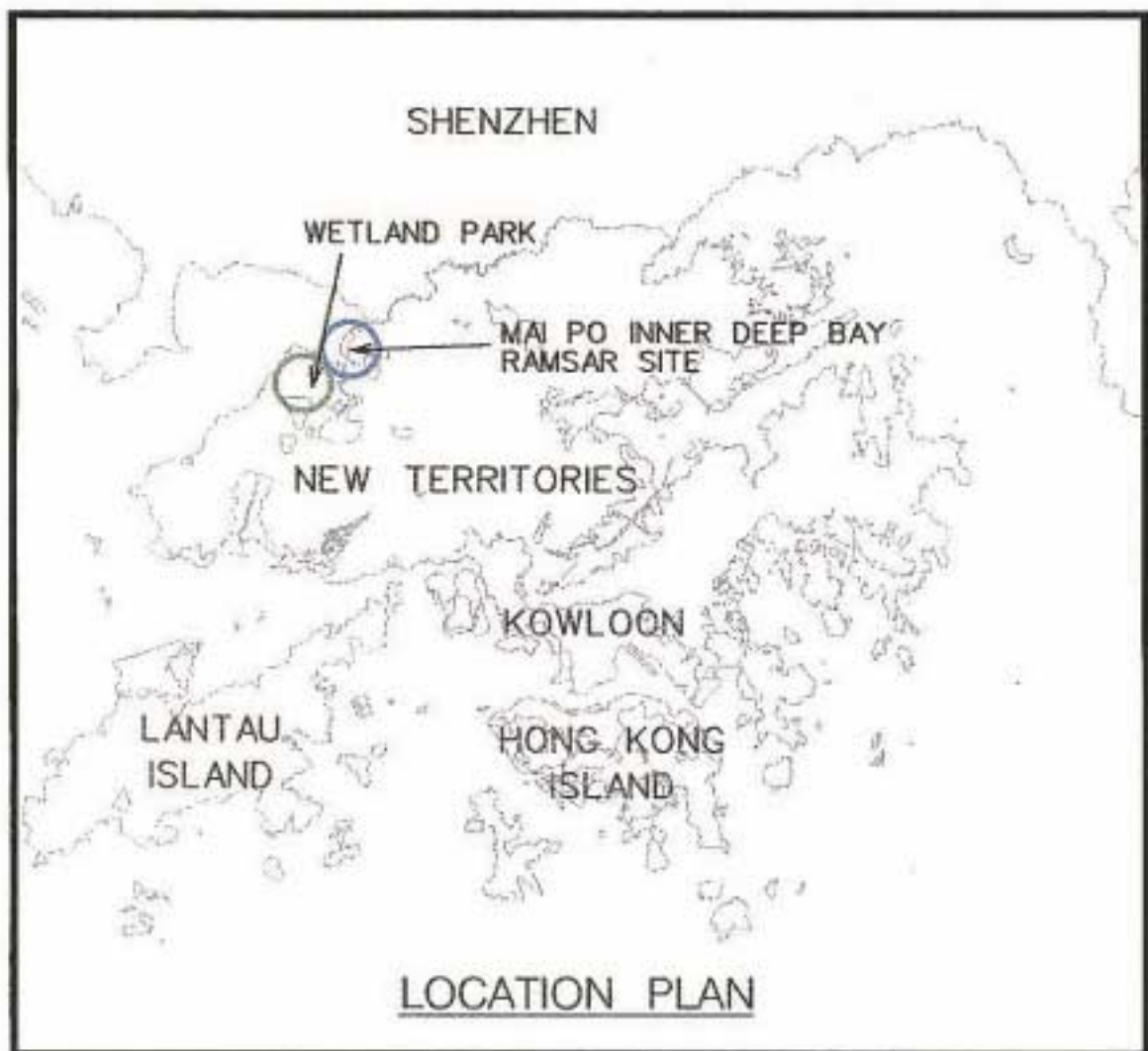




The Mai Po Wetlands --- The Bird's Paradise of the Orient



YEAR 2000 HUNGARY CONFERENCE ON
“PARKS MANAGEMENT & TOURISM ATTRACTION”

THE MAI PO WETLANDS - THE BIRDS’ PARADISE OF THE ORIENT

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(1) INTRODUCTION:

Hong Kong, a city located in the heart of Southeast Asia, has long been known for its tall, modern commercial buildings and its spectacular harbour view. But what people don't often realize is that lying in the midst of Hong Kong's highly urbanized land is a wetland of international importance—the wetlands of Mai Po. Wetlands are amongst the world's most productive environment in providing valuable resources to human and in supporting a wide range of wildlife. They are defined as places which are permanently, or seasonally covered by water, have a wet soil and support animals and plants which are specially adapted to wet conditions.

Located in the Northwest New Territories bordering Deep Bay, Mai Po remains as one of the largest wetlands in Southeast Asia. It is a paradise for migratory birds as well as a unique natural heritage for the people of Hong Kong. The wetland habitat is able to support a rich diversity of wildlife including 336 species of birds, 400 species of insects, 90 species of marine invertebrates (some of which are new to science) and over 50 species of butterflies.

In particular, Mai Po wetlands plays an extremely important role in providing a refueling station where migratory birds can feed and rest in their way down from Arctic and northern China to Australia. Over 50000 water birds stopover at Mai Po and the Deep Bay area. Among them are some rare birds such as Saunder's Gull and Black-faced Spoonbill. The Black-faced Spoonbill is a critically endangered specie with only 300-350 remaining in the world presently, and Mai Po is home to about one quarter of that population.



The wetlands of Mai Po generally comprise of mudflats, mangroves, Gei wais (traditional shrimp ponds) and fish ponds. These habitats are essential in sustaining a very unique ecosystem.

Mudflats

The expansive intertidal mudflat of Deep Bay is a heavily utilized feeding habitat for migratory waterfowl passing through Hong Kong along the East Asian /

Australasian flyway and for wintering birds. Oyster cultivation has long been practised on the mudflats of Deep Bay. The catching of grey mullet and the collection of mudskippers also add to the economic value of this unique and fascinating type of land.



Mangroves

Mangroves refer to flora from several different plant families which share a unique ability to grow in coastal areas. Deep Bay is fringed by intertidal mangrove forests which are dominated by six species of mangroves. They cover an area of approximately 330ha and make up the sixth largest area of protected mangrove in china and the largest stand in Hong Kong. For many centuries, the mangroves have well served local villages as a source of fuel. Today, the principle value of mangroves lies in the role they play in the ecology of Deep Bay. They are vital to numerous animals such as fish, shrimps and crabs which feed on the fallen mangrove leaves. Mangroves are important in maintaining a natural ecological balance. They supply nutrients and oxygen to the ecosystem through photosynthesis, stabilize the mud and serve as a natural water treatment plant. Mangroves also provide feeding and roosting ground for birds and play an important role in sustaining the productivity of inshore and offshore fisheries.



Gei wais

Gei wais (traditional shrimp ponds) are areas of shallow, intertidal prawn ponds formed many years ago which have been enclosed in an earthen dyke. Gei wais have abundant vegetation, usually mangroves growing in the ponds. A sluice gate at the seaward side of the enclosure controls the flow of water into and out of the Gei wai. At high tide, juvenile shrimps are washed in to the pond and by closing the sluice gate, the shrimps remain until they mature to marketable size. Each gei wai can be harvested up to 80 times a year and income from the sales of shrimps is used to fund conservation work.



