THE POLITICAL ECONOMY OF
ENVIRONMENTAL POLICY IN HONG KONG

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ENVIRONMENTAL PROTECTION AND POSITIVE NON-INTERVENTIONISM

Hong Kong represents the triumph of free market capitalism. The people of Hong Kong readily admit that the economic success of Hong Kong was due to a deliberate policy to protect private property rights, promote open and competitive market, and limit the role of government. Such a policy was summed up in the phrase "positive non-interventionism" coined by the former Financial Secretary Sir Philip Haddon-Cave. Yet such an explanation of Hong Kong's economic success cannot be satisfactory. One has to go one step further in the analysis. What is it which has brought about the protection of private property rights, the promotion of competition, and the encouragement of a limited government? Why has the government of Hong Kong shown much more restraint than the governments of the industrialized states in the West and those of the developing Third World? Why have British bureaucrats in Hong Kong adopted policies which until recently they had abandoned even in their own country? Surely the answer cannot be because they are wiser or less selfish. It is, rather, that they have acted under different institutional constraints.

The political survival of the British rulers in Hong Kong did not depend as much on the systematic purchase of the support of special interest groups as they had to in Britain or other democracies. The absence of a representative government does not, however, mean the total absence of accountability. The legitimacy of the government still depends on how well public duties are discharged. A highly discontented and misruled population is unlikely to be tolerated by the neighbouring Chinese government. The British rulers being few in number and temporary in their intentions to stay in the territory have had little incentive or ability to impose their preferences on the population. Senior civil servants were more interested in minimizing conflict than in maximizing budgets.

One of the main explanations of Hong Kong's economic prosperity and its policy of positive non-interventionism is therefore political. Government has been strong enough so that private property rights have been adequately protected from the encroachment of special interest groups, but weak enough to allow the private sector to flourish without undue regulation. Society was able to remain highly depoliticized. From this perspective there is good cause to believe that the existing political and economic arrangements will be severely threatened when the British depart in 1997 because most of the institutional constraints under which the Hong Kong government has operated will disappear.
What implications will this have for environmental protection and economic growth in Hong Kong? Will positive non-interventionism survive the transition to 1997 and beyond? In the past, the official economic policy of positive non-interventionism has lead the government to actively refrain from intervening in the market unless there is clear evidence that private actions are harmful to the well being of society and state action can lead to an obvious improvement. It is important to recognise that positive non-interventionism as an economic policy does not in itself condone the activities of polluters that harm the public. But such a policy can be easily construed to mean that government should not interfere in the activities of business even when there is a clear case of market failure because it harms economic growth. Business interests have an obvious incentive to promote such an interpretation. The dominance of these interests in the policy decision making process, facilitated by the absence of a representative government, has been important in determining the outcome of environmental policy.

The simplistic view held by some claims that the ideological commitment to positive non-interventionism implies am innate pre-disposition towards environmental neglect is not really tenable. The fact that positive non-interventionism has not prevented the government from intervening massively in the market in the areas of education, health, and housing is evidence that the failure to control environmental deterioration in Hong Kong is not merely a matter of ideological belief alone. Indeed bold initiatives originating from the government have often been instrumental in rallying public support, including business groups, for environmental causes. Sometimes the government has even gone against industry interest to pursue these initiatives. On 19 June 1989 the government banned the import of raw ivory products. Hong Kong was of course the largest manufacturing centre of ivory products. The action precipitated strong protest from the industry whose workers lost their jobs as a consequence. The government also acted promptly to enact the Ozone Layer Protection Ordinance on 1 July 1989, which brought into effect international obligations contained in the 1985 Vienna Convention for Protection of the Ozone Layer and the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer.

