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I. INTRODUCTION

Environmental deterioration threatens to undermine Hong Kong's economic prosperity.1 The lack of a sound regulatory system to control the emission of air pollutants, the discharge of water pollutants, and the disposal of waste will slow economic growth in Hong Kong.2 The present environmental regulatory framework, which was established under British rule, is developing into a promising pollution control regime for Hong Kong.3 In light of the People's Republic of China's (PRC) nascent environmental record,4 however, the restoration of mainland authority over Hong Kong in 1997 raises serious questions for the territory's future environmental policy.

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Protecting Hong Kong's environment in the short or long term is a complex problem. Although policy makers and academics claim that Hong Kong has adopted a "laissez-faire" approach to governance, government intervention through environmental laws and regulation is quite extensive. In contrast, the PRC is currently in the midst of considerable market and legal reforms that have led to the decentralization of its highly planned economy and a substantial reduction in governmental involvement in the operation of business.

An understanding of the interaction—or perhaps, better said, confrontation—between these two ideological trajectories is essential to coming to terms with the problem of pollution control regulation in Hong Kong after 1997. This Article evaluates how the transition to Chinese authority may impact the effectiveness of pollution control laws in Hong Kong, using a "law and economics" approach to study the problem. Part II analyzes Hong Kong's environmental regulatory framework under the United Kingdom by evaluating the extent to which the government intervenes in economic activities in order to control pollution. Part III examines mainland PRC's legal reform by exploring the extent to which the government is being removed from economic decision-making. After discussing the impact of the transition from British to Chinese authority on the implementation of Hong Kong's environ-

5. For a historical summation of the Hong Kong government's laissez-faire policy, see David Campbell, Economic Ideology and Hong Kong's Governance Structure After 1997, in HONG KONG, CHINA AND 1997: ESSAYS IN LEGAL THEORY 88, 89-90 (Raymond Wacks ed., 1993). A speech by former Secretary for the Treasury Donald Tsang illustrates the disposition of the present key economic decision-makers toward public spending. Tsang stated:

Whatever happens, we must not as a community slip into the bad ways of some of the developed countries, whose citizens look to the government to solve every problem....

Ultimately such a situation reduces the standard of living of all citizens, even those who thought they were being helped by the policies that eventually bankrupted the government.


6. See RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 21-26 (4th ed. 1992). Law and economics is a normative approach to legal study. It examines legal subjects that do not directly regulate economic markets, such as pollution control, through the application of economic principles.
mental policy after 1997, Part IV concludes that to achieve sustainable development, post-1997 environmental policy in Hong Kong must take into account all aspects of Hong Kong's unique background and status.

II. ENVIRONMENTAL LAW IN HONG KONG

A. Legal History

Hong Kong's environmental legal history can be divided into three phases. The first phase spanned from the 1840s until the 1930s. The second phase started in the late 1930s and ended in the early 1970s. The third phase began in the late 1970s and continues through today.

1. The First Phase

In the first phase, Hong Kong's government demonstrated marginal interest in establishing a system to protect Hong Kong's natural resources. At the outset of British rule, the most significant factor affecting environmental affairs was the decision that the Crown Authority would retain freehold rights over most existing and reclaimed land. The government also enacted piecemeal legislation regarding land use and hygiene. In May 1841, for example, a Public Notice and Declaration stated that guidelines for land distribution would be set according to the "pleasure of the Queen." As a result of the poor planning, sanitation and overcrowding were major problems during the early years of Hong Kong's existence.

In response to these problems, the government enacted two Good and Cleanliness Ordinances in 1844 and 1845. A series of Building Ordinances to regulate construction followed from 1887 to 1889. In addition, the government enacted the Closed House

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7. See Sin Kim Fan, Building Project Finance in Hong Kong: Law and Practice 7 (1987). Except for St. John's Cathedral and the University of Hong Kong, which has been provided a 999-year lease, the Crown Authority holds all land under leaseholds. See id.
9. See id. at 28.
10. See id. at 39.
and Insanitary Dwellings Ordinance in 1894 and the Public Health and Buildings Ordinance in 1903. Finally, in 1922, a Town Planning Scheme provided guidelines for Hong Kong's land development. It remained in effect until World War II.

The government and the local population resisted the enactment of welfare legislation related to hygiene problems arising from contagious disease or lack of adequate housing. One jaundiced evaluation of the situation stated:

[I]t seems improbable that any authority charged with the responsibility for sanitary affairs in Hong Kong, however constituted, would have escaped a rough passage, for its task inevitably involved intrusion in a dozen different shapes into private persons' most intimate affairs, and that meant not merely challenging an Englishman in his castle, but also traversing the age-old belief of the Chinese that once their taxes were paid they were guaranteed against further interference and were free to live or die, avoid, catch and spread disease as it pleased them.

This analysis reveals an implicitly problematic issue in environmental regulations: the tension between an individual's right to privacy and the State's duty to protect the public welfare.

2. The Second Phase

An ineffectual effort to constitute a comprehensive land use control system characterized the second phase of Hong Kong's environmental legal history. In 1939, new planning legislation stipulated inadequate enforcement powers to prosecute non-compliance. Unlike the Building Authority, which could reject building plans that did not meet statutory guidelines, the Planning Authority had no control over developments related to important issues, such as a change of land use. Despite extraordinary commercial growth and land development, the planning legislation

11. See id. at 42.
12. See id. at 50.
13. See id.
15. See Myrette Fok, Controlling the Development of Land in Hong Kong Through Crown Lease Conditions: Some Aspects of the Hong Kong Experience, Address at the International Conference for Comparative Law Between Hong Kong and the PRC 9 (Sept. 2-3, 1996) (transcript on file with author).
was not amended until 1991.