Fishponds

There are two important differences between fish pond and shrimp pond (gei

wai) cultivation. First, unlike the gei wais which have a shallow platform in the centre of the pond, fish ponds are excavated to a uniform depth of about two metres. In terms of landscape impact the two are easily distinguished by the fact that gei wais have abundant vegetation, usually mangroves, growing in the ponds, whereas fish ponds seem devoid of any vegetation. The second difference is that shrimp ponds are stocked naturally, by drawing in larvae from the adjacent mangroves, whereas fish ponds are usually completely enclosed and are stocked artificially by the introduction of selected species. Fishponds, together with gei wais, can store up to 25% of the total rainfall in North-west New Territories every year and so can help reduce the risk of flooding.



Issue Statement

Having taken a glimpse of Mai Po's ecological, educational, recreational, economical, as well as environmental value, it's not hard to see that the Mai Po wetlands, as one of Hong Kong's few remaining natural heritage, deserves to be protected. But unlike other countries, Hong Kong is a special place where land is extremely scarce and highly utilized. There is a cost involved in conservation, and as Hong Kong continues to modernize in the future years, this cost is only likely to increase. Will the Mai Po wetlands be able to withstand the effects brought by the changes in this commercial city? Will conservation work in that area be given adequate attention? This is the issue of our case study: To investigate the prospect of Mai Po continuing to survive for the benefit of future generations. It would be done through an examination of Mai Po's present management, threats and future planning.

(2) PRESENT MANAGEMENT:

World Wide Fund of Nature Hong Kong

The Hong Kong government first showed recognition for the significance of wetlands in 1976 when it declared Mai Po as a “Site of Special Scientific Interest”. However, it was not until the 1980s that any proper management set root in Mai Po. In 1983, World Wide Fund of Nature Hong Kong (WWFHK) has taken up the responsibility of managing part of the wetlands in collaboration with the government’s Agricultural and Fisheries Department (AFD). It initially consisted of only 1 hide, a simple visitor centre and 1 footpath.

Since this time approximately \$41 million have been invested by WWF to develop the reserve, build facilities and establish a nature education programme for schools. It keeps record on the number of visitors to the reserve each year and there is a reserve update in the WWF quarterly publication "About Life".

Today, WWFHK now manages over 380 ha of Mai Po wetlands within the Ramsar site, known as Mai Po Marshes Nature Reserve, for the long-term benefit of both wildlife and people. It is committed to preserve species diversity, ensure sustainable use of resources and minimize pollution under the two principles of education and conservation.

Access to the reserve is restricted and AFD employ several staff to check entry permits and patrol the site to deter illegal activities in the area. Between 1991 and 1996 wetland management training courses have been held for 25 international groups. In 1995 approximately 25,000 visitors came to the reserve; demand for visits continues to be high although the number of visitors has stabilized in the past few years.



The Ramsar Convention

The Ramsar Convention marked the beginning of international cooperation between countries in the conservation of wetlands. The international government meeting was held in 1971 at Ramsar, a town in Iran, to sign an international

convention not only in hope of stopping the destruction or degradation of the world's wetland, but also to ensure the continual survival of the world's important wetlands in order to meet the aspiration of future generations.

By June 1998, over 100 countries were party to the Ramsar Convention and over 900 wetlands had been placed on the list of Wetlands of International Importance, covering an area of over 8,000,000 hectares, an area approximately the size of Sweden. Hong Kong joined the convention in 1995, designating an area of 1500 hectares around Mai Po wetlands and Inner Deep Bay area as a Ramsar site, which means that Hong Kong now has an international obligation to protect its valuable wetlands.

The signing of the Ramsar Convention made the people of Hong Kong aware of the international importance of Hong Kong's remaining wetlands as well as its economic value. It completely overthrew the remark made by local officials back in the 1970s that wetlands are "places of no economic value". Furthermore, it triggered a series of positive actions taken by the government of Hong Kong, motivating our society to play a more constructive role in the conservation of the newly designated Ramsar site.

The Management plan

As a result of the designation of the 1500 hectare Mai Po and Inner Deep Bay Ramsar Site in 1995, the government has taken on the responsibility to ensure the appropriate management of the Ramsar Site.

In 1997, a management plan was produced which divides the site into five zones:

1. Core Zone: this will be kept as an undisturbed, largely natural area.
2. Biodiversity Management Zone: this zone will be a focus for biodiversity conservation, education and training in a relatively intensively managed environment.

This zone is further divided into 6 sections with different management intentions.

BMZ4: Every winter, nearly one quarter of the world's population of the endangered Black-faced Spoonbill come to Deep Bay and roost on this part of Mai Po.

BMZ5: The Mai Po reedbeds are the largest in Hong Kong and amongst the largest in Guangdong. This habitat thus needs to be maintained, especially for the rare insects and birds that it supports.

BMZ6: Traditional management of these shrimp pools will be maintained to provide an example of the "wise use" of wetlands. These ponds produce the delicious gei wai shrimps and also support valuable stands of mangrove and their associated wildlife.

BMZ8: Rainwater will be used to create a series of open freshwater marshes to complement the brackish water ponds elsewhere in the reserve, and will be managed to attract waterbirds, especially ducks.

BMZ9: An open tidal area with islands will be created to provide a high tide roosting habitat for the migratory waterbirds, especially shorebirds, that use Deep Bay.

BMZ10: A series of freshwater marshes will also be created in this compartment. but

management will be geared to attract a greater diversity of wildlife into the reserve, such as dragonflies.

3. Public Access Zone: Managed access will be allowed in order to raise awareness about the value of wetlands and the Ramsar Site.
4. Wise Use Zone: This zone allows the existing wetlands to be used in an ecologically sustainable manner, e.g. pond fish farming, as long as it is compatible with the goals of the Ramsar Site.
5. Private Land Zone: No management has been prescribed for these areas of private land. However, they are still subject to land use restrictions.



Town Planning Board Guidelines

Under Article 3 of the Convention, governments of each signatory country are obliged to "...include wetland conservation considerations within their national land-use planning." They are required to formulate and implement this planning so as to promote, as far as possible, the "wise use of wetlands in their territory", which means that human activities, such as fish farming and low intensity recreation, can be allowed in a Ramsar site as long as the use is sustainable.

Hong Kong needed to pay special attention to this point as it holds a relatively large population within a small area. Because of the high population density, land in

Hong Kong is scarce and the demand for every inch of it to be utilized fully is high. This means that Mai Po is in great danger of being exploited by encroaching land development if there were not a set of comprehensive policies and guidelines devoted to the land-use of the Ramsar site that takes into account conservation considerations.

The government responded to this by drafting a set of guidelines drafted by the Town Planning Board in April last year. The guidelines are based on the “Study on the Ecological Value of Fish Ponds in the Deep Bay Area”, a study completed in 1997 by the Planning Department. The result illustrates the ecological importance of fishponds as a substantial source of food supply for the birds and foraging of waterfowls. Taking the ecological value of fishponds into account, the Board adopts the study’s recommended principle of “no-net-loss in wetland” when considering the development proposals in the Deep Bay Area. No-net-loss refers to both loss in terms of “area” and “function”, meaning that “No decline in wetland or ecological functions served by the existing fish ponds, especially as a source to provide abundant and accessible food and roosting grounds to ardeids and other species, should occur.”

To assist in the land-use planning of the Deep Bay area, the Board has taken a two-pronged approach through the designation of Wetland Conservation Area and Wetland Buffer Area.



圖 拉姆薩爾公約濕地 Ramsar Site

Wetland Conservation Area (WCA) – Any new development in this area would not be allowed unless it is devoted to the conservation or environmental education of the area if it is an essential infrastructural project with no other alternative venue. In such cases the development must go through an Environmental Impact Assessment (EIA) to show that the resulting development would not cause a net loss in wetland function and negative disturbance impact.

