

Public Participation and Environmental Impact Assessment in Mainland China and Taiwan: Political Foundations of Environmental Management

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What role can public participation play in environmental management? Among major tools for environmental management, Environmental Impact Assessment (EIA) has been widely practised in many countries. Its effectiveness, however, varies depending on the extent to which transparency and public participation are incorporated in its process. In this article, we analyse the role of public participation in environmental management by examining the operation of EIAs in two polities, Mainland China and Taiwan. In both cases, a lack of transparency and public participation had severely limited the effectiveness of EIA during the initial years when it was first introduced. Both polities have attempted to address the respective limitations of their EIA systems, and both have made some progress while encountering problems inherent in their underlying political institutions. The two cases illustrate the dynamic connections between political institutions and environmental management in developing countries.

I. INTRODUCTION

How can public participation play a role in environmental management, which is a field requiring a high degree of professional knowledge and which

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has traditionally been dominated by experts and technocrats? Depending on the openness and responsiveness of their underlying political institutions, different environmental management systems have incorporated different degrees of public participation in their decision-making structures. Do such differences in public participation channels have an impact on the overall effectiveness of an environmental management system?

Take Environmental Impact Assessment (EIA) as an example. Since its introduction as part of the National Environmental Policy Act in the USA in 1969,¹ EIA has been instituted in more than 100 countries worldwide [Wood, 1995; World Bank, 1997]. Yet as a major instrument for environmental management, EIA has met with varying degrees of success, depending on its soundness, the range of ecological and social factors it takes into account, and its ability to shape developmental decisions and design. At its worst, EIA could be merely a tool used by developers to justify their development project by declaring that its benefits outweigh its costs, without substantive impact on the project's design. In a more favourable scenario, EIA could be a useful tool for identifying a project's potentially adverse effects and for encouraging developers to institute appropriate preventive measures. Yet, as is true in many countries, the range of issues addressed by EIA has remained limited, often focusing on the technical rather than the social and political aspects of a development project. In the most favourable scenario, EIA could be a truly transparent, responsive and accountable process in which relevant stakeholders are involved in assessing various technical, ecological and social aspects of a development project and in instituting mitigation measures against adverse effects [Biswas and Agarwal, 1992; Wood, 1995; World Bank 1997; Harrop and Nixon, 2000].

Many scholars and practitioners argue that an ideal EIA system must be transparent and involve meaningful public participation. EIA often resembles a zero-sum game in which the economic interests of a development project come into direct conflict with ecological conservation interests. In such a situation, ecological interests are usually disadvantaged because stakeholders of the conservation camp (usually nature lovers) tend to be large in number but geographically dispersed, and thus suffering from greater collective action problems than their opponents in mobilising support [Vogel, 1993]. In contrast, the opposite camp often consists of a handful of business elites and landowners involving heavy and concentrated economic stakes. They not only have strong incentives to influence policy making, but also are more capable of doing so because of their better personal connections with public officials, high social status and greater financial resources [Oye and Maxwell, 1994]. To counter such an imbalance, institutional incentives are needed for public officials to resist undue influence when rendering their professional judgement about the economic versus ecological merits of a development

project. An open, transparent system can encourage participation of disadvantaged groups to press their needs, diverse social actors to speak up their minds, and under-represented sectors to feel empowered. These can in turn encourage decisionmakers to make sounder and fairer decisions that are accountable to broader interests, including those of non-voters, future generations, or non-human species [Dobson, 1996; Payne, 1995].

Many examples of less-than-ideal practice of EIA, however, can be found even among Western, industrialised countries [Sinclair and Diduck, 2001]. Needless to say, EIA in many developing countries tends to be deficient in terms of transparency and meaningful public participation [Biswas and Agarwal, 1992; Wood, 1995; World Bank 1997; Boyle, 1998; Kakonge, 1998; Olokesusi, 1998; Furia and Wallace-Jones, 2000; Saarikoski, 2000; Cherp, 2001]. As argued by some authors, especially in countries that are still at an early stage of economic development, the key to improving environmental protection is not necessarily more democratic participation, but the presence of state actors that have the will and organisational capabilities to impose stringent regulations on polluting projects and activities [Rock, 2002]. According to this argument, an EIA system lacking transparency and public participation may still contribute significantly to environmental protection, as long as autonomous and capable government entities are available to enforce the system. In this regard, Singapore is often cited as an example in which an authoritarian government can develop and enforce an effective environmental regulatory system that lacks transparency and democratic participation [Rock, 2002]. In Singapore, EIA is not even a legal requirement. The Ministry of Environment may require a development project to undertake EIA if the project is believed to have major polluting effects. The EIA process, however, lacks provision for public disclosure and participation. Despite these institutional shortcomings, the Singapore government is generally credited for running a relatively effective environmental management system.

Singapore's experience in environmental management is probably difficult to replicate, as it happens to be a high-income city-state with a strong and capable government that is autonomous from business interests and is committed to sustainable development. Few developing countries resemble the economic and political conditions of Singapore. Based on a study of environmental capacity building experiences in 30 developed and developing countries, Weidner [2002] shows that environmental management capacity of a country depends critically on the strength and configuration of governmental and non-governmental proponents of environmental protection, whose work benefits from the existence of democratic political institutions. Although one can easily point to many potential conflicts between democracy and environmental protection [Lafferty and Meadowcroft, 1996], Weidner's

empirical study suggests that ‘Democratization has proved a basic condition for effective capacity building and has significantly improved the opportunity structure for environmental proponents throughout the world by increasing the participatory, integrative, and cognitive-informational capacities of political systems’ [Weidner 2002: 1358]. One way to interpret this finding is that although democratic institutions may not guarantee a perfect environmental management system, they do increase the chances that a greater environmental management capacity be achieved. In order to build capacity for environmental management, the underlying political foundations must also be strengthened.

A sizeable literature exists that examines how political institutions in Western democracies affect the choice of alternative regulatory arrangements and structural features of regulatory agencies. The central theoretical puzzle in this literature is how, within a specific constitutional framework, the political relationships among three sets of actors – legislators, administrators, and constituents – affect an enacting coalition’s choice of regulatory tools and agency structures [Macey, 1992; McCubbins et al., 1987; Moe, 1990]. In the USA, for example, many environmental regulations such as EIA are structured in ways that guarantee various interest groups – including those who are for or against more stringent environmental regulations – convenient channels to participate in their implementation. Such structural features result from the fact that many interest groups are direct participants in the legislative processes leading to the adoption of environmental regulations. Since each interest group would try to prevent the agency responsible for carrying out the regulations from being ‘captured’ by an opposing group, compromises among these opposing groups often result in regulations that provide for many official channels for them to participate in the rule making, enforcement and adjudication processes of the agency. Although these public participation channels may be cumbersome and may slow down the work of the agencies, they help to prevent the agencies from being dominated by one narrow set of interests. The relative transparency of the process also helps to make EIA credible in the eyes of stakeholders and the public. Yet transparency and public participation cannot guarantee the success of EIA as much fine-tuning is needed to shape its information sharing, participatory and decision-making mechanisms [Sinclair and Diduck, 2001].

In many developing countries with an authoritarian political system, environmental regulations have largely been initiated by government officials from the ‘top-down’, often in response to international pressure, rather than to public demand from within. Seldom have domestic environmental groups been involved in drafting environmental regulations including those governing EIA. When government bureaucrats are empowered to develop the EIA process mostly on their own, they tend to design the process in such a

way that it is administratively convenient to implement and allows for little oversight by the public. They also tend to design the process in such a way that it is least likely to arouse organised opposition from political and economic elites, who often consider EIA an unnecessary burden on the development projects they sponsor [Boyle, 1998; Kakonge, 1998; Cherp, 2001]. As a result, the EIA process in these countries is often structured for little public participation and transparency, limiting its potential as an effective tool for environmental protection. Efforts to reform EIA, however, can easily run into limits imposed by the underlying authoritarian political system.

In this article, we draw on the EIA experiences in Mainland China and Taiwan to examine the dynamics between political changes and environmental management capacity building. In the case of China, authoritarianism has created a dilemma in the development of its EIA system. On the one hand, there is evidence showing how a lack of transparency and democratic participation has rendered its EIA system susceptible to dominant economic interests within the party–state establishment, thus undermining its effectiveness as a tool in environmental protection – an observation shared even among high-level policy makers in China. On the other hand, the authoritarian nature of the political system has imposed severe limits on the extent to which transparency and public participation can be incorporated into the EIA system as a guard against political and economic distortions. EIA and many other regulatory measures can contribute to some degrees of environmental protection, but their achievements are inherently limited.

In the case of Taiwan, its authoritarian legacy initially gave rise to an EIA system that was quite similar to the earlier Mainland system in terms of its limited channels for public participation and susceptibility to political influence from within the political establishment. Democratisation in the past decade, however, has triggered public pressure to develop more channels for various social groups to influence the design of the EIA system, making it a more participatory process and a potentially more effective tool for environmental protection. Yet many problems remain as to how participatory processes can be improved such that the EIA system can help to resolve environmental conflicts more peacefully and effectively.

The EIA experiences of China and Taiwan serve as a window for us to explore the larger issue about the political foundation of environmental management in developing countries. In the rest of this article, we first discuss how political circumstances have affected the features and performance of EIA in large municipal areas in China, using Guangzhou and Shanghai as examples. Then we examine how the political changes associated with democratisation in Taiwan have transformed its EIA system in recent years.² In the concluding section, we discuss how the cases of China

and Taiwan illustrate the dynamic connections between political institutions and EIA practices in developing countries.