Because effective planning legislation did not exist, the government relied on the enforcement of the original lease conditions to assure appropriate land use. An example of such a condition was the offensive trade clause. The purpose of the offensive trade clause was to minimize the harm caused by unfettered and dangerous economic activity. It stated:

The lessee his Executors, Administrators, or Assignees, or any other person or person, shall not nor will, during his continuance of this demise sue, exercise, or follow, in or upon the said premises or any part thereof, the trade or business of a Brazier, Slaughterman, Soap-maker, Sugar-baker, Fellmonger, Melter of tallow, Oilman, Butcher, Distiller, Victualler, or Tavernkeeper, Blacksmith, Nightman, Scavenger, or any other noisy, noisome or offensive trade or business whatever without the license of his said Majesty.\textsuperscript{16}

The government's willingness to enforce such lease conditions and other planning regulations, however, was half-hearted. For instance, in the early 1950s, the Director of Public Works reported that due to other financial commitments, town planning laws and policies would \textit{not} be enforced and town planning staff would be limited to preparing urgently required draft legislation.\textsuperscript{17} Furthermore, in 1983, in \textit{Attorney General v. Melhado Investment Ltd.},\textsuperscript{18} Hong Kong courts allowed a developer to use a plot of land, which was originally intended for agricultural purposes, to store environmentally dangerous containers.\textsuperscript{19}

3. The Third Phase

The third phase of Hong Kong's environmental legal history can be described as a substantial corrective reaction to its dismal environmental record. The government adopted a highly regulated approach to pollution control and land use for three basic reasons.\textsuperscript{20} First, although Hong Kong's passive non-interventionist

\begin{itemize}
\item \textsuperscript{16} \textit{Id.} at 3.
\item \textsuperscript{17} \textit{See BRISTOW, supra} note 8, at 72.
\item \textsuperscript{18} [1993] \textit{H.K.L.R. 327} (Ct. App.).
\item \textsuperscript{19} \textit{See id.} at 327-30.
\item \textsuperscript{20} Following \textit{Melhado}, the government amended the law to establish its authority to effectively enforce the planning laws. In 1991, amendments were enacted to extend statu-
approach to regulation contributed to Hong Kong's economic prosperity, it was also arguably responsible for Hong Kong's present environmental decline. In order to remedy the severe environmental decline and to reverse a historically unsympathetic corporate ethic, government intervention was necessary. Second, the environmental deterioration led to a dramatic decline in the quality of life in Hong Kong. For example, air pollution led to a dramatic increase in respiratory ailments, water pollution contaminated Hong Kong's marine population, and the lack of adequate noise control caused territory-wide nuisances. This environmental decline precipitated public demands through street and media protests, the formation of green activist groups, and legal action to force the government to prevent further decline. Third, Hong Kong's substandard environmental reputation was discouraging tourism, Hong Kong's largest source of foreign income.

The government has enacted many significant environmental laws over the past two decades. The government's commitment to use these anti-pollution laws to achieve satisfactory environmental objectives is reflected in the costly non-compliance penalties. Furthermore, Hong Kong's government has nearly completed replacing its ad-hoc environmental impact assessment process with a formalized approach.

Hong Kong courts also seem to be incorporating sound environmental principles into their decisions. For instance, in contrast to the anti-environmental Melhado decision, the court in Secan

28. See, e.g., Air Pollution Control Ordinance, LAWS OF HONG KONG ch. 311 (1987); Water Pollution Control Ordinance, LAWS OF HONG KONG ch. 358 (1980); Noise Control Ordinance, LAWS OF HONG KONG ch. 400 (1988); Waste Disposal Ordinance, LAWS OF HONG KONG ch. 354 (1987); Ozone Layer Protection Ordinance, LAWS OF HONG KONG ch. 403 (1989). Additional forms of environmental legislation include: Merchant Shipping (Prevention and Control of Pollution) Ordinance, LAWS OF HONG KONG ch. 413 (1991); Merchant Shipping (Liability and Compensation for Oil Pollution) Ordinance, LAWS OF HONG KONG ch. 414 (1991); Dumping at Sea Ordinance, LAWS OF HONG KONG ch. 466 (1995); Dangerous Goods Ordinance, LAWS OF HONG KONG ch. 295 (1956); Waste Disposal (Amendment) Ordinance, LAWS OF HONG KONG ch. 354 (1991); Sewage Services Ordinance, LAWS OF HONG KONG ch. 463 (1995); Buildings Ordinance, LAWS OF HONG KONG ch. 123 (1956).

29. Under section 10 of the Air Pollution Control Ordinance, failure to comply with the air pollution abatement notice may result in a HK$500,000 fine and one year imprisonment. See Air Pollution Control Ordinance, LAWS OF HONG KONG ch. 311, § 10. Under section 18 of the Waste Disposal Ordinance, unlawful depositing of waste may result in a HK$500,000 fine and six months imprisonment. See Waste Disposal Ordinance, LAWS OF HONG KONG ch. 354, § 18. For risking public health and safety under section 32 of the Waste Disposal (Chemical Waste) (General) Regulations, the wrongdoer may be exposed to a HK$200,000 fine and six month imprisonment. See Waste Disposal (Chemical Waste) (General) Regulations, LAWS OF HONG KONG ch. 354 sub. leg. C, § 32 (1992). Under section 3 of the Ozone Layer Protection Ordinance, the manufacture of a prohibited substance may result in a HK$1,000,000 fine and two years imprisonment. See Ozone Layer Protection Ordinance, LAWS OF HONG KONG ch. 403, § 3. Under section 8(1)(a) of the Water Pollution Control Ordinance, a person who discharges any waste or polluting matter into Hong Kong control zone waters may receive a HK$200,000 fine and two years imprisonment. See Water Pollution Control Ordinance, LAWS OF HONG KONG ch. 358, § 8(1)(a). According to section 26 of the proposed Environmental Impact Assessment Bill, environmental permit violations may result in a fine up to HK$5,000,000 and two years imprisonment. See Proposed Environmental Impact Assessment Bill, § 26.