Wetland Buffer Area (WBA) – This is the 500m strip of land surrounding the landward boundary of the WCA. The purpose of this area is to protect the ecological integrity of the fishponds and wetland within the WCA. It is also designated to guide land-use planning in the Deep Bay area and have been implemented through administrative controls to ensure appropriate land-use.

The Wetland Buffer Area is further divided into 2 zones:

Zone 1 – for protecting the special ecological value of the wetland habitat in the Inner Deep area, in particular, the Mai Po Nature Reserve. Buffer Zone 1 is 948 hectares and includes the MPNR. In this area, new development is not allowed unless it is "required to support the conservation of the area's natural features and scenic qualities

Zone 2 – Buffer Zone 2 is 1,027 hectares and includes areas further away from the MPNR, predominantly fish ponds, gei wais, low density residential housing and open storage areas. In this area development with "insignificantly impact on Deep Bay" will be considered, but an Environmental Impact Assessment must be conducted before implementation of projects so that the adverse affects on the natural habitats can be minimized.

Situation analysis

So far, by examining Mai Po's present management, it is not hard to visualize the picture of Mai Po surviving well into the future years under the collaboration effort of various environmental organizations and the government. Indeed, a wave of conservation seems to be protecting Mai Po's wetlands. From an international perspective, the wetlands of Mai Po are being recognized of its ecological value through the designation of the 1500 hectares Ramsar Site. On a local scale, the government is taking positive measures to endure the wise-use of wetlands and to prevent the place from any kinds of exploitation. However, it is only when we examine the kind of threats faced by Mai Po today that are able to gain the whole picture of the situation.

(3) THREATS FACED BY MAI PO WETLANDS TODAY

Developmental Pressure

As Hong Kong's population continues to expand, the need for housing increases. Spreading in Hong Kong now is a wave of sub-urbanization, resulting in the extension of the built-up areas to the New Territories. The past 30 years bore witness to the establishment of new towns and residential areas in the New Territories such as the residential estates in Tin Shui Wai and suburban high class residential areas like Fairview Park and Palm Spring near Mai Po. There is the growing demand for every inch of land to be utilized fully. Consequently, the opportunity cost for conserving Mai Po wetlands are becoming increasingly great, as conservation of the Ramsar site

means ‘sacrificing’ a large area of land which could otherwise be used to residential development. The following are two cases which demonstrates how Mai Po is coping under the development pressure.

Fung Lok Wai -- The Cheung Kong Holding incident:

The Planning Department has so far received 35 proposals for re-development in the Ramsar Site, most of which were rejected after failing to fit into the guidelines. Except for one – the ‘Fung Lok Wai project. After 7 applications, the proposal successfully gained approval from the Planning Department in November 1999. The proposal plan covers an area of 80.1 hectares, out of which only 4.1 hectares will be used for residential development.

According to the proposed plan, the 4.1 hectares will be used to construct 1,360 to 1,740 number of apartments, which is estimated to be able to accommodate 3800 to 4900 residents. The height of each block of building will be between 12 to 23 floors. The project is expected for completion in 2006.

In compensation for the land loss in residential development, Chang Kong Holding. promises the establishment of a ‘Wetland Trust’ for the maintenance cost of the rest of the 71.6 hectares of land. The 71.6 hectares of land mostly consists of fishponds. The company plans to increase the productivity of these fishponds through better maintenance, so as to increase the chances of waterbirds being able to find food. The reedbeds and other plants growing on the sides of the fishponds will be left naturally to provide a suitable rest ground for birds. It is estimated that this proposal will bring about the number increase of about 18 species of birds with special conservation value. As for the remaining 4.4 hectares, it will be devoted to transportation, such as the building of roads.

This seemingly attractive ‘environmental scheme’, however, does underlie some very dangerous implications. The residential apartments right next to the wetlands would definitely bring about harsh impacts to that area. The level of noise generated in the construction process might scare away birds. The pollution resulting from the maintenance of a residential area, even when reduced to a minimum, may still affect the ecological functioning within the wetland. Then there will be the presence of human disturbance that people bring with them wherever they go – the wetlands may well become a private garden where residents use it for their recreational purposes.

Lack of government control

But even more worrying is the fact that at the present moment, the government does not possess any legal power to enforce the actual implementation of the proposed plan. This means that there is no guarantee of the proposed plan becoming reality when the project reaches completion. The ‘environmental package’ may not be so ideal after all, if there is a chance of the conservation promise being only a disguise to gain approval from the government.

‘Private Public Partnership Approach’

Opposing voices, coming mainly from environmental organizations such as

Friends of the Earth and World Wide Fund for Nature Hong Kong, blames the situation on loose government controls well as lack of a set of comprehensive policies to guard the wetland from any abuse in land-use. The issue of ambiguity in the 'Town Planning Board Guidelines For Application For Developments Within The Deep Bay Area' is also raised. While the importance of conservation is stressed throughout the set of guidelines, a 'Private Public Partnership Approach' is also found in section 6.3. This section states that "...if there are strong planning justifications and positive measures to enhance the ecological functions of the existing fish ponds, the Board may consider development with conservation objectives within the Wetland Conservation Area under a private-public partnership approach." Some people believe that this approach is not clear-cut enough, allowing the penetration of residential and industrial developments and indirectly allowing them to bring harm to the wetland environment.

The Floodgate Effect

Another notable consequence resulting from the approval of Fung Lok Wai is what environmentalists call the 'floodgate effect'. The government's approval of the first development project is indirectly paving way for the approval of more similar projects. So far the Planning Department received 35 developments proposals in the wetland area, many of which are rejected, some of which are in the consideration process. On the 21st July 2000, the second approval was granted from the Planning Department for the development of another residential development within the Wetland Conservation Area. The flood gate effect is obviously at work.

The Spur Line Project

In the past years, the number of people using the Lo Wu Boarder has risen dramatically with an average of 200,000 daily. In comparison with the figure obtained in 1997, the increase is as high as 70%. This project was motivated in order to ease the heavy load of cross-border traffic between Hong Kong and Shenzhen. It was proposed by the Kowloon-Canton Railway Corporation (KCRC), a statutory body, that the railway is to pass from Sheung Shui through to Lok Ma Chau, going through the Wetland Conservation Area and other ecologically sensitive areas, such as the wetlands in Long Valley. This development, with an estimated project sum of US\$1.1 billion, will expand cross-border facilities at the end of the Sheung Shui to Lok Ma Chau spur line, an extension to the existing KCRC East Rail.

It entails the construction of a 7.4km railway link branching from the existing East Rail, a station and a terminus with immigration control and duty-free shopping facilities. Upon completion in mid-2004, this Spur Line will link up with the mass transit railway system in Shenzhen, China. Construction is scheduled to begin in early 2001. The Spur Line Project has successfully passed the Environmental Impact Assessment (EIA) and has been given the go-ahead signal from the government in March 1999 to proceed with detailed planning and design.

Such an infrastructural project passing through a wetland of international importance is unprecedented before in Hong Kong. It comes under the section 6.23, "Essential Infrastructural Projects" of the Town Planning Board Guidelines. There it states that "Essential infrastructural projects needed for public purpose such as rail

project and public utility project, for which no suitable alternative locations outside the WCA could be identified, would also be considered by the Board.” KCRC does acknowledge the ecological value of the Wetland Conservation Area but claims that the proposed route could have no alternative locations due to other important factors such as impacts on village settlements, railway safety and engineering constraints.

But the Hong Kong Bird Watching Society, which has examined possible alternative routes for the spur line, objects to this justification, claiming that there are at least three alternative routes that will avoid the crossing of ecologically sensitive areas. The locally based organization believes that “it is possible to construct the proposed spur line without destroying the natural habitat and biodiversity at Long Valley (near Mai Po and Inner Deep Bay wetlands), and possibly saving some money too.” It then concludes by stating that “there’s no reason why the Hong Kong community should pay the double price of i) a more expensive railway line and ii) the loss of a piece of ecologically valuable land.”