II. POLITICAL INSTITUTIONS AND EIA IN URBAN CHINA

In China, EIA is part of the Environmental Protection Law, adopted provisionally in 1979 and finalised in 1989. The Law has provided governments at various levels legal authority for pollution prevention and environmental planning. According to Article 13 of the Law, proponents of a construction project that may cause environmental pollution must prepare an environmental impact statement that assesses its impact on the environment and stipulates appropriate preventive measures. After an initial examination by the authorities in charge of the project, the statement must be approved by the responsible environmental protection administration before the planning department can permit the project itself. In addition, Article 26 stipulates the so-called 'three synchronisations' requirement, meaning that a construction project must build in its original design measures for preventing and controlling pollution. No project permission should be granted until those measures are accepted by the responsible environment protection administration that approved the original environmental impact statement. Within this legal framework, local governments are empowered to adopt their own specific regulations and rules for assessing the development of small to medium-sized projects within their jurisdictions. In most local jurisdictions, all major development and construction projects with potential adverse environmental consequences are legally required to undertake EIAs. The EIA process usually involves three stages – the project proposal stage, the EIA stage, and the 'three synchronisations' stage for ensuring that environmental measures specified in the EIA report are followed in the project design, construction, and completion phases [Environmental Protection Law of the People's Republic of China (For Trial Implementation), 1979]. In most cities, municipal environmental protection bureaus and their local agencies are responsible for enforcing the EIA requirements.³

III. THE CASE OF GUANGZHOU AND SHANGHAI

As China is a huge country, local governments differ widely in their specific EIA systems and in the ways they implement it. It is widely acknowledged that governments in rural areas tend to lag behind those in large metropolitan areas in their determination to use EIA as a tool for environmental protection [Qu, 1987]. In large metropolitan areas along the coastal region, especially those prosperous ones like Dalian, Shanghai and Guangzhou, government

officials and the public tend to be more aware of the environmental degradation problems triggered by their high growth rates in the past two decades [Lam and Tao, 1996; Lo and Leung, 1998; Ho, 2001]. Since these areas are considered as showcase cities to the outside world, officials in these areas tend to be more concerned about environmental issues than their counterparts in less developed areas. As a result, the EIA systems in these large metropolitan areas also tend to be better established than those in rural areas and most other inland cities. Despite these advantages, EIA systems in these coastal metropolitan areas still suffer from various shortcomings, often due to the underlying political constraints.

We use examples from two cities – Guangzhou and Shanghai – to illustrate how political constraints affect the design of EIA in these coastal metropolitan areas. In both Guangzhou and Shanghai, the municipal environmental protection bureaus (EPBs) are responsible for designing and enforcing various environmental regulations including EIA. Like other local administrative organs in China, municipal EPBs are formally subject to the ‘functional’ supervision of their counterparts at a higher level. The Guangzhou EPB is under the supervision of the EPB of Guangdong Province, while Shanghai as a municipality directly under the central government is under the supervision of the national State Environmental Protection Administration (SEPA). Yet the national SEPA and provincial EPBs have limited leverage over their lower-level counterparts, because the former have no financial control over the latter. In reality, except for relating central policies and directives, higher-level environmental protection authorities seldom directly interfere with the daily work of municipal EPBs. Municipal EPBs in both Guangzhou and Shanghai are more closely connected to the municipal government establishment under the leadership of the mayor, as the bureau heads are appointed by the mayor and their budgets provided by the municipal government.

When designing and enforcing environmental regulations, EPBs in Guangzhou and Shanghai seldom distribute benefits but often impose costs on the regulated. Such costs come in various forms such as the payment of pollutant discharge fees and the resources expended to ‘reduce pollution levels within a prescribed period of time’ (*xianqi zhili*). The EPBs in both cities thus lack a supportive clientele like other government agencies that are responsible for handling economic development and for delivering distributive benefits [Sims, 1999]. In both Guangzhou and Shanghai, many municipal agencies either directly run their own polluting industrial plants or have significant financial interests in them.⁴ These agencies are potential adversaries to the EPB. In an era when most municipal leaders are more concerned about economic growth than environmental protection, EPB bureaucrats often find themselves under pressure from other units of the

municipal government to accommodate their economic interests when designing and enforcing regulations.

Furthermore, as a result of the past two decades of economic and structural reform, governments at all levels have been under financial stress. There has been strong political pressure at all levels to reduce government expenditure by streamlining the party–state bureaucracies. To carry out increasing numbers of regulatory responsibilities, both the Guangzhou and Shanghai EPBs have to work within restrictive budgets, particularly in regard to human resources. The staff establishment of Guangzhou EPB was reduced from 65 to 48 in the latest round of government restructuring in 2001⁵, and that of Shanghai EPB was reduced from 102 in 1993 to 91 in 2000 [*Zhongguo huanjing nianjin weiyuanhui, 1994, 2001: 487; 2001: 591*]. The general fiscal principle for environmental protection has been ‘using environmental protection to support environment protection’, meaning that government expenditures only support basic salaries and benefits of agency personnel, agencies themselves must finance their operating expenditure by developing their own independent income sources. As discussed later, this concern has affected the way the Guangzhou and Shanghai EPBs structure the EIA processes within their cities.

IV. EIA PROCEDURES

One major characteristic of EIA in China is its ‘three synchronisations’ requirement, which requires an environmental agency to monitor not only the design, but also the construction and operational phases of a development project [*Lo et al., 1997; Sinkule and Ortolano, 1995*]. Despite such a comprehensive and forward-looking setup, the EIA system in most municipal areas had, until very recently, suffered from a major weakness in that it was structured mostly as an internal bureaucratic procedure and excluded almost any form of public participation in the process. This feature was compatible with the national provisions for EIA adopted in 1981 and 1986, which had no requirement for any form of public consultation. The official review of the EIA system in 1993 continued to stress only the legal requirements of the process and ignored any need for public participation [*Zhongguo huanjing baohu xingzheng ershi nian weiyuanhui, 1994: 100–12*].

Reflective of these national provisions, EIA procedures adopted initially by Guangzhou and Shanghai offered few avenues for the public to review environmental assessment documents. Government agencies or their affiliates were solely responsible for setting rules governing the EIA process, from preparing to evaluating and implementing environmental impact statements, leaving few institutional channels for the public and affected groups to express their opinions on a proposed project. Although individuals who

suffered property and financial losses due to specific government actions could sue the responsible administrative unit in court, there was no legal provision for the public to challenge administrative discretion. Overall, no well-established supervisory mechanism was available for the public to ensure the accountability of enforcement agencies. Consequently, the effective implementation of EIA had to rely mostly on the goodwill and self-initiation of government officials, who were not just responsible for promoting environmental protection, but were often preoccupied with finding financial resources to support their operations.

V. THE PRACTICE OF EIA

Since the early 1980s, increasing numbers of EIAs have been completed for polluting industries and infrastructure development projects, contributing to environmental protection by incorporating mitigation measures in project design [*Sinkule and Ortolano, 1995; Wenger et al., 1990*]. According to data in official reports, development projects have substantially increased their investments in pollution control and abatement facilities. During the period 1992–2000, the amount of such expenditures jumped from 5.5 billion to 26 billion. During the same period, the percentage of such expenditures in relation to total investments went up from 4.2 per cent to 5.9 per cent – getting closer to the official requirement of 7 per cent [*Zhongguo huanjing nianjian weiyuanhui, 1993: 159; 1996: 537; and 2001: 572*].

While EIA appears to have encouraged investments in pollution prevention and abatement, EIAs in Guangzhou and Shanghai have rarely resulted in the rejection or relocation of a project, as admitted by leading officials in the respective EPBs. In Shanghai, the only project that has been turned down by the Shanghai EPB was a proposed terminal for oil tankers in the Upper Huangpu River. Despite having obtained the construction site approval from the municipal government, the project was rejected because the assessment documents indicated that any leakage from tanks would fatally contaminate the nearby reservoir. Because of the Shanghai EPB's firm stand, this project was eventually given a new site which kept the terminal a safe distance from the reservoir.⁶

Based on our interviews with bureau officials and various published sources, we can identify a number of problems with the practice of EIA in Guangzhou and Shanghai, the foremost being that it could be easily distorted by informal politics within the party–state establishment. Indeed various irregularities have occurred in almost every stage of the EIA process. In the proposal stage, a notable example was the practice by municipal leaders of approving economic development project sites prior to the initiation of an

EIA. Once a project site was approved, it was politically difficult for the EPB to insist on its cancellation or relocation even if major adverse environmental effects were identified in subsequent EISs. The best the bureau could do was to require the project to make design adjustments or to adopt mitigation measures [see *Ma, Hao and Chen, 2002: 11–12*].

EIA requirements were regularly violated, especially during the initial years of their implementation. In Guangzhou, for example, the deputy mayor, in reviewing the enforcement of environmental regulations in 1995, openly admitted that both irregularities and non-compliance were quite serious as many government infrastructure projects were constructed without undergoing EIAs, while none of those that had undergone EIAs were subject to the 'three synchronisations' requirement [*Dai, 1995: 6; Zhao, 1996: 387*]. Similarly, an overwhelming majority of golf courses in newly developed districts and rural areas around Guangzhou had failed to conduct EIAs [*Tang et al., 1997*]. Likewise, in Shanghai, for projects sponsored by the powerful planning, economic and construction commissions, the SEPB has been under tremendous pressure to grant exceptions when enforcing EIA. Among them, the Foreign Investment Commission is well known for its lack of respect for the SEPB's authority over the EIA system. The Commission had allowed many foreign investment projects to begin construction before their EIA reports were formally examined and approved by the SEPB. In one instance, it improperly exempted a Korean food manufacturer from EIA scrutiny in the proposal stage, thus allowing it to discharge untreated effluents to the Huangpu River from the inception of its operation in 1994.⁷

Questions can also be raised about the way EIA reports were prepared. As a means for subsidising their operations, the environmental bureaus in Guangzhou and Shanghai have developed subsidiaries that are available for hire by developers to prepare EIA reports on their behalf. Because of their close ties with the municipal EPBs, these subsidiaries are the developers' preferred EIA agents. As a result, these subsidiaries monopolise the EIA jobs for all large and medium projects, and they also prepare the majority of the EIA studies for small-scale projects. Staff members in these subsidiaries often consult their colleagues in the municipal EPBs in conducting development projects' EIA studies to assure the eventual acceptance of these EIA reports. Although these subsidiaries were administratively and financially independent from their parent environmental protection bureaus, their involvement in preparing environmental impact statements created potential conflicts of interest for the bureaus. Staffs in the bureaus often have to evaluate reports prepared by their colleagues in these subsidiaries, with whom they may have close working relationships. Furthermore, the bureaus do receive financial

benefits from their subsidiaries.⁸ It is probably no coincidence that none of the EIA reports prepared by the EPB subsidiaries in Guangzhou and Shanghai has ever been rejected by their respective EPBs.