30. See infra notes 89-90 and accompanying text; see also Environmental Protection and Nature Conservation, H.K. ENVTL. ASS'N NEWSL. (Hong Kong Envtl. Law Ass'n, Wanchai, H.K.), Spring 1996, at 6, 6. For an extensive analysis of the Environmental Impact Assessment Bill, see HONG KONG ENVTL. LAW ASS'N, SUBMISSION ON THE ENVIRONMENTAL IMPACT ASSESSMENT BILL (1996).

31. See supra notes 18-19 and accompanying text.
Loy. L.A. Int'l & Comp. L.J. Ltd. v. Attorney General32 affirmed the Environmental Protection Department's (EPD) authority to use environmental principles when making decisions concerning its statutory powers.33 This ruling reversed a lower court's decision requiring the EPD to use business principles when making decisions.34 In addition, the Court of Appeal entertained two appeals challenging the enforcement of anti-pollution legislation.35

B. Environmental Regulatory Framework

In order to understand the present regulatory framework, an examination of the underlying structure is necessary. This section sets out the problems besetting the statutory system and illustrates how the state is coming to terms with these problems.

1. The Theoretical Problem

Environmental law is designed to perfect the free market where the market has failed.36 In Hong Kong, the existence of severe pollution problems reveals that the laissez-faire approach has not adequately dealt with the pollution problem. Because businesses will not voluntarily respond to pollution control, Hong Kong's government must take measures to clean up the pollution.37 Although Hong Kong has achieved substantial progress in halting the ecological decline through environmental legislation over the last decade, the enactment and enforcement of effective environmental laws has been, and continues to be, a difficult process.38

33. See id. at 629-30.
34. See id.
35. See Friends of the Earth (Charity) Ltd. v. Attorney General, Case No. 92MP0273 (H.K. Sup. Ct. Apr. 13, 1992); Asia Dyeing Co. v. The Authority (appointed under the Air Pollution Control Ordinance, Cap. 311), [1990] 1 H.K.L.R. 263 (Ct. App.).
37. See Genewra Richardson et al., Policing Pollution: A Study of Regulation and Enforcement 5-6 (1982).
Anthony Ogus, who has written the clearest criticisms of regulatory theory, argues that the goal of pollution control legislation is to maintain socially efficient pollution levels where the marginal costs of pollution equal the marginal social benefits of the activity creating the pollution. For example, the harmful smoke discharged by an industrial polluter brings both costs and benefits to the community. The costs include medical costs associated with treating respiratory problems, economic costs caused by a decline in productivity, and environmental clean-up costs. The benefits include employment by the industrial polluter, taxes collected from the industry, and economic benefits derived from attracting other trade and commerce to the area. There is a presumption that environmentally reasonable standards should allow for some pollution. According to that presumption, the government's responsibility is to consider the relative advantages and disadvantages of the pollution-generating activity and to develop a legal mechanism to prevent that activity from producing a social harm greater than the benefit to the community.

The establishment of sensible environmental standards, however, is troublesome. First, calculating the social cost involves assessing indeterminate values associated with health costs, aesthetic harm, concern for future generations, and the potential impact of transboundary pollution from southern China. Second, the problem of transboundary pollution prejudices the formulation of local environmental quality standards. Third, it is difficult to determine accurate emission levels for one plant when a neighboring plant pollutes the same air or water. Fourth, because the pollution from older plants caused by the use of outdated technology will necessarily be more expensive to abate, the calculation of appropriate abatement costs is inequitable if newer and older plants
are subject to equal compliance requirements.\textsuperscript{44} Fifth, the environmental decision-making process, which includes the issuance of licenses, permits, and abatement notices, is vulnerable to abuse by the private sector.\textsuperscript{45} This phenomenon is particularly relevant to Hong Kong, where the commercial sector has historically dominated the legislature\textsuperscript{46} and public scrutiny of environmental decision-making is marginal.\textsuperscript{47}

2. Environmental Pollution Control Regulation

The Secretary for Planning, Environment and Lands (SPEL) determines environmental policy and law in Hong Kong.\textsuperscript{48} The EPD, which is the SPEL’s executive arm, advises on policy and enforces the law.\textsuperscript{49} The SPEL consults with the Advisory Council of the Environment, which is composed of a variety of public and private interest groups,\textsuperscript{50} at every step of the environmental decision-making process.\textsuperscript{51} The EPD recently decentralized and opened local control offices that have the authority to grant licenses and to advise local polluters.\textsuperscript{52} This institutional infrastructure implements two forms of legal measures to achieve its environmental goals: (1) command and control regulations and (2) economic instruments.

