levels play a significant role in promoting ISO 14001, by organizing various advisory and consultancy committees, offering incentives to firms that adopt ISO 14001 certification, and designating specific areas in which a majority of facilities are required to get ISO 14001 certification.

Existing Literature

Some previous works on the national variation of ISO 14001 certification rates identify factors that affect this variation. Potoski and Prakash find that countries whose export trading partners have higher levels of ISO 14001 certifications tend to have higher certification rates where government environmental regulations are stringent but enforced flexibly and litigation threats are low, and where the country's citizens join nongovernmental international organizations.¹⁷ Similarly, Neumayer and Perkins show that foreign exports, transnational corporation involvement, and the number of environmental NGOs are the factors that determine the national variation of ISO 14001 certifications.¹⁸ These large-N studies point to the

¹⁵Susan Summers Raines, "Perceptions of Legitimacy and Efficacy in International Environmental Management Standards: The Impact of the Participation Gap," *Global Environmental Politics* 3, no. 3 (August 2003): 70.

¹⁶Clapp, "ISO Environmental Standards," 30.

¹⁷Potoski and Prakash, "Regulatory Convergence in Nongovernmental Regimes?" 885-905.

¹⁸Neumayer and Perkins, "What Explains the Uneven Take-up of ISO 14001 at the Global Level?" 823-39.

various domestic political, economic, and social conditions that determine the national variation of ISO 14001 certification rates, but they do not systematically observe exactly what role the government plays in this voluntary environmental protection scheme, especially in developing countries, and whether this kind of government initiative affects the national variations.

Systematic analysis of the role of government initiative in the process of ISO 14001 in China has also been rare. Most of the previous research on China's ISO 14001 actually consists of analyses at individual company level based on surveys of managers who have adopted ISO 14001. These analyses investigate various aspects of ISO 14001 implementation in China, such as the costs and benefits involved and the motivations for individual firms to adopt ISO 14001, the impact of ISO 14001 certification on firms' actual environmental and business performance, critical factors that positively or negatively influence effective implementation of ISO 14001, and various views and opinions of firm managers regarding ISO 14001.¹⁹ Although these previous studies give some detailed information on China's ISO 14001 process, they rely almost exclusively on surveys of ISO 14001 certified firms, with a possible bias in the sense that only firms with effective environmental management systems are likely to have responded to the surveys.²⁰ The findings of these studies could be more

¹⁹Mohammed Matouq, "A Case Study of ISO 14001-Based Environmental Management System Implementation in the People's Republic of China," *Local Environment* 5, no. 4 (2000): 415-33; Raines, Rong, and Fei, "Costs, Benefits, and Motivations"; S. X. Zeng et al., "Towards Implementation of ISO 14001 Environmental Management Systems in Selected Industries in China," *Journal of Cleaner Production* 13 (2005): 645-56; Gerald E. Fryxell, Shan Shan Chung, and Carlos W.H. Lo, "Does the Selection of ISO 14001 Registrars Matter? Registrar Reputation and Environmental Policy Statements in China," *Journal of Environmental Management* 71 (2004): 45-75; Li Xiaomei, "Theory and Practice of Environmental Management Accounting—Experience of Implementation in China," *International Journal of Technology Management and Sustainable Development* 3, no. 1 (2004): 47-57; and Wang Liyan and Lin Xiaochi, "ISO 14000 huanjing guanli renzheng yu qiye jiazhi zengzhang (ISO 14001 environmental management certification and firms' value increase) (Unpublished working paper, Guanghua School of Management, Beijing University, 2005).

²⁰An exception is the survey research conducted by Raines, Rong, and Fei. They gathered twenty-six surveys in China, nineteen from certified firms and seven from uncertified firms. See Raines, Rong, and Fei, "Costs, Benefits, and Motivations," 239-52.

reliable if they were supported by some systematic empirical evidence. For example, while these surveys show that one of the motivations for firms to adopt ISO 14001 is to enter foreign markets, most of them do not contain any basic information on the kinds of industries and the types of ownership of the firms that adopted ISO 14001. Moreover, as was the case in the large-N studies, these surveys have not systematically examined what exactly the Chinese central and local governments and their affiliated institutions have done in order to promote ISO 14001.

In sum, both large-N and China-specific studies on ISO 14001 have neglected to investigate the role of the government in the whole process of ISO 14001 in China. An analysis of this role might make some contribution to the study not only of ISO 14001 in China but also of China's environmental policy as a whole. In addition, it may have some theoretical and empirical implications for the study of ISO 14001 and other forms of industry self-regulation in general.