Unlike other rapidly developing economies in the region, which had generally followed a more interventionist economic strategy compared with Hong Kong in promoting economic growth through direct state action, Hong Kong's economic growth has been achieved by permitting private agents to pursue their own interest with minimal interference from the state. Therefore, when unfettered economic activities in the private domain began to threaten the environment, the government could distance itself from being directly responsible for the malaise. In fact the Hong Kong government had often sought to maintain a certain degree of neutrality and distance while attempting to mediate between various parties over environmental policy.

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Major policy initiatives in the environmental area were primarily government driven rather than simply reactive to public demand. One can broadly distinguish three phases in the development of environmental protection in Hong Kong. The period from 1967 to 1977 was a period of awakening, when the problems of pollution came to be recognised and social priorities were being evaluated. Government recognition of the environmental impact of rapid economic growth came quite early. In the late 1960's and early 1970's, a number of advisory committees were established to advise the government on environmental issues. In 1974, a major initiative was launched to study environmental problems culminating in the government commissioned report by the Environmental Resources Limited.2

The next period from 1977 to 1987 was one of strategy development. Efforts in this period were focused on the creation of an agency, promulgation of environmental regulations and standards, establishment of a monitoring network, provision of basic disposal facilities, and commissioning of studies to investigate problems. But progress in the area of environmental protection was very slow due in large part to the nature of the decision making process of the Hong Kong political system. A system characterized by government through consultation. The process of seeking consensus over a highly divisive issue like environmental policy necessarily resulted in very limited successes.

In 1988, the Governor Sir David Wilson launched another major environmental initiative. The coming decade will focus on implementation and forward planning. It is the period when resources are to be mobilized and policies translated into action.3 Recognizing that past planning mistakes have created many problems, the government has underscored the role of planning - provision of waste disposal facilities and services, preparation of town plans that avoid incompatible land uses, and incorporation of environmental considerations into strategic plans.

But the changing political landscape caused by the impending restoration of sovereignty over Hong Kong from Britain to China in 1997 and the resulting change of the political system during the transition period was beginning to alter the decision making environment in Hong Kong. The appearance of electoral politics and the increasing importance of China as a political force in local politics were being felt even in environmental issues. The rapid integration of Hong Kong's economy with that of Guangdong province in southern China following the opening of China was beginning to introduce a new dimension into the debates over environmental issues. The politics and economics of the environment became increasingly intertwined with developments in China and China's political and economic interests in the Hong Kong.

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3 See Hong Kong Government, White Paper: Pollution in Hong Kong - A time to act, Government Printing Department, Hong Kong, 5 June 1989.
ADMINISTRATIVE AND CONSULTATIVE MACHINERY

The absence of popular representation in Hong Kong's political system to channel public opinion into the policy making process was partially resolved through the operation of a system of more than 300 advisory committees whose appointed membership represents a broad spectrum of interests in society. The appointed membership is by and large dominated by professional and business interests. While the government values the input of these committees, it tries also to keep them in line by changing the appointed membership and insisting on a policy of positive non-interventionism so that the committees do not degenerate into entrenched lobbying forums for special interests.

At the beginning of the 1970's, the government had four advisory committees that had responsibility for advising the government on environmental issues. They were the Advisory Committee on Air Pollution, the Advisory Committee on Environmental Pollution on Land and Water, the Advisory Committee on Noise Pollution, and the Advisory Committee on the Preservation of Nature. Rapid economic growth in the 1960's exacerbated the problem of environmental pollution and these committees appeared increasingly inadequate to the task of advising government policy in this area. Within government the implementation of various recommendations were also poorly coordinated with no department or unit being responsible for overall implementation. The government decided to combine the four advisory committees into a single Advisory Committee on Environmental Protection (EPCOM) whose task was to advise the newly established Environment Branch within the Government Secretariat. The Branch was headed by a Secretary who had responsibility for formulating and coordinating environmental policies within government and to initiate environmental legislation.