\textsuperscript{44} See \textit{id.} at 205.
\textsuperscript{45} See \textit{id.}
\textsuperscript{47} See Terri Lynne Mottershead, The Control of Water Pollution in Hong Kong under the Water Pollution Control Ordinance 1990-1995, at 98 (1996) (unpublished LL.M. dissertation, University of Queensland) (on file with the \textit{Loyola of Los Angeles International and Comparative Law Journal}).
\textsuperscript{49} See \textit{id.} at 18, 51.
\textsuperscript{50} The Advisory Council of the Environment is composed of a variety of constituent interests, including members of the Legislative Council, the Urban and Regional Councils, District Boards, tertiary educational institutions, green groups, and commercial and industrial associations. See \textit{id.} at 117. The Secretary for Planning, Environment and Lands, the Director of the Environmental Protection Department, the Director of Planning, and the Director of Agriculture and Fisheries are in permanent attendance. See \textit{id.}
\textsuperscript{51} See \textit{id.}
\textsuperscript{52} See \textit{id.} at 76.
a. Command and Control Regulations

The command and control approach to pollution control requires the application of state authority to induce industry to reduce pollution generation. The command and control system of Hong Kong can be divided into three interrelated elements: socially efficient objectives, target standards, and specification and performance standards.

i. Socially Efficient Objectives

The first step toward the enactment of an effective environmental law is the establishment of a rational objective. The purpose of environmental law should be to minimize the social costs of pollution, thereby assuring the productivity of resources that would otherwise be used to remedy individual or environmental harm. This welfare argument for allocative efficiency implicitly adopts the Pareto test. According to this normative test, optimal resource allocation is achieved when no one can be made better off without simultaneously making someone else worse off.

In contrast to contemporary forms of environmental legislation, the earlier Hong Kong statutes did not take into account socially efficient objectives. While the earlier statutes were useful in beginning to recognize the importance of the State's role in controlling and preventing pollution, the lack of any sensible objectives undermined the law's effectiveness from the start. For example, the Environmental Protection Agency's (EPA) 1985 principles for practice display only a superficial commitment to environmental protection. Rather than formulating law and policy to comprehensively address pollution, the EPA preferred flexible administrative responses with no legal obligation to achieve environmental objectives or enforce environmental laws. The original objective was merely to persuade polluters to reduce

53. See OGUS, supra note 39, at 24.
54. See id.
55. See infra note 63 and accompanying text.
56. See Summary Offences Ordinance, LAWS OF HONG KONG ch. 228 (1933); Public Health and Municipal Services Ordinance, LAWS OF HONG KONG ch. 132 (1960).
pollution voluntarily.\textsuperscript{58}

The Hong Kong government reformed this deficient environmental regulatory structure for two reasons. First, private law actions,\textsuperscript{59} such as nuisance and negligence,\textsuperscript{60} were ineffective in resolving pollution control problems.\textsuperscript{61} Second, policy makers in Hong Kong were historically reluctant to allow any government interference with business out of fear that such interference would cause the undoing of Hong Kong's economic development.\textsuperscript{62} Because no entity was going to clean up the pollution threatening Hong Kong's economic growth, however, government regulation became the best option to administer pollution control.\textsuperscript{63}

Policy makers are presently trying to set clearer environmental objectives. For instance, in the 1989 White Paper entitled \textit{Pollution in Hong Kong—A Time to Act}, the government envisioned its role as balancing economic development with environmental protection.\textsuperscript{64} The document discussed avoiding new pollution problems from future development or redevelopment, drafting legislation to provide effective control of existing pollution, and initiating the development of policies and programs appropriate for Hong Kong.\textsuperscript{65} There have been three reviews of the White Paper. The two most recent reviews in 1993 and 1995 called for the incorporation of the concept of sustainable development into Hong Kong policy in light of international recognition of this

\textsuperscript{58} See Robin Bidwell, \textit{Environmental Protection in Hong Kong: From Theory to Practice}, 10 ENVTL. IMPACT ASSESSMENT REV. 247, 248 (1990).


\textsuperscript{60} See Rylands v. Fletcher, 3 L.R.-E. & I. App. 330 (H.L. 1868) (Eng.) (stating an alternative rule for pollution control problems).

\textsuperscript{61} \textit{But see} A. MITCHELL POLINSKY, \textit{AN INTRODUCTION TO LAW AND ECONOMICS} 89-94 (1983).


\textsuperscript{65} \textit{See id.}
principle at the 1992 United Nations Conference on Environment and Development.66

ii. Target Standards

Target standards for pollution control are intended to define environmental wrongdoing. In earlier legislation, as well as some current forms, vague terms, such as nuisance, annoyance, dust, and dark smoke, were used to identify environmental infringement.67 The lack of definitional exactness made law enforcement unreliable.

Technological progress has, however, improved the legislative drafters' exactness. The new terms of reference for target standards are known as the ambient quality standard (AQS).68 The AQS regulates the adverse effect that a pollutant may have on the natural ecology.69 It identifies the maximum quantity of pollution tolerable in a particular area. In Hong Kong, these targets are classified as water or air quality objectives.

Although targets exist, legislation does not bind the government to strictly enforce these targets. The Hong Kong government has set up ten water70 and air71 control zones. The Secretary of Planning, Environment and Lands designates, in consultation with the Advisory Council of the Environment, water72 or air73 quality objectives for each zone or different objectives for different parts of the zones. The EPD is then responsible for achieving the relative water74 or air75 quality objectives "as soon as is reasonably practicable and thereafter maintaining the quality so achieved."76

66. See ENVIRONMENT HONG KONG 1995, supra note 50, at 11; see also THE THIRD REVIEW, supra note 38, at 8.
67. See, e.g., Clean Air Ordinance, LAWS OF HONG KONG ch. (1959); see also Edward Epstein, Air Pollution Control in Hong Kong: Where to Next?, 23 H.K. L.J. 448, 449 (1993).
68. See RICHARDSON ET AL., supra note 37, at 35.
69. See id.
70. Water Pollution Control Ordinance, LAWS OF HONG KONG ch. 358, § 4 (1980).
71. Air Pollution Control Ordinance, LAWS OF HONG KONG ch. 311, § 6 (1987).
72. See Water Pollution Control Ordinance, LAWS OF HONG KONG ch. 358, § 5.
73. See Air Pollution Control Ordinance, LAWS OF HONG KONG ch. 311, § 7.
74. See Water Pollution Control Ordinance, LAWS OF HONG KONG ch. 358, § 6.
75. See Air Pollution Control Ordinance, LAWS OF HONG KONG ch. 311, § 8.
76. Water Pollution Control Ordinance, LAWS OF HONG KONG ch. 358, § 6(3); see
iii. Specification and Emission Standards

The AQS only provides a framework to assist in the achievement of environmental goals. In Hong Kong, the actual legal measure used to realize the AQS target is the license or permit stipulating particular specification and emission standards.