The construction of a station complex in Lok Ma Chau may bring about “potentially high impacts”, as stated in the Environment Impact Assessment Report of the Spur Line Project. The station falls within the Wetland Conservation Area of the Ramsar Site and is expected to bring about the net loss of 10 hectares of wetlands, mainly consisting of fishponds. To mitigate for the 10 hectares loss of wetland in that area, the fishponds around the proposed station, covering an area of about 28.5 hectares, will be managed so as to enhance their ecological value. Through measures such as the creation of shallow feeding grounds and water management, potential construction impacts will be reduced to a minimum.

As pointed out by many Green Groups, however, these mitigation measures are by no means sufficient to compensate for the loss of an area ecologically important wetland. According to the Town Planning Ordinance, any development in the Wetland Conservation Area must follow the ‘no net-loss’ principle, meaning that the developmental proposal must not cause any loss in wetlands in terms of both ‘area’ and ‘function’. KCRC’S mitigation measures only attempt to fulfill the ‘function’ aspect by increasing the productivity of the existing fishponds. The ‘area’ aspect of the no net-loss principle is, on the other hand, completely neglected.

The Lok Ma Chau Spur Line Project may well be the most objectionable proposal in the history of Hong Kong’s Environmental Impact Assessment process. So far, more than 130 individual objections have been received by the Environmental Protection Department, including those from private citizens, a number of local green groups, former legislators, and global conservation organizations, such as the Birdlife International, Wetland International, and Hong Kong Bird Watching Society.

Regardless of whether or not there are other feasible routes for the spur line, this is a solid showcase of what happens when the conservation of wetlands comes into conflict with human interests. Indeed, the building of railways and other transportation systems are necessary for the on-going progress of Hong Kong, but does this need outweigh the importance of Hong Kong’s few remaining wetlands, which still support an abundant diversity of wildlife and some of the world’s most endangered species? It all comes back to the question of values. Should public interest be served first on the expense of disturbing Hong Kong’s only piece of

wetland? If there is genuine respect for the ecological integrity of wetlands by both authorities and the public, then an alternative route that takes into account total avoidance of wetland areas must be possible to find, even if it means overcoming a few 'technical problems' and higher costs. A balance should be achieved between transportation need and the conservation of natural ecosystems.

The 10th of October marked a turning point for the controversial Lok Ma Chau spur line project, when the Environmental Protection Department (EPD) decided to reject the proposal. Strong reasons were given including a lack of evidence to show that there are no alternative routes for the spur line or that the obstacles were really "insurmountable". It was also said that the proposed mitigation measures were unlikely to be effective and that the environmental impact of the project would be greater than what was predicted in KCRC's Environmental Impact Assessment.

The victory was largely attributed to the conservationists, bird-watchers and green groups who have been tirelessly campaigning to save Long Valley for almost a year. Their devotion proved to be worthwhile-- this was the first time that the Environmental Protection Department blocked a governmental project in favour of saving one of our few remaining wetlands. For once, priority went to conservation rather than to human and economic interests. Dr. Ng, a member of the Advisory Committee on Environment says that the victory has far-reaching implications, "as it tells other government planners and works departments that they need to place a higher priority on conservation and environmental protection, or else they will face trouble."

There are, however, other battles to be won before Long Valley could be safely left alone. The KCRC will appeal and nature's first victory might yet be overturned because of the long delay it will bring in the construction of a much-needed alternative border crossing to relieve congestion at Lo Wu.

Pollution

The Bay is becoming increasingly polluted by human sewage and livestock waste because of the rapid urbanization around the catchment areas, and the large number of farms rearing pigs and other livestock. Much of the waste water from these activities, especially from the Shenzhen River and Yuen Long Creek respectively. This polluted water is toxic to the gei wai shrimps and so the productivity of the northern and southern gei wais are severely affected. This reduced their economic value as a commercial prawn culturing system as well as their functional role in providing prey items for resident and visiting birds, due to a reduced native shrimp population.

Situation Analysis

In the 1999 policy address, the Chief Executive of HKSAR has made a commitment to the adherence of sustainable development and protecting Hong Kong's countryside. The public consultation document also indicates that

“biodiversity” will be one of the eight guiding principles for sustainable development. However, the series of events that followed such as the approval of the ‘Fung Lok Wai’ project and Lok Ma Chau spur line project seem to contravene with this publicly proclaimed policy of the government.

Lack of legal enforcement and inadequate environmental attention appear to be the major problems of the government as well as the causes of these incidents. And in many ways it is, because the government decision is what the Hong Kong society must ultimately abide to. But we believe that the core of the problem actually lies in the lack of public awareness. The government is only a body acting on behalf of the people. It needs public support to back up its decisions, especially decisions in favour of the conservation of natural habitats when it comes into conflict with human interests.

In Hong Kong, a large portion of people do not even realize that a wetland of international importance exists in Hong Kong, and fewer than that number have had the chance of setting foot inside Mai Po to gain that wetland experience. So why would people care for the well-being of Mai Po when the place has no relation to their lives? Why would they support wetland conservation when they know nothing about the purpose of its existence? Therefore, if more people were aware of the importance and benefits of wetlands as a place of biodiversity, their support would definitely be able to serve as a powerful force in the conservation of Mai Po wetlands.

We believe that awareness could be most effectively raised by :

1. An attachment to the place through appreciating the beauty of a wetland environment.
2. Respect for the ecological integrity of wetlands through understanding the abundant diversity of wildlife a wetland habitat sustains.
3. Realization of the economic value possessed by the wetlands, especially in regard to its potential for tourist generation.

In order to achieve these three objectives, education combined with a visit to the actual wetlands is essential. However, with an average of about 40,000 visitors a year (30,000 from schools, 10,000 from the public), the Mai Po Marshes Nature Reserve is already operating in its optimum number of visitors. Too many visitors would upset the habitat’s delicate ecological balance. This restriction in the environmental carrying capacity calls for a substitute that will be able to cater for the needs of the 7 million people living in Hong Kong as well as foreign tourists.

(4) FUTURE PLANNING

International Wetland Park

In response to this problem, the HKSAR government is currently constructing the ‘International Wetland Park’ which is anticipated for completion in 2004. It will

be Hong Kong's first major eco-tourism project and one of the city's most important wildlife conservation sites. Located in northern Tin Shui Wai, the Wetland Park will convert discarded fishponds into a man-made wetland, covering an area of 64 hectares. This area will encompass approximately 34 hectares of wetlands, 21.5 hectares of open woodland and 8.5 hectares of dense woodland. The building of an International Wetland Park is expected to generate about 500,000 more tourists to Hong Kong annually.

