

APPLICATION OF FOREIGN RULES AND LOCAL CONSTRAINTS: A CASE STUDY OF THE
ENVIRONMENTAL IMPACT ASSESSMENT IN THE PUDONG NEW AREA, CHINA

by

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Abstract

Rapid increases in environmental problems have been observed in China since the beginning of the economic reforms in 1978. Numerous policy mechanisms have been implemented in order to control the pollution levels nationwide. The objective of this research is to evaluate the efficiency of one pollution prevention policy process, the Environmental Impact Assessment, in one of the most economically dynamic areas of China, the Pudong New Area in Shanghai. The Environmental Impact Assessment was selected because it is a pollution prevention planning tool that has been widely used in developed countries for over thirty years, and in China for over 20 years. The enactment in 2002 of the People's Republic of China Environmental Impact Assessment Law has reinforced the status of the Environmental Impact Assessment. Its implementation and enforcement in a developing country were seen as an interesting example of selective adaptation, where foreign rules are balanced with local norms.

The investigation method combined a literature review and on-site data collection. Data collection combined quantitative data collection about Environmental Impact Assessment numbers and qualitative data from interviews. Semi-structured interviews were conducted with professionals involved at different levels with the Environmental Impact Assessment. Interviews gave detailed information about the different steps of the Environmental Impact Assessment process, which led to the identification of the constraints in the process. Results from the interviews show there are several problems limiting the efficiency of the Environmental Impact Assessment in preventing pollution. These include a narrow focus on pollution, limited public participation, and a lack of enforcement and monitoring, a result of financial and human resources constraints in the local Environmental Protection Bureaus. It is argued that these are part of wider institutional constraints in the environmental protection system in China, and that the implementation of the People's Republic of China Environmental Impact Assessment Law is highly dependent on how these issues will be resolved.

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List of Abbreviations

Abbreviation	English	Pinyin	Chinese
EIA	Environmental Impact Assessment	Huanjing yingxiang pingjia	环境影响评价
EIF	Environmental Impact Form	Huanjing baogao biao	环境报告表
EIR	Environmental Impact Report	Huanjing yingxiang baogaoshu	环境影响报告书
EIRF	Environmental Impact Report Form	Huanjing yingxiang baogao biao	环境影响报登记表
EPB	Environmental Protection Bureau	Huanjing baohu ju	环境保护局
NPC	National People's Congress	Quanguo renmin daibiao dahui	全国人民代表大会
PRC	People's Republic of China	Zhonghua renmin gongheguo	中华人民共和国
SAES	Shanghai Academy of Environmental Sciences	Shanghai shi huanjing kexueyuan	上海市环境科学院
SEA	Strategic Environmental Assessment	Zhanlue yingxiang pingjia	战略环境影响评价
SEPB	Shanghai Environmental Protection Bureau	Shanghai huanjing baohu ju	上海环境保护局
SEPA	State Environmental Protection Bureau	Zhongguo huanjing baohu zhongju	中国环境保护中居
TVE	Township and Village Enterprises	Xiangzhen qiye	乡镇企业

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Chapter 1: Introduction

1.1 Of Conflicts between Environmental Policy and Economic Development

Among the many challenges that developing countries are facing, environmental protection has become one of the most crucial because of its links with economic development. Nowhere is this more obvious than in China. In a country facing extreme demographic pressure and rapid economic development, pressures on natural resources and the environment can only be described as tremendous. Even a senior Chinese official has recently admitted that the country's environmental problems have now reached crisis proportions and threaten economic performance. His final conclusion: the model of development needs to be readjusted (BBC News, 2004). How that will be done will be of utmost importance, not only for the Chinese population, but for the entire Asia-Pacific region.

While China's attitudes towards the environment used to be focused on controlling the environment through man-made engineering approaches, it seems to be evolving towards an acknowledgement of China's growing environmental problems. Since the beginning of the 1970s, institutions and legislation have been implemented so as to provide the country with a framework for environmental protection. Among the efforts made are the implementation of 40 environment-related laws in 2004 (State Environmental Protection Agency, 2004), a national level government ministry in charge of the country's environmental protection¹, environmental agencies at the local level and more funding allocated towards research. This is a significant departure from the Mao era attitude where pollution was perceived to be a developed countries' problem that had nothing to do with China's proletariat society (Chan, 2004).

Despite these changes in attitude, much remains to be achieved. Regional inequities related to different economic development levels have an important impact on the priority given to environmental protection. While the East coast has benefited from the Open Door policy², the interior has experienced slower rates of growth, therefore reducing the investment on environmental protection at the local level. The development of township and village enterprises (TVEs), while solving issues related to local

¹ The State Environmental Protection Agency (SEPA) is in charge of environmental protection as a Ministry since 1998. Its precursor was the National Environmental Protection Agency (NEPA), who acted as a consultant for the government.

² The Open Door policy enacted in 1978 introduced transition reforms in order to move away from Soviet-style central planning and towards a market economy (Mackerras, 2001).

unemployment, created important pollution at the local level, as their development was not subject to any control before 1996. In 1996, the government launched a campaign to close down 72 000 highly polluting TVEs in 15 sub-sectors, of which 65 000 were effectively shut down (World Bank, 2001). This has had mixed results, with enterprises being reopened shortly after their official closure. The events on the Huai River show how policies, combined with incomplete enforcement and lack of comprehensive management, can have tragic results. The river tributaries were flooded by heavy rains in July 2001, and sent more than 144 million cubic meters of heavily polluted water downstream, killing plants and fish, and threatening drinking water supplies for the 150 million population of the area (Economy, 2004). The Huai River incident is only one example of the severe pollution problems affecting the country. Most watercourses are polluted, and a significant proportion is graded below grade five³.

Water scarcity is an important issue, resulting in impacts on economic output and dwindling drinking water supplies. The capital Beijing and neighboring Tianjin have been sinking over the years, due to groundwater aquifers' overuse (Smil, 1993). Air pollution has also become a health issue in most of China's big cities. In 1999, only one third of 338 monitored cities complied with the national residential ambient air quality criteria (World Bank, 2001). Sandstorms due to desertification are now a yearly occurrence in the North, while erosion due to deforestation increases the flood problems in the South (Economy, 2004).

These problems seem to directly correlate with the increase in consumption levels of the population. Rapid economic development has increased the purchasing power of the average Chinese citizen, more notably so in the eastern part of the country where the first Special Economic Zones were established. The average income has increased sevenfold since the beginning of the reforms, more than 400 million people have been lifted out of severe poverty (The Economist, 2004), and the official urban population has been growing by an average of 3.1% per year between 1991 and 1999 (World Bank, 2001). This, combined with the adoption of the Western resources consumption patterns, has lead the government to issue a warning to its citizens that they should not adopt developed world consumer habits (BBC News, 2004).

³ Water quality in China is divided in five grades. Grade five is the national criteria for water suitable for irrigation.

Although the country has seen one of the fastest development processes in history, the costs of that development on the environment are only beginning to be acknowledged. While industrial pollution has been the main focus of environmental protection work for years, in a recent shift more attention has been given to the sustainable development of the country. But too often, short-term development goals are being prioritized in order to raise the population out of abject poverty and maintain economic development levels. Because of the size of its population, China is faced with one of the most delicate challenges of the modern world: how to find a balance between economic development, social stability and environmental protection.

1.2 Research Context

China's environmental problems have been blamed on multiple factors, including low environmental awareness, vagueness of the legislation, low levels of enforcement and institutional constraints. Suggested management solutions are too often based on developed countries' experience. This seems unrealistic since none of these countries have experienced similar challenges to China in terms of population, natural resources and their distribution, and uneven regional development. Environmental strategies are also different, with the West preoccupied with recycling and packaging wastes, and Asia dealing with soil erosion, drinking water contamination and wholesale land conversion (Barkenbus, 2002). This research hopes to offer a modest contribution to the literature related to environmental policy and challenges in its enforcement for developing countries.

One of the strategies used in China to reduce environmental pollution at the local level is to do an evaluation of the impacts of development projects. The Environmental Impact Assessment (EIA) is defined as a process aimed at evaluating the environmental impacts of a project before beginning its construction. It is an environmental pollution prevention strategy that has increased in popularity through the years, culminating with the enactment of the People's Republic of China Environmental Impact Assessment Law⁴ in September 2003. One important characteristic of the EIA is that it is a tool that was created by developed countries. It has been adopted by China in the first Environmental Protection Law for Trial Implementation in 1979 and was gradually implemented across the country. China has watched

⁴ Also referred to as the EIA Law.

other countries' experience in the development and implementation of the EIA closely, and has adapted the process to its own conditions. This is an example of selective adaptation which is defined as a coping strategy for balancing local needs with requirements of compliance with practice rules imposed from outside (Potter, 2004). For the environmental sector, non-local rules can be as varied as the ratification of multilateral environmental agreements, participation in international organizations that influence local environmental policies, and international standards such as the ISO 14000 standards.

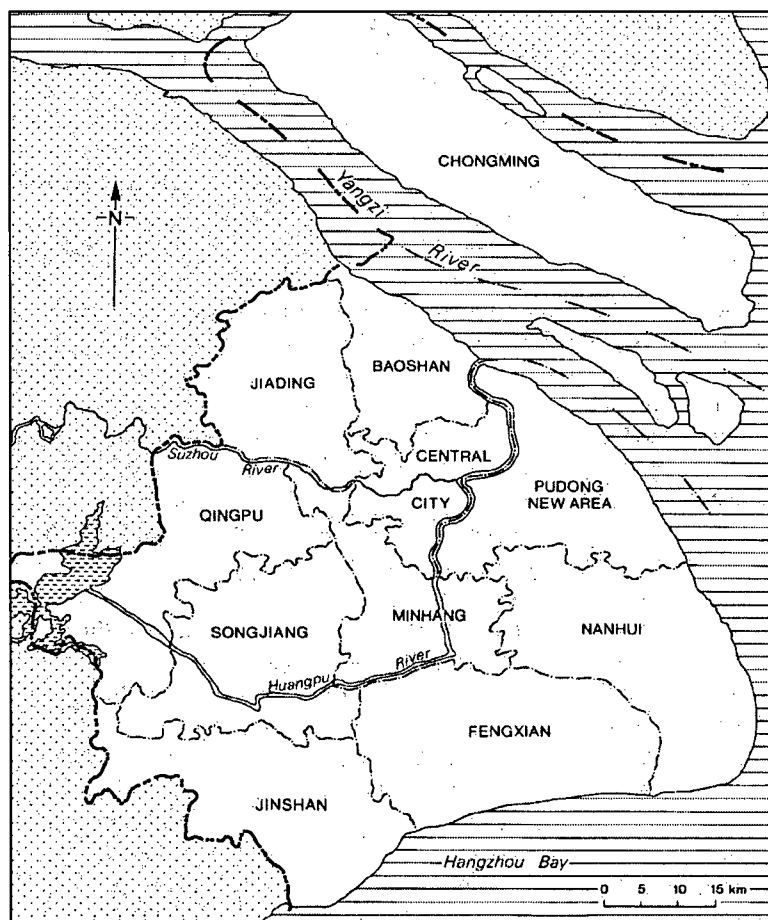
Performance of non-local rules will be affected by three main factors, namely perception, complementarity and legitimacy (Potter, 2004). Perception of foreign norms and rules refer as to how these norms and rules are being viewed in the host culture, which will have an impact on their implementation. In this case, the EIA was perceived by the government as being beneficial, leading to its embodiment in the legislation. Complementarity can be defined as the adjustment of norms and practices of particular cultural communities to satisfy expectations imposed from outside while protecting local needs (Potter, 2004). The modifications done to the EIA framework so as to adapt it to the Chinese context and implementation procedures illustrate this point. Legitimacy can be defined as the acceptance of norms and practices at the local level (Potter, 2004). It impacts the implementation at the local level of policies adopted at the national level. Environmental policy enforcement is directly correlated with the degree of legitimacy of the policy with the local government, and this translates into the allocation of resources for implementation.

So far, the EIA enforcement in China has never been researched as the results of the implementation of a foreign rule. Therefore, this research explores a new approach to its enforcement constraints by looking at differences in perception of concepts related to environmental protection, complementarity of procedures, and legitimacy with local leaders and communities. The other novel aspect of this research is the attempt to define these concepts and their application in the environmental policy field. Links will be established between challenges in the EIA process and institutional constraints in the environmental protection sector in China.

1.3 Study Site

The municipality of Shanghai is on the east coast of China, bordering to the east Zhejiang and Jiangsu provinces. It belongs to the alluvial plain of the Yangzi River Delta, which flows into the East China Sea located to the north and east of the city. Climate is of the northern subtropical maritime monsoon type, with four distinct seasons. The mean annual rainfall is 1430 millimeters, of which 60% occurs from May to September, and has been divided into three periods, the Spring Rains, the Plum Rains and the Autumn Rains (Shanghai Municipality Government, 2004). The Huangpu runs through the urban part of Shanghai,

Figure 1.1 The Administrative Division of Shanghai



Source: Yeung, 1996.

originating from Taihu Lake. It divides the urban area between Puxi and Pudong New Area⁵, the main centers of economic activity. The city covers an area of 6340.5 km², divided in 18 districts and 1 county (Shanghai Municipality Government, 2004b).

⁵ In Chinese, Puxi means “west of the Huangpu” while Pudong means “east of the Huangpu”.

Shanghai was China's business and industrial centre since the 1930s (Yeh, 1996). After the Communist takeover in 1949, important changes were made to the economy's structure. As a result, Shanghai's development slowed down for more than thirty years. The economy was revitalized by the Open Door policy enacted in 1978, which introduced market-style economic reforms. Shanghai's development was somewhat slower than the Pearl River Delta region in southeast China, because of a lack of preferential treatments to attract investment and constrained space for development in the Puxi area (Yeh, 1996). Shanghai's economic growth accelerated during the 1990s. Its GDP in 1990 was 75.645 billion yuan⁶; in 2003 it was of 625.081 billion yuan (Shanghai Municipality Government, 2004c). The central government often looks at Shanghai as a model that should be followed elsewhere, and even as a centrally-planned response to the economic success of Hong Kong.

1.3.1 The Pudong New Area

The development of the Pudong New Area, a district which covers 522.75 km², was planned since the beginning of the century. Dr. Sun Yatsen, leader of the provisional Republican Government, declared the development of the "Great Port of Pudong" one of the national reconstruction projects after the 1911 Revolution (Yeh, 1996). The Master Plan for Shanghai elaborated in 1946 included the development of the Pudong New Area as its final goal (Yeh, 1996).

The Pudong New Area was given the title of Special Economic Zone in 1990, and ten preferential investment policies were developed and implemented. Since then, it has achieved double digit economic growth and its economic output at the end of 2002 was 150.388 billion yuan. The industrial output has grown from 17.685 billion yuan in 1990 to 285.59 billion yuan in 2003 (Shanghai Municipality Government, 2004d). Main economic sectors include international trade, exports, storage, distribution, high tech industries. At the end of 2002, it was inhabited by 1.7282 million persons.

The average annual GDP growth rate has been at 20% since 1990, even reaching a maximum of 26.6% for the period from 1992 to 1994 (Pudong New Area Government, 2004). The Pudong New Area now accounts for 20% of Shanghai's total GDP (Pudong New Area Government, 2004). Since the

⁶ As of October 22nd, 2004, one Canadian dollar is worth 6.70 yuan.

Pudong New Area economic development plans have not been completed, this share could increase in the near future.

1.3.2 Specific Objectives

This research has two main objectives. The first is to study the Environmental Impact Assessment processes and examine their strengths and constraints when applied in the Shanghai municipality, specifically the Pudong New Area. The second objective is to examine selective adaptation of foreign environmental rules for developing countries. These objectives will be achieved by a literature review in English and Chinese and a field trip focusing on three research questions.

