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for information

Development of a Comprehensive Conservation Strategy and a Management Plan in Relation to the Listing of Mai Po and Inner Deep Bay as a Wetland of International Importance under the Ramsar Convention

Introduction

1. This paper summarises the broad issues arising from the consultancy study commissioned by the Agriculture and Fisheries Department in April 1996 to develop a comprehensive conservation strategy and management plan for the Ramsar Site in the Mai Po and Inner Deep Bay Area (the Ramsar Study).

Background

2. In September 1995, 1,500 hectares of wetland in the Mai Po and Inner Deep Bay area were listed as a Wetland of International Importance under the Convention on Wetlands of International Importance Especially as Waterfowl Habitat. The Ramsar Convention, as it is also known, is an inter-governmental treaty established to stem the world-wide loss of wetlands and to ensure their conservation and wise use. The Convention is applied to Hong Kong by the United Kingdom who is a contracting party. The People's Republic of China is also a contracting party to the Convention. The two-sides in the Sino-British Joint Liaison Group have agreed that the Convention will continue to apply to Hong Kong after the hand-over.

3. The Mai Po and Inner Deep Bay qualifies as a Ramsar site as it meets eight of the ten criteria cited in the Convention:

- It supports an appreciable assemblage of rare, vulnerable or endangered species of plants or animals, or individuals of such species - *Deep Bay regularly holds 13 globally threatened species (including the Black-faced Spoonbill whose population is "critical") and five have important populations in Deep Bay.*

- It is of special value for one or more endemic plant or animal species or communities - *Deep Bay is the type locality (place of discovery) for thirteen species that, according to current information are only known to occur within Deep Bay of the Pearl River estuary. Mai Po is the type locality for nine species of invertebrates including a crab which is found nowhere else in the world.*

- It regularly supports 20,000 waterfowl - *Over the 1990-1994 period, Deep Bay has on average supported 48,500 waterfowl in mid-winter. Wintering numbers of waterfowl reached 65,000 in January 1996.*

- It regularly supports 1% of the individuals in a population of one species or sub-species of waterfowl - *Mai Po/Inner Deep Bay supports more than 1% of the world population of four bird species and more than 1% of the bio-geographical population of another 13 species.*

- It is a representative wetland playing an important role in the natural functioning of a major river basin and coastal system located in a trans-border position. *Deep Bay now plays the major biological and ecological role in the Pearl River Delta and is located across the Hong Kong - Chinese border. It is of regional conservation significance as an example of a south China sheltered soft-bottom/mangrove community which type is disappearing in south China as a result of reclamation. Mai Po/Inner Deep Bay is now the largest area of such wetland remaining in Hong Kong and the sixth most extensive in China.*

- It is an example of a specific type of wetland, rare or unusual in the appropriate biogeographical region - *Deep Bay holds the sixth largest area of mangal in Hong Kong and China as well as one of the largest reedbeds in Hong Kong and southern China.*

- It is of special value for maintaining the genetic and ecological diversity of the flora and fauna of a region - *the 46 hectares of reedbeds in Mai Po is the largest area of this habitat remaining in Hong Kong and probably the largest in Guangdong Province. They support over 400 species of insects.*

- It is of special value as the habitat of plants or animals at a critical stage of their biological cycle - *Deep Bay provides a critical staging post for a large number of migratory waterbirds including at least 46 species of waders, two of which are considered globally near-threatened. 120,000 to 150,000 migrant birds use the mudflats of Mai Po/Inner Deep Bay to rest and re-fuel during spring and autumn migrations between Arctic Russia and Australia. Deep Bay also provides wintering areas for large numbers of aquatic and terrestrial birds, including 16% of the world's black-faced spoonbills and almost 5% of the world's Saunders' gull. Deep Bay provides breeding habitat for large numbers of herons and egrets, particularly little egrets, a species now regionally rare outside Deep Bay.*

4. This listing brings considerable international prestige to Hong Kong and, under international law, also places responsibilities on the Government to ensure that the Ramsar site continues to function as a viable wetland ecosystem and an important component of global biodiversity. Under the Convention, Hong Kong has four principal obligations:

- To promote the conservation of wetlands listed under the Convention.