In making major developmental decisions, the EPBs in both Guangzhou and Shanghai often had to yield to the pressure of other bureaucratic agencies in the municipal government. In Guangzhou, for example, a highway project was proposed by the municipal authority in the early 1990s. The Division of Development and Construction Administration of the municipal EPB initially objected to the project after the environmental impact statement indicated that the highway would pass through densely populated areas and would generate large amounts of air and noise pollution. Nevertheless, upon insistence from the Municipal Construction Commission and the then National Environmental Protection Agency, the Division of Development and Construction Administration conceded and approved the project's environmental impact statement in exchange for additional noise abatement and air pollution reduction measures.⁹

In extreme cases, the entire EIA exercise was simply dictated by the municipal authority. In Shanghai, when the Light Rail Transit was first proposed in the early 1990s, it was considered by most municipal officials to be crucial for the city's economic development. The EPB allowed the construction work to begin well before the completion of the full EIS in late 1993. The approval of the EIS was turned into a mere formality, as it took only two weeks to complete the entire review and approval process.¹⁰ Another example concerns Sony's plan to relocate its production facility to the Pudong New Area after the Kobe earthquake in 1996. To compete with the City of Dalian for the relocation, the Shanghai government gave Sony the permission to commence construction well before the EIA process was completed. The EIS was eventually completed hastily and approved within one month, reflecting the triumph of economic over environmental concerns.¹¹

In the 'three synchronisations' stage,¹² the enforcement authority of municipal environmental agencies has often been challenged. For example, in handling a case of excessive noise generated by a construction site, the GEPB was unable to demand that the contractor reduce the noise level to the prescribed standard as the municipal government and the construction commission stepped in to instruct the bureau to relax the noise reduction requirement.¹³ There were also reports in Guangzhou and Shanghai that many pollution control provisions stipulated in environmental impact statements were not enforced during the construction and operational stages. Indeed many projects were allowed to operate even without the installation of proper pollution control facilities. Some were able to delay such installations for many years after start-up.

VI. RECENT DEVELOPMENTS

In the past several years, political leaders and government officials at various levels have begun to recognise the weaknesses of China's EIA system and the important role of public participation [for example, *Yang* (from a municipal EPB in Hunan), 1997; *Liu* (from the State Council), 2001]. Such views were supported by a spate of articles in Chinese environmental publications that explored the need to incorporate public participation in EIA [*Chen*, 1997; *Lin*, 1997; *Luo*, 1997; *Li et al.*, 1999; *Ni*, 1999; *Yang*, 1999; *Xu*, 1999; *Fang*, 2000; *Li*, 2000; *Cheng and Yu*, 2002].¹⁴

Some public participation requirements were finally incorporated into the 'Regulation on the Environmental Protection Management of Construction Projects' issued by the State Council in November 1998. The regulation formally requires construction projects to consult with local organisations and residents about site selection when preparing EISs [*Huanjing baohu* 1999: 4]. Although the 1998 administrative regulation was the first of its kind in China at the national level, some lower-level governments had incorporated some public participation elements in their own EIA procedures a few years before that. Guangdong Province, for example, issued the 'Regulation on the Environmental Protection Management of Construction Projects in Guangdong Province' in 1994, which requires environmental agencies to get popular inputs on projects that have potentially large impacts on the public and the environment. The regulation also requires an agency to provide proper reasons in case it decides to act against popular inputs. In 2000, the EPB in Guangdong issued additional administrative orders requiring public consultation for assessing environmentally sensitive and controversial projects. As a result, some systematic efforts were made by the EIA agents to consult opinions from local organisations and residents when preparing the EISs for infrastructure projects.¹⁵

In response to these national and provincial regulations, some local governments have also initiated specific measures for incorporating public participation in EIA processes. Both Shanghai and Guangzhou, in the adoption of their own municipal environmental regulations in 1994 and 1995 respectively, have made it a legal requirement for project proponents to consult public opinion when conducting EIA studies. In both places, it has become a regular feature that every EIS contains a chapter on public opinion.

One example concerns the 50-km highway project connected to the new international airport in Guangzhou. Of national scale, the project's EIA was subject to final approval by the SEPA, while Guangdong provincial and Guangzhou municipal environmental bureaus were involved in scrutinising documents in various stages of the EIA process. Before a full EIA study was undertaken, an EIA Outline was prepared by the Guangzhou Research

Institute of Environmental Science (GRIEPS), a service organisation of the Guangzhou EPB. Based on the recommendations of the environmental specialists who vetted the outline prepared by GRIEPS, the Guangzhou EPB determined that plans were needed to reduce noise, vibration, and air pollution of the highway and to relocate some households and parties along the route. Based on this determination, during the full EIA study stage, people in the street were picked up randomly to answer a standardised questionnaire.¹⁶ A number of issues were identified from these opinion gathering exercises – general public support for the highway project (87 per cent); excessive traffic noise and vehicular emission as major environmental concerns; a strong demand for relocation from affected hotels, restaurants, and schools; and a general acceptance of relocation by affected local residents with concern mostly on relocation schedules and compensation. Chapter Nine of the full EIA Report documented these public opinions.

To what extent have these documented public opinions affected the actual development of the highway project? Based on our interviews with high-ranking officials, it appears that the officials themselves were doubtful about the quality of the public opinions that were collected. They indicated that panels of environmental experts had exerted much greater impact on the substance of the EIA reports. Such panels were organised three times to review the project's EIA submissions, and each time their critical comments led to substantive revisions. Overall, public opinions collected through the questionnaire survey and stakeholder interviews might only have marginal impact on the final contents of the EIA reports. Instead, review panels composed of specialists from universities and research institutes have now gained a high degree of legitimacy and hence are now accorded greater weight as a form of extra-bureaucratic participation.

A more progressive example is the Dongshan District of Guangzhou, which has taken measures to involve local residents in reviewing and approving plans for small-scale construction projects. In 1997, it specifically required that new entertainment and restaurant projects would not be allowed to proceed unless they are supported by local residents. It appears that the requirement has been more than a formality as at least five restaurant projects were reportedly cancelled because of popular opposition, and at least two had undertaken additional pollution control measures in exchange for support by local residents [*Liu and Zhu, 1998: 39*].

Changes in local political landscapes towards greater pluralism in recent years¹⁷ have encouraged municipal EPBs in both Guangzhou and Shanghai to incorporate new channels for public participation in environmental management, especially in the enforcement of pollution control regulations. The local environmental newspapers (*The Pearl Environmental News* and *the Shanghai Environmental News*) published by these two bureaus have

regularly published people's complaints against specific instances of environmental pollution and degradation, which in some cases have led to government action.¹⁸

Both the GEPB and SEPB have taken some steps to increase public awareness about environmental protection. Both bureaus, for example, have published annual reports on local environmental conditions in local newspapers since the early 1990s. The municipal yearbooks in both cities – *Shanghai Year Book* and *Guangzhou Year Book* – publish summaries of environmental protection performance in the city every year. Useful details are also provided in the local quarterly magazines of *Shanghai Environmental Science* and *Guangzhou Environmental Science*. Information available to the public now extends to covering the district level.

Despite these examples, it must be noted that public participation in EIA is still very limited in both Guangzhou and Shanghai. Indeed, precise criteria are mostly absent for determining when public participation is required. Local authorities can more or less arbitrarily decide which projects need public consultation, what types of EIA information are made available to the public, and what forms of public involvement are allowed. Although there have been increasing calls by environmental agencies and researchers across China to open up the EIA process for public participation [Fang, 2000: 9; Li, 2000: 1], considerable resistance remains from government units representing various economic and development interests. Most important of all, current provisions on public involvement have been restricted to consultation in the EIA study stage, and there has yet to be any plan to establish an independent body for considering and approving EIA reports.

Most recently, the central government has begun to pay more attention to the role of public participation in environmental management. Promulgated in October 2002, the new 'Environmental Impact Assessment Law of the People's Republic of China' specifically mentions that the State encourages the public to take part in environmental impact assessment for development and construction projects (Article 5). It is specified that public consultation be conducted before the submission of a project's EIS. Developers are required to make public a summary of the project's draft EIS. Public consultation in the form of open forums must be conducted to secure opinions from affected organisations, experts and the public. Public inputs from different sources must be appended to a project's final EIS when submitted for examination and approval. All EISs must provide explanations for adopting or rejecting public inputs.¹⁹

On the whole, this Law would increase considerably the extent of public participation in EIA – by requiring the disclosure of EIA information, allowing expressions of views in public forums, and arranging for the early involvement of interested parties in the EIA process. It is, however, an open-

ended question as to what extent such provisions will be implemented at the local level, and to what extent the EIA system as a whole can be opened up for further transparency and public participation, particularly in the decision-making stage. As some Chinese scholars cautiously put it, these provisions only 'have public participation system (in the EIA process) operationalised in a preliminary manner' to 'relieve the problem of inadequate public participation' [*Gao, Wang and Kong, 2003: 9*].

VII. DEMOCRATISATION AND THE TRANSFORMATION OF EIA IN TAIWAN

Similar to the case in Mainland China, environmental regulations in Taiwan during its authoritarian era were seldom shaped by legislative coalitions and organised interest groups. During that period, administrative agencies in Taiwan played a dominant role in drafting and enforcing environmental regulations. As the administrative agencies were under tight control by the Kuomintang (KMT) party machinery, environmental regulations often reflected the KMT's overriding concern about economic growth. Also similar to the case in China, state-owned or party-owned enterprises were often themselves major polluters.²⁰ When environmental officials tried to enforce environmental regulations on these polluters, they often encountered strong opposition from powerful stakeholders within the party-state.

Until 1987, most environmental legislation and regulations were drafted by the Department of Health, for which environmental protection was only one of many responsibilities. With little involvement by any powerful clientele groups, regulations proposed by the Department of Health could be easily overruled by other government units. The Council for Economic Planning and Development, for example, was one of the most vocal opponents against stringent environmental regulations. Objections from the Council could easily override proposals for environmental regulations [*Tang and Tang, 2002*].