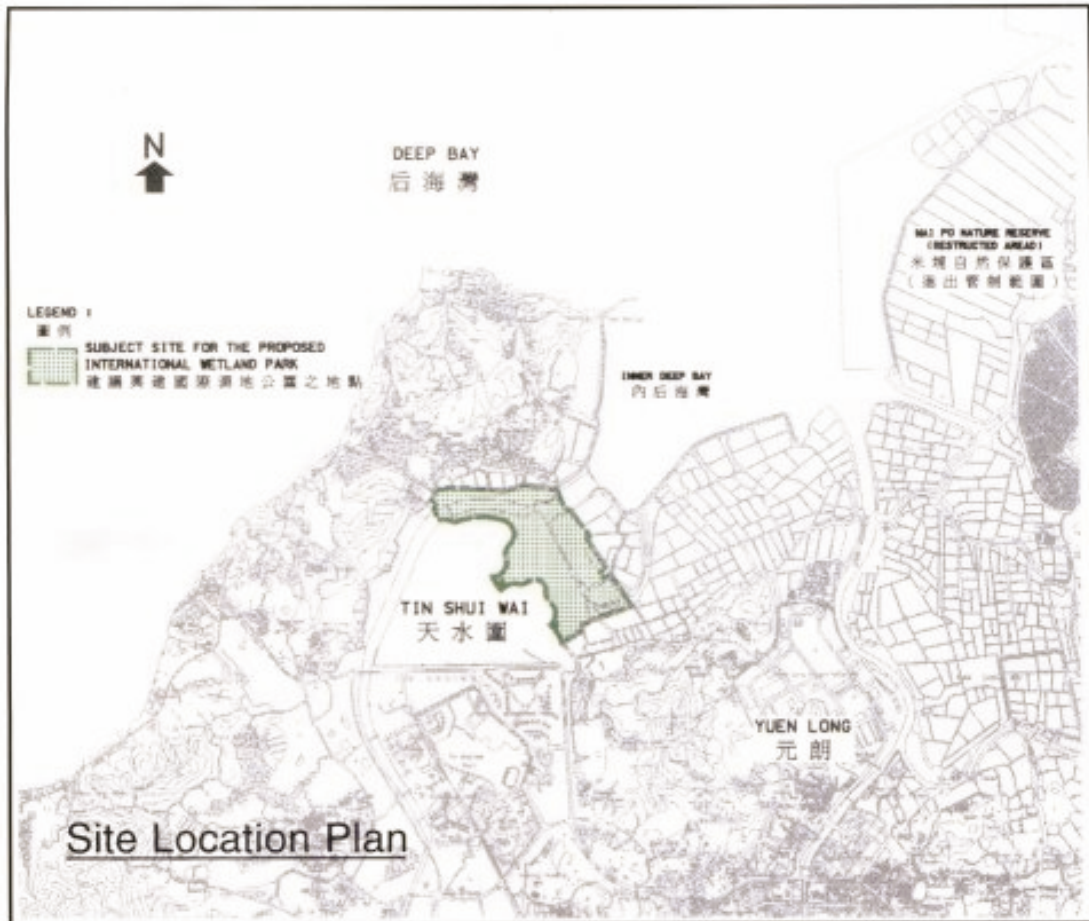


This project extends over two phases and aims at capitalizing on Hong Kong's natural richness and its internationally recognized wildlife conservation area at Mai Po Marshes. Starting from September 2000, HKTA will be conducting a feasibility study on the wetland park for a period of 9 months to see if the proposal is compatible with the environment. After that will be a series of selection for suitable organizations that will take on the responsibility of running the wetland park. It is assumed that these organizations must be able to provide financial support, possess a sound knowledge on the conservation of nature and a sensitivity for where the market is heading.



The proposed Wetland Park was initially planned for mitigation of habitat loss due to urban development in Tin Shui Wai, which is currently being developed into a new town. It will also act as a buffer between Tin Shui Wai and the Inner Deep Bay Ramsar Site. Its principal objectives, however, is to demonstrate the diversity of Hong Kong's wetland ecosystem and highlight the need to conserve them. Further objectives of the proposed International Wetland Park and visitor facility include:

1. The creation of a visitor attraction of international status, catering both for the general public and visitors, and also for those with special interest in wildlife and ecology. In addition, it should serve the recreational needs of the residents of the adjoining urban areas in the Northwest New Territories.
2. The provision of an attraction which will diversify the range of visitor experience in Hong Kong for visitors from abroad; the provision of a facility that will both complement and supplement those offered at the Mai Po Marshes Nature Reserve. The International Wetland Park could provide the primary focus for visitor activities within the Ramsar Site in the Mai Po Inner Deep Bay.
3. The provision of opportunities for education and public awareness within the Public Access Zone of the Ramsar Site.



Although the building of Hong Kong's International Wetland Park is mainly targeted at the overseas tourist market, it is nevertheless one good step in creating public awareness among the local people. Public awareness, as shown before, is a vital ingredient for the long-term conservation of Mai Po's wetlands. In fact, it is estimated that amongst the 470,000 predicted visitors who will come to the Wetland Park in year 2007, half of it will be local general residents. Overseas visitors will come after local general residents as the second major source market. For the overseas visitors, the largest source markets are estimated from America, Europe, Australasia and Mainland China. School/education groups and specialist interest groups are also two anticipated source markets.

The planning team recognizes that the International Wetland Park should not be designed solely for "man" or "wildlife. And as a result it is committed to ensure that "the buildings and activity programme should be designed to be in harmony with the environment and wildlife, and the level of human activities should be progressively reduced towards the Ramsar Site to minimize impacts on the habitat." It is the challenge of the Wetland Park to stimulate meaningful education and recreation opportunities, without compromising the wildlife and environmental integrity of the Mai Po and Inner Deep Bay wetlands. This challenge will be met through careful planning as well as close monitoring and frequent evaluations to ensure that potential impacts of visitors will not affect the wildlife and ecological mitigation functions of the Site.

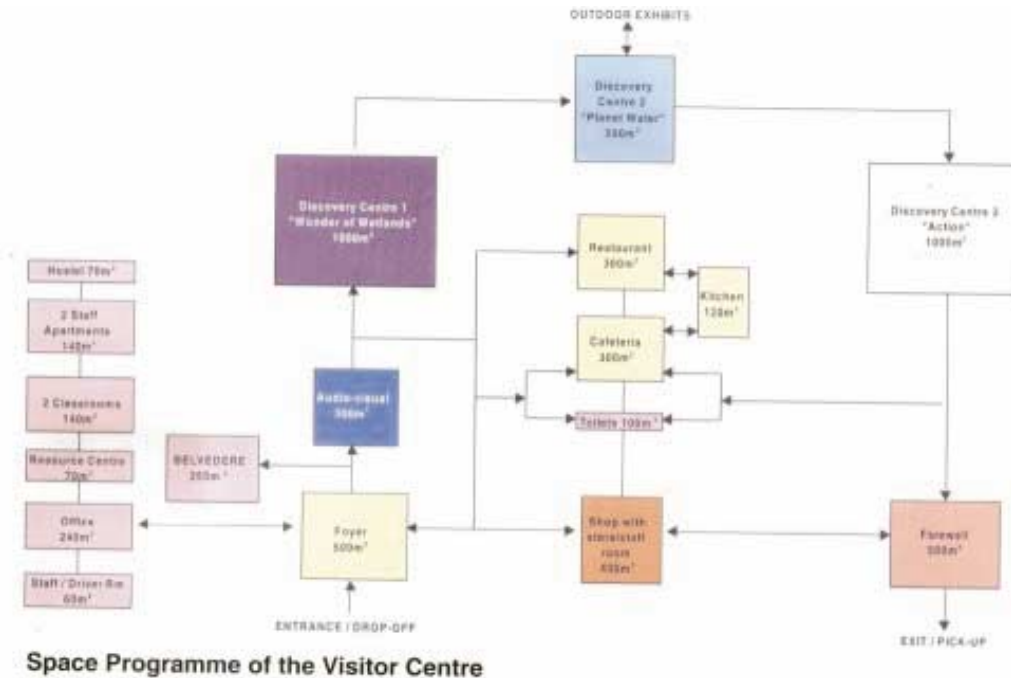


The development concept behind the proposed International Wetland Park is to demonstrate to visitors, from all walks of life and from all parts of the world, the uniqueness of Mai Po and Inner Deep Bay wetlands as examples of the interrelationship between the local Chinese community and the wetland habitats. For centuries, the wetlands have been closely integrated with the activities of man, be it through fishing in the Deep Bay, the cultivation of paddies, or the rearing of domestic wildfowl. The rich ecological and cultural heritage, integrated into a system of unique landforms and wetlands, are excellent themes for the promotion of conservation education and as tourist attractions. It is believed that these themes would diversify the attraction of the Park, whilst at the same time raising the awareness and appreciation of the cultural importance of wetland assets in Hong Kong.