- 1) What are the Environmental Impact Assessment legislation and processes in China?
- 2) What are the differences between the national guidelines for the Environmental Impact Assessment and its application in Shanghai, more specifically in the Pudong New Area? What are the causes of the observed differences in the process?
- 3) How is the EIA implementation in Shanghai and Pudong New Area to be evaluated in terms of selective adaptation?

The Shanghai municipality was selected because of the availability of information and its elaborate environmental policy. The fact that Shanghai has a long tradition of hosting foreigners, as well as its openness to the world, was seen as a factor that could facilitate the research process. It was assumed that this would result in both greater data availability and an easier access to the various members of the environmental protection community. The municipality recently invested substantial resources in environmental protection compared to other regions of China. These investments lead to significant environmental improvements in the city's vicinity. The potential for these improvements to be reproduced elsewhere in the country are seen as an interesting dimension to the research.

Shanghai has implemented several regulations regarding the EIA processes which are stricter than the national requirements. The EIA processes in the Pudong New Area are the same as for the rest of the Shanghai Municipality. The main reason for its selection as a case study is that Pudong New Area experienced rapid economic growth while boasting a strict environmental protection framework, and it requires an environmental impact report as part of the documentation required for investment (Pudong

New Area Government, 2004b). The assessment of the strengths and weaknesses of the EIA in Shanghai and Pudong New Area should give information as to what the constraints in the process are in light of the rapid economic growth.

1.4 Summary

There has been a substantial amount of research conducted to assess the effectiveness of the EIA as a tool for environmental pollution prevention. However, less research has been realized about the EIA in Asian developing countries. Also, the EIA has not been examined as a foreign process being implemented in societies where it may be performing differently than in its society of origin. This research attempts to remediate these shortcomings by examining the situation in Shanghai and in the Pudong New Area.

Chapter 2: Literature Review

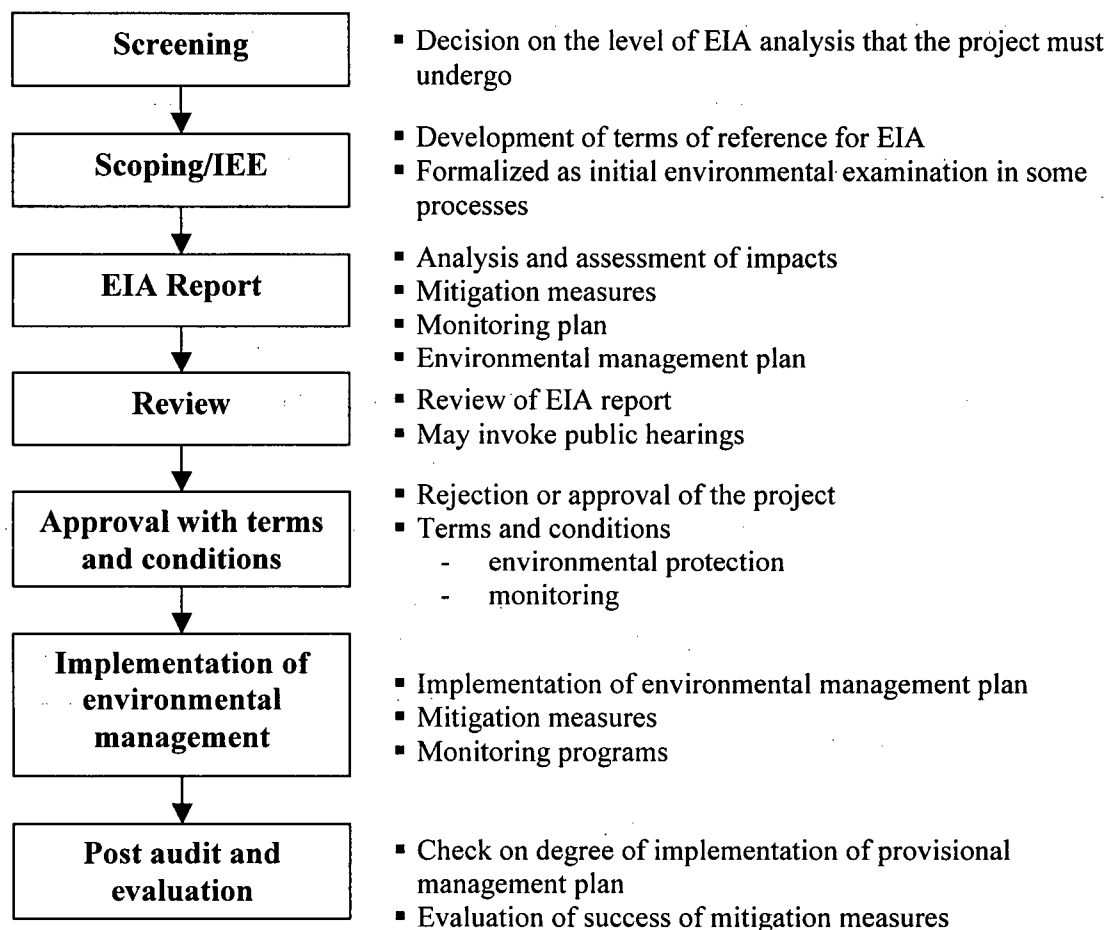
2.1 *Environmental Impact Assessment Basics*

The publication of the book “Silent Spring” by Rachel Carson in 1962 came as an alert to the public regarding the dangers of anthropogenic environmental disruptions (Ortolano, 1997). This raised public awareness towards environmental problems related to the prevailing environmentally unconscious development paradigm. Shortly afterwards, the 1969 U.S. National Environmental Policy Act was enacted, stating that all federal agencies were required to consider the environmental impacts of their decisions (Ortolano and Shepherd, 1995). Today, the EIA is a process that evolved to evaluate the environmental impacts of projects all over the world.

The EIA can be defined as: “The process of identifying, evaluating and mitigating the biophysical, social and other relevant effects of development proposals prior to major decisions being taken and commitments being made” (International Association for Impact Assessment, 1999: 2). The EIA is widely regarded as a “planning tool” since the assessments are done to forecast and evaluate the impacts of a proposed project and its alternatives (Ortolano and Shepherd, 1995). The word “impact” does not imply that the evaluation of this effect is positive or negative (Erickson, 1994). There are three types of impacts, namely direct, indirect and cumulative impacts. Direct impacts involve changes in environmental components and processes that result from a project-related activity or action, while indirect impacts are changes consequent to direct impacts (Erickson, 1994). Cumulative impacts are impacts that are not significant in terms of the project generating them, but may accumulate and become additive over time (Erickson, 1994).

The EIA has four main objectives, the first of which is to ensure that environmental conditions are explicitly addressed and incorporated in the development decision-making process (IAIA, 1999). The second is to anticipate, avoid, minimize or offset the adverse significant biophysical, social and other relevant effects of development proposals (IAIA, 1999). The third is to protect the productivity and capacity of natural systems and the ecological processes which maintain their functions. The last objective is to promote a form of development that is sustainable and optimize resource use and management opportunities (IAIA, 1999). The following figure illustrates the EIA steps.

Figure 2.1 Major Steps in the EIA Process



S

ource: Asian Development Bank, 1997.

The EIA Report informs the involved parties of the environmental impacts of a specific project and proposes alternatives (Ortolano and Shepherd, 1995). This ensures that negative environmental impacts at each stage of the process are identified and mitigated. The EIA process should be applied to biophysical impacts and relevant socio-economic factors, which should include health, culture, gender, lifestyle, age and cumulative effects consistent with the concept and principles of sustainable development (IAIA, 1999). Therefore, in the study of the effects of a proposed development project on the environment, the definition of environment should include all aspects of natural and human environments (Gupta and Asher, 1998).

The EIA has a positive influence on several aspects of the project development process. It can enhance inter-agency coordination, where several agencies are involved in the document review or

increase the influence of environmental protection agencies through specialized EIA legislation (Ortolano and Shepherd, 1995). It also has incurred project design or organizational change, for example through public pressure on project proponents (Ortolano and Shepherd, 1995).

The EIA has been criticized for a variety of reasons. One of the major assumptions behind the EIA is that all decisions are done in a rational way (Nilsson and Dalkmann, 2001). This is not always the case, as economic and political interests may interfere in the process. The EIA does not yield all possible benefits because it is often not integrated into the planning process, as a project proponent will undertake the EIA after the project is well-defined and likely to be approved (Ortolano and Shepherd, 1995). Instead of having an impact on the decision, more often than not, it is used to identify mitigation measures so as to minimize impacts on the environment. Because of the timing of the EIA in the decision-making process, it is harder to adopt alternatives and mitigation measures (von Seht, 1999). In some cases, the implementation of mitigation measures is not carried out and their effectiveness is not evaluated (Ortolano, 1997). The costs associated with the EIA are another reason for criticism (Clark, 2000).

The shortcomings of the EIA regarding the inclusion of treaties, privatization, legislation, structural adjustment, environmental sustainability and global issues in general led to the elaboration of the Strategic Environmental Assessment (SEA) (Marsden, 2002). It has been defined as: "SEA is a systematic on-going process for evaluating, at the earliest appropriate stage of publicly accountable decision making, the environmental quality, and consequences of alternative visions and development intentions incorporated in policy, planning, program initiatives, ensuring full integration of relevant biophysical, economic, social and political considerations" (Partidário and Clark, 2000: 4). The SEA is a systematic and holistic process for early evaluation of the environmental quality, and consequences of alternative visions and development intentions incorporated in policy, planning, and programs initiatives (Stinchcombe and Gibson, 2001). The later three elements are often referred to as PPPs.

The benefits of the integration of SEA in plans, policies and programs (PPPs) are numerous. This integration allows for the consideration and inclusion of a wide range of impacts and alternatives, is a proactive instrument for sustainable development, strengthens the EIA, is a systematic and effective consideration of impacts above the project level, and allows for public consultation and participation

(Fischer, 2002). Although there is no formal methodology established at the moment, authors agree that some requirements are fundamental to evaluate the effectiveness of the SEA process. These requirements include the legal basis and enforcement of the SEA system, coverage and screening, scoping, the preparation of the SEA report, review and decision-making, monitoring and auditing (von Seht, 1999). The SEA is increasingly being integrated in environmental decision-making processes in developed and developing countries. Its application and success in different countries is highly dependent on the policy and institutional frameworks in force, as well as the comprehensiveness of the legal instruments used in decision making processes (Rajvanshi, 2001). There may be no universal definition of SEA that can satisfy each sociopolitical context of decision-making (Partidário, 1996). Of particular importance will be the related commitments for sustainable development such as international treaties, and on-field enforcement of these measures.

2.2 EIA in Asia

The EIA has been adopted by several developing countries in order to supplement their environmental policy framework at the project level. Despite the use of the EIA in Asia for over 20 years, it has been relatively ineffective at protecting natural resources and biodiversity in the region (Obbard, Lai and Briffet, 2002). This is related to problems and constraints associated with political, technical, legal, social and environmental factors (Obbard *et al.*, 2002). There are several challenges for the implementation of the EIA in developing countries. Some of the commonly acknowledged challenges for EIA identified by the Asian Development Bank (1997) are as follow:

- Insufficient procedural guidance
- Inadequate baseline data for analysis
- Cost of EIA study preparation
- Potential delays in project implementation
- Lack of expertise for assessing impacts
- Inefficient communication of EIA results to decision-makers
- Lack of inter-agency communication
- Limited capacity for review of EIA reports
- Insufficient commitment to follow-up on implementation of environmental protection and monitoring requirements

Collaboration with international agencies such as the World Bank and the Asian Development Bank (ADB) is one way to improve the process. These international funding organizations have stricter

environmental requirements, and may provide technical assistance for the EIA in addition to financial assistance (Obbard *et al.*, 2002). The EIA has led to some changes in environmental decision making, for example with the increase in public participation processes. Public participation is gradually being recognized as an essential part of a successful EIA in most developing countries (Ravjanshi, 2003). The objective of public participation is understood to strengthen environmental, social and financial sustainability of development proposals (Ravjanshi, 2003). NGOs can have an important role in the public participation process by creating awareness and empower the population to play a pro-active role in decision-making.

Some resistance against the EIA comes from a fear of an increase in project costs, reduction in autonomy and transfer of information to potential project opponents (Asian Development Bank, 1997). These, added to inadequacies in monitoring and lack of enforcement of mitigation measures and environmental management plan recommendations, make the EIA difficult to implement. Depending on the decision-making authorities and the overall policy environment, EIAs recommendations and findings may be used in project design, or are just a formality in the project development (Gupta and Asher, 1998). The positive effects of EIAs in most developing countries have been limited, as economic interests often outweigh environmental consideration: the EIA ends up being seen as a legal obstacle for development projects by local officials (Lo, Yip and Cheung, 2000).

2.3 EIA in China

In order to fully understand EIA processes in China, it is useful to have a brief look at environmental legislation and institutions in charge of their implementation.

2.3.1 Environmental Legislation

To remediate its growing environmental problems, China has gradually adopted a comprehensive environmental policy. Two types of environmental statutes exist. The first is a "basic law", enacted by the National People's Congress (NPC), and the second is a specialized law, usually enacted by the Standing Committee of the National People's Congress (Ma and Ortolano, 2000). The State Council is in charge of issuing the legally-binding regulations, or when approved by the State Council, by one or more of its ministries or commissions (Ma and Ortolano, 2000). The State Council declared that environmental

protection was one of China's basic policy goals in 1983 (Chan, 2004), and environmental legislation now covers a wide range of environmental issues. The environmental legislation covers wastewater and solid waste management, air and water pollution, oceans and watercourses conservation, and finally the management and protection of forests, grasslands, soil, fisheries, mineral and water resources, wildlife and coal and other sources of energy (World Bank, 1997).

The first environmental law, the Environmental Protection Law for Trial Implementation, was promulgated in 1979 by the National People's Standing Committee (Ma and Ortolano, 2000). While this was considered as the first attempt at implementing an environmental protection law, the trial status hindered compliance. Polluters would argue that the law was not yet in force (Ross, 1988). Ten years later, the Environmental Protection Law was enacted, and the trial status removed. This was the first law to establish national standards for ambient environmental quality standards and waste discharge (Ma and Ortolano, 2000). It is considered to be the backbone of China's environmental legislation and is the first legislation piece to include EIA provisions.

Despite the fact that the environmental legislation is extensive in comparison to other developing countries, it is afflicted with doctrinal infirmities and enforcement difficulties that generally characterize Chinese laws (Alford and Shen, 1997). The laws are framed in general and exhortational terms: it is difficult to determine what is prohibited, which creates difficulties when trying to curtail specific behaviors (Alford and Shen, 1997). Even if the regulations add more precisions as to how legislation is to be implemented, they are usually framed to be enforceable across the country, despite regional differences.