In 1987, the Environmental Protection Bureau within the Department of Health was elevated to become a quasi-cabinet-level agency, the Environmental Protection Administration. This move, on the one hand, signalled the KMT leaders' increased concern about the environment. On the other hand, it also showed their reservations, as the newly formed EPA was relatively small in size²¹ and its head had a more junior status than other cabinet ministers. Indeed, the last two heads of the agency before the end of the KMT rule in May 2000 were promoted from the vice-chairmanship of the Council for Economic Planning and Development, both having strong backgrounds in economic policy making. This arrangement signalled the concern that no measures of environmental protection be taken at the cost of stable economic

growth. Consequently, when drafting regulations and designing programmes to enforce them, the EPA had to be careful in managing conflicts and opposition from other economic interests within the political establishment.

When first introduced in 1985, the EIA system in Taiwan was quite similar to that of China. The system was originally designed as a consultative process for economic policy making rather than as a gate-keeping mechanism for environmental protection and dispute-resolution. Few incentives were built in to ensure that developers would take the process seriously. Neither was there any public access to documents nor any established procedure for conflict resolution. In addition, political and party leaders who were well connected to different development interests had various channels through which to influence enforcement decisions. EIA was thus widely perceived as mere ritual, having only marginal contributions to environmental protection [*Chiou, 1999*]. During this early period, virtually no development project was ever rejected because of an unsatisfactory EIA report, and developers could easily reverse any adverse government decisions by submitting additional documentation [*Lin, 1996; Hsiao, 1999*]. To many developers and government officials, EIA was merely additional paper work that could be handled readily by hiring consulting firms.

VIII. DEMOCRATISATION AND THE TRANSFORMATION OF THE EIA SYSTEM

Since the late 1980s, as democratisation has gradually transformed Taiwan's political system, the EPA's autonomy and authority gradually strengthened as it gained considerable support from the public. In this period, grassroots protests against environmental nuisances have increased dramatically, and membership-based environmental organisations have grown in both number and membership. There has also been a widespread coverage of environmental issues by the newly liberalised media. Elected officials have begun to feel increasing pressure to show their support for environmental protection.²² As a result, the EPA gained more political support to make decisions that might adversely affect other economically oriented agencies.

Reforms in administrative procedure laws (in 1992 and 2001) have also helped to enhance the EPA's commitment to its work. In these reforms, more procedural requirements were instituted to safeguard against arbitrary decisions by the executive branch, which tends to be dominated by economic and development interests. The judicial branch now possesses greater powers to review public policies and administrative actions that might impose unreasonable costs on private citizens [*Hwang, 2000*]. These institutional changes, together with a heightened public awareness about environmental

protection, have given the EPA more political leverage in the policy making process.

EIA in Taiwan underwent fundamental transformations in 1994 when the formal EIA Act was adopted by the Legislative Yuan. The legislative process leading to the Act's adoption was a lengthy one, as the original version submitted by the executive branch was substantially revised after intense lobbying efforts by both pro-business interests and various environmental groups. The active involvement of environmental groups in legislative activities reflected the growing civil society, which could exert considerable influence on a legislative branch used to being dominated by the all-powerful administrative branch of government. The ruling party (Kuomintang) had also been transformed from being the ultimate decisionmaker to being a mediator of conflicting opinions and interests.

As a result of the legislative lobbying, the final version of the Act incorporated some unique features. The most prominent feature is the EPA's central role in the EIA process. Many business leaders and government officials insisted on a minimum role for the EPA in the EIA process, out of the fear that if given extensive powers, the EPA would veto economically important projects. They preferred to limit the role of the EPA to providing professional advice and technical support to project proponents and other administrative agencies that oversee the projects,²³ while the approval of projects would be made jointly by representatives from multiple ministries, using multi-dimensional considerations [*Yeh, 1991*]. Citing the US system as an example, the draft that the Executive Yuan proposed to the Legislative Yuan represented this approach. The draft, however, was strongly criticised by environmental groups, which argued that asking economically oriented agencies to evaluate EIA documents is likely to turn it into mere formalism because of EPA's inferior rank in government. Environmental groups argued that project developers should be legally required to implement all the environmental protection measures specified in the EIA documents, while the EPA should have full authority to reject environmentally harmful projects, to supervise developers' work and to punish lax implementation.

After a lengthy struggle, the environmental groups won the legislative battle. In addition to having the EPA in control of the whole process, the final Act requires the responsible agencies to form an independent board to review all application documents, with at least two-thirds of the board's membership drawn from such public interest representatives as scholars and non-government experts. This set up helps to shield the EIA process from arbitrary interventions from elected officials, which could have easily happened at both the central and local levels [*Tang and Tang, 2000*].

Noticeably, the 1994 Act also requires and encourages civic participation and public consultation at early stages of the EIA process as is the case in

most Western countries. For example, developers have to formally announce the project for a certain period before starting the review process so that neighbouring communities can have enough time to respond to it. In addition, before being presented to the review committee, the environmental impact report is made available for public examination and discussion. Further, when preparing impact statements, developers are required to collect residents' opinions by such methods as public hearings and opinion surveys. These arrangements provide ordinary citizens with convenient channels to express their concerns about the proposed project. They also provide timely and realistic chances for independent reviewers to consider public opinions and to stop or modify an undesirable project [*Chu and Lee, 1998: 92*].²⁴

IX. INCREASED EFFECTIVENESS OF EIA

With institutional channels supporting civic participation, the credibility and effectiveness of the EIA system appear to have improved over time. In earlier years, some developers, for example, might have used various methods to avoid undertaking EIAs. One such method, for instance, was to divide up a large project (like the construction of a freeway) into several smaller entities in order to avoid undergoing EIAs [*Hsiao, 1999*]. In an effort to extract gravel from the habitat of the Fairy Pitta, a famous endangered bird species, in Huben (a tiny village in central Taiwan), extracting companies divided the site into small parcels of less than 5 hectares each and applied for an extraction permit for each. By doing so, the companies circumvented the EIA requirement because EIA was mandatory only for projects of at least a certain size. Such practices, however, have become increasingly difficult as the public and the mass media in particular have in recent years paid more attention to such extra-legal practices. In the above case, the birdwatchers' associations and villagers allied together to challenge such a practice and convinced the EPA to amend the regulatory loophole by stipulating that adjacent projects should be counted on a cumulative basis. Another recent example of tricky practice concerns the Taiwan Cement Company. To avoid EIA, the company disguised a plan in the mid-1990s to install new machinery by applying for licenses to 'rebuild' old equipment. This, however, attracted the attention of local activists and was uncovered by the mass media, and led to the suicide of an in-charge officer. Since such incidents can significantly hurt a company's public image, most large enterprises have become more willing to comply with EIA requirements.

In recent years, EIA has also been improving in technical sophistication [*Chang, 1999*]. During the early years in which EIA was universally required, only a small pool of specialists was available to prepare EIA reports. Often due to their personal connections to government officials and their seniority

in the field, a handful of famous scholars were given most of the contracts for preparing EIA reports (on an anonymous basis). It was not uncommon that a single scholar was contracted to prepare several EIA reports at the same time, without much public scrutiny. Such questionable practices cast doubt on the quality of most EIA reports prepared during the period. These practices, however, have declined considerably in recent years, as increasing numbers of professional practitioners have emerged to form a competitive market in the EIA business, and scholars from a wider variety of disciplines have been recruited into review committees. While the review process remains confidential to prevent undue external interference, the review results are now made available for public scrutiny and judgement.

The requirement for public participation in various stages of EIA has contributed to generating EIA reports that take into account a wider array of interests. One example concerned the Seventh Naphtha Cracker Plant. Developers planned to build it together with a steel plant on the wetlands of Chi-gu, a rural area in southern Taiwan. Environmental activists were deeply concerned about the project's impact on the endangered bird species, the black-faced spoonbill and other water creatures that resided in the wetlands. Yet the project was supported by a number of interests – those of the investors, local labour and related industries. These economic interests were also supported by President Lee Teng-hui who was quoted as raising the question, 'Human beings or birds, who is more important?' Despite these political and economic interests in support of the project, the EIA process continued according to its original design by producing a series of EIA reports that included detailed discussion of issues about water resource and coastal wetland preservation [*Chen, 1998*]. The construction plan was finally approved after several rounds of review, with significant compromises by the developers, including specific steps for preserving the habitat for the endangered black-faced spoonbill. As the EIA process has gradually gained the reputation of having major impacts on the fate of development projects, project proponents have learned to treat EIA requirements seriously.

Participation by civic groups in EIA has proved to be valuable in guarding against rent-seeking efforts by privileged elites. A case in point concerns the development project of Hsiang-Shan Tidal Flat in Hsin-Chu City in the mid-1990s. The city is home to a successful Science-based Industrial Park, which had triggered a strong demand for more industrial space. As a result of the Park's success, the city's real estate market had also been flourishing, with strong demands from the influx of wealthy professionals, quite similar to the case in California's Silicon Valley.²⁵ This led the city government, together with the provincial government and some state-owned creditors, to propose a plan to level some nearby hills for residential and commercial use, with the earth from them being used to reclaim 1,025 hectares of tidal flat for

industrial use. The Mayor openly claimed that by creating the reclaimed industrial park the project would generate about a one billion US dollar income for the city government and the provincial government respectively, not including the wealth generated from property value increases around designated areas. Needless to say, politicians and landowners would stand to reap huge economic benefits from the associated urban rezoning. Many speculative investors who had access to this insider information started to bid up land prices in the neighbourhood, which led to a large base of support for the development project.