ISO 14001 in China

Government Enthusiasm from the Early Stage

As in many other countries, it was the government that introduced ISO 14001 into China and established the institutional setting for its effective implementation. From the early stage of its introduction, those parts of the government responsible for environmental protection were very active in promoting ISO 14001, with the expectation that it would have a positive impact on China in terms of both environmental protection and economic development. That is, it would help firms to comply with existing environmental protection regulations more effectively by establishing and strengthening their environmental management systems, and at the same time, the government regulatory burden might be reduced. Economically, it would help firms to update their environmental technologies, save energy, and increase their exports to advanced countries.²¹ Most of

²¹PRC Certification and Accreditation Administration (CNCA), ed., *Zhongguo renzheng*

all, the Chinese government was motivated to adopt ISO 14001 as a national environmental policy instrument primarily by its belief that standards harmonization was already a dominant global trend and that ISO 14001 would become a requirement in international trade in the near future. Particularly after China joined the WTO, government environmental leaders frequently emphasized the importance of ISO 14001 as a key solution to what is perceived as one of the major non-tariff barriers in international trade: environmental protection requirements.²² In fact, nearly all the publications that contain information on ISO 14001 in China give great weight to the importance of ISO 14001 as a "green passport" (or even *weapon*) for firms that export their products to foreign markets, rather than as a "green passport."²³ Of course, this is not surprising because in many other countries, especially in the developing world, it is true that ISO 14001 is not a purely environmental issue.

What is different in China is that, from the beginning, government environmental leaders seriously considered adopting ISO 14001 as a national regulatory standard, albeit a voluntary one, for all the businesses operating in China. In the summer of 1996, Xie Zhenhua (解振華), director of the National Environmental Protection Agency (國家環境保護局), announced that China would make ISO 14000 the country's national standard for environment management when the time was right.²⁴ Later, ISO 14001 was included in the Cleaner Production Promotion Law, approved by the National People's Congress on June 29, 2002, as one of the major cleaner

renke nianjian 2004 (China certification and accreditation yearbook 2004) (Beijing: Zhongguo biaozhun chubanshe, 2004), 322-25.

²²"China to Adopt World Standard on Environmental Protection," *Renmin ribao* (人民日報, People's Daily), November 26, 2001.

²³Zhongguo biaozhun chubanshe (Standards Press of China), ed., *ISO 14000 huanjing guanli tixi shishi zhinan* (ISO 14001 environmental management system—a practical manual) (Beijing: Zhongguo biaozhun chubanshe, 2001); Huang Jin, ed., *ISO 14000 huanjing guanli tixi renzheng shizhan anli yu zuixin huanbao guifan quanshu* (A guide for ISO 14000 environmental management system certification strategy and recent environmental protection regulations compilation) (Beijing: Zhongguo huanjing kexue chubanshe, 2002); and Liu Qingsong, ed., *Qingjie shengchan yu ISO 14000* (Cleaner production and ISO 14000) (Beijing: Zhongguo huanjing kexue chubanshe, 2003).

²⁴Keith Hand, *ISO 14000 Implementation in the People's Republic of China*, Environment International Ltd. (1997). <http://www.envintl.com/isochina.html>.

production tools.²⁵ Moreover, as Fryxell, Chung, and Lo have noted, the Chinese government has been promoting ISO 14001 as a major policy instrument, which is different from the approach in the West.²⁶ ISO 14001 has become a major market incentive policy instrument in China, along with eco-labeling and emissions trading, and the State Environmental Protection Administration (SEPA, 國家環境保護總局) has increasingly put more emphasis on these market incentive policies.

Organizational Structure of China's ISO 14001 System

The ISO 14001 certification system was established in China during 1997 and 1998. The two main government agencies that took the lead in the establishment of the system were the State Bureau of Quality and Technical Supervision (國家質量技術監督局) and SEPA.²⁷ These two agencies set up a number of key institutions, including the State Leading Committee on the Certification of China's Environmental Systems (國家環境體系認證委員會), the China Accreditation Committee for Environmental Management System Certification Bodies (CACEB, 中國環境管理體系認證機構國家認可委員會), and the Environment Management Committee of the China Registration Board of Auditors (CRBA, 中國認證人員認可環境管理委員會).²⁸ By the end of December 1998, 94 firms had achieved ISO 14001 certification in China. The number has increased rapidly with an annual growth rate of over 50 percent—222 in 1999, 510 in 2000, and 1,085 in 2001.²⁹

From 1997 to 2002, SEPA and its two main operating bodies directly controlled the whole process of ISO 14001 in China. The CACEB was re-

²⁵<http://www.chinacp.com/eng/cnenvleg.html>.

²⁶Fryxell, Chung, and Lo, "Does the Selection of ISO 14001 Registrars Matter?" 47.

²⁷The National Environmental Protection Agency was upgraded to ministry-level status and renamed the State Environmental Protection Administration in 1998.