Specification standards designate construction or technological conditions that, if complied with, should assure the achievement of acceptable environmental standards. A specification standard focuses on the process by which the pollutant is generated and is less concerned with the emission itself. For example, the Air Pollution Control Ordinance (APCO) will regulate height of industrial chimneys or machinery used in certain industrial operations known as specified processes. According to the APCO, all specified processes are required to use "best practicable means" (BPM) to prevent noxious or offensive emissions.

[BPM], where used with respect to the emission from a premises of an air pollutant, has reference not only to the provision and the efficient maintenance of appliances adequate for preventing such emission, but also to the manner in which such appliances are used and to the proper supervision by the owner of the premises of any operation in which such an air pollutant is evolved.

The BPM test affords the government considerable discretion in determining whether a polluter complies with the statutory requirements. For instance, an officer may consider the firm's present profitability and current economic condition. The primary problem with the BPM test is that it does not oblige the EPD to give a higher priority to environmental considerations.

also Air Pollution Control Ordinance, LAWS OF HONG KONG ch. 311, § 8(2).

77. LAWS OF HONG KONG ch. 311.
78. See id. § 30.
80. For a critical review of the Air Pollution Control Ordinance, see Epstein, supra note 67.
81. See Air Pollution Control Ordinance, LAWS OF HONG KONG ch. 311, § 2.
82. See BALL & BELL, supra note 79, at 323-24. The United Kingdom currently uses a standard for environmental decision-making known as "best available techniques not entailing excessive costs." See id. According to this concept, every step should be taken
In contrast, emission standards regulate the quantity and quality of a particular pollutant after its discharge from an industrial operation. For example, the Water Pollution Control Ordinance (WPCO) specifies, through Technical Memoranda, standards concerning the type and amount of pollutant that a polluter may generate. The EPD may then grant a license on such terms and conditions as the EPD thinks fit, but within the limitations set out in the Technical Memoranda. The EPD cannot secure higher standards than those set out in the Technical Memoranda unless there is good reason. The EPD is further restricted from issuing licenses if the discharge would endanger the public health, the health of a drainage or sewage worker, or the drainage or sewage system itself.

Under the WPCO, the EPD negotiates specific licenses with each particular polluter, rather than applying a common universal standard to all polluters. To implement this policy, the government is required to expend considerable human, technological, and material resources. Such a non-standardized, highly flexible approach to environmental decision-making may be preferable for Hong Kong. A compelling argument in support of a flexible standard is that it provides a more equitable licensing procedure. The impact of neighboring industry and transnational pollution makes it difficult to calculate the quantity and quality of pollution generated by one particular industry. By designing standards applicable to each firm, the government can assure greater certainty and fairness in the application of the law. Moreover, the EPD will induce to protect the environment as long as relevant economic factors are taken into consideration. See id. at 107-08. In addition, the United Kingdom utilizes the concept of the “best practical environmental option” in environmental decision-making. This concept is a decision-making process that helps to determine whether a system is of most benefit or least damage to the environment at an acceptable cost. See id. at 289.

83. See Water Pollution Control Ordinance, LAWS OF HONG KONG ch. 358, § 21 (1980).
84. See id. § 20.
85. See id. § 15(4).
86. See Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters, LAWS OF HONG KONG ch. 358 sub. leg. AK, pt. 2.2 (1990).
87. See id.
88. See Water Pollution Control Ordinance, LAWS OF HONG KONG ch. 358, § 20(3)(a)-(c).
greater polluter compliance if the EPD is cooperative and the polluter has willingly negotiated its own pollution control standards.

The establishment of strict environmental standards, on the other hand, would be far too formalistic. It would either compel polluters to conceal their infringements and induce less observance of the law or, in the worst case scenario, would encourage polluting industries to transfer to neighboring countries where Hong Kong must still deal with the environmental harm of transboundary pollution but enjoy none of the economic benefits. Another criticism of the formalization of standards is the generation of excessive administrative and financial costs for the government when polluters litigate the enforcement of, or compliance with, environmental standards.

The argument against formalization of environmental standards, however, may also be seen as flawed. First, if the EPD is given absolute discretion to negotiate a license, no accountability exists to assure that the negotiated standard is at a socially desirable level. Second, because an agreed-upon license is legally binding, it is equally possible that a polluter may feel as constrained by the license as the polluter would have been by the statutory requirement due to changing industrial or commercial circumstances. Third, the administrative costs for enforcing a universally formalized standard would be considerably less than the costs for negotiating licenses with each particular polluter. In fact, polluters should be more inclined to comply with a legal standard than a license in order to avoid the transaction costs associated with litigation.