- To formulate and implement planning so as to make wise use of wetlands, whether or not they are included in the List.

- To promote the conservation of wetlands in the territory through the establishment of nature reserves and to promote training in the fields of research, management, and wardening.

- To consult with other Contracting Parties about implementation of the Convention, especially as regards trans-frontier wetlands, shared water systems, shared species, and development aid for wetland projects.

5. Under the first and second of the obligations listed above, a strategy and management plan are required to promote the conservation of the Mai Po/Inner Deep Bay Ramsar site. The Ramsar Study was commissioned by the Agriculture & Fisheries Department (AFD) which is the government agency charged with responsibility for the management of the Ramsar site. The brief was to identify and analyse the issues involved in the management of the Ramsar site, to formulate management objectives, to develop a conservation strategy, and to prepare a management plan for the site.

6. A large team of international experts were commissioned to undertake the Ramsar Study. The team was managed by Hong Kong based environmental consultants Aspinwall Clouston Limited, with Wetlands International - Asia Pacific (based in Kuala Lumpur) taking responsibility for the technical direction of the study. The preparation of the management plan was lead by the UK based Nature Conservation Bureau and supported by Wetlands Advisory Service (the consultancy arm of the Wildfowl and Wetlands Trust at Slimbridge, UK). Dr Anthony Yeh of Hong Kong University was responsible for input on GIS. Other specialist inputs were provided by Dr Paul Lam from the City University of Hong Kong, Dr Gary Ades and Dr Lawrence Chau from Kadoorie Farm as well as Dr. Joe Lee also from the University of Hong Kong.

The Study Process

7. The Ramsar study has progressed through a sequence of inter-related tasks leading to the production of the management plan which, in itself, includes a summary of the findings of the study. The tasks are outlined below:

Review

8. The study process began with a broad-based review of a range of subjects relevant to the management of the Mai Po/Inner Deep Bay Ramsar site including: an examination of policy and legislation affecting the

site, other relevant studies, existing and proposed land uses, land tenure and wetlands in China. An extensive ecological evaluation of the site was undertaken as well as a review of WWF-Hong Kong current management practices at the Mai Po Nature Reserve.

Consultation

9. The public consultation exercise was considered to be a crucial task in the development of the study as it involved all the parties and stakeholders that the conservation strategy and management plan may ultimately affect. The intention of the consultation exercise was for the study team to gain a complete understanding of the issues, concerns and perceptions related to the site which could then be addressed in the management plan.

10. The consultation took place in two stages and was based on a series of confidential and informal half-day focused workshops bringing together groups likely to have similar interests and concerns. Sessions were held with: green groups, developers and land owners with planning applications lodged within Buffer Zones 1 and 2, government departments and representatives of fishermen associations. The Environmental Improvement Committee of the Yuen Long District Board (YLDB EIC) was also consulted at their regular meeting as well as the Ping Shan Rural Committee (PSRC). Both YLDB EIC and PSRC expressed strong objection to the listing of Mai Po and Inner Deep Bay as a Ramsar site. The Government intends to consult the YLDB EIC again on 23 January 1997.

11. During the first stage consultation, the topics discussed broadly fell into ten categories: funding options, the structure and form of the Ramsar Management Authority, issues related to development, drainage projects, the boundaries and buffer zones to the Ramsar site, pollution in the area and its effects, cross-border issues, fish farming operations, public access and appropriate use and issues relating to education and research. Discussions during the second stage consultation focused on the issues directly affecting the Ramsar site and its future management.

12. In addition to the consultation workshops, informal monthly meetings have been held with representatives from WWF-Hong Kong throughout the study to discuss developments and progress of the study.

The Development of the Management Plan

13. The management plan incorporates the findings of the review and consultation stages of the study and develops a plan based on a series of site specific goals and objectives to manage the Mai Po/Inner Deep Bay Ramsar site to achieve and maintain these stated goals. The management plan is a tool that will be used by the AFD staff responsible for the Ramsar site and its day to day management. Its purpose is to provide basic information of value for the site managers as well as identifying the key features of the site and assessing those natural and human-induced trends having management implications. The plan establishes long-term goals and short-term objectives for the site, and then prescribes actions over the short-, medium- and long-term that can address the management issues and implement the overall goals for the Ramsar site. The management plan also puts in place a monitoring system to ensure that the results of management achieve their objectives, and to function as an early warning system in case of unforeseen developments.