2.3.2 Environmental Institutions

Several agencies are in charge of the elaboration and enforcement of environmental protection legislation, the most important being SEPA⁷. It is under the authority of the State Council, which provides most of its funding (Jahiel, 1998). The organization is divided into nine departments, including an Environmental Impact Assessment Management Department. Despite its promotion to ministerial status, it is a second-rank, or non-Cabinet, ministry (Wang, Morgan and Cashmore, 2003). SEPA's

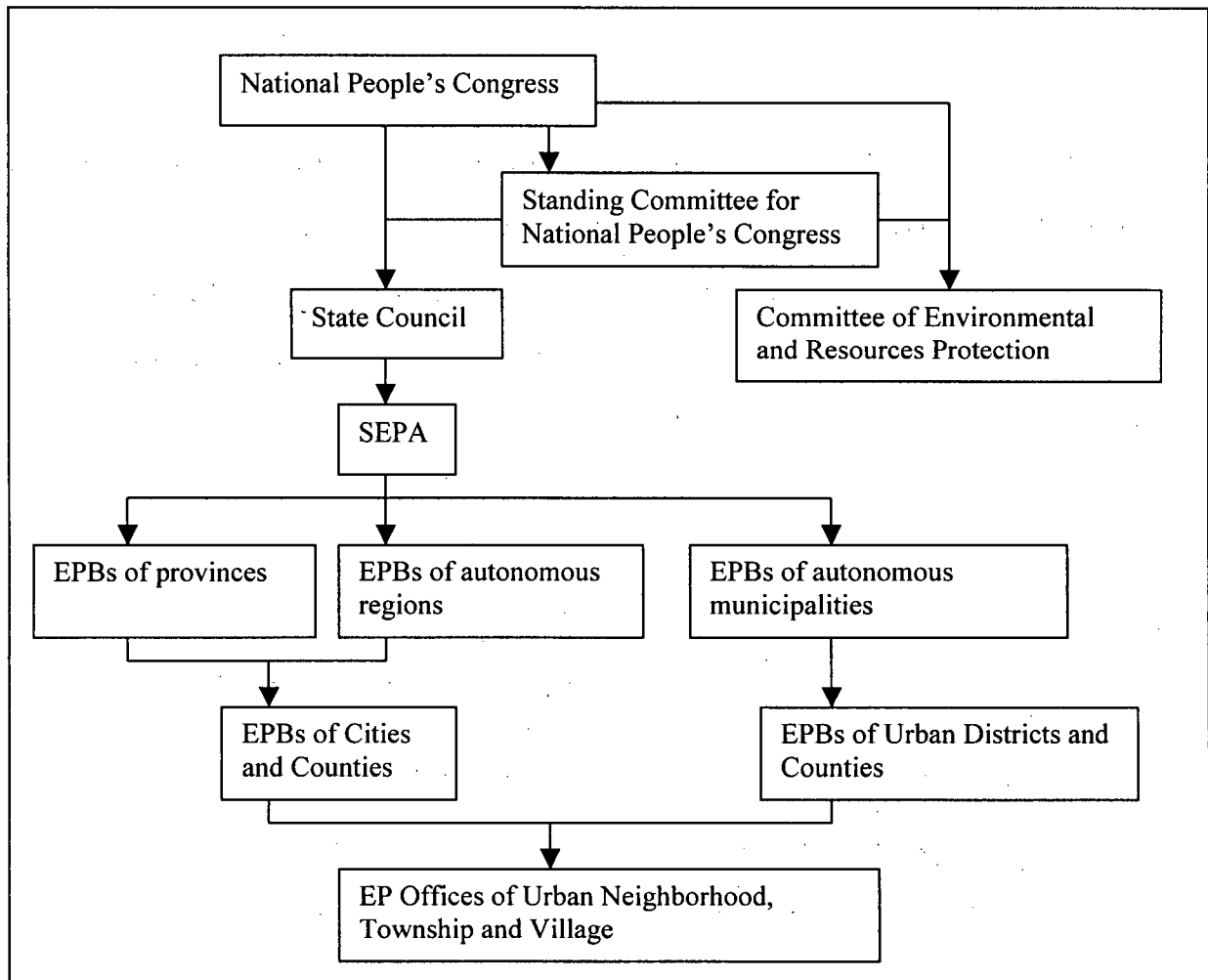
⁷ Prior to the extensive 1998 administrative reforms, SEPA was known as the Nation Environmental Protection Agency, or NEPA (Jahiel, 1998).

responsibilities include drafting environmental laws, regulations and standards; overseeing environmental management; designing and conducting environmental education and publicity programmes; hosting environmental meetings; promoting best available technologies; and the coordination of international environmental exchanges and inter-ministerial environmental activities (Jahiel, 1998).

Also involved in pollution control are the Environmental Protection Bureaus (EPBs) which are in charge of implementing national and local regulations (World Bank, 1997). The EPBs are part of the local governmental structure at three different levels: 1) the municipal EPB, 2) the county-level EPB and 3) officials in charge of environmental protection in sub-district offices and township governments (Asian Development Bank, 1997). The municipal EPB monitors ambient environmental quality and conducts monitoring and enforcement at enterprises. Districts, county and county-level cities monitor waste discharges and enforce regulations at enterprises (Asian Development Bank, 1997). They are responsible for implementing national policies, but as an institution that is part of the city government (Lo, Tang and Chan, 1997). Heads of the city EPB are appointed and required to report to the city's mayor (Lo *et al.*, 1997). At each of these levels, these organizations are in charge of implementing national and local environmental programs (Asian Development Bank, 1997).

A significant proportion of the revenues of the EPB come from pollution discharge fees. This is due to the pressures which are exercised by the central government for these agencies to be self-sufficient (Asian Development Bank, 1997). EPBs are legally entitled to keep up to 20% of the fees they charge to polluters and use these for their administrative expenses (Lo *et al.*, 1997). This is a constant source of revenue, which may impede charging enterprises fines high enough to encourage compliance with environmental regulations (Lo *et al.*, 1997). The remaining portion of their financing depends on the provincial or municipal government, making them vulnerable to the economic priorities of the local government leaders (Jahiel, 1998). The EPBs are responsible to two different bodies, the higher levels of the environmental protection apparatus, and the local governments where they are located: the latter are the more powerful since they are responsible for allocating the funds for the EPB operations (Jahiel, 1998). Thus, the independence of the EPB can be reduced as a result of these conflicting dynamics.

Figure 2.2 Administrative Framework for Environmental Protection in the PRC



Source: Wang *et al.*, 2003.

Mayor's offices also have an important impact on the enforcement of environmental legislation. They appoint the head of the EPB, make key decisions on large investment projects involving industrial development and environmental protection, and settle disputes (Ma and Ortolano, 2000). Much of the municipal government revenues come from enterprises, so balancing environmental protection and economic development is one of the tasks of the mayor (Ma and Ortolano, 2000). The Planning Commission and Economic Commission, part of the governmental apparatus, also have power in environmental policy enforcement, with the Planning Commissions at the county level and above being responsible for the revision of EPBs environmental protection plans and their integration into local economic and social development plans (Ma and Ortolano, 2000).

While organizational structure and hierarchy is well established, these organizations have substantial freedom in the formulation of their own policy priorities, selection of policy tools, designing their own enforcement methods and making decisions about the implementation schedule (Tang, Lo, Cheung and Lo, 1997). While in a more prosperous area such as Shanghai, higher environmental standards are required compared to the national level, other areas may implement the more general national standards as long as they are not impeding economic development. This may be attributed partly to the fact that policies are decided at the national level, while their enforcement is financed at the local level. The devolution of administrative responsibility has changed the role of local governments, with lower levels of government becoming an important entity in the local regulatory process (Skinner, Joseph and Kuhn, 2003).

2.3.3 EIA Procedures in China

The EIA has been implemented and adapted to local conditions in countries as different as Brazil, Canada and Australia. The EIA system in China reflects “well-thought-out efforts to tailor requirements for environmental impact statements to the local political context.” (Ortolano and Shepherd, 1995: 6)

2.3.3.1 EIA Legislation

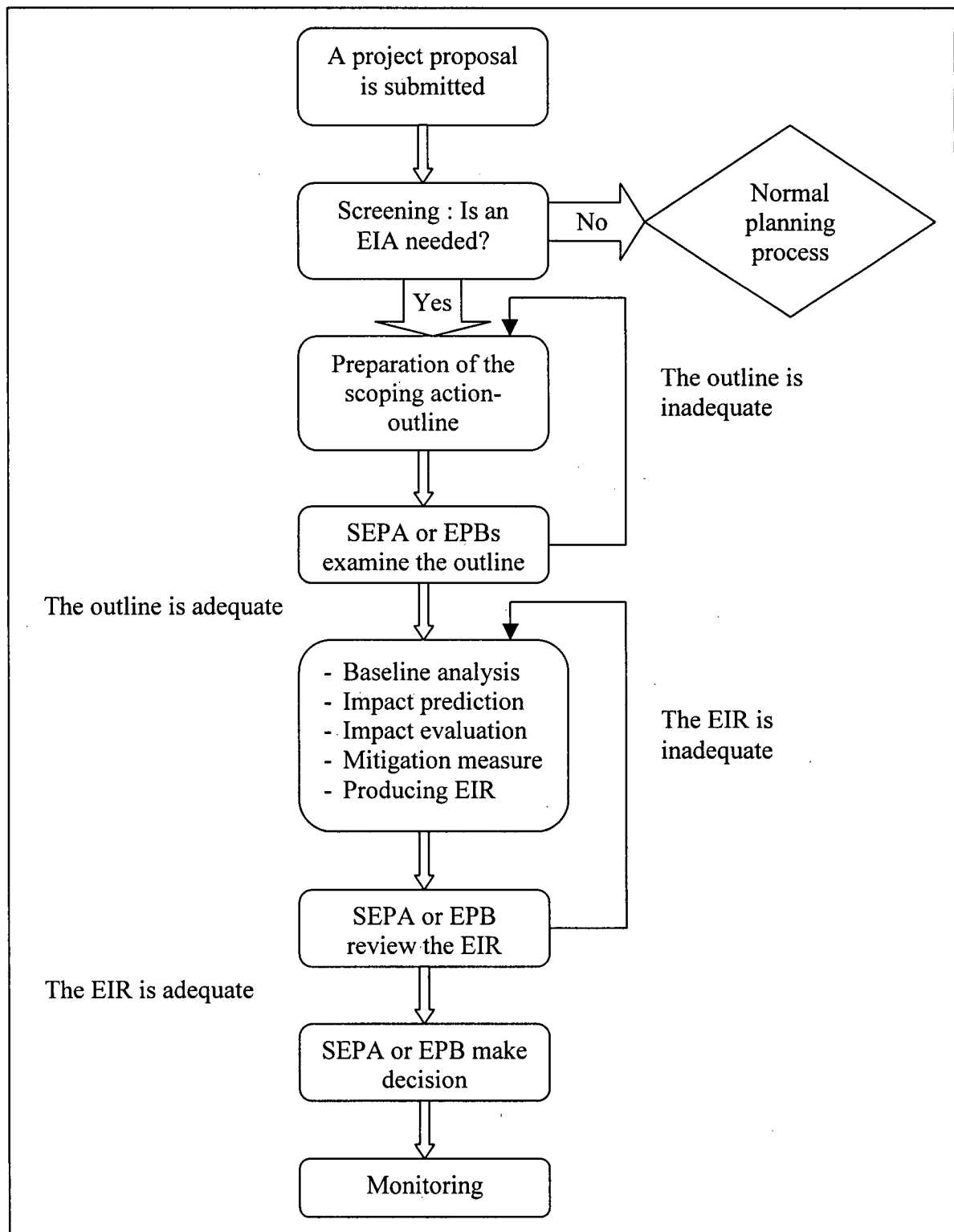
While the EIA was first used in developed countries in the early 1970s, the concept was introduced in China in 1973 during the first Conference for National Environmental Protection (Wang *et al.*, 2003). The People’s Republic of China Environment Protection Law for Trial Implementation enacted in 1979 formally introduced the EIA in China (Wang *et al.*, 2003). It has since been supplemented by 15 laws containing provisions for EIA and providing a legislative basis for EIA practice (Wang *et al.*, 2003). However, the lack of proper guidelines led the government to elaborate the Management for Environmental Protection of Capital Construction Projects in 1981, providing detailed guidance on how EIAs should be carried out (Wang *et al.*, 2003). It was followed five years later by an EIA Licensing System for the evaluation of impact assessment practitioners (Wang *et al.*, 2003). The EIA agencies capabilities are assessed according to national guidelines. In 1993, the Technical Guidelines for Environmental Impact Assessment were released by NEPA (Wang *et al.*, 2003).

In October 2002, the Chinese government introduced a new EIA law to be implemented in September 2003, where the scope of the actual project EIA is extended to government plans and programmes. This delay was to allow government agencies and other public and private bodies to prepare for the new requirements (Wang *et al.*, 2003). The legislation so far excludes the environmental assessment of government policies (Wang *et al.*, 2003). The evaluation of environmental impacts of government plans and programmes illustrates that China is moving progressively towards the implementation of the SEA.

Two types of Environmental Impact Assessment are currently being practiced in China. The first is called the Regional Environmental Impact Assessment, and covers an administrative area. The Regional Environmental Impact Assessment was introduced in 1993 in order to address larger scale and cumulative impacts of developments in the same area (Wang *et al.*, 2003). The second EIA is the Environmental Impact Assessment for construction projects, which is the main focus of this research. The project EIA is for the most part unchanged from the previous procedures, which means that the system is considered satisfactory (Wang *et al.*, 2003). The new EIA Law strengthens the legal status of EIA in China, and allows EIA practice to be subject to judicial review (Wang *et al.*, 2003), which increases pressure on EIA practitioners and project proponents.

The Figure 2.3 shows the main steps for an EIA in China. Overall, it is fairly similar to the EIA processes as practiced in developed countries. The main difference occurs during the scoping step, where an outline has to be submitted to the EPB for evaluation.

Figure 2.3 China's EIA Process



Source: Wang *et al.*, 2003.

2.3.3.2 Screening

First the project developer has to submit the project to the Construction Bureau, which then refers it to the EPB. The EPB decides whether or not it needs to go through an EIA, and if so, which type of EIA. Three types of EIA are possible, and the decision on which one to use will depend on the project characteristics, size, output and environmental parameters. The most important decision factors are the amount of pollutants discharged, the associated mitigation measures, and whether the project is to be located in an environmentally-sensitive area (Wang *et al.*, 2003). Pollutant discharge relates to the emission volumes, types, complexity of pollutants and possibilities of abatement, while the sensitivity of the area is evaluated based on the importance of ecological, archaeological, cultural value and numbers of humans affected (Wang *et al.*, 2003). Following this evaluation, the project may go through a full Environmental Impact Report (EIR), an Environmental Impact Form (EIF), or the basic Environmental Impact Registration Form (EIRF).

2.3.3.3 Scoping

Scoping is also known as impact identification, and this step determines the limits or scope of environmental degradation resulting from the project (Gupta and Asher, 1998). The significance of impacts can be assessed using factors such as the magnitude and significance of the change, the affected geographical area and the special sensitivity of some areas (Gupta and Asher, 1998). Scoping is improved if technical experts know the different impacts associated with the type of project under evaluation (Ortolano and Shepherd, 1995). The scoping process comprises several dimensions such as the initial analysis of the project, the investigation of the environmental baselines, the identification of significant impacts, the establishment of actions for each impact and the preparation of the action outline (Wang *et al.*, 2003). After approval of this action-outline, the analysis will be conducted.

2.3.3.4 EIA Report

The report consists of a description of the project, gives a description of the environmental conditions, predicts and evaluates the environmental impacts, provides an analysis of mitigation measures and a cost-benefit analysis of the environmental impacts, and offers monitoring recommendations (Wang *et al.*, 2003). The EIA focuses mostly on air and water pollution, as well as noise levels and solid waste.

Mitigation measures are the measures proposed to reduce the impacts (Gupta and Asher, 1998). This allows for the assessment of alternative measures in the process (Gupta and Asher, 1998).

2.3.3.5 Review

When the EIA is done, it is then handed to the EPB for evaluation. The approval of an EIR will be divided between three parties: county EPBs, autonomous region or municipal EPB and SEPA. SEPA will be involved only in four cases: if the project happens to be confidential or nuclear facilities, involves more than one administrative region, is approved by the State Council or related bodies⁸ or likely to cause cross-boundary impacts and the EPBs cannot agree on the report (Wang *et al.*, 2003). The appropriate level EPB will proceed with the evaluation, along with a group of experts if necessary. Evaluation periods are variable. While the national periods are of 60 days for an EIR, 30 for an EIF and 15 for an EIRF, these are significantly shorter in Shanghai, where the corresponding time periods are 30 days, 15 days, and one week.

2.3.3.6 Approval

Following the evaluation of the report, the project developers will then be given the green light for construction, or will be asked for more information or modifications. The final evaluation of the EIA report will be on the pollution levels associated with the project, and the cost-benefit analysis of the environmental impacts (Wang *et al.*, 2003). The social, ecological, cumulative or indirect impacts are not given the same degree of attention as immediate pollution resulting from the project (Wang *et al.*, 2003).