Deriving from the International Wetland Park's exceptional potential, an interpretative programme is developed towards the following specific objectives:

1. Raise awareness, and increase knowledge and understanding of the major values and benefits of wetland.
2. Increase knowledge and understanding of the nature's vitality and diversity.
3. Encourage action and lifestyle adjustments so as to enable people to make informed decisions concerning current and future action.
4. Provide recreational and leisure facilities for Hong Kong residents/visitors to Hong Kong.

The visitor facilities to be provided in the International Wetland Park could be broadly divided into two components: an indoor visitor centre and outdoor exhibits.



Visitor Centre

A 6,000 square metres Visitor Centre will be built to accommodate the indoor exhibition. It will be sculpted as an integral part of the landscape and will be expressed with cascading roof becks with water as “exhibits” demonstrating the various stages in a wetland development. The centre would also be designed as an “exhibit” forming part of the total ecological experience of the wetland park as well as a demonstration project on “sustainable design” in Hong Kong. The Visitor Centre will include:

Exhibition Halls –exploring the world of wetlands and sharing Chinese wisdom in wetland heritage through the latest technology. Touch screen computers will enable visitors to learn more about wetlands and the wildlife they support.

Audio-visual Room –presenting an introduction to wetland ecology with multimedia presentations.

Live Image –fibre optic cables and closed-circuit television links with Mai Po will relay pictures of the wildlife in Mai Po.

Resource centre –providing the latest collection of wetland conservation and research information.



An illustration of the Landscape of the Core Zone (Exhibit Area)

Outdoor Exhibit

The outdoor fascinations along the trails/broadwalks (eg.the water ponds, reedbeds, mangrove, gei wais and paddy fields, and the sights and sound of wildlife) will lure visitors and special groups. The outdoor exhibition area include:

Demonstration gardens –demonstrating how people can make homes for birds and insects.

Ponds/pools –wetland plants exhibiting the use of wetland plants such as basket-making, hurdle making, etc.

Farmyards –illustrating Chinese wetland culture heritage such as wet paddy, duck farm, prawn farm and activity stations with demonstrations and displays.

Fish ponds –demonstration of craft and skill of the fisherman.

Outdoor classrooms –providing venue for demonstrations and education.

The following three trails will also be provided to cater for the needs of different visitors:



An illustration of the Landscape of the Inner Zone (Wet Woodland and Freshwater Marsh)

Route 1 – Inner Zone: This comprises a circular trail beginning at the north fringe of the outdoor portion of the Visitor Centre and running along the re-created man-made wetlands. At the top end of the trail, a three-storey observatory tower is proposed overlooking the mud-flats of the Western channel with views through the border of Deep Bay. Overall length of the trail is about 500m and takes approximately 20 minutes.



An illustration of the Landscape of the Outer Zone (Mud Flat)

Route 2 – Outer Zone: This route extends from the first observatory tower across a short floating boardwalk through the mangroves fringing the Western Channel to a walk through wet grassland and scrub interspersed with a number of small ponds and pools towards a high viewing point. On this point a second observatory/open-side pagoda will provide long views across the fish pond complex towards Deep Bay. On leaving the pagoda visitors will descend through heavily planted areas to the third hide overlooking the brackish lagoon. The return route takes to the extremities of the reserve including a reed bed filtration system demonstrating the cleansing function of wetland. The length of the trail is about 2km and takes about 1.5 hours.



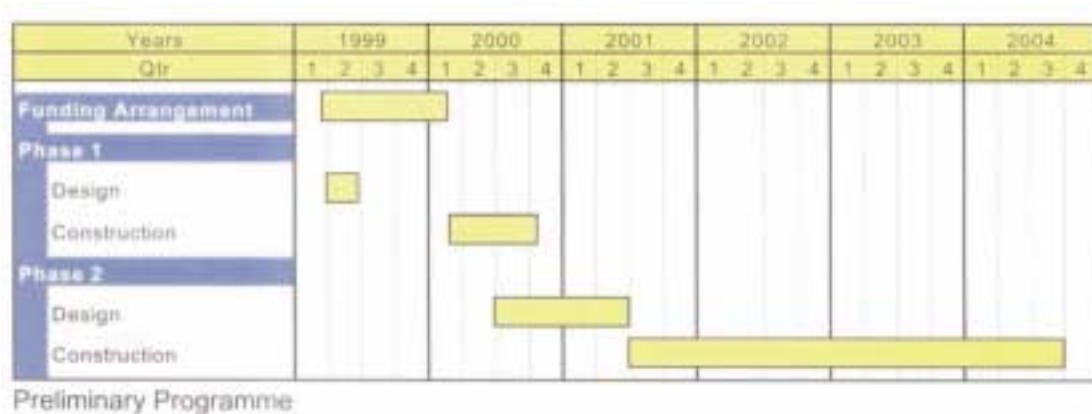
Route to Ramsar Site: This route is specially designed for those visitors with special interest in wildlife and allow managed access to a part (Public Access Zone 1) of the Ramsar Site in order to appreciate its special values and enjoy contact with wildlife.

Besides serving educational and conservation purposes, the International Wetland Park will also contribute to Hong Kong's tourism industry and show that wetland conservation does have economic value, that it's not just "a waste of money". Unlike visiting the Mai Po Marshes Mature Reserve, entrance to the International Wetland Park does not require any application procedures to the Agricultural and Fisheries department. But to prevent an overflow of visitors, an average entrance fee has been set at: HK\$ 40 per adult; and

HK\$ 20 per child or concession

With the increasing popularity of eco-tourism, the world-class wetland park is expected to generate income and revenue for Hong Kong's tourism industry mainly through entrance fees and on-site expenditure, such as food and beverage, merchandising and other specialist services. The expected annual gross revenue will be slightly over HK\$20 million which is adequate to cover the operating costs, which are estimated to be about HK\$20 million per annum. Assuming the Wetland Park to

be operated by a Non-Government Organization (NGO) under a concession agreement, it was concluded in the financial appraisal that the revenue from the Wetland Park could meet the operating costs of the Park but the capital costs will require funding support from the Government. The main capital cost components involved in developing the Wetland Park would be construction cost and land cost. With the key infrastructure being implemented by the Town Development Department (TDD) under the Tin Shui Wai Further Development project, the construction cost of the visitor facilities is estimated at HK\$450 million with nil land cost.



Completion of the Wetland Park is phased in two stages. The first stage will include an advance exhibition pavilion, a wide hide and a linking access path. The first phase will be completed in late 2000 to enable partial opening of the Project to provide an alternative access to the Inner Deep Bay and to celebrate the millenium. The second phase will complete the principal visitor facilities including the Visitor Centre, view hides, outdoor and indoor exhibition materials. The second phase is scheduled to commence in 2001 for target completion of the Visitor Centre in 2003, with the outdoor exhibition area to be completed in 2004.