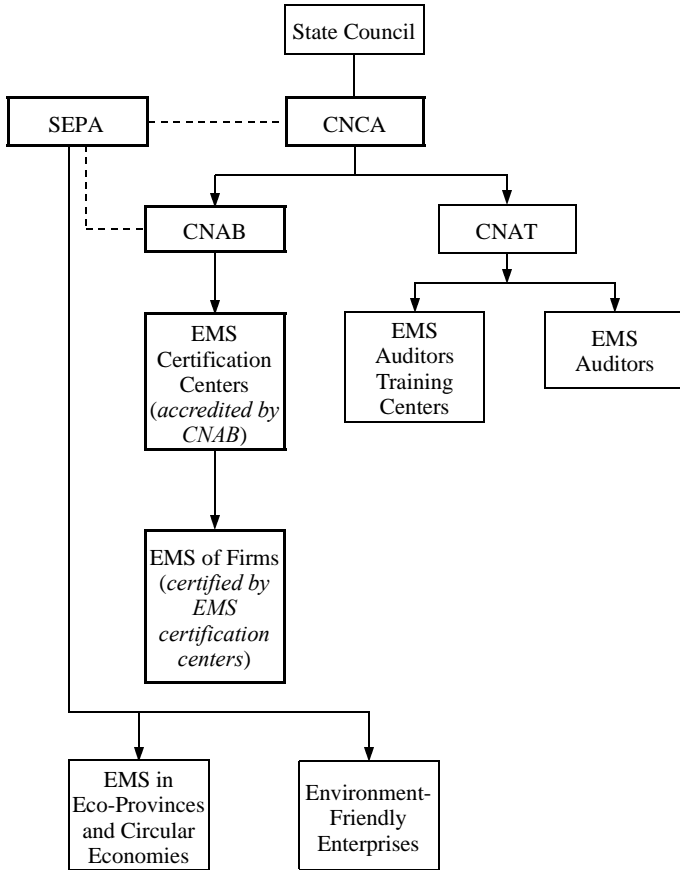
²⁸For the early history of ISO 14001 in China, see Lester Ross, "China: Environmental Protection, Domestic Policy Trends, Patterns of Participation in Regimes, and Compliance with International Norms," *The China Quarterly*, no. 156 (December 1998): 809-35.

²⁹ISO, *The ISO Survey of ISO 9001:2000 and ISO 14001 Certifications—2003*, <http://www.iso.org/en/iso9000-14000/certification/isosurvey.html>.

sponsible for accreditation, supervision, and management of certification bodies, and the CRBA was responsible for training and registering environmental management systems auditors. From 2003, however, the PRC Certification and Accreditation Administration (CNCA, 國家認證認可監督管理委員會) replaced SEPA as the top government organization in charge of ISO 14001 and other certification and accreditation activities. Under the CNCA, various other organizations including the CACEB, the CRBA, the China National Accreditation Council for Product Certification Bodies (國家產品認證機構認可委員會), and the China National Accreditation Board for Import and Export Enterprises (CNAIEB, 中國對外貿易企業認證認可委員會) were incorporated and reorganized as two main bodies—the China National Accreditation Board for Certifiers (CNAB, 中國認證機構國家認可委員會) and the China National Auditor and Training Accreditation Board (CNAT, 中國認證人員與培訓機構國家認可委員會). These two main bodies of the CNCA became the key organizations in the ISO 14001 system in China (see fig. 1).

The CNAB is in charge of establishing, operating, and maintaining a variety of quality management systems, including environmental management systems, in accordance with international standards specified by the ISO. Its main responsibility with regard to ISO 14001 is to approve and supervise certification centers (registrars) for ISO 14001. If a firm wants to set up an environmental management system certification agency (registrar), it has to obtain prior approval and accreditation from the CNAB which conducts a series of managerial and technical assessments. Once the agency is approved, it can legally operate as a third-party certification business, and the CNAB will continually supervise the firm's ability to carry out its certification activities. The top decisionmaking body of the CNAB is its board, which consists of thirty-one members from various organizations, including government agencies, certification bodies, businesses, consumers, and technical experts. The CNAT, the other key organization of the CNCA, is responsible for establishing an accreditation system for national auditor registration, training auditors, and offering consultancy services to firms involved in environmental auditing.

Figure 1
Organizational Structure of China's ISO 14001 System



The organizational changes to the ISO 14001 system in China, however, do not mean that the role of the government in promoting ISO 14001 has diminished. On the contrary, the government is able to control the ISO 14001 system more directly and effectively now that authority has been transferred from SEPA to the CNCA. The CNCA is a government organization authorized by the State Council (國務院) and its operations are based on the "Regulations on Certification and Accreditation" (認證認可條例) adopted at the 18th executive meeting of the State Council on August

20, 2003, and promulgated on September 3, 2003.³⁰ The CNAB is also controlled by the government even though only six of its board members are supposed to be government personnel, as mentioned above. In fact, about half of the remaining twenty-five members are either government officials or quasi-officials from various government affiliated organizations, such as the China Environmental United Certification Center (中環聯合[北京]認證中心有限公司), the China Association for Quality (中國質量協會), the Ministry of Construction (中華人民共和國建設部), and the China Consumers Association (中國消費者委員會) in the State Administration of Industry and Commerce (國家工商管理管理局).³¹

China is not the only country where the government directly organizes and controls the national accreditation board. Government agencies in some developing countries like India and Brazil have played a key role in organizing and maintaining their national accreditation boards. However, among the top ten countries that have vigorously promoted ISO 14001, China is unique in terms of the government's role in organizing and controlling the national accreditation board. In many developed countries, national accreditation boards are virtually independent organizations with full autonomy to organize key decisionmaking bodies and operate certification activities, although they are officially recognized and advised by their governments. In the United Kingdom, for instance, the United Kingdom Accreditation Service (UKAS) has a close relationship with government agencies, but it is a nonprofit organization independent from the government. Similarly, the ANSI-ASQ National Accreditation Board (ANAB) in the United States is independent from government agencies, and almost all members of the board of directors and the environmental management council are from business, research institutes, and other related nonprofit organizations. In the case of Japan, all the members of the board of directors of the Japan Accreditation Board for Conformity Assessment (JAB)

³⁰Full text of the "Regulations" is on the CNCA homepage. <http://www.cnca.gov.cn>.