2.3.3.7 Post Audit

The last phase is monitoring during the construction and operation phases. The organization responsible for monitoring is the Environmental Protection Bureau at the district level, who will examine whether the enterprise implements the EIA provisions. This is done along with the Three Synchronizations, which refers to the inclusion of environmental provisions specified in the EIA, and their application during the project design, construction and completion⁹. The main monitoring areas are: technology, production processes and products compliance with the report, the implementation of the

⁸ For projects over 20 million RMB.

⁹ The Three Synchronizations are also referred to as the "Three Simultaneous" or "Three Synchronous".

Three Synchronizations provisions, observance of environmental standards, implementation of the internal environmental management strategy and waste production (Wang *et al.*, 2003). This will be supplemented by random inspections from the EPB after the completion of the construction. If significant changes occur in the future regarding the nature, size, location or process technologies of the project, the EIA has to be repeated despite its prior approval (Wang *et al.*, 2003).

2.3.3.8 Limitations

The limits of the EIA system in China are very similar to the observed limits of EIA implementation in Asia in general. The EIA system in China is supported by a comprehensive body of legislation and regulations. Despite this extensive regulatory framework, authors have found several problems with the actual EIA system. Regulations in China tend to be universal, and the actual requirements for individual EIAs are not clear or even not covered (Wang *et al.*, 2003). In terms of procedures, China has produced one of the most comprehensive EIA systems in the world; but its enforcement makes it more of a formality than a policy instrument (Cheung, 1998).

The traditional vision of the EIA was that it should deal with pollution generated by development projects, being less concerned with the social and ecological impacts, as well as indirect and cumulative impacts (Wang *et al.*, 2003). The resulting shortcomings could be partly solved with the consideration of alternatives, which would include changes in the location, scale of the project, processes and technology, site layout, operating criteria and mitigation measures (Wang *et al.*, 2003). EPBs work independently from planning authorities (Wang *et al.*, 2003). It has happened that the site was selected before the beginning of the EIA process, which makes it more difficult for the EPB to ask for its relocation (Tang *et al.*, 1997). Another major factor hindering the enforcement processes are the constraints in terms of personnel and budget. Constraints in terms of personnel include the number of persons allocated to enforcement, and their training. Most of the training of the personnel working in EPBs is in environmental sciences, with few specialized in social or economic assessments. This limits the scope of the EIA to mostly pollution evaluation. The number of persons allocated to monitoring and enforcement are also vastly insufficient. This is especially important in view of the increasing environmental protection mandate that the EPBs and SEPA are facing (World Bank, 2001).

Another problem is the lack of public participation, with no special mechanisms for the public to voice their opinions and concerns (Tang *et al.*, 1997). In theory, this does not conflict with China's political regime, as the country belongs to the people and the government represents the population's wishes (Wang *et al.*, 2003). Public participation should be a two-way process, including the promotion of public understanding and its education on the perceived impacts of the project, and the use of public feedback as constructive input in order to improve the project design (Asian Development Bank, 1997). This process would provide opportunities to inform and involve the public, and their input and concerns should be addressed in the documentation and decision-making (IAIA, 1999). Unfortunately, in practice, public participation processes often only involve questionnaires, which limit public input to what is addressed by the questionnaire. There are no obligations for the EIA report to be made public (Wang *et al.*, 2004). Perception of the role of the public is also problematic, as the population is usually seen as source of trouble for the EIA process (Wang *et al.*, 2003). While this is slowly changing with the population's increasing environmental awareness, this tends to be limited to more economic affluent areas.

2.3.4 EIA in Shanghai

The basics for the EIA system in Shanghai are the same as the national level, but have been supplemented by several measures at the municipal level. The Shanghai municipal government established a policy committee and several administrative agencies responsible for the adoption and enactment of local environmental policies and regulations (Lo *et al.*, 2000). Shanghai has adopted environmental guidelines before they were adopted at the national level. The Provisional Measures for Preventing New Environmental Pollution in Municipal Shanghai were adopted 3 years before comparable national guidelines, which were adopted in 1986 (Lo *et al.*, 2000). Since the application of these laws was not effective in dealing with environmental problems related to rapid urbanization and industrialization, the government recently redefined its environmental strategy to be more pro-active with the use of EIA in Shanghai (Lo *et al.*, 2000).

A set of environmental provisions has helped in implementing the EIA through the establishment of a formal EIA system (Lo *et al.*, 2000). The 1995 Shanghai Municipal Environmental Protection Regulation states active prevention to be the dominant approach of its environmental protection strategy (Lo *et al.*,

2000). All major development projects that may have negative impacts on the environment are required to undertake an EIA (Lo *et al.*, 2000). The EIA is done in three different steps. The first one is the project proposal stage, the second is the EIA and the third one is monitoring, also referred to as the “Three Synchronizations” stage (Lo *et al.*, 2000). If the Three Synchronizations are implemented, it then allows an environmental agency to monitor the project from the design, construction and completion phases (Tang *et al.*, 1997). The Shanghai Environmental Protection Bureau (SEPB) is responsible for the application and enforcement of the EIA for projects with an investment over 30 million yuan, while smaller projects will be evaluated at the county or district level (Tang *et al.*, 1997).

Lo, Yip and Cheung (2000) state that the Shanghai EIA system compares well with developed countries, such as Great Britain and the United States. The main weaknesses of the Shanghai system are the absence of public participation processes, limited enforcement of EIA provisions and the lack of system monitoring (Lo *et al.*, 2000). There is also a shortage of staff, which limits the scope of the enforcement to verifications that the projects adhere to their construction design as in the report (Tang *et al.*, 1997).

2.4 Conclusion

China has adopted most of the EIA model from developed countries, with adaptation to suit its local conditions. This adaptation includes a highly-centralized process, where technical guidelines come from the central government, and are uniform throughout the country. Considering the large differences in geographical conditions, population density as well as economic development across different provinces and cities, one can wonder about the benefits of such national norms. Limitations in terms of training and number of the EPB personnel have an impact on the EIA reports contents, as well as its enforcement. Finally, there is only limited participation from the public in the EIA process.

Fortunately, following an increasing decentralization of powers, local institutions have more and more flexibility in the implementation of national policies. The rapid economic development of the municipality of Shanghai, along with the pro-environment outlook of its leaders, has allowed for the elaboration of municipal standards that are stricter than national ones. Despite Shanghai’s higher standards, it has been made clear by the government that the incorporation of environmental

considerations must not restrain economic development (Lo *et al.*, 2000). Short-term economic growth is being favored over environmental protection, although sustainable development is being increasingly promoted by the Shanghai leadership. The ability of the government to selectively implement national policies in light of local priorities (Skinner *et al.*, 2003) could be enhanced by this change in the Shanghai leadership mentalities.

Chapter 3: Methodology

The primary objective of this research is to answer questions related to procedures and identify constraints in the EIA processes in Shanghai. This will allow in turn for the realization of the second objective, which is to add a contribution to the literature on the process of selective adaptation of foreign norms and rules in developing countries. Since the EIA is a pollution prevention strategy implemented for over 20 years subject to local enforcement constraints, the study of the underlying dynamics in the context of increasing economic development may have implications well beyond China's borders. Because the research aims to describe a process, but also find causal explanations as to its limitations, a multiple strategy research approach was adopted. The research is both descriptive and explanatory, as it describes the implementation of a policy while looking for operational links that have to be traced over time (Yin, 1994). The combination of the descriptive and explanatory research strategies provides an outlook of what are the challenges facing the environmental protection sector, and how these are to have an impact on the implementation of the EIA.

3.1 Case Study

The case study format was selected for this research as its motivation arises out of the desire to understand complex social phenomena (Yin, 1994). EIA conditions vary greatly between different regions due to local levels of investment in environmental protection, which are usually different depending on the level of economic growth. The use of Shanghai and Pudong New Area as a case study was to examine EIA conditions in a fast-developing area. The second reason is that the Pudong New Area government requires an EIA as part of the enterprise investment application. Even if other regions are not experiencing the same levels of economic growth, it could provide useful insights in order to maximize the efficiency of the EIA in different conditions.

3.2 Data Collection

An advantage of using multiple data collection methods is that the triangulation made possible by these methods provides stronger substantiation of constructs and hypotheses (Eisenhardt, 1989). It also facilitates the development of convergent lines of inquiry, where findings are strengthened by

confirmation from different data sources (Yin, 1994). Data collection was realized in two steps. The first one was a literature review, which focused on EIA institutions, legislation and procedures. Information about legislation and procedures was collected for the identification of constraints in the EIA processes. This preliminary identification led to the elaboration of the interview structure and questions. The literature review also helped to identify institutions involved in the EIA process, which were target institutions during the fieldwork period. The second step was to collect data not available in Canada and conduct interviews with specialists involved with the EIA in China.

A set of target organizations was identified during the literature review. These were the Shanghai Environmental Protection Bureau, the Pudong New Area Environmental Protection Bureau, and the Shanghai Academy of Environmental Sciences (SAES). The Shanghai and Pudong New Area EPBs were included because these are in charge of environmental management at the municipal and district level, and have to evaluate EIAs. The Shanghai Academy of Environmental Sciences was selected because it is the most important EIA institute in Shanghai, and is in charge of the majority of EIAs in the area.

3.2.1 Quantitative Data

The total fieldwork period in Shanghai was of three months duration, from March to May 2004. Some of the information collected was of a quantitative nature, such as data from the China Environmental Yearbook or the Shanghai Environmental Yearbook¹⁰. These references comprise disaggregated information about various environmental indicators, such as regional pollution, resources for EPBs as well as EIA numbers. Some of these statistics, such as the regional pollution levels, are incomplete: they do not include data from TVEs (Jahiel, 1997). Quantitative information can also be found using references on the internet. For example, the SEPB website comprises daily air pollution reports. While some of these were already known to the researcher, specialists in Shanghai pointed out additional ones. Some environmental protection bureaus have their own website, including the SEPA and the SEPB. Some districts in Shanghai have their own environmental website, including the Pudong New Area since the end of June 2004.

¹⁰ The Shanghai Environmental Yearbook only started being published in 2002.

3.2.2 Qualitative Data

Qualitative information related to processes and constraints in the EIA process was collected through interviews. Contacts were established by email before departure with persons referred by the UBC academic community. Most of the replies included on-site contact information, but no specifications as to what resources or support could be expected. For that reason, contacts given before departure became a basis to expand the network using a snowball strategy. The contacts would refer the researcher to other members of their network, which they considered to have specialized knowledge regarding the EIA and would therefore be in a better position to advance the research process.

In total, 20 interviews were realized using this procedure. The breakdown is as follows: 4 persons related to EPBs, 4 EIA practitioners (including SAES), 3 persons working at various governmental levels, 4 academics and 5 persons working for enterprises that have to manage EIAs or that have undergone an EIA. Of these interviews, the majority was conducted in Chinese, but also in English. For every interview, the researcher would be taking notes. The language for the interview was decided beforehand. If the interview language would be Chinese, a request for the authorization to record the interview or to have a Chinese student taking notes was made. In general, the interviewees would prefer having a student taking notes instead of the interview being recorded. In some cases, the authorization to record or have an assistant was denied. In these cases, the information would be confirmed by repeating, or using sometimes English words to make sure that there was proper understanding between both parties.

Meetings with the interviewees occurred in a various set of locations, which was determined by the interviewee. The interview would last between 45 minutes up to one hour and a half. The result gives information about EIA processes in a narrative form, which renders possible a narrative analysis. The narrative analysis is when an account or analysis is constructed by the researcher and presented in narrative form, such as historical events (Phillips, 2000). This narrative provides descriptive information of the EIA processes.

A semi-structured interview was the format used for the interviews, and guideline questions were prepared and translated before departure to the field. This set of questions was intended to be adapted depending from which institution the interviewee was from. Also, after several interviews, some

questions were dropped as they resulted in repetitive answers, and were replaced by other questions. In other cases, the preparatory research done beforehand would lead to the adaptation of the interview structure to the specific circumstances of the institution. These adjustments allow for the probe of emergent themes or take advantage of social opportunities which may occur in a given context (Eisenhardt, 1989). The format of the semi-structured interview was adopted in order to get more detailed information than a structured interview. It was feared that adopting a structured interview format would limit the answers, and therefore not supply more information than the literature review, since questions would be based on the latter, and there would be no room for spontaneous interventions. One of the weaknesses associated with interviews as a data collection method is the risk of *reflexivity*, where the interviewee gives to the interviewer the information he/she thinks that the interviewer wants to hear (Yin, 1994). This problem can only be reduced with the building of a trust relationship, and this process requires patience (Thurston, 1982).

Questions in the interview were designed in order to gather information to answer the research questions, more specifically regarding the EIA application in Shanghai and the Pudong New Area. An interview questionnaire sample is included in Appendix A. The interview was divided into four parts. The first one was to gather information about the institution, such as the number of departments, employees, their training, etc. The second was focused on the institution's activities, responsibilities, how are these determined, changes over time. The third section was to gather information about the organization's links with other institutions, and to gather more information about these relations. The fourth and last section was focused on the EIA procedures. The following table give information as to what were the different objectives related to interviews with different organizations.

Table 3.1 Interview Objectives

Organization	Interview Objective
Academic	Learn about the EIA Law elaboration process
Companies	Supplement the theoretical information with experience from companies that have undergone an EIA
EIA Agencies	Learn about the EIA reports methodology
Environmental Protection Bureaus	Obtain information about EIA processes and EIA evaluation
Government	Evaluate the EIA importance in different departments

3.3 Challenges

Several factors are specific to China when it comes to realizing an academic research project. While restrictions on researchers have been decreasing through the years, some subjects remain sensitive, and environmental sciences are no exception. For that reason, affiliation with an academic institution is strongly recommended in order to facilitate the research procedures. The author is grateful for her affiliation with the Shanghai Academy of Social Sciences and the China Europe International Business School. These two institutions provided considerable support and were most helpful during the fieldwork period.

There were several challenges associated with data collection and interviews in China. Access to statistical data is limited to written and electronic sources of information, which are already available abroad. During the interviews, strategies such as repetition or writing were used for communication to reduce linguistic ambiguities. A Chinese speaker proofread interview transcripts and translations. Despite these difficulties, results yielded useful insights regarding EIA processes in Shanghai.

A second factor impacting results has to do with being a foreigner in China. Thurston (1982) pointed out that the Chinese have a well-developed sense of insider and outsider, which applies within their own society, and between Chinese and foreigners. While this can have positive impacts on some aspects of doing research for academic purposes, it can also significantly increase the difficulty level. For example, “success stories” will be told so that it gets reported outside China, while the information that could be used to portray China in a negative light will be kept away from the researcher. The constraints of being a guest in China, which also applies to researchers, can be mitigated because guests are courteously hosted, but this courtesy can also impede contact with the research subjects (Thurston, 1982).

Another limiting factor is that most of the research on environmental issues in China is done from either the engineering field or the legal field. Social sciences have had a troubled history in China, where in the early days of the People’s Republic of China social sciences disciplines were disbanded (Thurston, 1982). While these restrictions have eased and social sciences are now back in universities, some topics such as environmental policy are not studied in the same fashion as in the West. For example, it seemed awkward for some interviewees to be thinking of environmental issues from a social sciences perspective,

focusing on interactions between different agencies or the success of different processes. The same applies to written material. Most books available on environmental issues would be mostly related either to policy enforcement, or pollution control.

3.4 Summary

A case study research is usually not an easy process, as the researcher has to put aside personal judgments bases to look at the information presented. It creates additional difficulties when it is to be conducted in China, where codes of conduct are different from the West and where access to information may be limited for some research topics. While the Chinese do not expect uncritical acceptance of their political system, they wish that criticisms be balanced with the recognition of the past years (Thurston, 1982). This is especially relevant in the environmental protection field, which gets lambasted regularly in the Western media. While this is not unjustified, it also needs to be put into the perspective of recent changes. There have been increasing efforts invested in environmental protection, and while enforcement and compliance are still facing obstacles, it has progressively become a priority on the domestic agenda.