For local environmental groups, however, this development project meant a massive slaughter of 250 million crabs living on the wetland, and more than two hundred species of birds in the forests that were designated to be destroyed. A number of civic associations, including the Wild Bird Society, Professors' Association, Fishermen's Association, Greenpeace and Cultural Associations, joined forces to fight for these creatures. In an interesting turn of events, the developers offered the Wild Bird Society a sub-contract to study the project's impact on the local ecological system to fulfil a part of the EIA requirement.²⁶ Lively debates on the project's appropriateness followed as the developers were forced to go through the full EIA procedure, in which the developers' arguments on the need to develop the tidal flat, the justification for taking earth from forests, and the possible impacts on local ecology were subjected to public scrutiny. A coalition of local civic organisations pooled together a wide array of expertise and knowledge that enabled them to scrutinise every argument in the EIS report. In addition to highlighting the possible destruction of habitats for 26 bird species that were protected by the law, the EIA process also successfully challenged the city government's claim about the project's economic benefits – high-tech industries are unlikely to invest in newly reclaimed lands because they would not be stable enough for precision production needed by those industries.

To strengthen their case, the civic groups offered their alternative plan, which suggested an enclosed tidal flat as a nature park for eco-tourism, as a way to satisfy demands for both economic development and ecological conservation. They convinced the EIA review committee that the supply of industrial lands had increased dramatically in nearby areas, rendering the proposed project economically unattractive. On the other hand, the demand for urban recreational facilities had increased drastically in recent years, making eco-tourism a viable investment alternative. This case became a landmark in Taiwan's EIA history because it proved that the EIA review committee could have the resolve to turn down an application that involved substantial sunk costs and had strong politico-economic backing.²⁷

X. CONTINUING CHALLENGES

Although the EIA system in Taiwan has been improved considerably in the past decade, many challenges remain. One of them has been that the EIA process often becomes lengthy and politicised, and ends up producing results that are not entirely satisfactory to either the developers or the environmentalists [Shih *et al.*, 1998]. In many controversial cases, project proponents were often frustrated by the long review process, as timing is always a crucial factor for the return on investment. Many business people openly criticised such drawbacks of EIA and threatened to launch a capital strike by investing in Mainland China instead. In addition, lengthy review processes themselves may also make EIA unnecessarily politicised. For example, if the process gets tangled up with several cycles of national and local elections, electoral rhetoric often makes it difficult for opposing interests in a controversy to reach any mutually agreeable compromise.

Another challenge to Taiwan's EIA system is that of how to enlarge the participatory base in the assessment process. While a few cases created a highly politicised review process, the majority of other EIA cases have attracted little public attention and civic participation in evaluating project impacts. Public involvement tends to happen most frequently in NIMBY cases where potential property losses and compensations are involved. Residents are in general reluctant to express their concerns in public opinion surveys conducted in connection with EIA. A sense of efficacy to influence governmental decisions by local residents needs to be enhanced over time.

A third challenge concerns the social bases of those civic associations that are able to be active participants in EIA processes. Consisting mostly of middle-class professionals, these civic associations may become effective advocates for future generations and non-human species, but they may not be as effective in representing other disadvantaged groups, especially those in the lower socio-economic stratum like farmers and indigenous tribal residents in the mountainous areas. The current EIA system appears to have few provisions that can help to ensure that the views and interests of these disadvantaged groups be accounted for in the EIA participatory process.

Overall, EIA in Taiwan has been relatively successful in promoting public awareness and deliberation about the environmental consequences of development projects, but it has been less so in settling disputes among different groups in society. While opponents of development projects focus on using EIA as a means of thwarting them, project proponents try to use it to remove political obstacles and to legitimise their plans. Although mutually satisfactory solutions occasionally emerged during EIA, in many cases confrontation persisted well after the EIA ruling. To many developers' disappointment, fulfilling EIA requirements did not guarantee the disap-

pearance of political problems as organised protests from opponents might still persist. More recently, EIA reviewers of some not-in-my-backyard cases explicitly refused to umpire the disputes or to help develop any conflict resolution plans. In some cases, they passed the buck by adding a provision in their ruling that the developers should reach an agreement with local residents before starting their project. It remains a challenge for Taiwan to incorporate alternative dispute resolution mechanisms into its EIA system to enhance its credibility and effectiveness. From this perspective, EIA in Taiwan needs further improvement, especially in how it manages the review process.

XI. DISCUSSION AND CONCLUSION

This study has focused on the political dimension of environmental management. We have argued that because of its distributional consequences, EIA is not just a technical exercise but inherently political in nature. Depending how the process is structured – who prepares the reports, how the reports are reviewed, approved, and implemented, how information is disseminated and so on – EIA may create different distributional consequences. EIA may be an invaluable instrument for environmental protection. Yet without transparency and genuine public participation, it may also become a mere formality with only marginal value for environmental impact control.

As policy instruments are always nested within a broader constellation of political institutions [*Crawford and Ostrom, 1995*], the structures and functioning of EIA cannot be fully understood without considering the larger political contexts. In this article, we have analysed how different sets of political institutions have led to different structural features of the EIA system, different enforcement efforts by administrative agencies, and different contributions to environmental protection. In one scenario, exemplified by earlier periods in both Mainland China and Taiwan, the EIA system is developed within an authoritarian regime, which has experienced rapid economic growth while suffering from its negative environmental consequences. Although political leaders are interested in slowing the rate of environmental degradation, they remain dedicated to economic growth as the overriding national priority.

In this political setting, no organised environmental interest groups are allowed to participate in legislative processes that design environmental agencies and regulations. Although political leaders may be willing to endorse various environmental regulations, they remain reluctant to share their legislative and rule making powers with other societal groups. The party–state establishments in both regimes have structured the EIA systems in

ways that allow for little public scrutiny of its EIS preparation and review processes. As a result, the system is subject to easy manipulation by political actors who can intervene selectively on behalf of development interests. In this scenario, EIA may lead to higher investments in environmental protection measures by development project proponents. But it is limited in terms of its ability to block projects that are highly undesirable from an environmental point of view, and development project proponents do have relatively easy ways to evade many of their environmental responsibilities.

It has been a common argument in the regulatory literature that interest group influence, especially in the context of the USA, may undermine the effectiveness of a regulatory agency, because the agency often finds itself unable to prioritise its tasks and be flexible in its operations when confronted by many political and legal challenges by outside interest groups [*Scholz, 1991*]. This argument, however, may not apply to many developing countries characterised by authoritarianism. In the latter, a major problem with environmental regulation, as in the scenario we just examined, is that regulatory enforcement often becomes a bureaucratic game and there are no outside political forces to help ensure its integrity.

In another scenario we examined – Taiwan since the mid-1990s – democratisation of the political system gradually led to a restructuring of environmental agencies and the EIA system. Democratisation has created a new political setting in which elected legislators and executives are subject to competitive electoral pressure and public scrutiny. Politicians began to experience the intensified conflicts between environmental protection and economic growth, which create incentives for them to develop credible mechanisms for resolving conflicts among multiple stakeholders. In the new political setting, environmental agencies have gained support from environmental groups, which can back agency decisions that might hurt powerful political and economic interests. These changes in political and administrative institutions have also helped to convince proponents of development about the need to take their environmental responsibility more seriously.

Taiwan's experiences, nevertheless, also illustrate the difficulties of developing a truly effective EIA system, as structural choice politics in a more democratic setting is inherently controversial and conflict-ridden. When groups representing divergent interests are involved in designing the system, it may take a long time to arrive at a consensus, or just a simple majority, for a structural choice. The case of Taiwan shows that structural arrangements for transparency and citizen involvement in EIA are not likely to be set up all at once; they often need to be introduced and strengthened gradually over time, in tandem with the democratisation of the larger political system. As illustrated by the comparative study by Vogel [*1993*], even in more mature democratic systems, like the USA, Britain and Japan, it took a decade or two

before widespread environmental concerns were translated through the political processes into institutionalised agency structures for environmental protection. It is not surprising that it takes a newly democratised polity a long time to fine-tune its environmental regulatory system.

Recent developments in China represent yet another interesting scenario, in which increased institutional pluralism has encouraged government officials to consider incorporating public consultation into EIA. Such efforts have helped to increase the usefulness of EIA as a tool for environmental protection. Yet, within the constraints of an authoritarian setting, there is still a lack of organised social interests that can provide a strong push for instituting such efforts. This may ultimately limit the extent to which transparency and public participation can be established in China's EIA system.

To some extent, the development of EIA in Mainland China and Taiwan reflects the political paradoxes inherent in the political transition in the respective polities. In the case of China, scholars have differed in their assessment of the changes in the regime's governing capacities since the Tiananmen crisis in 1989 [Pei, 2003]. On one side, some scholars have credited the regime for having institutionalised more stable practice in elite politics, rebuilt the fiscal health of the central government, streamlined the size of government while enhancing its regulatory functions, and introduced limited degrees of transparency in its operation [Nathan, 2003; Yang, 2003]. On the other side, some scholars have identified an impending governing crisis in China, pointing to a state of lawlessness in many large urban centers, questionable public finances, failures in performing key regulatory functions like combating counterfeiting and ensuring workplace safety, widespread corruption, and worsening income inequality in society [Gilley, 2003; Wang, 2003].

These apparently contradictory assessments somehow reflect the paradoxical nature of the political transition in China. As a huge developing country that is used to political and economic turmoil, it has been a major accomplishment for the regime to initiate a top-down process that has gradually transformed its government to confront various fiscal and social problems. Nevertheless, questions remain as to whether the limited self-transformation of the Chinese government can in the long run enable it to perform crucial political and regulatory functions adequately in an ever increasingly open and modern economy. The same issue can be raised in assessing the evolution of the EIA system in China. On the one hand, the Chinese leaders should be credited for creating and improving on a legal framework of EIA. The framework has contributed to reducing adverse environmental impacts of development projects. On the other hand, the authoritarian system has limited the extent to which transparency and public

participation can be incorporated into the EIA system. As the economy grows further and environmental problems become more serious in the future, a more open EIA system will be needed to deal with the likely increase in environmental conflicts.

In the case of Taiwan, the democratisation process in the past two decades has proceeded by both the loosening up of control by the ruling party KMT and the active involvement of opposition parties and social groups [*Tang and Tang 1999; 2000*]. While the peaceful democratic transition has been hailed by most scholars as a major political achievement [*Chao and Myers, 1998*], some have raised concerns about potential social unrest triggered by the continuation of various protest movements since the early years of democratisation. In the words of Tien and Cheng [*1997: 25*], ‘Taiwan’s over-active and over-mobilised civil society may overload its newly created democracy’. This paradoxical situation is partly reflected in the evolution of Taiwan’s EIA system. On the one hand, a more democratic political system and the active involvement of various environmental groups have played a key role in promoting the incorporation of transparency and public participation in the EIA system. On the other hand, the EIA system has faced many challenges for fine-tuning its conflict resolution mechanisms.