It was at this time that the government also decided to engage a London consultant to study the problem of environmental protection. The Environmental Resources Limited submitted its Stage I report in August 1975 and its final report in June 1977. The consultants concluded that environmental pollution was due largely to the absence of a comprehensive legislative framework for environmental control. To address these problems, the consultants proposed the enactment of five pollution control ordinances, to cover air, water, noise, waste and environmental impact assessment; and the establishment of a central pollution control unit.

The main thrust of the proposals was to seek to protect and improve the environment in three main ways: (1) by imposing controls on emission levels at the pollution sources, (2) by providing adequate facilities for the collection, treatment and disposal of wastes, and (3) by incorporating environmental considerations in land-use, town and project planning. The consultants had opted at the very outset for a command and control approach to the problem. This basic approach to the environment was to characterize the government's strategy to environmental protection in the ensuing years. Interestingly, the consultants considered the economic policy of positive non-interventionism as being partly responsible for the lack of an overall pollution abatement policy because it allegedly did not seek to control and restrain the activities of the polluters.
The Environmental Protection Unit (EPU) was accordingly set up in 1977, with an establishment of eight, and was subsequently expanded and renamed the Environmental Protection Agency (EPA) in 1981 and later the Environmental Protection Department (EPD) in 1986. The restructuring in 1986 enabled the EPD to incorporate various pollution control units in other government departments and to effectively integrate environmental monitoring, policy formulation and enforcement.

Whilst the EPD is responsible for the day to day implementation of the pollution control programme, environmental control policies are made, further up in the government hierarchy, in the appropriate policy branch of the Government Secretariat. This policy making structure is highly centralized and characterized by effective control and direction from the centre to ensure that the activities of various departments are in line with the overall objectives of the government.

When first established, the EPU was placed under the Environment Branch (EB). In 1981, the EPU became the EPA and was placed under the expanded Administration and Environmental Affairs Branch (AEAB). When the AEAB was reorganized in 1982 into the Home Affairs Branch (HAB), the EPA was placed under the Health and Welfare Branch (HEWB). In 1989, the EPD came under the Planning, Environment and Lands Branch (PELB). This reshuffling reflects a shift in government's policy focus, from basic health concerns to the recognition that environmental protection has to be integrated with planning and development.

In line with Hong Kong's policy making process, the public is consulted on major environmental policy matters. EPCOM is the main consultative vehicle. The composition of the committee has undergone some changes. When first constituted in 1974 it was chaired by the Secretary of the Environment, but since 1981 only unofficial members have served as chairman of the committee. Since the very beginning EPCOM had always included an ex officio representative from each of the three associations representing industrial and commercial interests: the Chinese Manufacturers Association of Hong Kong, the Hong Kong Federation of Industries and the Hong Kong General Chamber of Commerce. Although in later years members from environmental groups have been appointed to the committee. For example, since 1981 a member of the Conservancy Association, since 1986 a member of the Friends of the Earth, and since 1989 a member of Green Power have each been appointed to the committee, but all of them only serve in their personal capacities. The composition of the committee is designed to encompass people with different interests and at the same time bring together people in the government decision making machinery. But it is clear that from the outset organized commercial and business interests were well represented on the committee.
POLLUTION CONTROL

In the absence of government initiative, Hong Kong's political system is heavily stacked against bold measures in environmental policy. The decision making process is necessarily incremental because it relies on fostering consensus within the advisory committee system and protracted bargaining for budget allocations within the bureaucracy. The main outcome and policy objectives of the government in the 1970's was to bring about environmental improvement in different stages: to contain pollution levels in the short term by limiting emission to the levels prevalent at that time, to prevent deterioration in the medium term by placing emission control on new industries, and in the longer term to look for improvement through the process of urban and industrial renewal. This approach is reflected in the pollution control legislation which has been left flexible and ineffective. Four pieces of legislation, covering water, air, noise and wastes have been passed to provide the necessary framework for protecting the environment. But their effectiveness in dealing with environmental control is very much in doubt.