Chapter 4: Results

The following section will present: the results of the data collection, followed by interview results. Interview results will be presented in the same format used for the literature review, which was classified according to the EIA steps as in Wang, Morgan and Cashmore (2003).

4.1 Data Collection

Public environmental data were available in written or electronic form. Although the quantity of information describing local environmental conditions, pollutant discharges or environmental management has been increasing, it is still difficult to assess the quality because of the lack of information on data collection processes. A second issue is related to data comparison and analysis. Data are not always standardized. The following table illustrates this problem. Quantitative data were gathered to determine the number of EIAs done on a yearly basis in Shanghai.

Table 4.1 EIAs in Shanghai, 1993-2002

Year	Number of Project that Should Obtain EIA	Number of Projects Conducting EIA	Environmental Impact Assessment Report (EIR)	Environmental Impact Assessment Form (EIF)	Projects Kept on Record (EIRF)	Percentage for Implementation of EIA
1993	2122	1995				94
1994	1724	1721				99.8
1995	2828	2828	85	2149	594	100.0
1996	4444	3701	111	2764	826	83.3
1997	4373	3661	115	3175	371	84
1998	3203	3051	101	2763	187	95.3
1999	1477	1440	42	1372	26	97.5
2000	2625	2624	118	2199	307	100.0
2001	3958	3957	138	3204	615	99.9
2002	5423	5423	267	4276	880 ¹¹	100.0

Source: Modified from Editorial Board of China Environment Yearbook, 1994-2003.

The first source of information used is the China Environmental Yearbook (1994-2003), which effectively covers the period from 1993 to 2002. Starting in 1993, EIA information is included in the China Environmental Yearbook. Information is provided as to how many reports were realized at the provincial, municipal and county level. Since Shanghai is an autonomous municipality, which means that it has provincial-level administrative powers, the difference between the provincial and municipal level is

¹¹ Starting in 2002, this column is now referred to as the Environmental Impact Report Form.

not clear. The year 1995 marks the addition of disaggregated information about the report types. The fifth column entitled "Projects Kept on Record" is assumed to be the same as the EIRF, although it only started to be identified as such in 2002. The last column shows the implementation rate of the EIA. The rates are high; this can be explained by the fact that the statistics only show the EIAs that have been implemented, not the total number of EIAs. Incomplete data triangulation with the 2003 Shanghai Environmental Yearbook¹² shows that the total number of EIAs realized is much higher than the number of EIAs that were enforced. However, there are no other available sources displaying this information over a longer period of time.

Table 4.2 provides the number of EIAs according to the Shanghai Environmental Bulletin, which is published by the SEPB. This table includes more detailed information than the China Environmental Yearbook. The first column provides information regarding the number of projects that have to conduct an EIA. This information is only available for 1993 and 1994. Results for other years could have been added up; but since some data discrepancies have been registered in the table, this was not performed for fear of inaccurate results. The second, fifth and eighth columns list total numbers for the EIR, EIF and EIRF. These numbers are then disaggregated by the number of projects examined at the municipal and district/county levels. The eleventh column lists the number of EIAs that were rejected; this information was only available for 2003.

In 1993 and 1994, the information about the number of EIA reports comprises EIR and EIF only. There is no information about the number of EIRF before 2002, despite the fact that these numbers are included in the China Environmental Yearbook. Only in 1997, 1998, 2001¹³ and 2002¹⁴ do the number of EIR and EIF correspond between the China Environmental Yearbook and the Shanghai Environmental Bulletin. A hypothesis proposed to explain the discrepancy was that there could be confusion between the number of EIAs that have been realized and those realized and implemented: but titles for the tables use the same vocabulary, so the hypothesis was rejected. The Shanghai Environmental Bulletin stops including the number of reports evaluated at the municipal and district levels in 2003.

¹² Information about the number of EIAs realized was only compiled for the 2003 report.

¹³ The number of EIR and EIF was also confirmed by the 2002 Shanghai Environmental Yearbook.

¹⁴ Implementation statistics are confirmed in the 2003 Shanghai Environmental Yearbook.

Table 4.2 EIAs in Shanghai 1992-2003

Year	Number of Project Conducting Procedure of EIA	Total Environmental Impact Assessment Report (EIR) ¹⁵	Municipal	District / County Level	Total Environmental Impact Assessment Form (EIF) ¹⁶	Municipal	District / County Level	Total Projects Kept on Record (EIRF) ¹⁷	Municipal	District / County Level	Rejected EIA
1992	637 564 ¹⁸	10			783						
1993											
1994											
1995		94	39	55	2149	628	1521				
1996		112	45	67	2524 ¹⁹	509	2051				
1997		115	59	56	3175	457	2718				
1998		101	47	54	2763	251	2512				
1999		73	49	24	2697	452	2245				
2000		118	56	62	2199	381	1818				
2001		138	37	101	3204	372	2832				
2002		267	63	204 ²⁰	4276	273	4203 ²¹	880	91	789 ²²	
2003		243			5086						14

Source: Modified from Shanghai Environmental Protection Bureau, 1992-2003.

¹⁵ The EIR total numbers are followed by the number of EIRs evaluated separately at the municipal, and district/county levels.

¹⁶ The EIF total numbers are followed by the number of EIFs evaluated separately at the municipal, and district/county levels.

¹⁷ The EIRF total numbers are followed by the number of EIRs evaluated separately at the municipal, and district/county levels.

¹⁸ The Shanghai Environmental Bulletin mentions that 80% of the EIA were implemented, without additional statistical information.

¹⁹ Numbers of disaggregated reports do not add up to the same total.

²⁰ There were no information regarding numbers for the Environmental Impact Report examined at the district and county level in the Shanghai Environmental Bulletin. This number comes from calculations made with the total number of EIR and EIR examined at the municipal level. These could be inaccurate, but were calculated to show the increase over time in the number of reports.

²¹ Same as above but for the Environmental Impact Form

²² Same as above but for the Environmental Impact Report Form.

The author was able to obtain disaggregated data for the number of EIAs done in the Pudong New Area but only for the period ranging from 2001 to 2003. The Shanghai Environment Bulletin does not provide any information about the number of EIA done in districts and counties; the 2003 Shanghai Environmental Yearbook does, but information for the Pudong New Area is not available. Unfortunately, there is no indication of the total numbers that would allow for calculations of the missing Pudong New Area values.

During the interviews, interviewees were asked where it would be possible to find information regarding EIAs in the Pudong New Area. Interviewees usually stated that the information could be found on the internet. The Pudong New Area EPB website²³ contains the Pudong New Area Environmental Bulletin, which include the EIA numbers for 2001 to 2003 and were posted on November 4th 2004. The fieldwork was conducted from March to May 2004, which raises questions as to the interviewees' answers. This could be explained by several reasons. Perhaps the interviewee did not know and did not want to loose face. Or perhaps the information was not available then, or simply available elsewhere.

The data collected about the number of EIAs show a lack of uniformity in their presentation. In 2001, 47 EIR and 895 EIF were realized (Pudong New Area EPB, 2002). In 2002, numbers show 43 EIR, 965 EIF and 96 EIRF (Pudong New Area EPB, 2003). Finally, in 2003, 16 EIR, 579 EIF and 30 EIRF were evaluated by the EPB (Pudong New Area EPB, 2004). Information is also included about the rejection numbers of reports, with 20 rejected in 2002 and 15 in 2003 (Pudong New Area EPB, 2003 and 2004). No explanation was found as to the drastic reduction in numbers between 2003 and 2004.

The process of collecting quantitative data raises several questions. While it provides information regarding the number of EIAs performed on a yearly basis in Shanghai, little consistency can be observed between sources. Despite the information being structured in a similar fashion, under the same headings, the author could not find an explanation for the numerical differences between sources. Convergence between sources of information has been increasing over the years, but greater data transparency still needs to be achieved.

²³ The website was created at the end of June 2004.

4.2 Interviews

The difficulties that occurred during the interview process may be divided into three categories: identification of respondents for the research, scheduling the interviews, and the interview location.

The main challenge was related to the identification of respondents for the research. Network building using a snowballing method required a significant period of time during fieldwork. In order to increase efficiency when meeting with resource persons, a research presentation sheet was provided. The sheet contained an explanation as to who could provide relevant information for the research. This information could be disseminated when resource persons would contact members of their network. The use of this method decreased time inefficiencies for both the interviewer and the interviewee, as individuals contacted would be aware of the research topic and methods.

The interview scheduling was another difficulty. Interviews were done on a voluntary basis and the participants did not receive any compensation. Since most of the interviewees held senior positions within their respective organizations, interviews had to be scheduled weeks in advance, and were often rescheduled in view of unexpected events. The author had to adapt to these changes and readjust schedules according to the circumstances.

The location of the interviews was decided by the interviewees. Interviews were conducted in a variety of locations, where disturbances or interruptions in some locations were more likely. Interruptions by phone calls or by other persons requesting the interviewees' attention were quite frequent. This would give the author time to take additional notes and prepare for the continuation of the interview.

Interviews yielded a wealth of information about EIA processes. Some of this information was in contradiction with information gathered during the literature review and previous interviews. Results of the interviews show some data convergence, mostly within the same type of organizations. For that reason, answers were separated into five categories: Academic Institutions (3), EIA Institutes (5), Enterprises (5), EPBs (4), and Shanghai Government (various departments, 3). Comparisons across organizations showed different information patterns, which may be attributed to the different roles that these organizations play in the EIA implementation.

4.2.1 Results

Interview questions were designed to gather information about the different steps of the EIA process for construction projects. Results of the interviews are structured according to the steps, which include the project proposal, screening, scoping, the EIA report, EIA review, approval and post audit. These EIA steps have been described in Wang, Morgan and Cashmore (2003), and follow the structure of the literature review. This also is the procedure as reported during the interviews.

4.2.1.1 Project Proposal

As discussed in section 2.3.3.1, the first step towards the EIA is the preparation of the project proposal by the project developer. The project is first submitted to the Construction Bureau, which then refers it to the Environmental Protection Bureau. This applies for new construction projects, and also to every subsequent modification to the installations requires a new EIA to be done (Notes from interview N12904T).

4.2.1.2 Screening

The EPB decides if an EIA is needed, and if so, what type of EIA is to be performed (Notes from interview N12904T). This evaluation uses a set of precise standards of expected pollution. Based on these results, an EIR, EIF or an EIRF is to be realized. The SEPA catalogue for Construction Project EIA Classification Management provides the information necessary to determine which level of EIA is necessary for a particular construction project (Stender and Zhou, 2002). Little information was gathered from the interviews about the EIRF, as it is done solely by the enterprise and then evaluated by the EPB. It was confirmed by the EPB personnel that the majority of the EIAs done would be the EIF. However, information gathered was most detailed on the EIR, because it is the most complex form of EIA.

4.2.1.3 Scoping

The project developer posts a bidding offer on the EPB website to select the EIA agency that will prepare the EIA. In order to ensure that there would be high quality EIAs, an EIA Licensing System for impact assessment practitioners was introduced in 1986 (Wang *et al.*, 2003).

EIA Agencies can be divided in two categories, A or B, depending on their qualifications. Agencies of type A can assess projects at the national level, while type B may assess projects at the provincial level

or below. In Shanghai, there are 13 agencies of type A and 17 agencies of type B (Notes from interview P62004A). EIA institutes can be consulting firms, but also part of a larger organization, such as a university. Both the institute and its employees need a certificate to perform EIAs. The qualification test to obtain the certification necessary to perform an EIA is held once or twice a year (Notes from interview I92904A). Employee examination for the EIA certification and renewal occurs once every two years; the next one is scheduled for June 1st 2005 (Notes from interview I92404A). There are also regular training classes for EIA practitioners. These cover a variety of topics, such as information on the newest requirements, problem management, and case study analyses (Notes from interview I40904A).

The two main criteria in the EIA institute selection are the level of specialization of the institute with regards to the project, and the fees to perform the EIA (Notes from interview P11603B). There may be variations in this procedure. An interviewee stated that the EPB makes recommendations as to which EIA institute should be hired, if the enterprise cannot make a decision after receiving the bidding books from the EIA institutes (Notes from interview P016308B). It also has been mentioned by several interviewees that sometimes they hire an EIA agency that they worked with previously, since they know that the report will be of good quality (Notes from interview P11603B). Because the institute already collaborated with the enterprise, it is also perceived to be more knowledgeable about the enterprise (Notes from interview I2904A).

A decisional factor in selecting the EIA agency is the price requested for the EIA. There was a general reluctance from EIA institutes, EPBs and enterprises to answer questions regarding the EIA fees. The EPB has enacted guidelines regarding EIA fees, but no information regarding a concrete price range was obtained. Sensitivity of the information may not be the only explanatory factor: differences between industrial sectors, production techniques used, as well as the scale of projects may render an answer simply impossible. Factors impacting the price include the time duration of the EIA, (Notes from interview I23003A), the number of departments involved, the project investment size and the project design (Notes from interview I40904A). The same interviewee said that the fees can vary by 20% over or under the average price charged for an EIA.

Some of the interviewees mentioned that although a description of the specialization areas of the EIA agency is posted on the Internet, it is impossible to trust the EIA report quality. Occasionally, the EIA agency has no specialist for the particular project area, and despite winning the contract on the basis of its qualifications, it then has to sub-contract (Notes from interview I40904A). Finally, there is increased competition between the EIA agencies, which tend to drive the fees down, but may also result in a lower quality for the EIA report (Notes from interview I92404A). Market competition results in some agencies reporting inaccurate information on environmental impacts in order to obtain contracts in the future. If the report is sent back from the SEPB for modifications, it is perceived as negative for the EIA agency's image, even if the problem lies in the technical design of the project.

Following the EIA institute selection, an action-outline will be designed in collaboration with the enterprise. The preparation of the action-outline is an important step in the EIA since it determines how the EIA will be structured and what will be included. The scoping of the project is commonly the responsibility of EIA practitioners, since the EPB does not have the capacity for developing the terms of reference (Asian Development Bank, 1997). Some enterprises will use a design team working in collaboration with the EIA institute to elaborate the EIA structure. This will then be submitted to the EPB, which is in charge of examining and approving the outline, or requesting more information.

4.2.1.4 EIA Report

The EIA report is produced by the EIA institute. There were no specific answers to the interview question regarding the EIA duration. This has to do with the fact that every project is different, and is related to the project promoter's resources. It was generally acknowledged that durations are short. The longest duration for an EIR identified during the interviews was two years (Notes from interview I61805A), and interviewees said that the shorter EIF can take 5 to 10 working days (Notes from interview I92404A). A shipbuilding company project evaluated at the national level by SEPA with a total investment of 3.214 billion yuan had an EIA that lasted 10 months (Notes from interview N02704T).

Two data sources are used to prepare the EIA. One is the enterprise undergoing the EIA, and the second is district or municipal monitoring stations. Several interviewees mentioned that the data quality can be dubious. Companies have to provide the EIA agency with data about raw material usage,

production procedures, scale of the project and future product types (Notes from interview C92404A, N02704T). Some of the data provided by the company can be flawed, as enterprises only have to fill a voluntary yearly assessment of their activities (Notes from interview I40904A). Another interviewee mentioned that their EIA institute will not use the data provided by companies; instead, they will screen for pollution indicators according to the feasibility report research provided by the company (Notes from interview I82405A). These reports outline the general characteristics of the project, such as scale of the project, production techniques, and future product types (Notes from interview N02704T). This is an interesting answer, as it contradicts the literature review and responses from other interviewees. Some companies consider this data to be confidential and will refuse to give information about production processes (Notes from interview I23003A). As a result, some EIA institutes include provisions in their agreements with companies declining responsibility for calculations made with inaccurate data (Notes from interview I92404A). Every five years, the EPB does a complete evaluation of the project area (the Regional Environmental Impact Assessment) and verifies the data provided by enterprises; because of constraints in time (the verification takes usually six months), personnel and the operation related fees, it is unlikely that the frequency of this verification might increase (Notes from interview I40904A).