³¹The names, titles, and organizations of all the thirty-one members of the Board of CNAB are on China National Accreditation Board for Certifiers (CNAB), *China National Accreditation Board for Certifiers* (a brochure).



are from industry associations, individual businesses, and other private organizations.³²

Moreover, in China, most of the certification centers (registrars) of ISO 14001 are either directly controlled by or closely connected with government agencies. As of June 2004, there were fifty-eight certification centers for ISO 14001 in China. About 80 percent of them are in Beijing and most of them have close links with SEPA and other central government ministries or with the Beijing Municipal Environmental Protection Bureau.³³ The largest one is the China Environmental United Certification Center in Beijing, which is under the control of the Environmental Certification Division of SEPA (國家環境保護總局環境認證中心). The top-level managers of this center have a very close relationship with SEPA although they are not government officials. It is clear from this that the third-party certification system in China is under the tight control of government agencies.

Even though the main authority has been transferred from SEPA to the CNCA, SEPA still plays a role in China's ISO 14001 system through various organizational as well as personal connections to the CNCA, the CNAB, and the CNAT. Also, although SEPA has not had direct control over the accreditation and certification process at the individual firm level since 2003, it promotes ISO 14001 in other ways, such as through the Eco-Provinces (生態省) and Circular Economies (循環經濟) schemes. It encourages provinces, industrial parks, and special economic zones to acquire ISO 14001 certification. In addition, it promotes an "environment-friendly enterprise" labeling scheme which is equivalent to ISO 14001 but not based on international standards. By June 2005, eleven firms had acquired this certification.³⁴

In sum, the role of the government has been enormous in creating and maintaining China's ISO 14001 system. The government introduced

³²Information on national accreditation boards in other countries is gathered from ISO, *ISO Directory of ISO 9001:2000 and ISO 14001:2004 Accreditation and Certification Bodies*, <http://www.iso.org/iso/en/info/ISODirectory/countries.html>.

³³Interview with ISO 14000 specialists in Beijing, June 2005.

³⁴Interview with ISO 14000 specialists in Beijing, June 2005.

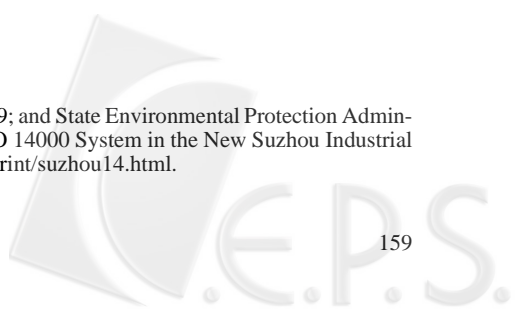
ISO 14001 to China and SEPA has vigorously promoted it as a key market incentive policy instrument. After 2003, the government created the CNCA and began to control the accreditation and certification process more effectively, while SEPA is still engaged in ISO 14001 in many ways.

The Government's Resolution as a Driving Force

The Chinese government has not only proactively encouraged the introduction of ISO 14001 and set up its institutional base in China, but has also established a couple of pilot projects and designated some cities and areas for testing ISO 14001 implementation. In 1996, the central government launched the first pilot project for ISO 14001 in Xiamen (廈門), and another one was initiated in Suzhou (蘇州) Industrial Park in 1997 and completed in 1999. In developed countries it is unusual for a whole city or a specific region to apply for ISO 14001 certification. However, in China, the government's drive for fast and effective implementation of ISO 14001 resulted in these city (or area) level pilot projects. The standards and guidelines for an environmental management system that a city or area has to demonstrate in order to acquire ISO 14001 certification are, of course, different from those for an individual firm. They include a number of specific self-regulations, such as the proportion of green area in the city, efficiency in energy consumption, feasible plans for reducing coal use, equipment for reducing water and air pollution, and programs of environmental education and propaganda for local citizens.³⁵

These pilot projects were remarkably successful, mostly due to government initiative and support. In some cases, local governments paid up to 50 percent of the certification fee and the central government provided the information and know-how necessary for successful implementation. Subsequently, other cities such as Dalian (大連), Wuxi (無錫), and Qinhuangdao (秦皇島) applied for and received ISO 14001 certifications for

³⁵Liu, *Qingjie shengchan yu ISO 14000*, 193-99; and State Environmental Protection Administration (SEPA), "Implementation of the ISO 14000 System in the New Suzhou Industrial Park," <http://www.chinacp.com/eng/cppub/print/suzhou14.html>.