For example, the Water Pollution Control Ordinance (WPCO) enacted in July 1980 and brought into effect in April 1981, which dealt with industrial effluent encountered enormous resistance from the industries. As a result a number of changes were made to the ordinance. First, existing discharges from factories were exempted and a 30 percent increase in discharge was allowed in the future (the 30 percent clause was rescinded recently). Second, only newly established factories are required to have discharges licensed as stipulated by legislation. In actual effect the ordinance did little to improve the environment even in the longer run because most of the affected industries were declining and existing factories were being relocated into China.

The Water Pollution Control (Amendment) Ordinance 1990 originally required industry to clean up the organic load in their discharges, while the chemical load would be treated at the Chemical Waste Treatment Centre (CWTC) to be built by government. By the time consultation with industry was completed the burden of treating organic waste had been shifted onto government. Since the government has no means to undertake such treatment until the first phase of the announced Sewage Strategy is in place nothing will happen on this front until after 1995. The original plan to impose an ad valorem duty on specified chemicals imported into Hong Kong to pay for the CWTC was shelved after encountering opposition from heavyweight members in the industry.

Another example is the Air Pollution Control Ordinance (APCO) enacted in 1983, which stipulates that any new industry specified in the ordinance has to obtain a licence from the EPD that stipulates the conditions of emission. Specified industries established before October 1987 would be exempted. Factories suspected of violating the APCO were issued air pollution abatement notices. If the factory owner appeals against the abatement notice he cannot be required to reduce emission until it is proved that the effluent discharge poses a health threat to people in the neighbourhood. Thus a single case may take a long time to resolve. Given the large number of small factories in Hong Kong the real effects of the ordinance are unlikely to be impressive.
The above examples serve to illustrate that environmental control through legislation is not the panacea to pollution problems. It takes a long time to draft bills and to get them passed. The consultation process is drawn out and there is ample opportunity to make amendments that soften its effect on industry. Furthermore given that Hong Kong has 50,000 factories most of which are very small in size, the EPD is hopelessly understaffed. Monitoring emissions from factories is not likely to be ever effective. Identifying the polluter in a multi-storey multi-purpose building is also exceedingly difficult. The courts are also reluctant to impose heavy fines because they recognise that most of these small factories are crowded into multi-storey buildings where there is neither the space nor the height to accommodate the treatment equipment required for meeting the prescribed standards.

But this is not to say that there has been no progress. Among the various forms of pollution, air quality is of greatest concern to the public and it is also the area where the EPD has scored its most spectacular successes to date. On 1 July 1990 regulations prohibiting the use of high sulphur fuel oil came into effect despite pleas of imminent bankruptcy from industry. On 1 April 1990 unleaded petrol arrived in Hong Kong, a product resisted for years by the oil companies. But the control of diesel vehicles used mainly by the taxi and minibus industries and by commercial vehicles is unlikely to be successful for a long time because of industry resistance. What one observes in Hong Kong is that effective environmental measures can be introduced provided that there is overwhelming public support to overcome industrial and commercial resistance and when the source of the pollution can be easily identified and targeted for correction. The successful rallying of public support for these air pollution control measures was certainly facilitated by the fresh initiatives of the Governor in January 1990 to appoint the Environmental Campaign Committee (ECC) as a vehicle to help publicize environmental issues and coordinate the activities of the non-governmental environmental groups: the Conservancy Association, Friends of the Earth, Green Power, World Wide Fund for Nature, and other smaller organizations.