The second source of data for the EIA report are monitoring stations, which provide the environmental data necessary for the environmental impact evaluation. Data from monitoring stations are not exempt from data irregularities. Monitoring stations are under the jurisdiction of the local environmental protection agency. They receive most of their funding from the local government through the EPB, and need to perform professional services for the remainder (Jahiel, 1998). According to the location, monitoring will be more exhaustive. Modern technologies will be used, and the personnel will have better training. Also, depending of the relations with the EIA institute, the institute can borrow, copy or buy the data for the EIA report (Notes from interview N92405T).

Coverage of the reports has gradually increased with experience and international collaboration. While previously the focus was mostly on pollution, now production techniques are being examined. As more production systems are analyzed, new mitigation measures are adopted (Notes from interview I23003A). At the beginning of the 1990s, EIAs started to address impacts on ecosystems, not just air,

water and soil pollution, as it did in the past (Wang *et al.*, 2003). An interviewee mentioned that it seems that EIA focus is mainly the wastewater discharges. The focus on other types of pollution is not as extensive (Notes from interview N30905T). Changes have been reported in the writing style of the report. For example, during the Suzhou Creek²⁴ collaboration project with the Asian Development Bank, one interviewee mentioned that the ADB requested changes in the report wording, such as replacing “should” by “will” (Notes from interview I23003A), in order to increase accountability. Another improvement is that inspection elements are added on a regular basis, for example indoor air pollution was a new element to be included in the report in 2004 (Notes from interview I82405A).

Despite these improvements, there are still some insufficiencies. A lack of training in ecological and socioeconomic impact assessment in China reduces the comprehensiveness of EIA reports: more often than not, training is in physical sciences or engineering (Asian Development Bank, 1997). Economic or social assessments are not part of the final report as they are not part of the requirements (Notes from interview N92405T). Another problem associated with EIAs in China is that alternatives are rarely considered in the process. While increased attention to alternatives such as change in location, scale of project, processes, technology, site layout, operating criteria and mitigation measures would allow for a better environmental planning of the project, it seems that the actual EIA procedure works against these considerations (Wang *et al.*, 2003).

4.2.1.5 EIA Review

Depending on the size of the project, it will be evaluated at the district or municipal level (Notes from interview N12904T). The report is reviewed by the EPB and, if deemed necessary, by an expert committee. There are usually five experts on the committee, who specialize in EIA work (Notes from interview I92404A). An interviewee said that the key parts for the evaluation of the EIA are water, air, noise, solid waste and sediment pollution (Notes from interview N02704T). They review the report and either approve it, or request additional information. Rejections are rare (Notes from interview I92404A, N30905T). If modifications are requested, then the EIA has to be re-submitted. The review period in the

²⁴ The Suzhou Creek downstream reach is within the municipality of Shanghai. Its Environmental Impact Assessment was realized by the Shanghai Academy of Environmental Sciences in June 1998 (Asian Development Bank, 1999).

Pudong New Area is shorter than the national standards. The EIR review period is 12 days; the EIF 6 days and the EIRF review period is 3 days²⁵ (Environment Management Bureau of Shanghai Pudong New Area, 2002).

4.2.1.6 Approval

There are six criteria used when evaluating a construction project: plan consistency, company guidance, clean production processes, pollution discharges reaching standards, overall management and the use of new technologies (Notes from interview P62004B). EIA reports are rejected if pollution levels are extremely high, or if the EIA report quality is insufficient (Notes from interview P51705B, N92405T). There were 14 EIAs rejected in 2003 out of 5329 reported, so less than 0.01% (Shanghai Environmental Bulletin, 2004).

There have been occurrences where a site for a development project would be approved before the EIA process has even started. This forces the SEPB to adopt mitigation measures, but without reconsidering the approval of the project (Lo *et al.*, 2000; notes from interview C23004A). Development agencies also exercise pressure on the SEPB. In several cases, the Foreign Investment Commission has bypassed the SEPB in authorizing construction before the examination of the EIA reports by the SEPB (Lo *et al.*, 2000). An example was the relocation of the Sony production lines from Japan to the Pudong New Area. The Shanghai government was competing against the municipality of Dalian for the investment, and allowed the construction to begin before the end of the EIA (Lo *et al.*, 2000).

Another issue is the close relationship between the SAES and the SEPB. SAES is a subordinate unit of the SEPB, and this may result in conflicts of interest for the evaluation of reports. Several authors have pointed out that EIAs realized by SAES are never rejected by the SEPB. Thus, several project developers will use SAES services as a guarantee that the EIA process will be straightforward and without hassle (Tang *et al.*, 1997). This situation is not unique to Shanghai. Despite the fact that the State Council prohibits EIA preparation by subsidiaries of the local EPBs, more than 70% of the approved EIAs in Guangzhou have been prepared by one of the Guangzhou EPB subsidiary bodies (Cheung, 1998).

²⁵ Compared to 60, 30 and 15 days respectively according to the national guidelines.

4.2.1.7 Post Audit

Theoretically, the EPB must inspect construction projects to ensure that environmental protection measures are installed and operating before giving the final clearance (Asian Development Bank, 1997). Post audit is to be realized after the report completion, in coordination with the Three Synchronizations implementation. While the EIA is embodied in the Environmental Protection Law, local authorities are responsible for the establishment of institutions to implement the EIA (Lo *et al.*, 1997). The EIA implementation depends on each EPB's resources. Since EPBs get their budget at the local level, enforcement will depend on these resources in terms of personnel and time for monitoring. Large-scale enterprise emission information is transmitted directly to the Pudong New Area EPB (Notes from interview N02704T), while smaller-scale enterprises are inspected on a random basis. However, considering the small size of the Pudong New Area EPB monitoring team, this makes it highly unlikely that enterprises will be monitored regularly. The Pudong New Area EPB has 52 persons in the monitoring department (Notes from interview P01603B), while the SEPB has 300 persons to police 20,000 factories (The Economist, 2004). It has been reported in the interviews that EIAs approved by the EPB are not always implemented. In some cases mitigation technologies are built but not operated, or only operated at certain times of the day in order to save on the operation costs (Lo *et al.*, 2000, notes from interview N30905T). Lack of maintenance of environmental facilities at enterprises is another issue that was raised (Notes from interview P016308B).

4.3 EIA Challenges

Some problems were raised by several of the interviewees, which go beyond the scope of problems related to the EIA itself. The rapid development of the economy has led to increased diversification, adding new sectors where there is reduced local expertise. New industry sectors, such as electronic products, generate forms of pollution that were previously not identified (Notes from interview P016308). It can be difficult to grasp all changes in production technologies for enterprises, and the relevant material to these new technologies may not be sufficient (Notes from interview I40904A).

Challenges also include a lack of environmental consciousness from enterprise leaders or employees. One interviewee commented: "Environmental protection is a challenge for our enterprise, because it has

positive impacts on the society, but does not bring additional revenue. On the contrary! It consumes a lot of money” (Notes from interview N02704T). In order to increase environmental awareness for the employees, training programs are implemented by some enterprises (Notes from interview N02704T).

The main concern remains the increase in channels for public participation. The public is seen as potential troublemakers, by developers and officials in the government (Wang *et al.*, 2003). The new EIA law includes some limited provisions for public participation, but no major changes for the actual procedure (Wang *et al.*, 2003). For Shanghai, the lack of public participation is translated into the lack of public consultation mechanisms, along with the lack of access to EIA reports (Lo *et al.*, 2000). During the fieldwork period, the author was not able to have access to any EIA reports other than those already public, for example the EIA for the Pudong New Area international airport.

Nevertheless, the role of the public in the environmental field has been increasing in Shanghai. An environmental hotline was created by the SEPB for citizens to lodge environmental complaints by contacting the “110” number (Shanghai Environmental Bulletin, 2001). The creation of this hotline recognizes the importance of the Shanghai population in monitoring pollution incidents (Shanghai Environmental Bulletin, 2001). It was created in 2000, and received 50009 calls in 2002, of which 18766 were pollution complaints and 2458 needed on-site intervention (Shanghai Environmental Bulletin, 2003). NGOs are also getting more and more involved at the local level, albeit under supervision of the government.

4.4 Summary

There is, generally speaking, less pollution in the Pudong New Area than in other areas of Shanghai, but the implementation of the EIA as a pollution prevention strategy has little to do with this. Pudong New Area’s development has been seen as a long-term investment in Shanghai’s future, with the setting of new standards of eco-environmental quality, and living and working conditions (Massey, Shaw and Brown, 1997). Pudong New Area is a new development. Industries using modern technologies have established their activities in the area and the population density is lower than in Puxi. This partly explains why Pudong New Area’s environmental conditions are better than other districts in Shanghai (Notes from interview C82304A). The same interviewee mentioned that Pudong New Area is now being

used as a standard when compared with other areas quite frequently. Despite the fact that Pudong New Area's environmental situation is better than many other districts in Shanghai, it is not without pollution. For example, the Zhangjiang High-Tech Park is still trying to reach the fourth type standard for surface water quality²⁶ (Notes from interview O72104V). In its search for foreign investment, the Pudong New Area government has allowed industrial projects with heavy pollution to implement their operations against its environmental policy (Lo *et al.*, 2000).

While the EIA can be used to ascertain potential pollution, constraints in its implementation limit the scope of its effect. It is fair to say that the projects that have undergone an EIA are of a higher degree of environmental acceptability than those which have not (Lo *et al.*, 2000). Since the EIA occurs after decision making, its major impact is that mitigation measures have to be implemented by the enterprise. Overall, the EIA has progressed from an environmental evaluation, to an assessment that includes a follow-up, and in some cases, a post-assessment (Notes from interview I23003A). However, irregular monitoring limits the benefits of these measures. This is not an EIA problem but a policy implementation problem linked with local economic priorities.

²⁶ Grade four for surface water quality means that it is suitable for industry and agriculture.

Chapter 5: Discussion

The objectives of this research were to examine EIA processes in Shanghai so as to offer a contribution to the literature on EIA in developing countries and selective adaptation in the environmental field. The results offer a description of the process, allowing the identification of local constraints. This identification leads to the discussion of the origins and practical implications of these constraints. Since the EIA was borrowed from developed countries and adapted to China's circumstances, selective adaptation theory is used as the discussion framework. During the borrowing process, a dynamic of selective adaptation is involved, in which non-local institutional practices and organizational forms are mediated by local norms (Potter, 2004). Factors such as perception, complementarity and legitimacy give an indication of how these non-local rules are implemented in the host culture.

The EIA was implemented in China as early as the 1970s, but only started being effective during the subsequent decade. The EIA emerged in China as a top-down administrative instrument, following serious environmental deterioration and external pressure from international funding organizations (Wang *et al.*, 2003). Despite its inclusion in national legislation, EIA enforcement has remained highly dependent on local conditions in regards to its enforcement. While more affluent provinces and municipalities tend to have a higher implementation rate, local constraints and lower levels of economic development impact the EIA completion rates. Shanghai and the Pudong New Area are an interesting case study, as they are among the most affluent areas in China. Shanghai has a high proportion of production in large facilities, a low proportion in state enterprises, a high (but falling) degree of regulatory strictness, and as a result, low levels of pollution intensity per unit of industrial output (Wheeler, Wang and Dasgupta, 2003). The falling degree of regulatory strictness has had an impact on the enforcement of the EIA.

Factors related to selective adaptation shed some light as to what the constraints in the EIA process are, which impacts its efficiency. The following table presents the main elements that were found to have an impact on the EIA enforcement, which are examined in greater detail in the following section.

Table 5.1 Selective Adaptation of EIA

Selective Adaptation Factors	Influence on EIA
Perception	<u>Concepts</u> <ul style="list-style-type: none"> - Chinese conception of Nature - Public participation - Sustainable development
Complementarity	<u>Procedures</u> <ul style="list-style-type: none"> - Public participation <u>Creation and adaptation of local rules</u> <ul style="list-style-type: none"> - Development plans - Legislation and regulations - Impact of the PRC Environmental Impact Assessment Law <u>Impacts on institutions</u> <ul style="list-style-type: none"> - Enforcement
Legitimacy	<ul style="list-style-type: none"> - Role of leadership - Local communities environmental awareness

5.1 Perception

At the environmental level, perceptions about the purpose of foreign norms can be controversial, as it can be interpreted as the imposition of dual standards from developed countries. Asian nations are often suspicious towards protectionist interests in the West masquerading as environmentalist or human rights interests (Barkenbus, 2002), and China is no exception. China has been advocating at the international level that developed countries should provide financial help and technology transfer in order for developing countries to implement sustainable development strategies. While China agrees with the objectives of sustainable development, it advocates for a fair repartition of the costs of the implementation of environmental protection strategies while developing its economy. It should be noted that China is not trying to shy away from its international responsibilities, but simply to gain more time in developing its own economy (Ross, 1998).

5.1.1 Chinese Conception of Nature

The interpretation of concepts related to environmental protection has an impact when implementing non-local environmental rules. The first factor would logically be how Nature is conceived, which would give indications as to how it should be protected. "Nature in a pure, material sense – like untouched ground and landscape, wild animals and life hidden in the depth of the ocean – is probably understood and signified in terms comparable with the West." (Bruun, 1995: 175) In a cross-cultural comparison

perspective, Western and Chinese views on Nature are not diametrically opposed, and similarities can be observed²⁷.

However, China lacks a compelling ethos of conservation (Economy, 2004). Confucianism, which has impacted attitudes, institutions and policies, promoted the need for man to use Nature for his own benefit (Economy, 2004). China has a history of large-scale modifications of Nature. For millennia, a drive towards expansion, mastery, and resource exploitation fueled by population growth and technologies has contributed to widespread destruction of Nature and ecosystems (Shapiro, 2001). Rulers have tried to subjugate their surroundings rather than living in harmony with them, an example being Mao declaring that man must “conquer Nature and thus attain freedom from Nature” (The Economist, 2004). This anthropocentric view of Nature, which was translated in the maxim “First development, then environment”, has left China with major environmental problems which have the potential to bring the country to its knees economically (Economy, 2004).

The traditional attitude of reverence towards Nature, as opposed to the results of anthropogenic actions, shows the influence of development priorities over environmental protection. The EIA reflects this in terms of its implementation, subject to local economic development priorities. Internationally used concepts, and how these are reinterpreted at the local level, are also of interest in understanding the EIA implementation dynamics. The following examines the definition of sustainable development and public participation, and how these are translated in the EIA procedures.

5.1.2 Sustainable Development

The definition of sustainable development, as understood in the West and in global text, and as embodied in documents of the United Nations system, has been transplanted and accepted by Chinese officials and academics without much changes (Chan, 2004). The Chinese approach to sustainable development is usually very technical and administrative (Massey *et al.*, 1997). For example, the usual practice is to use indices to measure the quality of the urban environment and prescribed standards for the inclusion of green spaces in development proposals (Massey *et al.*, 1997). As mentioned in the interviews,

²⁷ However, Bruun mentions that the conception of nature closer to human enterprise (defined as “immediate” nature as opposed to “distant” nature) shows far more differences. For a detailed discussion of differences and similarities between Chinese and Western perceptions of Nature, see Bruun, 1995.

most of the previous focus of the reports and evaluation is on direct pollution from point sources. While this is gradually changing, most reports include little information on the social and economic impacts of the project. The newly enacted EIA Law states in the article 1 that its objective is to carry out a sustainable development strategy and to prevent adverse environmental impacts of government plans, programmes and construction projects. However, it is too early to assess how its enactment has an impact on the contents of the EIA reports.