their economic development zones.³⁶ Local government leaders are motivated to acquire ISO 14001 certification for several reasons. First, it can improve the overall environmental protection system and facilitate foreign trade for firms operating within their localities. Second, if a city, or a specific part of a city, proceeds with ISO 14001 certification, it can encourage individual enterprises within the city to adopt ISO 14001. Third, the local government can gain favor with the central government by acquiring ISO 14001 certification.³⁷ Therefore, local leaders, especially those in economically open coastal areas, have become very enthusiastic about ISO 14001. Some local governments offer benefits such as tax cuts to certified firms. In some cases, the central government directly orders local leaders to promote ISO 14001. One extreme case is that of the Beijing municipal government which required all construction projects in Beijing to obtain ISO 14001 certification in order to reduce the serious air pollution from construction sites. This is because the central government wants to have a "green" Olympics in 2008.³⁸

As is exemplified in the above cases, government enthusiasm has been the most powerful driving force behind the rapid and effective implementation of ISO 14001 in China, and the motivation for this is both environmental and economic. Until some of the new market incentive policy instruments like ISO 14001 and eco-labeling were introduced in the mid-1990s, China's environmental policy had mostly been a command and control system based on a campaign approach. In many cases, however, these policies were weakly implemented, particularly in the provinces, due to lack of funding, corruption, and low environmental awareness among local citizens.³⁹ Therefore, the Chinese environmental leadership wel-

³⁶Geng Yong, "EMS as an Opportunity for Engaging China's Economic Development Zones: The Case of Dalian," *The United Nations Environmental Program (UNEP) Case Studies*, <http://www.unep.org/pc/ind-estates/casestudies/Dalian.htm>; and "Zone Harboring Ambitions for Growth," *Renmin ribao*, September 30, 2004.

³⁷Interview with local environmental protection bureau officials in Dalian, Liaoning Province (遼寧省), July 2003.

³⁸Interview with ISO 14000 specialists in Beijing, June 2005.

³⁹For an overview of China's environmental policy and institutions, see Abigail R. Jahiel,

came the new market incentive policies in the expectation that they could increase the overall effectiveness of environmental policy implementation and, at the same time, reduce the government's regulatory costs. However, more importantly, Chinese government leaders fully recognized the importance of ISO 14001 as a way of breaking through the "green" barriers in international trade.⁴⁰ Especially after China joined the WTO, they became more sensitive to the increasing pressure from developed countries for international standardization of environmental management systems and more concerned about the prevalence of technical barriers to trade, including green barriers.⁴¹

Chinese enterprises that have received ISO 14001 certification are those that are heavily engaged in foreign trade. At the end of 2002, 67 percent of the certified firms were foreign-invested enterprises (FIEs), 15 percent were domestic private enterprises, and only 18 percent were state-owned enterprises. Given the fact that FIEs already accounted for more than 50 percent of China's total exports in 2002, it is clear that foreign market access has been one of the most important reasons for both firms and the government to promote ISO 14001. Also, in terms of industry variation, export-oriented industries like electronics, chemical products, machinery, textiles, and food products accounted for over 60 percent of ISO 14001 certifications in China in that year (see fig. 2). In addition, in December 2002, over 70 percent of the enterprises that received ISO 14001 certification were located in Guangdong (廣東), Jiangsu (江蘇), Beijing (北京), Shandong (山東), Liaoning, and Zhejiang (浙江) provinces.⁴²

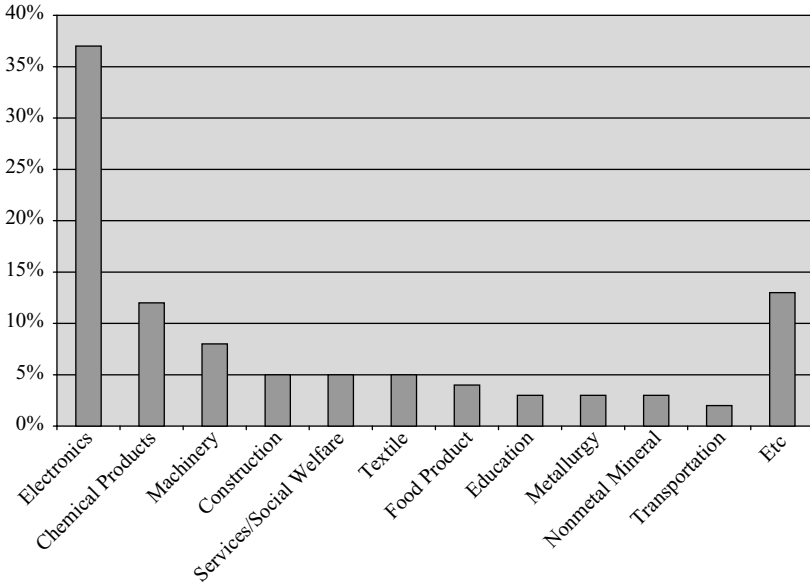
"The Contradictory Impact of Reform on Environmental Protection in China," *The China Quarterly*, no. 149 (March 1997): 81-103; and Abigail R. Jahiel, "The Organizational Structure of Environmental Protection in China," in *Managing the Chinese Environment*, ed. Richard Louis Edmonds (Oxford: Oxford University Press, 2000), 33-63.