The enactment of a new Environmental Impact Assessment Ordinance (EIA Ordinance), however, should begin to redress the difficulties associated with the enforcement of non-formalistic standards for environmental protection. In the past, the EPD could not ensure compliance with environmental impact assessments (EIAs) because the EIAs were drafted under unenforceable administrative requirements. The enactment of the EIA Ordinance should induce more compliance. First, under the EIA Or-

89. The Legislative Council was anticipated to vote on the EIA Bill sometime in late 1996. See Terri Mottershead, Environmental Impact Assessment: Out with the Old and in with the New?, ASIAN PAC. F. NEWSL., June 1996, at 6, 6-7.
dinance, the EPD will have the authority to issue fines of up to
HK$5,000,000 for non-compliance.\footnote{90 See Technical Memorandum of Environmental Impact Assessment Bill; see also The Proposed EIA Bill, H.K. ENVT. L. ASS'N NEWSL. (Hong Kong Envtl. Law Ass'n, Wanchai, H.K.), Spring 1996, at 13, 13.} Second, because developers
must follow statutory schedules for EIA reports, they will be
aware of environmental requirements at an earlier phase of develop-
mental planning and therefore be in a better position to incor-
porate the necessary modifications.\footnote{91 See The Proposed EIA Bill, supra note 90, at 13.}

\subsection*{b. Economic Instruments}

Command and control environmental regulations require a
state authority to apply quasi-criminal law to achieve socially de-
sired environmental goals. These regulations are designed to en-
courage firms to reduce pollution by imposing negative sanctions
upon polluters for unacceptable behavior. Criticisms concerning
administrative costs and overly intrusive policing activities have
caused law makers to contemplate alternative legal measures. One such alternative is the use of economic instruments to achieve pollution control objectives.

Two forms of economic instruments predominate the envi-
ronmental debate in Hong Kong. The first form is a positive in-
centive, whereby the government provides a monetary induce-
ment, such as a subsidy, for a firm to act in an acceptable manner.
The second form is a negative inducement, such as a charge or tax,
whereby the government imposes a monetary penalty upon a
wrongdoer to induce acceptable behavior. A third form is a trade-
able emission right,\footnote{92 See ENVIRONMENTAL ENCYCLOPEDIA 842 (William P. Cunningham et al. eds., 1994).} but so far, the Hong Kong government has
deployed to use this form of economic instrument.\footnote{93 See P.R. Holmes, Policies and Principles in Hong Kong's Water Pollution Control Legislation, 26 WATER SCIENCE TECHNOLOGY 1905, 1909 (1992); see also Ian Thynne, The Right to Pollute as a Tradeable Commodity?, in ENVIRONMENTAL LAW IN HONG KONG105, 117 (Gary N. Heilbronn ed., 1993).} The principal argument in favor of using economic instru-
ments for pollution control is that they are more cost-effective and
simpler to administer than command and control measures. Al-
though the use of the State's policing authority is still necessary to
implement economic instruments, the extent of State intervention into commercial affairs is arguably less with economic instruments than with command and control regulations. For instance, economic instruments are simple to enforce because polluters are only required to meet specified targets, while command and control regulations are complex and require expensive administrative and informational costs for compliance.94 Furthermore, the enforcement of command and control regulations necessitates proof of criminal liability. Because criminal responsibility is so difficult to prove, especially in the corporate setting, enforcement may become too expensive to litigate or may even be ignored.95 Alternatively, the enforcement of economic instruments is simpler because it requires only the imposition of economic charges when a polluter fails to meet socially acceptable environmental standards.

i. Subsidies

A pollution subsidy is intended to encourage the recipient to reduce its own generation of pollution. In economic terms, the subsidy is justifiable if the value of the subsidy is equivalent to the cost of the pollution damage averted. It is difficult, however, to determine whether its application is cost-effective due to uncertainties underlying the calculation of the cost of pollution damage.96 Another drawback of the subsidy is that, unlike charges or taxes, it requires a withdrawal from the public treasury.

The most prodigious subsidy mandated by the government has been the HK$20 billion used to capitalize construction for the Strategic Sewage Disposal Scheme and the collection systems under the Sewerage Master Plans.97 Additionally, the government provides a number of services to assist firms in pollution control methods. For instance, the EPD publishes a number of handbooks to assist compliance with environmental regulations, such as A Guide to the Control on Import and Export of Waste and Grease Traps for Restaurants and Food Processors. Furthermore, the

94. See OGUS, supra note 39, at 245.
95. See RICHARDSON ET AL., supra note 37, at 14-16.
96. See supra notes 41-47 and accompanying text.
EPD, the Drainage Authority, the Industry Department, and the Hong Kong Productivity Council, which is a government subvented organization, offer individual consultation on pollution control matters. Finally, the government has an extensive conservation program for country parks and marine parks.

**ii. Charges and Taxes**

The government imposes a charge or tax on a polluter if the polluter fails to meet a statutorily or contractually agreed-upon environmental standard. The charge or tax is intended to induce the polluter not to pollute by charging the polluter for the cost of cleaning up the pollution. The charge or tax results in the efficient allocation of resources when the polluter pays the costs to clean up its self-generated pollution.

Charges are often calculated on the basis of the quantity and quality of the discharge. The valuation of the charge is complicated because the costs of environmental damage are difficult to assess. Nevertheless, charges offer a double advantage: they serve as a negative inducement for polluters to reduce pollution, and they generate funds to support other pollution control activities. In 1993, for example, Hong Kong formulated a charging scheme to administer its sewage and waste problems. The charging scheme for domestic waste is scaled to the amount of water that the polluter uses. According to the charging strategy principle, the more water that the consumer uses, the more waste the consumer must be generating. In addition to the basic charges, the government has established a trade effluent charge for certain con-

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98. The Hong Kong government's Industry Department has also published a guidebook to assist industries in complying with pollution control legislation. See INDUSTRY DEP'T, HONG KONG GOV'T, A GUIDE TO POLLUTION CONTROL LEGISLATION AFFECTING MANUFACTURING INDUSTRIES 1994 (1994).