5.1.3 Public Participation

Forms of public participation in the environmental field are varied. For example, one interviewee said that public participation is mostly in the form of surveys, where information is collected using a form, in person or during Internet consultations (Notes from interview I23004A). The same interviewee was then asked if NGOs were allowed to participate in the process. His answer was informative on the definition of NGOs: "Before, the World Bank and the Asian Development Bank required NGO personnel participation. It was hard for us to determine what the NGOs were, for example, business associations? There are no guidelines to say what a specialized NGO is. We believe that public participation is individual, government employees, independent persons." (Notes from interview I23003A) This description is instructive, because what may be perceived in the West as a lack of public participation may be related to a different interpretation of who should be involved in the process. This does not account for the general lack of public consultations in the EIA process, but it does provide some insight as to which organizations are likely to be consulted. It could be added that the increased participation from non-government actors in the environmental field may stem partly from the desire to compensate for the weaknesses of the governmental environmental apparatus (Economy, 2004).

Requirements from international organizations are increasingly shaping public participation procedures at the local level. Public participation has also been integrated in the form of opinion surveys for projects sponsored by the Asian Development Bank and the World Bank (Tang *et al.*, 1997). Foreign norms may influence the interpretation of concepts related to environmental protection, and also the related procedures. These changes in environmental management may not take into account specific local conditions and the institutional layout (Mol, 2001). Ross (1998) contends that international pressure on

the PRC to conform to international environmental norms influences domestic policy making in support of environmental regulation. This translates into changes in local procedures such as the EIA.

5.2 Complementarity

Using the EIA as an example of a foreign rule, three dimensions can be identified for the evaluation of complementarity in procedures. These dimensions comprise the comparison between: 1) the procedures themselves at the local and international level; 2) the creation and adaptation of local norms and practices such as development plans, legislation and regulation, and 3) the changes incurred in the role and mandate of local institutions.

The first dimension examines how the procedures are similar to what is being practiced in other countries. The second details how it affects local rules such as development plans, legislation and regulations. Finally, institutional change refers to the impact that the foreign rule adoption incurs on local institutions, and how these institutions are able to cope with this incremental growth in their mandate. Complementarity for the EIA is highly dependent with adequate resources for the organizations in charge of its implementation, and especially for its enforcement. Environmental protection agencies in the wealthier coastal provinces and in larger cities tend to have more personnel, better funding and are staffed with more technically-trained people than agencies located in the poorer parts of the country (Jahiel, 1998). While this is true for Shanghai, enforcement and monitoring of the EIA can be increased.

5.2.1 Procedures

Ortolano and Shepherd (1995) assert that the EIA has been implemented to fit the Chinese political system. The procedures for an EIA in China are very similar to how it is undertaken in developed countries. Where it significantly differs is in regards to the incorporation of public participation in the decision making process.

Public participation has been increasing recently in the environmental field. The Chinese government has encouraged media attention to environmental problems, allowed the establishment of NGOs and approved independent legal activities related to environmental protection (Economy, 2004). These changes have had an impact on the EIA. During the elaboration process of the EIA Law, consultations were conducted with experts, some of which submitted preliminary drafts for the EIA Law (Notes from

interview C23004A). Stender and Zhou (2002) state that a message of the EIA Law's drafting process is that the central government is considering opinions from many sources, and is encouraging public participation and NGOs in the environmental field. The new EIA Law comprises measures for public participation, except in the case of confidential projects. Developers of projects predicted to have significant adverse environmental impacts should involve public participation using public hearings or other forms of participation (Wang *et al.*, 2003). The EIR should include the results of this process, and how concerns have been addressed (Wang *et al.*, 2003). However, more time is necessary before the implementation of the public participation provisions at the local level can be assessed.

5.2.2 Creation and Adaptation of Local Rules

5.2.2.1 Development Plans

Although China has carefully integrated some foreign environmental rules, some aspects of its environmental protection strategy remain truly local. An example is the use of central planning to reach environmental goals. The 9th Five Year Plan (1996-2000) saw the inclusion of environmental protection goals for the very first time (World Bank, 2001). The 10th Five Year Plan (2001-2005) for Environmental Protection increased environmental spending to 700 billion yuan, which is equivalent to 1.3% of the GDP, but still below the 2% suggested by the World Bank (The Economist, 08/21/2004). In Shanghai, special environmental protection plans have been designed and implemented since 2000. The first Three Year Environmental Action Plan (2000-2002) included goals regarding an environmental investment equivalent to 3% of the GDP, the strengthening of environmental management measures and the increase of the environmental awareness for the population and decision makers (SEPB, 2004). The second Three Year Environmental Action Plan (2003-2005) is currently being implemented.

5.2.2.2 Legislation and Regulations

The body of legislation and regulations supporting the EIA has been gradually increasing both in level of specialization and status, as shown in Table 5.2.

Table 5.2 Chronology of the Main EIA Guidelines

Level	Year	Name
National Legislation	1979	▪ Environmental Protection Law for Trial Implementation
	1989	▪ Environmental Protection Law
	2003	▪ PRC Environmental Impact Assessment Law
National Regulation	1981	▪ Management for Environmental Protection of Capital Construction Projects
	1986	▪ EIA Licensing System
	1986	▪ Management Guideline on Environmental Protection of Construction Projects of the People's Republic of China
	1989	▪ Management of Environmental Impact Assessment Certification for Construction Projects
	1992	▪ Circular to Strengthen the Environmental Protection of Construction Projects Supported by Overseas Investment
	1993	▪ Technical Guidelines for Environmental Impact Assessment
	1998	▪ Ordinance of Environmental Management for the Construction Projects (also named Administration of Construction Projects Environmental Protection Regulations)
	1999	▪ References to the Management of the Environmental Protection for Construction Projects
	2001	▪ Management Measure on Inspection of Environmental Impact Assessment for Construction Projects
Shanghai	1983	▪ Provisional Measures for Preventing New Environmental Pollution in Municipal Shanghai
	1995	▪ Shanghai Municipal Environmental Protection Regulation
	2004	▪ Shanghai Municipality Implementation Measures of the PRC Environmental Impact Assessment Law

Source: Lo *et al.*, 2000, Wang *et al.*, 2003, Stender and Zhou, 2002.

The EIA was first included in the Environmental Protection Law for Trial Implementation in 1979, which was supplemented by the Management for Environmental Protection of Capital Construction Projects in 1981. The EIA system benefited from collaboration with international organizations such as the World Bank, the Asian Development Bank and the United Nations Development Program (UNDP) in the second part of the 1980s. This collaboration led to the increase in knowledge transfer related to assessment methods and techniques used overseas (Wang *et al.*, 2003). This resulted in the Management Guidelines on Environmental Protection of Construction Projects of the People's Republic of China and the EIA Licensing System, as well as the enactment of the People's Republic of China Environmental Protection Law. In response to growing concerns over the quality and coverage of the EIA reports, the Technical Guidelines for Environmental Impact Assessment were enacted in 1993. The approval of the Ordinance of Environmental Management for Construction Projects in 1998 made the EIA compulsory

for all sizes of construction projects, along with the adoption of low pollution and energy efficient production technologies (Wang *et al.*, 2003). The enactment of the EIA Law in 2003 is the last step in the process of structuring the EIA processes according to foreign standards, while adapting it to the local conditions. Shanghai has adopted local regulations for the implementation of the EIA Law in 2004.

5.2.2.3 Impact of the PRC Environmental Impact Assessment Law

The new EIA Law was designed to reinforce the implementation of the EIA at the national level. The law contains provisions for the EIA of construction projects, and for government plans, which now have to be submitted to an environmental evaluation. It clarifies and strengthens environmental protection requirements applying them to the establishment, expansion or changes of business operations, and to the drafting of government plans that may have an impact on the Chinese environment (Stender and Zhou, 2002). Impacts on EIA regulations for construction projects and on the evaluation of government plans are detailed in this section.

The People's Republic of China Environmental Impact Assessment Law was promulgated on October 28th 2002, but only became effective on September 1st 2003 (Stender and Zhou, 2002). This delay was to allow sufficient time for adjustment of concerned parties, such as technical consultants and government departments (Stender and Zhou, 2002). Results of the interviews show that EIA practitioners and the EPB staff consider the new legislation to have no direct impact on their working procedures. One interviewee summarized the changes brought by the new EIA Law: "It strengthens restrictions for EIA agencies and environmental examination and approval at the EPB. It starts to impose responsibilities about the assessment results and the report conclusions, but there are no big changes regarding the report contents or procedures. The EIA Law proclamation comprises, in a legal form, the previous methods and legislation" (Notes from interview I40904A). Another interviewee considers that the legislation has brought changes regarding the number of environmental inspections, which is now higher, and in the level of details and overall quality of the EIA reports (Notes from interview O51804V). A third interviewee said that the procedures remained identical, but that requirements are now stricter at every step of the EIA (Notes from interview I92404A). This situation may be specific to Shanghai, since it was

already complying with the existing regulations. The enactment of the new EIA Law did not incur changes for EIA practitioners and the EPBs (Notes from interview I92404A).

The previous regulations establishing these procedures were incorporated without substantial changes in the new EIA Law, indicating that the government considers the current practices to be satisfactory (Wang *et al.*, 2003). This could also reflect that, as in most developing countries, there is a general tendency to introduce new laws and regulations rather than improve the enforcement of existing ones (Panayotou, 1998).

The second part of the EIA Law adds a new dimension to the current EIA system. Following the proclamation of the EIA Law, government departments now have to do an evaluation of the environmental impacts of their plans. This provision was controversial at its first inception. Governmental departments saw this initiative effectively curtailing their powers when elaborating regional development plans, or production development plans (Notes from interview C23004A). This was resolved over time, with the increase in environmental awareness and the gradual realization that the actual development paradigm is not sustainable (Notes from interview C23004A).

This evaluation has to be approved by an evaluation committee. While this is clearly stated in the article 13 of EIA Law, the practical implementation procedures have not been determined. For example, there are no specifications as to the composition of the committee. One interviewee said that it is composed of government civil servants, but also non-government personnel (Notes from interview C23004A). Specific provisions, such as the funding of this committee, still have to be formulated by the State Council (Notes from interview C23004A). Consideration of the practical implementation measures associated with the enactment of new legislation is not a component of the legislative processes.

Enforcement of the laws and regulation is the responsibility of the local governments. While circumstances can generally be said to be good in Shanghai, poor areas in the country may lack qualified personnel or specialized environmental training (Notes from interview C23004A). SEA training sessions are organized in cooperation between local and international organizations, such as SEPA, the World Bank and the IAIA.

5.2.3 Impacts on Institutions

Foreign rules such as the EIA, through laws and regulations related to their administration, incur modifications in local institutions' activities and mandates. The main issue associated with these modifications is related to resource allocation, as these institutions may not be able to cope with an increase in mandate with the existing budget and personnel. This has been called "incremental growth", where the successive augmentation of an organization's tasks is not followed by any change in the organization's decision-making dynamic or mode of choosing²⁸ (Haas, 1990:4). This is reflected in the increase in SEPA's mandate over the 1990s, while facing a decline in its staff resources (World Bank, 2001). This decline in resources has not led to any major reorganization in SEPA's activities. From an organizational point of view incremental growth can either be voluntary or involuntary.

For some organizations, incremental growth in their mandate does not incur substantial change. An example is academic institutions such as universities, which may perform EIAs as long as they adhere to the EIA licensing requirements. They will consider the EIA as bringing additional revenues, but their research and teaching tasks remain the same (Notes from interview C92404A). For these organizations, the decision to perform an EIA is voluntary. Involuntary change related to incremental growth occurs in situations where an organization has to comply with a new rule. New legislation, such as the EIA Law implemented in 2003, increases the mandate and workload for the environmental protection system. The SEPB has to evaluate the environmental impacts of government plans (Notes from interview P51705B). At the district level, provisions for EIA monitoring also strain the resources in terms of the personnel in charge of the implementation of these provisions and budget allocation.

5.2.3.1 Enforcement

Often, implementation and enforcement of environmental measures has been erratic (Shapiro, 2001). This could be linked to institutional weaknesses in terms of financial and staff resources, but also to the impact of influence networks and personal relations (or *guanxi*²⁹). Legal offences can be minimized in order to maintain the *guanxi* intact. Shapiro mentions that: "Down to this day, there are many places in

²⁸ As opposed to "turbulent nongrowth", which involves major changes in the organizational decision making processes, and the disintegration of internal consensus on both ends and means (Haas, 1990:4).

²⁹ Personal relations, or *guanxi* in Chinese, comprise a vast array of social interactions where if one person helps another, the person helped is indebted to the first person. Maintaining *guanxi* is an important factor in ascending the social ladder.

China where power is above the law, where leaders do what they like and the environmental departments don't dare speak out. Moreover the operations of government are opaque and so it is impossible for the people and the media to supervise them." (Shapiro, 2001: 205)

Funding is also a serious issue for the EPBs, as the need to be autonomous financially may reduce their independency and limit the pressure that can be exerted on industries, for fear of losing a significant part of their revenue through the pollution discharge fee. Despite promises of increase in environmental investment, there has been no guarantee as to what the source of the money would be or how much funding the local governments would provide (Jahiel, 1998). While the local EPBs are supposed to supervise the enforcement of legislation at the local level, lack of resources, qualified staff and corruption often hamper the efforts to enforce the laws. Kenneth Lieberthal explains: "Much of the environmental energy generated at the national level dissipates as it diffuses through the multi-layered state structure, producing outcomes that have little concrete effects." (The Economist, 2004) It is the local government that provides environmental agencies with their annual budgetary funds, approves the institutional advancements in rank, and determines increases in personnel and the allocation of resources such as cars, office buildings and employee housing (Jahiel, 1998).

Another reason for the lack of enforcement of environmental legislation includes the fragmentation of the legal basis for action (Asian Development Bank, 1997). There is an expanding role being played by the judiciary system in the environmental field, but compared to developed countries it is still embryonic. The EPBs will turn to courts as a last recourse against polluters, and individuals will rarely take legal action against firms for negligence over environmental accidents (Jahiel, 1998).

5.3 Legitimacy

Acceptance at the local level is reflected in the attitudes of leaders towards environmental protection, and how this translates into concrete actions. It is also reflected in the population's environmental awareness.

5.3.1 Role of Leadership

Shanghai is recognized as a model city regarding the evaluation of its environmental protection system. The Pudong New Area environmental conditions are increasingly being considered as the

environmental standard to attain across the municipality (Notes from interview C82304A). This is translated into increased investment in environmental protection and stricter requirements at the municipal level than the national level. This does not mean that economically affluent regions are more inclined towards environmental protection; environmental commitment to the environmental causes from EPB officials and local leaders will also have an important impact (Jahiel, 1998).

During the interviews, a variety of factors were mentioned to explain how the environmental situation has improved in Shanghai over the recent years. These factors included the local and national leaders' commitment to environmental protection. One interviewee acknowledged that if Chinese leaders emphasize and show commitment to environmental protection, enterprises will comply with the laws and regulations (Notes for interview O51704V). Another interviewee partly attributes this change to Shanghai's economic development, since the increased availability of funds for environmental protection is a new development (Notes from interview C82304A). Finally, a third interviewee said that the most important reason for this change is the gradual realization from the government that the actual development paradigm is not sustainable. If there are no changes, it will be impossible for the economy to grow at the recent pace (Notes from interview C23004A).