⁴⁰China to Fully Carry out ISO 14000 Environmental Management System," *Renmin ribao*, June 16, 2000.

⁴¹Xia Youfu, *Jishuxing maoyi bilei yanjiu baogao* (Research report on the technical barriers to trade) (Beijing: Zhongguo jixie gongye chubanshe, 2002).

⁴²These data for ownership, industry, and regional distribution of ISO 14001 certified enterprises as of December 2002 are gathered from the China Environmental Unified Certification Center in Beijing (www.sepaece.com).

Figure 2
Industry Distribution of ISO 14001 in China, December 2002



Problems with Government Intervention

In principle, ISO 14001 is a typical self-regulatory scheme, in which firms receive certification for voluntarily demonstrating willingness to improve their environmental management systems. However, this does not mean that ISO 14001 is completely independent from government regulatory policies. Scholars have pointed out that, at least in some cases, self-regulatory schemes are not effective without government enforcement,⁴³ and that governments should play a significant role in creating favorable conditions, such as providing more reliable information systems, technical advice, and research and development for proper EMS implementation, as well as financial assistance and advocacy programs for

⁴³Haufler, "Globalization and Industrial Self-Regulation," 251.

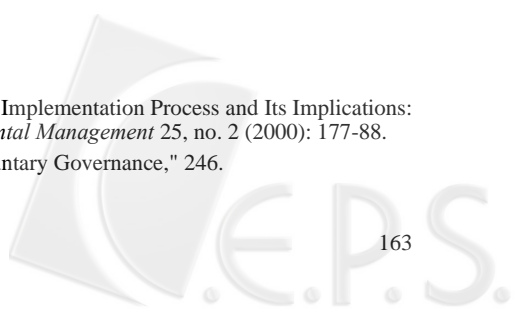
enterprises.⁴⁴ One study finds that some government policies such as the frequency with which facilities receive inspections and the stringency of regulations compel facilities to adopt ISO 14001.⁴⁵

It is true that the role of the government can have a positive impact on the effectiveness of ISO 14001 implementation. However, what is found in China is that ISO 14001 is not only proactively promoted and supported by the government but is also under the direct government regulatory control as one of the key national environmental policy instruments. As was seen above, the CNCA accredits all registrars (both domestic and foreign) and closely monitors their certification activities based on government regulations. The CNAB and the majority of certification centers have direct or indirect relations with government agencies. SEPA is still significantly engaged in the whole process of ISO 14001. Indeed, ISO 14001 and other market incentive policies—such as eco-labeling, cleaner production, and emissions trading—have become the top priority of SEPA, especially since China's entry into the WTO.

The government's direct intervention in and control of ISO 14001 in China has both positive and negative aspects. The positive aspect is that it has facilitated the rapid and effective establishment of a national ISO 14001 system. This explains the rapid increase in the number of certifications in China. The government has promoted ISO 14001 as a national environmental policy, set up an organizational and legislative infrastructure, conducted pilot projects, and encouraged local environmental protection bureaus to promote it at the local level. On the other hand, the negative aspect is that government intervention might undermine the credibility and rigor of the certification system, particularly if the government has a bad reputation for policy implementation domestically or internationally. Several problems found in China's current ISO 14001 system illustrate this point.

⁴⁴Mohammed Matouq, "The ISO 14001 EMS Implementation Process and Its Implications: A Case Study of Central Japan," *Environmental Management* 25, no. 2 (2000): 177-88.

⁴⁵Potoski and Prakash, "Green Clubs and Voluntary Governance," 246.



First, because it is a voluntary scheme, ISO 14001 can be an effective tool for environmental protection if and only if existing environmental legislation and regulations are well developed and strictly enforced. When firms establish their EMS and prescribe their environmental goals and responsibilities, they rely on existing national environmental regulations and standards as a reference point. An MNC operating in a developing country will often adopt its parent company's EMS, but there is also a tendency for it to just follow local environmental regulations and standards. Therefore, the success of ISO 14001 as an environmental policy instrument depends on the level of environmental institutionalization, especially in developing countries where environmental regulations and policies are less institutionalized and not strictly enforced. Ross has asserted that this is not the case in China which already has a comprehensive and stringent system of environmental regulations.⁴⁶ However, weak enforcement of regulations and lack of capital and technological resources—especially in less-developed provinces—are still serious problems in China's environmental policy. If mutual reinforcement between existing command and control-type policies and new market incentive policies is not implemented effectively, the environmental benefits of ISO 14001 might not be realized, even if the government can reduce regulatory costs for environmental protection.⁴⁷ Therefore, the government's role in strengthening overall environmental policies and enforcement activities is crucial in the successful implementation of ISO 14001 in China.