The proposal has won approval from the government and is welcomed by many environmentalists. Many believe that it is a good step towards diversifying Hong Kong's tourist attraction and promoting a sense of environmental awareness among the younger generation growing up in urban cities. But green experts also caution the authority to ensure the park would not be mismanaged. "The HKTA (Hong Kong Tourist Association) must be careful not to damage the wetland—and more important, they must know how to save and enhance the natural reserve after it is opened to the public," said Man Chi-sum, chief executive officer of Green Power. Manager of Mai Po Marshes Nature, Lew Young, also reminded HKTA of the importance of responsible management. When promoting the International Wetland Park, it should avoid sending out a wrong signal by portraying the place as an amusement park, because in essence, the man-made wetlands are no different from the wetlands of Mai Po Marshes in providing a suitable habitat for many birds and animals. It should therefore be given the same amount of environmental protection.



An illustration of the Landscape of the Entrance Zone (Lotus Ponds)

(5) Conclusion:

To get a peek into the future of Mai Po's wetlands, we have studied its present management, its threats and its developmental proposals. There is no doubt that people are waking up to the enormous ecological and economic values inside Mai Po's wetlands. By looking at the recently established management plan, the town planning guidelines, we can see that the government has also made a commitment to work on the area of conservation. But, is it enough? Is the present management enough to resist the increasing developmental encroachment all around Mai Po as well as its pollution problems as Hong Kong becomes more and more urbanized? There are already cases of Mai Po's wetlands being converted to serve residential and transportation needs. Similarly, the prospect of Mai Po wetlands surviving for the benefit of future generations can be either bright or dim. The key to its fate lies ultimately in the people, the citizens of Hong Kong, to provide active support in conservation work of Mai Po's wetlands. With the opening of the International Wetland Park in the near future, Hong Kong will be taking a big step towards the goal of raising public awareness. Let's hope that with understanding and appreciation of the importance and beauty of wetlands, genuine care and support for conservation work will follow, so that this valuable natural heritage could continue to be passed onto the future generations living in Hong Kong.

(6) APPENDIX

We would like to acknowledge the following sources for their valuable contributions to our case study on Mai Po Wetlands.

1999 Foundation For Environmental Conservation

A Geography Of the Mai Po Marshes

A Statistical Review of Hong Kong Tourism 1999

Act Green HK ECHO

Best of The Best II (Hong Kong Tourist Association)

Booklets of "Conserve Local Wetland"

Explore Mai Po

Hong Kong International Wetland Park and Visitor Centre Feasibility Study

Hong Kong Superlatives (Hong Kong Tourist Association)

Mai Po Nature Trail

Mature Traveller's Guide

Next Magazine (23 March 2000)

Sheung Shui to Lok Ma Chau Spur Line

Striking a Balance Between Impacting on People and Wildlife

The Apple Daily

The Birds of Mai Po Identification Chart (Mai Po Nature Reserve)

The Ming Pao

Travel Trade Manual 2000-2001

CONSULTATIONS:

The Hong Kong Tourist Association

The Kowloon Canton Railway Corporation

The Planning Department

The Wan Chai Environmental Resource Centre

The World Wide Fund For Nature Hong Kong

THE STUDY TEAM MEMBERS:

Mr. Au Yiu Keung, Aaron

Miss Chau Yi Ki, Maggie

Miss Lai Sum Yin, Emily

THE MAI PO WETLANDS - THE BIRDS' PARADISE OF THE ORIENT

NOTES TO TEACHERS

1) Which part forms the Mai Po Nature Reserve? How is the Mai Po Nature Reserve managed under the Mai Po Management Plan?

The Mai Po Nature Reserve forms a part of the Biodiversity Management Zone (BMZ) and the Mai Po BMZ is divided into a number of compartments, each with its own management intention. As these management intentions are relatively broad, WWF Hong Kong has recently completed a more detailed plan for the reserve.

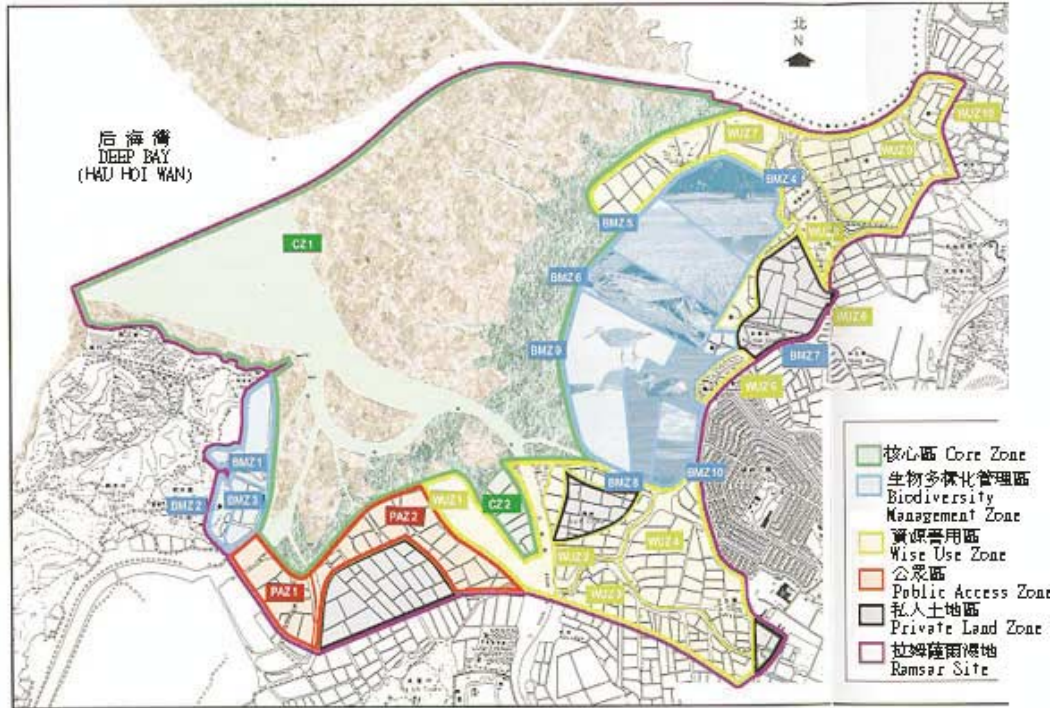
This Mai Po Management Plan covers the period from 1999 - 2004, and gives clear prescriptions for:

- (i) Managing Mai Po to maintain and, where possible, increase the abundance and diversity of wetland habitats and native wildlife on the reserve,
- (ii) To use the reserve to promote environmental education amongst students and the public,
- (iii) Organize wetland management training courses for those responsible for the management and conservation of wetlands, especially those from mainland China
- (iv) Promote scientific research, and
- (v) Promote and support measures that will help to reduce external threats to the reserve.

The management plan of Mai Po Wetland under the Ramsar Site

SOURCE: http://www.wwf.org.hk/en/mp_ramsa.htm

米埔后海灣內灣拉姆薩爾濕地
THE MAI PO INNER DEEP BAY RAMSAR SITE



2) Why was Mai Po designated as a Ramsar Site?

Each of the signatory countries to the Ramsar Convention has to designate at least one internationally important wetland in their country following a set of criteria. Currently, China has 7 Ramsar Sites in which Mai Po and Inner Deep Bay, Hong Kong SAR is one of them.

1. Xianghai Nature Reserve
2. Zhanlong Marshes
3. Niaodao
4. Dongting Lake
5. Poyang lake
6. Dongzaigang Nature Reserve
7. Mai Po and Inner Deep Bay



Map 1. Locations of the seven Ramsar sites in China

3) What are the criteria of a Ramsar Site?

It is a particularly good representation of a natural or near-natural wetland, characteristic of one, or common to more than one, biogeographical region. It supports an appreciable assemblage of rare, vulnerable, or endangered species of plants or animals. It holds more than 20,000 waterbirds. It holds more than 1% of the individuals in the population of a species of waterbird.

4) How Mai Po meets the criteria?