14. The management plan for the Mai Po/Inner Deep Bay Ramsar site has been developed based on the *Guidelines on management planning for Ramsar Sites and Other Wetlands* passed at the Fifth Meeting of the Contracting Parties in Kushiro, Japan in June 1993 and follows an internationally accepted format. It should be emphasised that wetlands are dynamic areas influenced by human and natural factors. The management plan is a flexible and dynamic document that is to be constantly updated by site managers.

15. For AFD, a two volume document has been produced which is structured as follows:

GOALS AND OBJECTIVES - A statement of the goals and objectives are included at the front of the document for ease of reference. These form the fundamental basis of the management plan.

PART 1 : DESCRIPTION - Includes a general description of the physical and environmental features of the site based on information gathered during the review stage.

PART 2 : EVALUATION, GOALS AND MANAGEMENT ISSUES - Includes a summary of the values of the site and based on this, a statement on the site management goals. This is followed by a summary of natural and human-induced factors influencing site management. This section also identifies site management zones and compartments (outlined below). It goes on to identify the management intentions for each compartment and specific plans for key taxa. An outline of the monitoring program is included.

PART 3 : ACTION PLAN - MANAGEMENT OBJECTIVES, RATIONALE AND PROJECT GROUPS - This part of the management plan sets out the key actions to achieve the management objectives that have been derived from the Ramsar site management goals. The rationale and specified limits are described for each management objective. Management projects to be undertaken are identified and divided into groups that relate to each of the management objectives.

PART 4 : MANAGEMENT PROGRAMME - This includes a timetable for all the projects identified in Part 3 and establishes their relative priority over the five year period of the management plan. This will be updated annually and provides a record and indicator of management progress. An Annual Work Plan for Year 1 is included which lists the specific projects to undertaken in the forthcoming year. It identifies the project leader and an estimate of the financial resources required (summarised below). The Annual Work Plan would be updated on a rolling quarterly basis and work plans for subsequent years will be developed from the Project Register and the five-year management programme in this section. This section also includes a recommended staffing structure and job descriptions for all the senior staff positions (summarised below).

PART 5 : PROJECT REGISTER - This is a hard copy of the computer data base containing the pertinent information about all site management projects. Over 200 projects have been identified. The project register takes the form of a simple data input table which can be manipulated to generate the future Action Plans, Annual Work Plans and budgets.

The Purpose of Conservation of the site

16. Based on the findings of the background review and consultation, two fundamental purposes for the conservation of the site were established:

- Biological conservation through the maintenance and enhancement of species richness, particularly of birds. In Ramsar terms, birds are the most important biological taxon occurring on the Ramsar site and during consultation, interested parties agreed that birds were the most important reason for conserving the site. Conservation of birds has three main elements: species richness, abundance and the presence of rare species.

- Wise use of the wetland resource which is defined by Ramsar as *".... sustainable utilisation for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem"*. In the current context of the Mai Po/Inner Deep Bay Ramsar site, fish ponds represent wise use in that they support fish farmers and their families while simultaneously providing habitat for a wide variety of birds and regionally significant populations of herons and egrets.

Management Goals and Objectives

17. With reference to the conservation purposes and management strategies, the following goals (statements of intent) have been identified. The associated long-term objectives serving these goals are stated in Appendix I to this paper.

Ramsar Site Management Goals

GOAL 1: To meet Ramsar Convention obligations with respect to the Mai Po / Inner Deep Bay Ramsar site, including, but not limited to:

- promoting, so far as possible, wise use of the site, consistent with the maintenance of wetland functions and benefits and Goal 2;
- reporting to the Ramsar Bureau should there be significant changes to the ecological character of the site;
- managing the site for the benefit of waterfowl;
- promoting training in the fields of wetland research, management and wardening;
- exchanging data and publications concerning the site; and
- coordinating with other Parties, particularly in relation to migratory species.