The decentralization of decision making to provincial and local governments following the reforms has resulted in the central government giving local governments authority in working out the details of state policies and regulations (Panayotou, 1998). The Shanghai government has made clear that it supports an active approach of environmental governance, but that environmental protection should not impede economic development (Lo *et al.*, 2000). Finding the balance between economic development, social stability and environmental protection is the challenge that the Shanghai leadership is facing. One underlying factor related to this conflicting relationship between economic development and economic growth is that GDP growth is a promotional factor for local officials (Notes from interview O51704V). This emphasis on development, consumerism and profit has given local governments an excuse to justify the intervention against regulations, such as environmental protection that are deemed unfavorable to growth (Jahiel, 1998). The transfer of powers to the local level therefore has important implications for the implementation of environmental protection measures, and is highly dependent on local leaders'

priorities. Since 1990, all provincial level units had implemented the environmental protection target responsibility system, where officials are supposed to be accountable for meeting their targets (Edmonds, 1994). The economic decentralization gave officials at the provincial level and below the means and incentives to develop their local economies (Jahiel, 1998), whilst being responsible for the implementation of environmental protection measures (Edmonds, 1994). The central government recognizes the wide differences in economic and environmental conditions, in terms of profitability of industry and absorptive capacity of the environment, but also regarding the different attitudes towards environmental protection of the local political elites (Panayotou, 1998). This explains in part why there are substantial powers that are devolved to the local level.

5.3.2 Local Communities Environmental Awareness

While environmental awareness among the population is slowly increasing across China, Shanghai is leading other cities. An example of the improving environmental conditions of the Shanghai municipality is the Suzhou Creek cleaning operation. The Pudong New Area is rated highly as a residential area because of the quality of its environment. This illustrates that environmental quality is starting to be a priority for Shanghai citizens. Two explanations were provided during interviews. The average Shanghai citizen has higher living standards and pays more attention to the environment (Notes from interview C82304A). The increase in environmental education in schools is also being credited as changing the population's attitude towards the environment (Notes from interview O51704V). As a result, officials give environmental matters more attention, in part because political reforms have given citizens greater latitude to express their opinions, particularly on lifestyle and social issues, such as noise and air pollution (Ross, 1998).

Legitimacy of the implementation of the EIA among the population also applies to enterprise leaders and managers. Results from interviews show that the increase in environmental awareness among enterprise leaders and managers is a desired amelioration to the system (Notes from interviews P016308B). Environmental awareness within enterprises seems to be improving as interviewees mentioned that they had to provide additional training for their employees on environmental protection (Notes from interview N02704T, N41405T). An example is that several enterprises have undergone the

ISO 14000 certification in order to gain increased access to foreign markets (Notes from interview N02704T, N41405T). The greening of the enterprises' operations does not stem from a genuine concern for the natural environment, but out of commercial interests; however, it has had concrete results in decreasing pollution levels for enterprises.

Higher environmental awareness increases potential for the successful implementation of foreign environmental rules. In the Chinese context, because of the decentralized structure of power, this legitimacy has to be reached at the national, provincial and municipal level and among the population. Studies have shown that increasingly wealthier and better-educated communities tend to exercise pressures for stronger environmental regulations and enforcement (Wu and Wang, 2002). Three forces have been identified that are linked with the economic status and education level of communities. These forces are: provincial regulators adjusting the enforcement policy to improved conditions and higher valuation of environmental benefits; increase in the frequency of citizen complaints; and finally an increase in the pressure for abatement through various political and social channels³⁰ (Wheeler *et al.*, 2003).

5.4 The EIA as a Foreign Rule

There is increasing international pressure on the People's Republic of China to conform to international environmental norms, which influences domestic policy making in support of environmental regulation (Ross, 1998). There are several benefits in evaluating the performance of foreign environmental rules using the selective adaptation approach. This evaluation provides a comprehensive portrait. Some less recognized variables such as perception of underlying concepts or the general environmental awareness of the population are being integrated into the evaluation. Overall, it provides a comprehensive picture of how the local norms are impacting the implementation of foreign environmental rules, what the constraints in the institutional context are and how these constraints impact the implementation process.

³⁰ These factors were identified during a study on industrial water pollution: however, they could be relevant in other contexts.

Perception shows how the understanding of nature, but also different interpretations of international concepts in environmental protection, may have impacted the implementation of the rule.

Complementarity in procedures shows the administrative framework for the EIA, and allows for the identification of constraints in the process. The examination of procedures, local norms and impacts on institutions provides a global picture of the circumstances for the implementation of the foreign norm. Finally, legitimacy with the leaders at the national and local level, as well as with the population and enterprise managers, has to be reached in order to ensure a successful implementation.

5.5 Summary

Shanghai is considered a leader in terms of environmental protection strategies. This is due to a combination of factors, which comprise the higher environmental awareness of its leaders and its population, the emphasis for enterprises to use new technologies and a stricter environmental regulatory framework. Despite these factors, there are constraints in the environmental protection system, which get translated in the implementation of the EIA. Some issues related to the EIA process in Shanghai are illustrative of some larger problems affecting the environmental protection sector in China. How these issues will be dealt with at the local level may have significant implications across the country, as elements of the situation in Shanghai may be reproduced in other areas.

Chapter 6: Conclusion

6.1 Research Summary

The premise of this thesis is that in order to develop effective environmental programs in economically dynamic areas a pollution prevention framework, along with enforcement strategies, should be implemented. This thesis argues that the EIA is part of such a pollution prevention strategy, but that its efficiency is highly dependent on its enforcement. In order to examine these arguments in more detail this thesis researched the implementation of the EIA in the Pudong New Area in Shanghai, studying implementation as a foreign rule subjected to local constraints.

This research had two main objectives. The first was to study the EIA processes and evaluate the strengths and constraints of these processes in the Shanghai municipality, and more specifically the Pudong New Area. The second objective was to examine selective adaptation of foreign rules in the environmental field for developing countries. The objectives were reached by focusing on three research questions during the investigation.

- 1) What are the Environmental Impact Assessment legislation and processes in China?
- 2) What are the differences between the national guidelines for Environmental Impact Assessment and its application in Shanghai, more specifically in the Pudong New Area? What are the causes of the observed differences in the process?
- 3) How is the EIA implementation in Shanghai and Pudong New Area to be evaluated in terms of selective adaptation?

The methodology used to fulfill these objectives and answer the above-mentioned research questions included a literature review and three months of fieldwork in Shanghai, China. The fieldwork period included quantitative and qualitative data collection. Quantitative information about the EIA numbers was collected. This information was not standardized between data sources. Semi-structured interviews were conducted with professionals from different organizations involved to various degrees with the performance of the EIA. The literature review formed the basis for the elaboration of the interview questions.

Results show that the overall framework for EIA implementation in China is comprehensive, including a set of laws and regulations at the national level. The legislation and regulations are complemented by local standards. The environmental standards for the municipality of Shanghai are generally acknowledged to be more stringent than the national ones. Shanghai established some provisions for the implementation of the EIA, before the national government had elaborated its Management Guideline on Environmental Protection of Construction Projects of the People's Republic of China. Analysis revealed that the management of the EIA for construction projects in Shanghai is more comprehensive and exhaustive than the national legislation requirements and practices in other areas in China.

The use of selective adaptation theory provided useful insights as an analysis framework for the identification of strengths and weaknesses of foreign rules. The tentative use of perception, complementarity and legitimacy as criteria for the evaluation of the implementation of the EIA provide interesting avenues for research in the environmental policy field, and how foreign rules are implemented at the local level. Dimensions such as perception of concepts used in environmental protection, complementarity in procedures, legislation and institutional mandate, as well as legitimacy with local leaders and communities are analysis elements that could be used outside of the context of this research for a comprehensive analysis of foreign rules implementation.

Some limitations of the research design must be acknowledged so the results may be placed in context. This research had two main limitations. The first is the case study format, which offers limited possibilities for the generalization of results. The Pudong New Area of Shanghai, because of historical reasons, geographical location and economic activity, is not a model that can be readily reproduced elsewhere in the country. The conditions in advanced areas such as Shanghai could be used to develop projections for other regions in China that show similar trends (Wheeler *et al.*, 2003). The second concerns the use of the snowballing method for the identification of respondents. While personnel from all target organizations were reached, the data would have benefited from interviews across departments within these organizations. The results of the interviews, while providing useful insights on the EIA processes, reflect time and resource constraints of the researcher.

6.2 Implications for the Implementation of SEA

Results of the interviews and the literature review allowed for the identification of the strengths and weaknesses of the EIA in Shanghai. Strengths include a comprehensive environmental protection framework, and higher levels of environmental awareness among the leaders and the population. Weaknesses are related to public participation processes and enforcement of legal provisions. While public participation is gradually becoming a component of environmental decision-making processes³¹, enforcement issues are linked to institutional constraints facing the environmental protection sector in China. The main issue is the lack of resources, which is related to the financing of the local EPBs. Enactment of new legislation has a limited impact: the decentralized governmental structure renders enforcement a local responsibility, allowing the mitigation of new rules by local priorities.

The constraints identified have an impact on enforcement of the EIA and implementation of the EIA Law. The second part of the EIA Law extends the scope of EIAs to now include governmental plans and programmes, which shows that the Chinese government is moving towards the implementation of SEA. SEAs have started to be conducted in China: results so far tend to show that they suffer from the same constraints as the EIA. Several problems have been identified in the SEA practices. There is no consideration of alternatives, low levels of public participation processes, lack of SEA evaluation tools and techniques, and no procedures to ensure the integration of the SEA findings into decision-making processes (Che, Shang, and Wang, 2002).

6.3 Future Challenges

Future challenges for the EIA Law in China are related to the evaluation of plans and programmes, which form the basis of the SEA. Many administrators, decision-makers and project developers oppose the SEA, which they perceive as a threat to their authority, or a tool elaborated by environmental pressure groups to stop further development (Che *et al.*, 2002). Fears are that the SEA will incur delays and difficulties without providing additional benefits (Che *et al.*, 2002). Also, while the Chinese government is moving in the EIA direction, it appears from the text of the new EIA Law that it does not include provisions for the SEA implementation of government policies. Although it was presented in the early

³¹ Albeit in a different form than in the West; refer to the discussion.

drafts, the extension to government policies was rejected on the basis that the provisions were vague, impractical and premature (Stender and Zhou, 2002). It has been pointed out that this may be because implementation mechanisms are not ready and that the incurred workload would be impossible to manage (Notes from interview C23004A).

The SEA is another foreign rule implemented in China. Chinese scholars have invested tremendous efforts to integrate theoretical achievements and practical experiences from developed countries to develop an appropriate SEA framework, institutions and methodologies for Chinese conditions (Bao, Lu and Shang, 2003). The SEA definition was accepted without modifications, and some procedures elaborated by the OECD have been suggested for implementation (Bao *et al.*, 2003). It appears from the limited implementation of SEA in China that the basic criteria of perception, complementarity in procedures and legitimacy among leaders are met. The last aspect, legitimacy among leaders, seems to be the most controversial. Strategies have been implemented, such as providing increased environmental information and training throughout the legislation elaboration process (Notes from interview C23004A). Another strategy is the gradual implementation of the SEA, with the first phase being the establishment and improvement of the operating system for enforcing SEA, focusing on capacity building (Bao *et al.*, 2003). The second phase will extend the SEA scope to policies (Bao *et al.*, 2003).

6.4 Summary

The high-growth and intensive resource development strategy adopted by China along with the norms and institutional relationships designed to support it have played an important role in the current environmental crisis (Jahiel, 1998). The new leadership led by Hu Jintao and Wen Jiabao has shown increased attention to environmental protection and sustainable development. The EIA and SEA can be part of an efficient environmental protection strategy, as long as resources for enforcement are sufficient for their implementation. The gradual integration of China into the global economy can have a beneficial effect on local environmental protection strategies by encouraging increases in production efficiency, new production technologies and increased collaboration in the environmental field.

The example of the SEA shows that the influence of foreign rules on local norms in China will most likely be increasing in the near future. China has been active in the environmental field at the international

level, and has ratified several multilateral environmental agreements such as the Basel Convention, the Montreal Protocol, the Convention on Biodiversity and the Kyoto Protocol, to name but a few. Influence from international standards such as ISO 14000 are also changing production methods at the local level, while financial aid from organizations such as the World Bank and the Asian Development Bank have increasingly included environmental requirements as a condition of aid. Progressive initiatives, such as the Green GDP, are currently being discussed in China. If it is adopted, it would make China the first major economic power to incorporate environmental externalities into its calculations of economic output (Assadourian, 2004).

These initiatives have to be supplemented by capacity building at the local level in order to have sustainable results. Several challenges are related to institutional constraints of the environmental protection system in China, including vague legislation, limited resources for enforcement, the decentralization of bureaucratic powers and financing of environmental protection institutions, to name a few. While recent initiatives have led to an increase in legislation and regulations, increased attention has to be provided to resolve some of the observed constraints in the environmental protection system or else environmental degradation will remain an externality of the economic development process. The Chinese leadership has pledged commitment to a sustainable development strategy: how this is translated into actions will have important impacts not only for China, but for the entire Asia Pacific area.

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Appendix A

Example of an Interview Questionnaire

Part 1- Institution information

- a. How many divisions in the institution and names of the different divisions.
- b. How many people work in the institution/ differences between divisions/ what is the bianzhi of the institution.
- c. What is the training of the personnel?
- d. Any additional personnel or training would be helpful? How?

Part 2- Institution activities

- a. Institution objectives and priorities.
- b. Division of tasks between different departments.
- c. Who decides of these tasks?
- d. What are the changes that have occurred over time?

Part 3- Links with other organizations

- a. Contact with other organizations, and if so, which ones.
- b. Information about the structure of these relations, for example who has authority, who reports to whom.
- c. Describe these relations: work on common projects, cooperation, any task overlaps/gaps, if so how these issues are dealt with...

Part 4- Environmental Impact Assessment

- a. Which regulations or legislation do you take into account when doing the EIA?
- b. Is there any additional EIA legislation or regulations specific to Shanghai? Pudong?
- c. What determines if an EIA is needed?
- d. What criteria do you use when deciding which type of EIA to do?
- e. How many different EIA licensed agencies is there in Shanghai?
- f. How often do you do EIA's?
- g. Where do you get data?
- h. How long does it usually take to realize the EIA?
- i. What are the different EIA steps? On average, how long does each step take?
- j. What are the common difficulties encountered in the process?
- k. What are the differences since the implementation of the new EIA law? Processes, budget, procedures, staff...
- l. Any improvements that you could think of?

1-机构基本情况

- a. 该机构有哪些部门？这些部门的名称分别是什么？
- b. 该机构有多少员工？他们在各部门的分布情况如何？该机构的编制情况？
- c. 员工培训情况如何？
- d. 是否需要一些额外的员工培训？如果需要，将如何开展？

2-机构职能

- a. 机构的目标；以及实现这些目标的优先次序？
- b. 各部门的任务是怎样分布的？
- c. 这些任务是如何制定的？
- d. 这些任务随着时间有变化吗？比如，几个部门的任务相重叠，部门之间如何调整？

3-与其他机构的联系

- a. 与哪些机构有关联？
- b. 这些机构关联的结构情况。比如，他们之间的决策权关系，谁向谁负责？
- c. 这些机构间的关系情况：共同进行一个项目，合作关系，他们的任务有没有交叉/重叠；如果有，这些情况是如何解决的？

4-环境影响评估（EIA）

- a. 进行环境影响评估时，有哪些管理条例或者法规可以依据？
- b. 关于环境影响评估(EIA)，上海和浦东区有没有其他专门的法规或者条例？
- c. 如何决定环境评估是否需要？
- d. 当进行环境影响评估(EIA)时，你们使用那些标准和依据，来决定使用哪一种(EIA)？
- e. 上海有哪些被授权的环境影响评估(EIA)机构？
- f. 通常你们多久进行一次环境评估？
- g. 你们从何处获取数据？如何获取数据？
- h. 通常进行一次环境影响评估需要多长时间？
- i. 环境影响评估(EIA)包括那些步骤？通常每一个步骤需要进行多长时间？
- j. 在这个过程中有哪些困难？
- k. 自从颁布新的环境影响评估法规以后，有哪些变化？比如步骤，经费，程序，以及人员方面等等。
- l. 你能想到那些改进办法？或者你希望如何改进？