Another factor that has developed recently in the area of pollution control stems from the growing economic integration of Hong Kong with China. The relocation of many manufacturing plants into China and the emergence of Hong Kong as a service economy has partially transferred Hong Kong’s pollution problem to the north. The opening of China has created fresh opportunities for foreign investment, primarily from Hong Kong, in the neighbouring Shenzhen Special Economic Zone and Guangdong province. Today Hong Kong firms employ an estimated 3 million manufacturing workers in this part of China as compared with 680,000 in Hong Kong. The rapid industrialization of this area in China and the resulting concentration of population in the areas close to Hong Kong will undoubtedly create pollution problems not only for China, but also for
Hong Kong as well because of our close proximity. Interestingly, in April 1991 Shenzhen complained that the carbon dioxide emissions from power plants in Hong Kong was exporting pollution to Shenzhen in the form of acid rain. Many of the environmental problems, particularly those of air and water pollution in Hong Kong, cannot be dealt with in isolation from China, and vice versa. In 1989, there was a proposal to set up a cross-border governmental liaison group. But the proposal has been put on hold after the Tiananmen Square tragedy, and the group had met only once in July 1990.

Waste disposal is another area where relations with China may prove to be important. Prior to 1966 the principal method of waste disposal was controlled tipping. It fell out of favour after the mid-1960's and incineration became popular. In the 1970's a strategy of using volume reduction pre-treatment methods before final disposal at controlled tips was adopted. The wastes in Hong Kong are collected by both the government and private operators. The Urban and Regional Councils are responsible for the collection of household wastes from fixed points and the control of litter in the streets. Most of the household wastes so collected are taken to incinerators. Private contractors are engaged in the transfer, in the case of household wastes, to the refuse collection points, and in the case of commercial and industrial wastes, to government operated landfills.

The government have made provision to build incinerators and develop landfills, but the infrastructure that brings the waste to the disposal sites is poorly developed. The most severe problem is the sewerage system, which has fallen far behind the pace of urban and industrial development. On 1 June 1989 a new Drainage Services Department was set up to provide and maintain sewage collection and disposal infrastructure. A comprehensive Waste Disposal Plan was approved in December 1989 and a $10 billion Sewage Strategy was to be implemented in 10 years. The cost has now ballooned to $17 billion as a result of inflation and slippage.

The building of the sewerage system is plagued by even more difficult problems on the horizon. The government budget is very tight because of the commitment to the Port and Airport Development Strategy (PADS) originally budgeted for $127 billion in 1989. The cost has undoubtedly further escalated due to the delay caused by difficult discussions to seek China's blessing for the PADS project. The shortage of funds have prompted EPCOM to float the idea that the sewerage system would be financed partly by user fees. The proposal has already drawn criticism from the public. The building of the sewerage system is also complicated by the fact that it needs China's agreement because the disposal of the treated effluent will require the construction of a 30-kilometre long outfall into the ocean thereby passing through territorial waters claimed by China. It is not clear how China views such a project.

FORWARD PLANNING

Whilst the emphasis on forward planning is widely acclaimed, it is likely to run into major problems, arising from the deficiencies of the current planning system and from the difficulties in undertaking planning for an uncertain and fluid future. To help focus ideas consider three issues:
provision of waste disposal facilities and services, preparation of town plans that avoid incompatible land uses, and incorporation of environmental considerations into strategic plans.

At present, the current planning system is not guided by any overall philosophy. Positive non-interventionism has been a widely accepted approach in the area of economic growth, but a comparable approach to environmental planning is lacking. Relevant experience in the area of pollution control has followed a largely ad hoc control approach based on detailed case by case legislation. Whatever merits such an approach has in the control of pollution, it is largely irrelevant for planning purposes.

In economic terms, environmental problems result from the presence of externalities or uncompensated spillover effects. When such a situation arises there is a possible case for the government to intervene in the market process either directly through controls that restrain private action or through establishing market incentives that encourage responsible voluntary action. The control approach requires an enormous amount of prior information on a case by case basis in order to be practicable. This may be feasible as a method to control pollution on a case by case basis, but is not very useful for planning purposes because information about anticipated consequences is generally not available and subject to much dispute. While the control approach can be sometimes effective, it nevertheless suffers from being overly bureaucratic, ad hoc, and not always fair and open.