102. See HONG KONG GOV'T, SEWAGE CHARGING SCHEME: AN INTRODUCTION (1993) (on file with the author) [hereinafter SEWAGE CHARGING SCHEME].


104. See SEWAGE CHARGING SCHEME, supra note 102, at 1, annex.
consumers to account for the exorbitant costs of cleaning up industrial and commercial discharges.\textsuperscript{105} The government maintains trade effluent charges in a trading fund, which is solely designed to support pollution control activities.\textsuperscript{106}

Furthermore, the government uses a charging scheme to support the operation of a chemical waste treatment plant and landfills.\textsuperscript{107} For the first two years, the government subsidized the use of the chemical waste treatment plant, thus allowing manufacturers to use the plant for free.\textsuperscript{108} In 1995, however, the government reduced its subsidies and began to reclaim the operation costs of the waste treatment plant through charges.\textsuperscript{109} A private company operates the plant under license to the government. Although reports indicate that charges will recover only twenty percent of the plant's operation costs in the first year, the plant is expected to be self-financing by 2003.\textsuperscript{110} Similarly, the government uses a charging scheme to administer the operation of its landfill sites.\textsuperscript{111}

In sum, the environmental regulatory structure of Hong Kong has achieved a promising level of development.\textsuperscript{112} Although the government still adopts a flexible approach toward pollution control and grants the EPD a considerable degree of discretion to enforce environmental standards, environmental enforcement records show that prosecutions for pollution control infractions are increasing and environmental quality may be improving.\textsuperscript{113} The enactment of the EIA Ordinance should provide a clear and comprehensive approach to pollution control enforcement and further enhance the situation.

\textsuperscript{105} See id.
\textsuperscript{106} See id. at 2-3.
\textsuperscript{108} See id. at 55.
\textsuperscript{109} See id. at 55.
\textsuperscript{110} See id. at 55.
\textsuperscript{111} See id. at 54-55.
\textsuperscript{112} See Julie Bloch, Conservation in a Concrete Jungle: Political, Legal and Societal Obstacles to Environmental Protection in Hong Kong, 6 GEO. INT'L ENVTL. L. REV. 593, 619 (1994).
\textsuperscript{113} See ENVIRONMENT HONG KONG 1995, supra note 50, at 204-12.
III. REFORM IN THE PEOPLE'S REPUBLIC OF CHINA

Part II of this Article argued that Hong Kong, under British rule, does not apply the laissez-faire style of governance, particularly with regard to environmental protection, that many claim it does. On July 1, 1997, Hong Kong will convert from the United Kingdom's political possession to a Special Administrative Region of the PRC. The debate concerning the State's future role in Hong Kong's economic affairs will be particularly relevant to Hong Kong's environmental policy. To understand the impact of Hong Kong's transition to Chinese rule on domestic environmental protection law, it will be useful to examine the modern development of economic and institutional reform in the PRC.

Since 1978, the PRC has implemented comprehensive economic reform, and to a lesser extent, political reform. The economic reform is designed to convert a highly centralized, planned economy into a market-oriented, socialist economy with unique Chinese characteristics. Implicit in the Chinese idea of reform is the notion that the market is a better allocator of resources than the State. Nevertheless, implementation of the reform is not used to justify the State's absolute withdrawal from economic matters. The reality is that policy makers are still trying to come to terms with the appropriate level of government intervention in the marketplace. The State has recognized that independent, competitive firms are better equipped than state-owned enterprises to distribute and manufacture most products. The State has therefore begun to divest itself of the responsibility of controlling the economy, as well as to limit its commercial activity to enterprises necessary for state security. While it would be overzealous to claim that the State has repositioned itself as a defender of the welfare system against the failures of the free market, it is fair to suggest that the State's intention in the PRC is to correct the failures of a market-oriented, socialist economy. This intention is illustrated through the enactment of encyclopaedic welfare legislation.

The bellwether for market reform and the end of Maoist centralized economic planning appears to be a Communique that the Chinese Communist Party Congress issued on December 23,

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The Communique articulates reasons for adopting economic and legal reform. It stated that one of the weaknesses of centralized planning was the centralization of too much power at the top of the hierarchy. The need to decentralize power was emphasized so that local authorities, as well as agricultural and industrial enterprises, would have greater autonomy to make their own decisions. The Communique highlighted the need to improve productivity through increased respect for economic law and integration of political and ideological work with economic work. The Communique also advocated the separation of party and government from the operation of enterprise. Finally, the Communique displayed a new institutional attitude, whereby the State's position as a leading economic planner would be initially restrained and then succeeded by market forces.

The National People's Congress formalized this institutional attitude on March 29, 1993 by amending article 15 of the Constitution of the People's Republic of China. Originally, article 15 stipulated the implementation of a planned economy on the basis of socialist public ownership. Central planners were to assure the proportionate and coordinated growth of the national economy by balancing economic planning and regulation. Article 15 forbade organizations and individuals from disturbing or disrupting the State's economic plan in any way. These stipulations were replaced with the following amendments: "The state practices socialist market economy. The state strengthens economic

116. See id.
117. See id.
118. See id.
119. See id.
120. See id.
121. See id.
123. See id. at 6.
124. See id.
125. See id.
legislation, improves macro-regulation and control, and prohibits in accordance with the law any organization or individual from disturbing the socio-economic order." The amended constitution affirms the reduction of State involvement in the country's economic affairs. The exclusion in the amendment of any mention of planning indicates the nature of the reform.