Second, the government should explicitly define the scope of its intervention in the process of ISO 14001. There are some occasions on which the government should play the role of a regulator or referee. An example of this is the fee schedules for certification. Some managers of Chinese certification centers mentioned that the rapid increase in ISO 14001 certifications in China actually had to do with price competition in certification

⁴⁶Ross, "China: Environmental Protection, Domestic Policy Trends," 102.

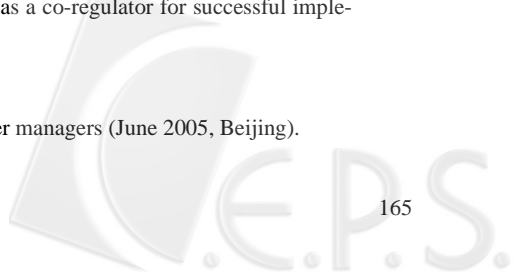
⁴⁷Many Chinese environmental officials and specialists on ISO 14001 emphasized this point during their interviews. However, they also noted that this could not be achieved in a short period of time (June 2005, Beijing).

fees. Certification centers have lowered fees in an attempt to attract more clients, which has resulted in less rigorous investigation of firms' environmental management systems.⁴⁸ The government should stringently monitor fee schedules for certification in order to reinforce the autonomy and fairness of third-party investigations. Also, the government can encourage township and village enterprises (TVEs) and state-owned enterprises (SOEs) to gain certifications by offering soft loans or short-term subsidies. While many of these enterprises need to create or improve their environmental management systems, they have financial difficulties in applying for certification. Therefore, the government can play a positive role in supporting these enterprises' efforts to get certified. Up to now, the Chinese government has focused its ISO 14001 policy mostly on export-oriented enterprises located in the eastern coastal areas. In addition, the government can raise awareness of the importance of ISO 14001 and the standardization of EMS by organizing training courses and educational programs. SEPA and affiliated institutions have played a significant role in these activities, and they have established an effective coordination network with universities and research institutes.

Third, government intervention can have a positive impact on successful implementation of ISO 14001 if the government sufficiently demonstrates its willingness to protect the environment. In this sense, national implementation of ISO 14001, especially in developing countries like China, is affected by the government's overall reputation on environmental protection. Improving corporate image in markets depends to a certain extent on improving the government's image regarding its environmental protection efforts. One researcher in Beijing made the following comments:

Currently, in China, the government is actually the main player in ISO 14001. In principle, it should only supervise the process of accreditation and certification as a referee and should not directly intervene, because ISO 14001 is a market incentive scheme. However, Chinese environmental officials do not think that ISO 14001 is entirely an industry self-regulation. They recognize that the government should play a key role as a co-regulator for successful imple-

⁴⁸Interview with ISO 14001 certification center managers (June 2005, Beijing).



mentation of ISO 14001. This is positive in China's current situation, of course. However, what happens in China is that the government promotes it as a pivotal national environmental policy and, for firms engaged in foreign trade, ISO 14001 is almost compulsory (or very strongly recommended). Many business-people, especially in local areas, are not even aware that ISO 14001 is a matter of choice. Of course, the role of the government is positive in the short term. It actually increased the number of certifications very rapidly in China. However, in the long term, it is negative because consumers both inside and outside China might not give much credit to firms with a green hat if the certification is done under government control, and if the government is not trusted by them in terms of environmental protection efforts. The advantage of industry self-regulation such as ISO 14001 and eco-labeling is that consumers evaluate environmental performance of firms or a specific product regardless of their country of origin. However, if the government is deeply involved in the certification process, consumers might begin to evaluate the environmental performance of the government. If this happens, Chinese firms might not be able to take full advantage of ISO 14001 because the Chinese government still does not have a good reputation despite its serious efforts to protect the environment.⁴⁹

Therefore, in order to attain both the environmental and economic goals of ISO 14001, the Chinese government should strengthen existing environmental institutions and demonstrate its commitment to care of the environment.

Conclusions and Implications

As scholars have pointed out, the emergence and diffusion of self-regulatory initiatives are bound up with new sources of environmental governance beyond the state.⁵⁰ Firms are increasingly concerned about consumer demand for greenness in both domestic and international markets, and voluntarily improve their environmental management systems and performance. Economic globalization and increasing demand for harmonization of national environmental standards and practices have caused these self-regulatory initiatives to develop into a transnational cor-

⁴⁹Interview with a Chinese environmental policy specialist (June 2005, Beijing).

⁵⁰Neumayer and Perkins, "What Explains the Uneven Take-up of ISO 14001 at the Global Level?" 835.

porate network, and ISO 14001 is a visible example of this. Although it is a self-regulatory scheme, ISO 14001 is not completely free from government regulation. Especially in developing countries, government agencies tend to play a significant role in introducing and facilitating ISO 14001, and sometimes are directly involved in the accreditation and certification process, because in many cases, the government is the only agency that has the institutional capacity to carry out these tasks.