Highly publicized consultations is not a panacea either. Experience from numerous countries reveal that consultation among interested parties, whether conducted privately or publicly, is not a very fruitful way of resolving conflicts of interest in a sensible way. They often appear as highly publicized acts to canvass political support. Furthermore, in view of Hong Kong's uncertain political transition and emerging democratic political system, it is not at all clear that the necessary political and administrative institutions can be put in place soon enough to operate effectively and have an impact.

An alternative market approach based on a better delineation and enforcement of property rights relying on market incentives may be more relevant. Such an approach has a natural affinity with Hong Kong's stated laissez faire philosophy, but there is very little practical experience elsewhere. Moreover it may be politically difficult to introduce market mechanisms into certain practices like preparation of town plans that avoid incompatible land uses and incorporation of environmental considerations into strategic plans.

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4 The distinction between the control and market approach to environmental protection is developed in Jo Ann Kwong, Market Environmentalism: Lessons for Hong Kong, Hong Kong Centre for Economic Research, Research Monograph 2, Chinese University Press, Hong Kong, 1990.
The problem of incompatible land use is especially difficult because most land held in Hong Kong is leasehold land. Therefore, any attempt to resolve conflicts of interest must involve the government in a central way. Any attempt to change the designated use of a plot of land has to be approved by the Lands Department and may require the payment of compensation to the government, the amount of which is also determined by the Lands Department. The process of granting a change in the designated use of a given plot of land and the calculation of the amount of compensation to be paid is not open to public scrutiny. Such an approach is favoured by experienced property developers who are familiar with the system and who often employ retired civil servants from the Lands Department to handle these applications. Clearly any attempt to change the Town Planning Ordinance will meet with strong opposition from property developers. In Hong Kong, we also have a unique situation where many industrialists are also property developers making it even more difficult to resolve conflicts of interest regarding environmental issues through consultation alone.

Some success has been achieved by the government to deal with the problem of incompatible land use in the New Territories, a rural area that is rapidly urbanizing. The British administration had always recognised special rights or privileges of the traditional landowners in the New Territories out of prudence, so as to avoid serious conflicts with the well organised landowners led by the Heung Yee Kuk, one of the most well organized political groups in Hong Kong. Rapid economic growth had, however, greatly increased the value of land in the New Territories leading to an enormous demand for conversion of agricultural land to new uses. The uncontrolled conversion of agricultural land became prevalent after the 1983 case of Melhado Investment Ltd v Attorney General, which held that land demised as "agricultural" was not in law confined to agricultural use. Until 1983, a system of short term waivers was accepted as appropriate and reasonable.

As a consequence of the 1983 ruling, paddy fields have been filled to form storage areas often without proper surveys and drainage. This resulted in severe damages caused by flooding in rainy seasons leading to injury and economic loss. The uses to which the converted land was put cause severe visual pollution of attractive rural areas, and often brought road chaos, with large lorries manoeuvring on small roads to dump old cars, building materials and containers. Part of the New Territories increasingly came to resemble a large dumping ground. Noise pollution from these activities and from open workshops became another growing problem.

In 1990, the government announced proposals to extend the Town Planning Ordinance to the New Territories to control the spread of urban blight. The landowners led by the Heung Yee Kuk have demanded compensation for any controls imposed. Despite the protests, the government was able to bring over 14,000 hectares of land outside the country parks, new towns and border areas under control. The effect is that while some parts are zoned for container dumps and other lucrative uses, an obvious concession to the landowners, anyone seeking to put to industrial use areas whose use is as yet unspecified must apply for a license.
An interesting development in the dispute between the traditional landowners and the environmentalists over extending the Town Planning Ordinance to the New Territories was the intervention of the Chinese authorities, who voice their support for the traditional landowners. Presumably the decision to take sides on this issue was dictated partly by their own economic interests and also because the traditional landowners have lent their support to the Chinese authorities on many occasions in the past when public disputes over Hong Kong occurred.