Research on Chinese law and policy also demonstrates that the central question for academics and policy makers is the extent to which the State ought be involved in economic matters. Shaoguang Wang argues that the debate in China concerning the State's role has just started. Fifteen years ago, economic debate focused on whether the market should be used as a planning tool. One would be hard pressed today, however, to find the word "planning" in any economic journal. Fifteen years ago, Marxist terminology marked the economic debate, but today, the debate turns on concepts such as property rights, efficient allocation, and market failures.

Other scholars focus on the evolution of the institutionalization of the law-making process, emphasizing that the role of certain state authorities continues to develop. Stanley Lubman stresses that China's present accomplishments in institution building are merely a first step in a long journey. James Feinerman shows that, while China is committed to implementing market and legal reform, the extent to which the State will govern economic and political matters remains unsettled. Murray Tanner argues that the National People's Congress has plans to challenge the authority of the State Council in areas such as interagency review and the drafting of implementing regulations. Susan Finder asserts that the Supreme Court of the People's Republic of China has a greater role in making and enforcing legal rules, as well as achieving an unusually prominent status for a court in a civil law

126. See id.
jurisdiction.\textsuperscript{131}

Even commentary regarding environmental law and policy\textsuperscript{132} highlights policy makers' struggles to determine the State's role in controlling excess pollution\textsuperscript{133}—the unpleasant by-product of the PRC's rapid economic growth.\textsuperscript{134} The Chinese government has published a state policy report affirming the necessity of adopting sustainable development principles when the environmental authorities implement pollution control policy.\textsuperscript{135} Lester Ross points out that the extent of the State's involvement in environmental policy will depend upon such variables as economic efficiency and price irrationality, transboundary pollution, urban and rural conflicts, population pressures and resource scarcity, and future development projects.\textsuperscript{136} Vincent Yang argues that the PRC should not use criminal law enforcement measures to implement environmental regulations. Instead, he suggests that the State should rely on traditional means of social control.\textsuperscript{137}

IV. CONCLUSION: HONG KONG'S ENVIRONMENTAL REGULATION AFTER JULY 1, 1997

In the events leading to July 1, 1997, the PRC has endeavored to assure as smooth a transition as possible. Specifically, with regard to environmental protection, the tone of environmental diplomacy between Hong Kong and the PRC appears to have been cooperative. For example, the Basic Law provides nominal men-


tion of environmental protection by stipulating that the HKSAR government shall "pay regard to the protection of the environment." Also, Hong Kong and Guangdong Province have established the Hong Kong Guangdong Environmental Liaison Group and a technical sub-group to provide a focus for formal interaction between environmental authorities in the region. Other institutional cooperation includes visits to Hong Kong in October 1994 by the Director of the Guangdong Environmental Protection Bureau and the Shenzhen Environmental Protection Bureau.

The progress has not, however, always been so non-confrontational. Recently, Beijing authorities asked the Hong Kong government to reconsider the cost and environmental impact of Hong Kong's multi-billion dollar sewage control scheme. Chinese authorities claimed that the plan was environmentally unsound, economically corrupt, and immoral. The PRC, however, subsequently limited its criticism of the first phase of the project, which will not affect Chinese territory. Because the second phase of the project would in part discharge waste in Chinese seas and potentially affect Chinese territory, the development of the second phase is under some form of regional discussion. Additionally, Hong Kong enterprises have been involved in high-profile environmental infringement cases in southern PRC. These cases have all been adjudicated and resolved, however, within the Chinese court system.

Although the potential for short term institutional cooperation between Hong Kong and mainland PRC appears relatively manageable, the differing ideological tendencies between them raise serious concerns about Hong Kong's environmental viability.

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139. See ENVIRONMENT HONG KONG 1995, supra note 50, at 98.
140. See Shiny Li, Beijing Condemns Sewage Proposals, E. EXPRESS, Oct. 10, 1994; see also Patricia Young, Beijing to Reject Sewage Scheme, S. CHINA MORNING POST, Nov. 15, 1994, at 6; Wing Kay Po, Last Ditch Warning on Sewerage, E. EXPRESS, Jan. 27, 1995.
141. See Rain Ren, Mainland Chief Slams Government for Putting Profit Before Long-Term Interests as Talks on Scheme Loom, E. EXPRESS, Jan. 28-29, 1995.
in the medium and long term. The paradox underlying the July 1, 1997 transition is that, while Hong Kong is converting from a laissez-faire economy to a more highly regulated one, China's reform tends toward deregulation. It is a further paradox that China often justifies its model of decentralization and marketization on the successful Hong Kong model when a rational analysis of the Hong Kong situation is much more complex. The impact of this position on Hong Kong's future environmental policy could become quite problematic.

Over the last fifteen years, Hong Kong policy makers have come a long way toward correcting the State's non-involvement in pollution control matters. A competent institutional establishment presently supports a comprehensive regulatory framework. The practice of accounting for environmental protection and economic development, otherwise known as sustainable development, in the application of anti-pollution regulation, while not a formal part of the environmental decision-making process, is becoming increasingly more relevant to legal discourse.

Due to Hong Kong's diminutive geographic vicinity, dense industrial development, and highly populated area, it is critical that the implementation of environmental policy aspire to the achievement of sustainable development. In the process, the policy must account for the historical, practical, and unique characteristics of Hong Kong's present environmental framework. The new government must get this balance right. The imposition of extreme or unsound regulatory practice by a new governance structure could sabotage Hong Kong's prosperous economic growth policy, derail its emerging environmental regulatory system, and cause irreparable harm to its deteriorating ecological heritage.

144. See Bachner, Regulating Pollution in the PRC, supra note 133, at 407-08.