In conclusion, our study shows that environmental management structures and processes reflect the distribution of power in a political system. One cannot fully appreciate why environmental agencies fail in many developing countries without understanding the political forces that structure them in the first place. Very often, more effective design of environmental management is possible only after the underlying political system has itself undergone fundamental transformations. In this sense, environmental management is ultimately inseparable from politics and environmental management can only be as good as politics allows it to be. In the cases of Mainland China and Taiwan, the development of EIA is itself a window for understanding the paradoxical nature of their respective political transitions in the past two decades.

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NOTES

1. The Act became law on 1 January 1970.
2. We began our study on Taiwan’s EIA system in 1996, shortly after the passing of the EIA Act. Since then, a considerable number of academic publications and mass media reports have become available. In addition to drawing on these publications and reports, we have also consulted various official documents and records on the EIA system. In the past few years, we have undertaken fieldwork on some specific cases. For instance, we interviewed in 2001 and 2002 several key leaders associated with the conservation movement for saving the endangered bird, Fairy Pitta, which involved some controversies about the fairness of the

- EIA process. In 2002, we also interviewed some environmentalists who were involved in protesting against the Hsiang-Shan Flat Project and were involved in its EIA process. Our research on China's environmental governance system dates back to the early 1990s. Our fieldwork on China's EIA began in 1995. We have established regular contacts with environmental bureaus in both Shanghai and Guangzhou. We have collected most relevant official documents on the EIA system in these two cities and various case materials on public and private development projects through the Guangzhou Research Institute of Environmental Protection Science (GRIEPS) and Shanghai Academy of Environmental Science (SAES), research arms of the respective environmental protection bureaus. We have also conducted interviews, both formal and informal, with leading officials in charge of EIA operations in these two agencies, concerning the EIA process, implementation details and regulatory outcomes. In addition, we have obtained research support from State Environmental Protection Administration (SEPA). Through publications we obtained from SEPA and interviews with its officials, we obtained an overall picture of EIA in China. We have also consulted with journalists reporting environmental issues in Beijing, Shanghai, and Guangzhou on the effectiveness of EIA enforcement and related problems.
3. In this article, we focus on EIA on specific development projects. It does not explicitly cover strategic environmental assessment (SEA) that is done at the policy, programme, and planning level. Since the early 1990s, the State Council has begun the promotion of SEA. In both Guangzhou and Shanghai, SEA has been practised in the form of environmental planning for municipal development. Although SEA might affect project-level EIA, especially in relation to site selection, its actual impact is not always easily identified. Thus, we focus in this paper on project-level EIA.
 4. Examples of major polluting industrial plants that are state-owned enterprises in Guangzhou and Shanghai include Guangzhou Paper Mill (*Guangzhou zaozhi chang*), Guangzhou Nitrogenous Fertilizer Factory (*Guangzhou fanfei chang*), Guangzhou Steel Factory (*Guangzhou gangtie chang*), Guangzhou Electricity Plant (*Guangzhou fadian chang*), Shanghai Steel Factory (*Shanghai gangtie chang*), and Shanghai Electricity Plant (*Shanghai fadian chang*).
 5. Personal interviews with leading officials in the Guangzhou EPB in November 2001.
 6. In Guangzhou, a rare example of rejection was a Taiwan project which proposed to invest US\$1.3 billion to manufacture plastic material in the Shijing Water Source Preservation Zone in 1994. At the site selection stage, it was discovered that grave water pollution would result in the production process, which could not be effectively treated. Despite tremendous pressure from the Mayor, the Guangzhou EPB was able to force the project to select another site, and the investment greatly reduced to several hundred million US dollars. Other than these two cases, we were unable to obtain any other examples of rejection from our numerous interviews with officials in the Shanghai and Guangzhou EPBs.
 7. Personal interviews with officials in the Shanghai EPB between 1996–98.
 8. Although subsidiaries are not formally required to remit any of their revenues to their EPB, there are informal arrangements for revenue sharing among them. For examples, the Guangzhou Research Institute of Environmental Protection Sciences, a subsidiary of Guangzhou EPB providing EIA services to developers, gave each bureau employee a red packet of around RMB200 twice a year at the Mid-Autumn Festival and the Chinese New Year. In addition, the financial burden of the bureau would be greatly relieved if its subsidiaries were able to generate substantial income to fund their operations [*Lo et al., 2001*].
 9. Personal interviews with the Chief of the Division of Development and Construction Administration, Guangzhou EPB, between 1998–99.
 10. Personal interviews with the staff of Shanghai EPB between 1997–98.
 11. Personal interviews with the staff of Shanghai Academy of Environmental Science between 1997–98.
 12. The approval of the EIA report brings the project into the last stage of the EIA process, that is, the 'three synchronisations' stage, in which the EPB is responsible for ensuring that environmental guidelines specified in the EIA report be closely followed in the project design, construction, and completion phases. Specifically, the 'three synchronisations'

- require that pollution control facilities and the principal parts of a construction project be designed, constructed, and put into operation in a synchronised manner. For a discussion on the 'three synchronizations', see Sinkule and Ortolano [1994, 83–110].
13. Personal interview with the staff of Guangzhou Research Institute of Environmental Protection Sciences, Guangzhou EPB, in June 1999.
 14. Among them, Yang [1999: 41], a researcher in the Environmental Science Research Institute in Hubei Province, has pointed out the shortcomings of agency domination, and a lack of transparency and public consultation in the EIA process: 'The information concerning development projects basically does not pass through mass media. In cases involving large-scale projects and relocation of residents, information dissemination depends solely on the publicity work of different levels of local government. Strictly speaking, development projects in our country mostly do not implement any genuine public participation'.
 15. Personal communications with leading officials in Guangzhou EPB between 1996–2000.
 16. A total of 116 were returned out of 200 questionnaires distributed. In addition, interviews were held among local residents (31), people in the street (2), representatives from affected schools (12), hospitals (2), enterprises, hotels, and restaurants (42), as well as local environmental and agricultural agencies (2). A total of 165 people were interviewed.
 17. Examples of increasing pluralism in environmental governance include: increased local protests against pollution; increased popular complaints lodged with the EPB and the Mayor's Office; increased involvement of members of municipal people's congresses in environmental issues; increased media reporting on environmental issues; wider publicity of environmental policies and regulations; and increased disclosure of pollution problems by the EPB.
 18. For example, the residents in Yuan Village of Guangzhou submitted a complaint to the *Pearl Environmental News* concerning the heavy air pollution caused by smoke emitted from a newly built fossil-fuelled electricity plant in January 1998. This case eventually caught the attention of the mayor and was later assigned to the GEPB, which eventually instructed the electricity plant to hammer out a solution for meeting emission standards. The GEPB also has recently set up a petition unit and a 24-hour telephone hotline to handle specific grievances on pollution issues. The deputy head of GEPB has also started holding half-day public sessions to hear complaints from citizens.
 19. All these have been clearly stated in Article 11 of the EIA Law. For the text of the Law, see <http://www.isinolaw.com>.
 20. Examples of major polluters suffering from intensified protests in the late 1980s included such state-owned enterprises as China Petroleum Corp. and Taiwan Power Company, and KMT-owned businesses such as Taiwan Chung Hsing Paper Corp.
 21. By definition of its Chinese title, Huanbao 'Shu', the staff size of such an agency is roughly about that of a branch of a larger ministry under the regular title of 'Bu'.
 22. One example is the anti-golf movement [see Tang and Tang, 1999].
 23. Some of these agencies include the Ministry of Education (in the case of golf-course development), Ministry of Communication (in high-speed railway projects), Ministry of Economic Affairs (in industrial parks), and the Atomic Energy Council (in nuclear power plants).
 24. That these participatory arrangements received final approval by a legislature still dominated by the KMT can be explained by the political challenges faced by many KMT legislators during the early part of the 1990s. During the period, KMT legislators were faced with strong electoral competition from candidates from other parties, and many local constituencies were showing increasing concerns about environmental deterioration. Many KMT legislators often found themselves caught in awkward situations in which local protests arose to challenge unpopular development projects, many of them sponsored by the KMT government. To avoid being blamed by dissatisfied stakeholders in these disputes, many KMT legislators were receptive to the idea of developing an EIA system characterised by professionalism, transparency, and citizen involvement [Tang and Tang, 2000].
 25. The large number of high-tech professionals employed in the Science Park has created great demands for luxury housing in the neighboring areas.

26. Although the developers intended to co-opt the leader of the opposition alliance by this subcontract, they were also worried about the Wild Bird Society's persistent stand in the issue. The vast majority of scholars who were in the EIA business tried to avoid involvement, as many members of the Wild Bird Society are university professors who had successfully persuaded their peers about the problems of the development project. The Society's decision to take up the subcontract did cause tension within the alliance. Yet partly because of the reputation and credibility of the Society and partly because of their long-term partnership in earlier social protests, the alliance did not break up until at a later stage of this incident.
27. Admittedly, this case has its idiosyncratic elements as it happened in a city (Hsin-Chu) with an industrial park, nine universities around, and a large number of high-income and highly educated residents in the community, supporting an array of active civil associations. Nevertheless, it can serve as a model for an EIA review process that allows broad-based deliberations for projects in dispute. In addition to empowering traditionally disadvantaged social groups in policy making, the new process has increased the credibility of EIA as a mechanism for balancing the competing demands between economic development and environmental protection. For details of the case, see Tang [2003].