Another important development that is likely to be a major threat on the local environment is the Port and Airport Development Strategy (PADS) project. The building of a new airport at Chek Lap Kok off north Lantau is particularly worrying for two reasons: time and money. The huge budget HK$167 billion has increasingly drained money from other areas of government, including the EPD, while the compressed timetable for completion of eight years ensures that environmental considerations would be shortchanged. Environmental Impact Assessments (EIAs) are being done for the main projects, but with what depth and thoroughness is impossible to tell at this stage.

The involvement of EPCOM, the government's appointed environmental advisors, in the PADS project has been largely peripheral. PADS is far too large and complex to be handled EPCOM effectively. The result has been the most superficial rubber stamping of decisions already taken. The projects will go ahead without any meaningful advice or input from the committee. EPCOM's only achievement to date has been to force the government to publish the various EIA reports.

EPCOM's involvement with other projects has been similar. One highly revealing thing is that EPCOM published its first ever report of the Committee's activities in March 1991 after almost two decades of operation. The Committee is far from being a pro-active and vigorous body exercising real power and influence in the interests of environmental protection. In reality both the topics for discussion and the timetable for discussing them are set almost entirely by the government. In general, EPCOM's role is confined to rubber stamping what the government has already done or decided. A classic recent case involved the West Kowloon Reclamation. EPCOM's first briefing on the project was at its meeting in May 1991. The Committee was informed that the proposed works would cause not only unacceptable levels of noise pollution to nearby residents, but also the real possibility of health epidemics from extreme water pollution. But at that point there was nothing EPCOM could do as the contract was already let and work due to begin within the month. The consultants report was just shelved.
CONCLUSION

Hong Kong's environmental protection effort has largely been government driven. There is a clear recognition within government of the importance of protecting the environment as early as the late 1960's. There have been notable achievements from time to time, but the progress have been drawn out and slow. The main reason has been a political system dominated by consensus seeking. In recent years, the government's commitment to bring environmental protection as a key policy consideration in the decision making process in recent years has been frustrated by the shortage of funds and by political uncertainty.

Hong Kong's environmental protection program requires a combination of forward planning strategies and pollution control measures. In a high density and high rise city like Hong Kong planning alone cannot resolve all potential pollution problems. Planning is partly frustrated by uncertainty which makes it difficult to anticipate future needs and aspirations. For example, uncertainty about the future development of Hong Kong's industrial structure given the economic opportunities for outward expansion into China and its associated political risks have major implications for whether costly capital intensive facilities to provide waste collection and disposal infrastructure should be made and to determine what is actually needed. The same can be said for the installation of communal treatment facilities and the sharing of costs among users.

The formulation and implementation of environmental plans also suffer from the lack of an overriding authority and the shortage of land and funds. Environmental issues, by their very nature, straddle existing departmental boundaries. The terms of reference of the Planning, Environment and Lands Branch is not broad enough to have jurisdiction over areas like energy and transport. Expanding the terms of reference will allow environmental considerations to be better integrated with development.

Implementation of the pollution control measures requires considerable land for the development of waste disposal facilities. Land devoted for this purpose may incur very high opportunity costs as it may not be used for other purposes. Revenue from auctioning land is an important source of revenue for government. Moreover, land supply in recent years has been limited to 50 hectares each year under the Sino-British agreement signed in 1985. To release more land has to be negotiated with the Chinese authorities through the Sino-British Land Commission.

Securing sufficient funds is a major problem given the commitment to the PADS project. Privatization of some facilities and charging user fees may provide part of the answer. One possible source of revenue is to collect emission charges or auction discharge permits. Not only can these be a valuable source of revenue for environmental programmes, they can also be effective instruments in environmental management. With Hong Kong's history of free-market prosperity, there is no better place to introduce these alternatives. The market approach may not be the best solution for all kinds of environmental problems, but there is no reason to restrict environmental protection methods to only administrative and regulatory approaches.