GOAL 2: To maintain and enhance the Ramsar criteria values of the Mai Po / Inner Deep Bay Ramsar site.

GOAL 3: To maintain or increase biodiversity values of the site at all scales: (i.e. species/population, ecosystem/community and regional landscape), consistent with Goal 2.

GOAL 4: To realise the full potential of the Ramsar site for education and raising public awareness with respect to wetland values, consistent with Goals 1-3.

GOAL 5: To advance the regional and international obligations undertaken by and opportunities afforded to Hong Kong as a consequence of its adherence to the Ramsar Convention on Wetlands of International Importance, and Bonn Convention on Migratory Species.

Key Management Strategies

18. Management strategies have been developed to address several key issues discussed during the consultation exercise. These strategies cover fundamental approaches to the management of the Ramsar site and the key strategies are therefore summarised below:

Administration of the Ramsar site

19. The administration of the Ramsar site is particularly important because of its international status. In the local context, the site is unique in the degree of interest from a diverse range of stakeholders as well as the pattern of tenure within the site. In addition, Hong Kong does not have a mechanism for the administration of a site which covers both marine and terrestrial areas (neither the Country Parks Ordinance or the Marine Parks Ordinance are directly applicable to the Ramsar site).

20. After examining several options for the administration of the site, it was concluded that the strategy for implementing management of the site needs to take into account existing Government policy as well as its constitutional and organisational framework. It is therefore proposed that AFD should be the administration agency advised by an Advisory Committee of government and non-government members. Should the policy, constitutional or organisational framework change, it would be pertinent to establish a new Ramsar Management Authority and appropriate committees constituted under its own, new custom legislation.

Management Zoning

21. It is generally accepted that in managing areas designated for conservation or protection it is necessary to:

- separate incompatible uses;
- protect sensitive elements of the ecosystem from disturbance; and
- give priority to particular uses of purposes.

This is most commonly and effectively achieved by zoning a site. For the Mai Po/Inner Deep Bay Ramsar site, a zoning strategy has been developed. It is accepted that there is a need for a "core" zone with no disturbance, a public access zone to concentrate visitors, and an area to integrate conservation management and educational functions (a "biodiversity" management zone).

22. While the Ramsar site is endowed with a buffer zone under existing planning controls, this actually lies outside the Ramsar site boundary and its management is therefore beyond the scope of this management plan. An additional buffer zone is therefore proposed within the site to protect the core and biodiversity zones to complement (but not detract) from the outer buffer zone.

23. For the Ramsar site, five management zones have been identified. Their locations are shown in Figure 1. It is not intended that these zones should remain fixed. However it is not desirable that zone types or zone boundaries are changed too frequently because those carrying on management or economic activities within the zones need some degree of certainty that the basis for management will not change unexpectedly. Nevertheless, as with all other aspects of the management plan, their functions and effectiveness need to be reviewed in the light of changing circumstances.

24. The proposed management zones for the Ramsar site and their purposes are outlined:

CORE ZONE

The purpose is to provide an undisturbed, largely natural, contiguous reference area where the biological interest of the site is concentrated. It should include all the main habitat types present within the site and be largely natural or semi-natural habitat. In this case, the open marine water, intertidal mudflat, mangal in the Inner Deep Bay area are included together with a small area of freshwater habitat (former fish ponds) between the new drainage channel and Shan Pui River . Maintenance of natural processes has priority and access is generally limited to essential management, monitoring and research purposes.

BIODIVERSITY MANAGEMENT ZONE

This zone includes the Mai Po Nature Reserve (MPNR) and the area to the east of the Tsim Bei Tsui peninsula. The MPNR is currently managed for biodiversity conservation and public education by WWF-Hong Kong. The fish ponds and former oyster beds in the Tsim Bei Tsui area already include SSSI's and are used as high tide roosts due to their strategic location on the western side of the Core Zone. This area would provide another opportunity for biodiversity management to complement the MPNR. The purpose of the Biodiversity Management Zone is to provide a refuge for waterfowl (including high tide roost) and a focus for biodiversity conservation, education and training in a relatively intensively managed environment.