REFERENCES

- Biswas, A.K. and S.B.C. Agarwal, 1992, *Environmental Impact Assessment for Developing Countries*, Oxford: Butterworth Heinemann Ltd.
- Boyle, J., 1998, 'Cultural Influences on Implementing Environmental Impact Assessment: Insights from Thailand, Indonesia, and Malaysia', *Environmental Impact Assessment Review*, Vol.18, pp.95-116.
- Chao, Linda and Ramon Myers, 1998, *The First Chinese Democracy*, Baltimore: The Johns Hopkins University Press.
- Chang, Shui-Ping, 1999, 'Pingxi Woguo Huanjing Yingxiang Pinggu Zhidu [Evaluating the Environmental Impact Assessment Institutions in Our Country]', *Taiwan Huanjing Baohu [Taiwan Environmental Protection]*, Vol.16: pp.12-17 (in Chinese).
- Chen, Liang-Rong, 1998, 'Women Weihe Buneng Shuo Bu? Cong Huanjing Yingxiang Pinggu Kan Huanbao Kangzheng [Why Can't We Say No? An Overview of the EIA System in Taiwan, A Case Study]', Master's Thesis, National Taiwan University, Taipei (in Chinese).
- Chen, Lihu, 1990, 'Wanshan he Fazhan Woguo de Huanjing Yingxiang Pinggu Zhidu [Complete and Expand Our Country's Environmental Impact Assessment System]', *Chongqing Huanjing Kexue [Chongqing Environmental Science]*, Vol.12, No.4, pp.33-37 (in Chinese).
- Chen, Zhang, 1997, 'Gongzhong canyu dui huanjing fazhi jianshe de zuoyong [The Functions of Public Participation in the Construction of an Environmental Legal System]', *Zhongguo huanjing guanli [Environmental Management in China]*, No.1, pp.36-37 (in Chinese).
- Cheng, Xinggao and Hongxia Yu, 2002, 'Zengqiang huanjing yingxiang pingjia zhong gongzhong canyu yu youxiaoxing de tantao [Discussion about Enforcing Efficiency of Public Participation in Environmental Impact Assessment]', *Huanjing baohu [Environmental Protection]*, No.1, pp.26-27 (in Chinese).
- Cherp, A., 2001, 'EA Legislation and Practice in Central and Eastern Europe and the Former USSR: A Comparative Analysis', *Environmental Impact Assessment Review*, Vol.21, pp.335-61.
- Chiou, Chang-Tay, 1999, 'Jiangou San E Daoxiang de Huanjing Yinxiang Pinggu Zhidu [Constructing a Three-E Oriented Environmental Impact Assessment System]', *Huanjing Gungcheng Huikan [Environmental Engineering Review]*, Vol.10, No.1, pp.31-44 (in Chinese).
- Chu, Pin-Yu and Su-Chen Lee, 1998, 'Huanjing Yingxiang Pinggu zhong Minzhong Canyu Jizhi zhi Tantao [Improving the Mechanism of Citizen Participation in Environmental Impact Assessment]', *Zhongguo Xingzheng Pinglun [The Chinese Public Administration Review]*, Vol.8, No.1, pp.85-114 (in Chinese).
- Cole, Daniel, 1998, *Instituting Environmental Protection: From Red to Green in Poland*, NY: St. Martin's Press.

- Crawford, Sue and Elinor Ostrom, 1995, 'A Grammar of Institutions', *American Political Science Review*, Vol.89, No.3, pp.582-600.
- Dai, Zhiguo, 1995, Guangzhou shi huanjing baohu gongzuo qingkuang huibao [Report on the Situation of Environmental Protection Words in Municipal Guangzhou]. *Guangzhou shi huanjing baohu ziliumu huibian, san* [Collection of 1999 Material on Environmental Protection in Guangzhou, Vol.3], pp.1-7 (in Chinese).
- Dobson, Andrew, 1996, 'Representative Democracy and the Environment', in William M. Lafferty and James Meadowcroft (eds), *Democracy and the Environment: Problems and Prospects*, Brookfield: Edward Elgar.
- Environmental Protection Law of the People's Republic of China (For Trial Implementation), 1979, in the Legislative Affairs Commission of the Standing Committee of the National People's Congress of the People's Republic of China, 1987 (ed.) *The Law of the People's Republic of China, 1979-1982*, Beijing: Foreign Languages Press, pp.154-61.
- Fang, Hongqing, 2000, 'Gongzhong canyu huanjing guanli de yi yi he tuijin [The Meaning and Approach of Public Participation in Environmental Management]', *Huanjing baohu* [Environmental Protection], No.12, pp.8-9, (in Chinese)
- Furia, L.D. and J. Wallace-Jones, 2000, 'The Effectiveness of Provisions and Quality of Practices Concerning Public Participation in EIA in Italy', *Environmental Impact Assessment Review*, Vol.20, pp.457-78.
- Gao, Yan, Wang, Donghai, and Qingzhen Kong, 2003, Guanyu Huanjing yingxing pingjia fa de sikao [Reflections on Environmental Impact Assessment Law], *Huanjing baohu* [Environmental Protection], No.3, pp.8-10.
- Gilley, Bruce, 2003, 'The Limits of Authoritarian Resilience', *Journal of Democracy*, Vol.14, No.1, pp.18-26.
- Guangzhou shi huanjing kexue yanjiu suo [Guangzhou Research Institute of Environmental Protection Science], 1998, *Guangzhou xin baiyun guoji jichang huanjing yingxiang baogao shu* [Environmental Impact Report of the New Baiyun Airport in Guangzhou], Guangzhou: Guangzhou shi huanjing kexue yanjiu suo (in Chinese).
- Guangzhou shi huanjing kexue yanjiu suo [Guangzhou Research Institute of Environmental Protection Science], 2000, *Guangzhou shi beibu diqu (xin guoji jichang) gaosu gonglu yingxiang baogao shu* [Environmental Impact Report of the Expressway in the Northern District (New International Airport) of Guangzhou], Guangzhou: Guangzhou shi huanjing kexue yanjiu suo (in Chinese).
- Guangzhou Nianjian Bianzuan Weiyuanhui [Guangzhou Year Book Editorial Board], ed., 1995, *Guangzhou Nianjian 1995* [Guangzhou Yearbook 1995], Guangzhou: Guangzhou Nianjian Publisher (in Chinese).
- Harrop, D.O. and J.A. Nixon, 1999, *Environmental Assessment in Practice*. London and New York: Routledge.
- Ho, P., 2001, 'Green Without Conflict? Environmentalism, NGOs and Civil Society in China', *Development and Change*, Vol.32, pp.893-921.
- Hsiao, Hsin-Huang, 1999, 'Dangqian Huanping Zhidu Mianlin de Xinren Chaju Wenti [The Problem of Credibility Lag Confronted by Environmental Impact Assessment]', *Laokong zhi Yao Zazhi* [Friends of Labor Magazine], Vol.580, pp.6-12 (in Chinese).
- Huanjing baohu [Environmental Protection], 1999, Jianshe xiangmu huanjing baohu guanli tiaoli [Regulation on the Environmental Protection Management of Construction Projects], No.1, pp.3-4 (in Chinese).
- Hwang Giin-Tarn, 2000, 'Minzhuhua dui Huanbao Zhengce zhi Chongji yu Yinying zhi Dao [The Impact of Democratization on Environmental Protection Policies and the Corresponding Solutions]', in Chu Yung-Han and Bau Tzong-Ho eds., *Minzhu Zhuanxing yu Jingji Chongtu* [Democratic Transition and Economic Conflicts], Taipei: Kuei-Kuan Publisher.
- Kakonge, J.O., 1998, 'EIA and Good Governance: Issues and Lesson from Africa', *Environmental Impact Assessment Review*, Vol.28, pp.829-305.
- Lafferty, William M. and James Meadowcroft (eds), 1996, *Democracy and the Environment: Problems and Prospects*, Brookfield: Edward Elgar.

- Lam, Kin-Che and Shu Tao, 1996, 'Environmental Quality and Pollution Control', in Y.M. Yeung and Yun-Wing Sung (eds), *Shanghai: Transformation and Modernization under China's Open Policy*, Hong Kong: Chinese University Press, pp.469–92.
- Li Shian, 2000, 'Jiaqiang gongzhong canyu huanjing yingxiang pingjia (Strengthen Public Participation in Environmental Impact Assessment)', *Zhongguo huanjing bao [China Environmental News]*, 5 August, p.3 (in Chinese).
- Li, Tinwei, Xinmin Li, Nuanchun Wang and Linsheng Yu, 1999, 'Huanjing yingxiang pingjia zhong gongzhong canyu jizhi he fangfa tantao [Discussion on Measures and Mechanisms of Public Participation in Environmental Impact Assessment]', *Huanjing kexue yanjiu [Studies in Environmental Science]*, No.2, pp.36–39 (in Chinese).
- Lin, Ke-Ming, 1996, 'Jienli Bayer Huanjing Yinxiang Pinggu Moshih [Build up a Model of Environmental Impact Assessment Through the Bayer Case]', *Chung-kuo-shih-pao [The China Times]*, 5 Sept. (in Chinese).
- Lin, Bo, 1997, 'Lun huanjing guanli de gongzhong canyu he yulun jiandu [On Public Participation and Supervision by Public Opinions in Environmental Management]', *Zhongguo huanjing guanli [Environmental Management in China]*, No.6, pp.20–22.
- Liu, Chongbin and Yongyin Zhu, 1998, 'Guangzhou shimin yeyou huanbao "shenpi quan"' [People in Guangzhou also have the Environmental "Review and Approval Power"]', *Guangzhou huanjing kexue [Guangzhou Environmental Science]*, Vol.13, No.1, p.39 (in Chinese).
- Liu, Chunhua, 2001, 'Neidi yu xianggang huanjing yingxiang pingjia zhidu bijiao [Contrast of EIA System between Inland and Hong Kong]', *Huanjing baohu [Environmental Protection]*, No.4, pp.23–36 (in Chinese).
- Lo, Carlos Wing-Hung, Shui-Yan Tang and Shek-Kiu Chan, 1997, 'The Political Economy of EIA in Guangzhou', *Environmental Impact Assessment Review*, Vol.17, pp.371–82.
- Lo, Carlos Wing-Hung and Sai-Wing Leung, 1998, 'Environmental Protection and Popular Environmental Consciousness in China', in J.Y.S. Cheng ed., *China Review 1998*, Hong Kong: Chinese University Press, pp.515–17.
- Lo, Carlos Wing-Hung and Sai-Wing Leung, 2000, 'Environmental Agency and Public Opinion in Guangzhou: the Limits of a Popular Approach to Environmental Guidance', *The China Quarterly*, 163: 677–704.
- Luo, Chengping, 1997, 'Gongzhong canyu de fangfa yu shijian [The Methods and Practice of Public Participation]', *Guangzhou huanjing kexue [Guangzhou Environmental Science]*, Vol.12, No.3, pp.5–9 (in Chinese).
- Ma, Xiaobo, Hao, Fanghua and Feixing Chen, 2002, Shilun muqian woguo huanjing yingxiang pingjia zhidu de pingjia shiji shoufei wenti [Time and Charge in China EIA System]. *Zhongguo huanjing Guanli [China Environmental Management]*, No.2, pp.11–13, pp.1–7 (in Chinese).
- Macey, Jonathan, 1992, 'Organizational Design and Political Control of Administrative Agencies', *Journal of Law, Economics, and Organization*, Vol.8, No.1, pp.93–110.
- McCubbins, Matthew. D., Roger G. Noll and Barry R. Weingast. 1987, 'Administrative Procedures as Instruments of Political Control', *Journal of Law, Economics, and Organization*, Vol.3, pp.243–77.
- Moe, Terry, 1990, 'The Politics of Structural Choice: Toward a Theory of Public Bureaucracy', in Oliver W. Williamson (ed.), *Organization Theory: From Chester Barnard to the Present and Beyond*, New York: Oxford University Press.
- Nathan, Andrew J., 2003, 'Authoritarian Resilience', *Journal of Democracy*, Vol.14, No.1, pp.6–17.
- Ni, Qiang, 1999, 'Qianlun woguo huanjing fa zhong de gongzhong canyu zhidu [A Preliminary Discussion on the Public Participation System in China's Environmental Law]', *Zhongguo huanjing guanli [Environmental Management in China]*, No.5, pp.7–9 (in Chinese).
- Olokesusi, F., 1998, 'Legal and Institutional Framework of Environmental Impact Assessment in Nigeria: an Initial Assessment', *Environmental Impact Assessment Review*, Vol.18, pp.159–74.
- Oye, Kenneth and J. H. Maxwell, 1994, 'Self-interest and Environmental Management', *Journal of Theoretical Politics*, Vol.6, No.4, pp.593–624.