The stand of mangrove forest round Deep Bay/Mai Po is the sixth largest remaining along the coast of China, and the reedbed is one of the largest in Guangdong Province. 12 endangered waterbirds species occur in Mai Po. In addition, over 20 species of invertebrates new to science have been found.

Mai Po regularly holds over 20,000 wintering waterbirds. In January, 1996 over 68,000 waterbirds were recorded in the Mai Po/Deep Bay wetlands.

Mai Po holds over 1% of the individuals in the population of 11 species of waterbirds. In particular about 23% of the world population of the Black-faced Spoonbill, *Platalea minor*, winters at Mai Po.

5) What should the signatory countries do under the Ramsar Convention?

Apart from caring for wetlands, which have been, designated Ramsar Sites, each signatory country also has to try to conserve the other wetlands in their country. Under Article 3 of the Convention, Governments are obliged to "Include wetland conservation considerations within their national land-use planning. They are required to formulate and implement this planning so as to promote, as far as possible, the "wise use of wetlands in their territory".

In order to implement the "wise use" concept, governments are urged to develop National Wetland Policies in consultation with the local people. Governments should also set up a National Wetland Committee to coordinate decisions on wetland use. Under the 'wise use' concept, human activity can be allowed in a Ramsar site, e.g. for fish farming, low intensity recreation etc., as long as the use is sustainable.

6) How will Ramsar Designation of the Deep Bay benefit the local community?

After designation, Mai Po and Inner Deep Bay wetlands will be managed by the Ramsar Management Authority, chaired by the Agriculture and Fisheries Department (AFD) to ensure the wetlands are managed under the wise use principle. In 1996, AFD commenced a consultancy study to draft a management plan for the Ramsar Site. Designation of the Mai Po and Inner Deep Bay Ramsar Site would, in effect, provide an additional area of countryside in Hong Kong, which can be managed for education and recreation, as is being done at the WWF Hong Kong's Mai Po Nature Reserve. In addition, the current land-use, e.g. fishpond farming in certain areas can be retained so that local people can continue to benefit from the area.

Ramsar designation for the Mai Po and Inner Deep Bay wetlands provides an exciting opportunity for conserving the largest remaining wetland in Hong Kong, which can be managed for the benefit of the Hong Kong people, as an area where education, recreation, farming and conservation can be integrated.

7) What are the two main threats faced by Mai Po wetlands today?

Developmental pressure and pollution.

8) What is meant by the 'Wetland Trust'?

This is an amount of money proposed by Cheung Kong Holding that will be used for the maintenance cost of 71.6 hectares of fishpond, as part of the mitigation measures for the Fung Lok Wai housing project. These fishponds are mainly neglected fishponds at the moment. They will be cultivated so as to increase their productivity and to attract more birds.

9) What is meant by the 'floodgate effect'?

This is a notable consequence resulting from the approval of a first project of its kind. Other similar projects will then follow suit, creating pressure that pours in like a floodgate that has broken loose.

10) What is the aim of the Lok Ma Chau spur line project?

To ease the heavy cross border traffic between Hong Kong and Shenzhen.

11) What are some other possible routes for the spur line?

For the spur line to move northwards, it will involve the demolition of a wastewater treatment station and for it to move southwards, it will involve the removal of a slaughterhouse. It can be argued that these are not insurmountable obstacles.

12) Name three organizations that object to the Lok Ma Chau spur line?

The Hong Kong Bird Watching Society, Friends of the Earth, Wetland International.

13) What is meant by the 'no-net-loss' principle?

When the government considers any developmental proposals within the Wetland Conservation Area, it follows the no-net-loss principle which takes into account both loss in terms of area and function. It basically means that any developmental proposals must not result in any loss in wetland area nor any decline in the wetland's ecological function.

14) The proposed International Wetland Park is situated within the public Access Zone of the Ramsar Site. Is there any violation of the Ramsar Convention ?

In the Public Access Zone, managed access will be allowed in order to raise awareness about the value of wetlands and the Ramsar site. The park can satisfy the above requirement so that there is no violation of the Ramsar Convention.

15) Will the proposed International Park become a long term financial burden of the Hong Kong government ?

The expected annual gross revenue will be slightly over HK\$ 20 million which is estimated to be about HK\$ 20 million per annum. Hence, the park will not be a long term burden.

16) Why has the proposed construction of the International wetland Park received no objection from the local community?

Initially, the site of the proposed International Wetland Park mainly consisted of discarded fish ponds. The construction of the park will enhance the environment of the local community. In addition, it will serve the recreational needs of the residents of the adjoining urban areas.

17) Why do the environmentalists accept the proposed construction of the International Wetland Park ?

There is the provision of opportunities for education, the arousal of the public awareness towards environmental protection and the enhancement of the valuable natural environment.

18) In what ways can the proposed International Wetland Park help the present Hong Kong tourism industry ?

As a visitor attraction of international status, the park can upgrade the positive image of Hong Kong. Furthermore, it will diversify the range of visitors' experience in Hong Kong.

19) 'Among the visitors of the proposed International Wetland Park, excursionists will be more than tourists.' Do you agree ?

Yes, I agree because the local general residents and school/education groups will contribute more than half the total patronage and the local general residents and members of school/education groups are excursionists.

20) How to guarantee that the proposed International Wetland Park become a sustainable eco-tourism project ?

The potential impacts of visitors will not affect the wildlife and the environmental integrity of the park through careful planning, close monitoring and frequent evaluation.

21) State the developmental concept behind the proposed International wetland Park and suggest the reasons for choosing such project.

The concept behind is to demonstrate to visitors the uniqueness of Mai Po and Inner Deep Bay wetlands as examples of the interrelationship between the local Chinese community and the wetland habitats. Such interrelationship can form themes which would diversify the range of attraction of the park while raising the awareness and appreciation of the cultural importance of wetland assets in Hong Kong.

22) Find a case to show that the public awareness of environmental conservation influenced the government to make favourable decision for the conservation of natural heritage.

The Environmental Protection Department decided to reject the Lok Ma Chau spurline project proposed by the Kowloon-Canton Railway Corporation for satisfying the transportation needs with the expense of damaging a wetland of international importance on 10th October, 2000 because of the strong advocacy of the public.

23) Suggest some desirable objectives for the interpretative programme of the proposed International Wetland Park.

- (i) Raise awareness and increase knowledge of the major values and benefits of wetland.
- (ii) Increase knowledge and understanding of the nature's vitality and diversity.
- (iii) Encourage action and lifestyle adjustments so as to enable people to make informed decisions concerning current and future action.
- (iv) Provide recreational and leisure facilities for Hong Kong residents / visitors to Hong Kong.

FOOTNOTES

Mudskippers – they are tropical amphibious fish that are typically found at the seaward edge of mangroves. They are emerged at low tides to feed themselves. The value of mudskippers is significant for a survey conducted in the early 1950s indicated that an approximate number of 100 local villagers were regularly engaged in this activity. Most of the fish were sold in Hong Kong markets and the rest were canned for export.

Grey Mullet – they are fish, which are usually fed in fresh and brackish water fishponds and they occur in great abundance in brackish, estuarine waters.

Fauna – animals or insects living in a particular place. At least 336 species of birds, 400 species of insects and 90 species of marine invertebrates are found in Mai Po Wetlands. Some of which are new to science and over 50 species of butterflies have been recorded. Mammals such as Otters and Leopard Cats are also found.

Flora – plants growing wild in a particular place. Seven out of eight local species of mangroves grow around the edge of Deep Bay covering an area of 380 hectares. The common plants are Chinese Banyan, Tallow Tree, Popgun Seed, Canavalia and Mountain Tallow, etc.

SOURCE: http://www.wwf.org.hk/econs/mp_plan.htm