As was revealed in this paper, the Chinese government has vigorously promoted ISO 14001 as a national environmental policy from an early stage, by establishing operating bodies and providing information, know-how, and other support. Until 2002, SEPA directly controlled the accreditation and certification process, but in 2003, the government created an independent organization, the CNCA, which controls and coordinates all accreditation and certification activities, including those for ISO 14001. However, SEPA is still directly involved in ISO 14001 in many ways. It promotes certifications to local governments and firms and sometimes gives incentives to them. Also, it has a close personal and organizational relationship with many of the certification centers. Therefore, it can be concluded that government agencies such as the CNCA, CNAB, and SEPA are still the main actors in China's ISO 14001 system, and this might be one of the factors that explains the rapid increase in the number of certifications.

It is not surprising that the Chinese government has shown so much enthusiasm for ISO 14001 considering its possible economic and environmental benefits. However, a number of structural factors help to explain the heavy government involvement in ISO 14001, although they are beyond the scope of this research. The first important background factor is economic globalization and China's high degree of economic openness. Especially after China's integration into the world economy was accelerated by entry into the WTO, the need for the Chinese government to respond more strategically to the international pressures of standards harmonization and green barriers has increased. In this sense, promoting ISO 14001 can be seen as a response to globalization deployed by governments of individual countries to maximize the benefits and minimize the

risks of globalization.⁵¹ Second, strong government initiatives in overall economic policy in China are another important factor explaining government intervention in ISO 14001. Since ISO 14001 is critical for foreign trade, government leaders may have decided to emphasize it as part of the national economic development strategy. Although systematic research is required to examine the relationship between state-led industrialization and national adoption of ISO 14001 from a comparative perspective, similar government enthusiasm for ISO 14001 is also found in Japan, Taiwan, and South Korea where governments played a key role in economic development.⁵² Third, and most importantly, Chinese government intervention in ISO 14001 might have to do with China's pattern of environmental governance which has been almost entirely top-down without any significant part being played by environmental NGOs and other civil environmental entities. In fact, governments have adopted a similar role in many other countries, especially in countries where the degree of economic openness is relatively high and where the government has played a key role in economic development. However, China's case is exceptional because the government has not only been active in introducing and facilitating ISO 14001 but it also to a great extent controls the accreditation and certification process. This is probably because China's environmental policy in general—either command and control or market incentive—is established and implemented predominantly by government environmental agencies, and private actors' participation is very limited. It is not surprising that the government directly controls ISO 14001, given that it controls other environmental policies.

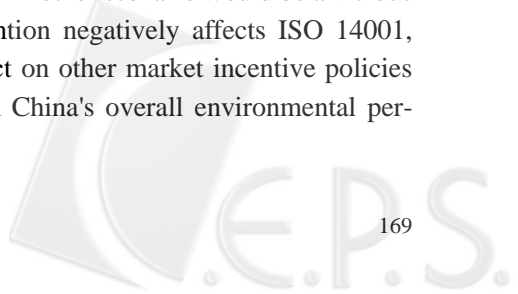
This last point might have policy implications for other developing countries. As was mentioned above, there are positive and negative as-

⁵¹For the notion of responding strategy to globalization, see Aseem Prakash and Jeffrey A. Hart, "Responding to Globalization—An Introduction," in *Responding to Globalization*, ed. Aseem Prakash and Jeffrey A. Hart (New York: Routledge, 2000), 1-41.

⁵²Charles J. Corbett and Michael V. Russo, "ISO 14001: Irrelevant or Invaluable?" *ISO Management Systems* (December 2001), 24. http://www.iso.org/iso/en/iso9000-14000/addressources/articles/pdf/specialreport_2-01.pdf.

pects to government intervention in ISO 14001. Given low levels of public awareness of ISO 14001 and the weak financial and institutional capabilities of developing countries, government intervention is not only positive but also necessary to a certain degree. On the other hand, government intervention might undermine the credibility and rigor of the certification system if the government has a bad reputation for its environmental policy. In this sense, the pattern of environmental governance can be an important factor that determines the long-term success of ISO 14001. More active participation from private actors in environmental policy and government efforts to raise citizens' environmental awareness can have a positive impact on the government's reputation for environmental protection and thus, eventually, on the effectiveness of market incentive environmental policies like ISO 14001.

The global diffusion of ISO 14001 has demonstrated that industry self-regulation is now a significant element of global environmental governance, and regulatory harmonization of environmental protection has become a dominant trend in the age of globalization. However, this trend can either help developing countries to strengthen their environmental protection regulations or, on the contrary, result in a regulatory "race to the bottom." The case of China suggests that the spread of ISO 14001 ultimately depends on national variations in its practice, and the role of the government is one of the critical factors that causes this variation. As was illustrated in this paper, the Chinese government has been successful in promoting ISO 14001 rapidly and effectively, but in the long term, it should play the role of a referee, not a main player, in order to fully realize the environmental and economic goals of ISO 14001. The best scenario would be a virtuous circle in which the practice of ISO 14001 has a positive effect on existing environmental policies, which would improve China's overall environmental performance and reputation and then further increase the effectiveness of ISO 14001 in China. Another scenario would be a vicious circle in which government intervention negatively affects ISO 14001, which might have a contagious effect on other market incentive policies such as eco-labeling, and thus harm China's overall environmental performance and reputation.



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