- Palmer, M., 1998, 'Environmental Regulation in the People's Republic of China: The Face of Domestic Law', *The China Quarterly*, No.156, pp.788–808.
- Payne, Roger, 1995, 'Freedom and the Environment', *Journal of Democracy*, Vol.6, No.3, pp.41–55.
- Pei, Minxin, 2003, 'Contradictory Trends and Confusing Signals', *Journal of Democracy*, Vol.14, No.1, pp.73–81.
- Qu, Geping, 1987, 'The Role of Environmental Impact Assessment in Economic Development', in A.K. Biswas (ed.), *Environmental Impact Assessment in Developing Countries*, London: The United Nations University, pp.219–28.
- Rock, Michael T., 2002, *Pollution Control in East Asia: Lessons from Newly Industrializing Economies*, Washington, DC: Resources for the Future.
- Ross, Lester, 1998, 'China: Environmental Protection, Domestic Policy Trends, Patterns of Participation in Regimes and Compliance with International Norms', *The China Quarterly*, No.156, pp.809–35.
- Saarikoski, H., 2000, 'Environmental Impact Assessment (EIA) as Collaborative Learning Process', *Environmental Impact Assessment Review*, Vol.20, pp.681–200.
- Scholz, John, 1991, 'Cooperative Regulatory Enforcement and the Politics of Administrative Effectiveness', *American Political Science Review*, Vol.85, No.1, pp.115–36.
- Shih, Hung-Chi, Shih-Hsiung Hou and Yi-Chun Cheng, 1998, 'Huanjin Yingxiang Pinggu yu Kaifa Xuke Xiangguan Shenyi Jizhi zhi Yanjiu [The Research on Mechanisms for Environmental Impact Assessment and Development Plan Scrutiny]', *Jingshe Fazhi Luncong [Socioeconomic Law and Institution Review]*, Vol.21, pp.223–42 (in Chinese).
- Silva, Eduardo, 1997, 'Democracy, Market Economics, and Environmental Policy in Chile', *Journal of Interamerican Studies and World Affairs*, Vol.38, No.4, pp.1–33.
- Sims, Holly, 1999, 'One-fifth of the Sky: China's Environmental Stewardship', *World Development*, Vol.27, No.7, pp.1227–45.
- Sinclair, A. John and Alan P. Diduck, 2001, 'Public Involvement in EA in Canada: a Transformative Learning Perspective', *Environmental Impact Assessment Review*, Vol.21, pp.113–36.
- Sinkule, Barbara and Leonard Ortolano, 1995, *Implementing Environmental Policy in China*. London: Praeger.
- Tang, Ching-Ping, 2003, 'Democratizing Urban Politics and Civic Environmentalism in Taiwan', *The China Quarterly*, No.176, forthcoming.
- Tang, Ching-Ping and Shui-Yan Tang, 2000, 'Democratizing Bureaucracy: The Political Economy of Environmental Impact Assessment and Air Pollution Fees in Taiwan', *Comparative Politics*, Vol.33, pp.81–99.
- Tang, Ching-Ping and Shui-Yan Tang, 2002, 'Taiwan', in Helmut Weidner, Martin Janicke, and Helge Joergens (eds), *National Environmental Policies: A Comparative Study of Capacity Building*. Germany, Berlin: Springer Verlag.
- Tang, Shui-Yan and Ching-Ping Tang, 1999, 'Democratization and the Environment: Entrepreneurial Politics and Interest Representation in Taiwan', *The China Quarterly* No.158, pp.66–82.
- Tang, Shui-Yan, Wing-Hung Lo, Carlos, Cheung Kai-Chee, and Jack Man-Keung Lo, 1997, 'Institutional Constraints on Environmental Management in Urban China: Environmental Impact Assessment in Guangzhou and Shanghai', *The China Quarterly*, No.152, pp.863–74.
- Tanner, Murray Scott, 1999, *The Politics of Law Making in China*, Oxford, Clarendon Press.
- Tien, Hung-Mao and Tun-Jen Cheng, 1997, 'Crafting Democratic Institutions in Taiwan', *The China Journal*, Vol.37, pp.1–27.
- Vogel, David, 1993, 'Representing Diffuse Interests in Environmental Policymaking', in Kent Weaver and Bert A. Rockman (eds), *Do Institutions Matter? Government Capability in the United States and Abroad*, Washington DC: The Brookings Institution.
- Wang, Hurng-Jyuhn, 1997, 'Yi Zhengce Juece Moshi Fenxi Zhengfu Zhengce Huanjing Yingxiang Pinggu [Analyzing Environmental Impact Analysis on Governmental Policy Through a Policy Decision-Making Model]', *Taiwan Jingji Yuce yu Zhengce [Taiwan's Economic Forecast and Policy]*, Vol.28, No.7, pp.249–68 (in Chinese).

- Wang, Shaoguang, 2003, 'The Problem of State Weakness', *Journal of Democracy*, Vol.14, No.1, pp.36–42.
- Weidner, Helmut, 2002, 'Capacity Building for Ecological Modernization: Lessons from Cross-National Research', *American Behavioral Scientist*, Vol.45, No.9, pp.1340–68.
- Wenger, Robert B., Wang Huadong, and Xiaoying Ma, 1990, Environmental Impact Assessment in the People's Republic of China', *Environmental Management*, Vol.14, No.4, pp.429–39.
- Wood, Christopher, 1995, *Environmental Impact Assessment: A Comparative Review*. London: Longman.
- World Bank, 1997, *The Impact of Environmental Assessment: A Review of World Bank Experience*, Washington DC, World Bank.
- Xu, Weimin, 1999, 'Lun wanshan woguo huanjing baohu de gongzhong canyu [Discussion on the Improvement of Public Participation in China's Environmental Protection]', *Shandong daxue xuebao [Shandong University Journal]*, No.2, pp.98–101 (in Chinese).
- Yang, Dali L., 2002, 'State Capacity on the Rebound', *Journal of Democracy*, Vol.14, No.1, pp.43–50.
- Yang, Lixin, 1997, 'Guanyu wanshan woguo huanjing yingxiang pingjia zhidu de jidian Sikao [Some Thoughts on the Perfection of China's Environmental Impact Assessment System]', *Huanjing baohu [Environmental Protection]*, No.6, pp.6–7 (in Chinese).
- Yang, Rui, 1999, 'Huanjing yingxiang pingjia zhong gongzhong canyu de yiyi [The Significance of Public Participation in Environmental Impact Assessment]', *Huanjing kexue yu jixue [Environmental Science and Technology]*, No.2, pp.41–42 (in Chinese).
- Yeh, Juinn-Rong, 1991, 'Cong Fangan dao Falü – Huanjing Yinxiang Pinggu de Guoqu Yu Weilai [From Plans to the Law – The Past and Future of Environmental Impact Assessment]', *Huanbao yu jingji [Environmental Protection and Economy]*, Vol.18, pp.10–12 (in Chinese).
- Zhao, Minjue (1996), Guangzhou shi huanjing baohu [Environmental Protection in Guangzhou], Zhongguo huanjing nianjian weiyuanhui [The Editorial Committee of China Environment Yearbook], Zhongguo huanjing nian 1996 [China Environment Yearbook 1996], Beijing, China Environment Yearbook, pp.387–89 (in Chinese).
- Zhongguo huanjing baohu xingzheng ershi nian weiyuanhui [Twenty Years of China's Environmental Protection Administration Editorial Committee], 1994, *Zhongguo huanjing baohu xingzheng ershi nian [Twenty years of China's Environmental Protection Administration]*, Beijing, Zhongguo huanjing kexue chubanshe [China's Environmental Science Press] (in Chinese).
- Zhongguo huanjing nianjian weiyuanhui (The Editorial Committee of China Environment Yearbook), 1993, 1994, 1996, 2001, *Zhongguo huanjing nianjian (China Environment Yearbook)*, 1993, 1994, 1996, 2001, Beijing, China Environment Yearbook.