PUBLIC ACCESS ZONE

The importance of the Mai Po/Inner Deep Bay area is widely acknowledged in the international community. Locally, the site remains little appreciated and understood with most of media attention being negative; focusing on development disputes, public demonstrations by fish farmers and pollution in Deep Bay. This needs to be changed. Improving public awareness of wetland systems and particular the value of the Mai Po/Inner Deep Bay area is fundamental to achieving wise use of wetland areas generally and in gaining public support. This is best achieved by having first hand knowledge of the site. Due to the potentially high demand in a densely populated area such as Hong Kong, this must be controlled.

A public access zone will be created adjacent to the Tin Shui Wai Reserve Zone and around Fung Lok Wai. This part of the Ramsar site is outside the Border Restricted Area so no permits will be required and, adjacent to Tin Shui Wai new town, it will also be relatively accessible by public transport. It is proposed that public access to MPNR will be maintained but tightly controlled. No measures will be taken to encourage public access elsewhere within the site.

The purpose of the zone is to enable people to have unrestricted but managed access to a part of the Ramsar site in order to appreciate its special values and enjoy contact with wildlife. In addition, it provides opportunities for: public education; raising public awareness of the conservation values of the site; and quiet

recreation relevant to these values. This zone also provides a buffering function additional and complimentary to that provided by buffer zones outside the Ramsar site.

WISE USE ZONE

The purpose of this zone is to allow ecologically sustainable use of wetland and other natural resources to be carried out in a way compatible with the Ramsar site management goals and objectives and, where appropriate, to be encouraged and promoted. The Wise Use Zone also provides a buffering function additional and complimentary to that provided by the buffer zones outside the Ramsar site.

PRIVATE LAND ZONE

The Ramsar site boundary includes some areas of land in private ownership. While the private ownership status means that the land is not subject to the prescriptions of the management plan, existing planning constraints mitigate against any significant change to current use. It is intended to obtain and maintain the co-operation of the owners concerned to conduct their management in an ecologically sustainable manner not inconsistent with the purposes of the surrounding or adjacent management zone. The purpose of this zone is therefore to recognise the legal status of the private land.

Land Acquisition

26. As stated above, biodiversity conservation management is an iterative process involving monitoring, review and adjustment of management measures so as to move toward a desired end-state. Where land tenure does not permit managers the flexibility in altering land use and its management, this represents a significant constraint on the achievement of the conservation management objectives. It is recommended that a long-term strategy is necessary to acquire control over all land within the Ramsar site. This needs to involve the staged acquisition through a variety of mechanisms of all leases and private land.

Funding Implications

27. The management plan includes details of over 200 projects to be implemented over the first five year period. Each project is prioritised and included on a project timetable which would be updated annually as part of the management process. As part of the study, an Annual Work Plan for Year 1 has been prepared. 116 projects have been identified, many of which relate to establishing management systems such as: establishing the Ramsar Management Authority and sub-committees, staffing, training courses for staff, inventory of assets and purchase of equipment, setting up financial systems, signage, establishment of a scientific monitoring programme, carrying out specific projects within compartments within the Ramsar site, collaborations with international conservation agencies and overseas nature reserves, preparation of draft public access and education strategies, ongoing review of management practices and the plan. A budget figure for each project has been estimated and these have been categorised into capital and one-off costs as well as recurrent costs.

28. The estimated budget for the implementation of the first year of the management plan for the Mai Po/Inner Deep Bay Ramsar site amounts to HK$13,222,000. 76.6% of this (HK$10,129,000) represents recurrent expenditure and the remainder (HK$3,093,000) for capital and one-off costs specific to the year. An estimate has been made of the projects which could be most usefully carried out or assisted by WWF-Hong Kong under a subvention in the first year.

Staffing

29. A recommended staffing structure has been developed in order to carry out the responsibilities, tasks and projects outlined in the management plan. This level of staffing is considered as the minimum feasible for meeting the management needs and Ramsar Convention obligations of the Mai Po/Inner Deep Bay site. The recommended staffing structure is shown in Figure 2. Eleven new positions within AFD will be required in order to properly manage the Ramsar site. As part of the study, job descriptions have been prepared for all the senior staff positions and are included within the management plan.

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January1997

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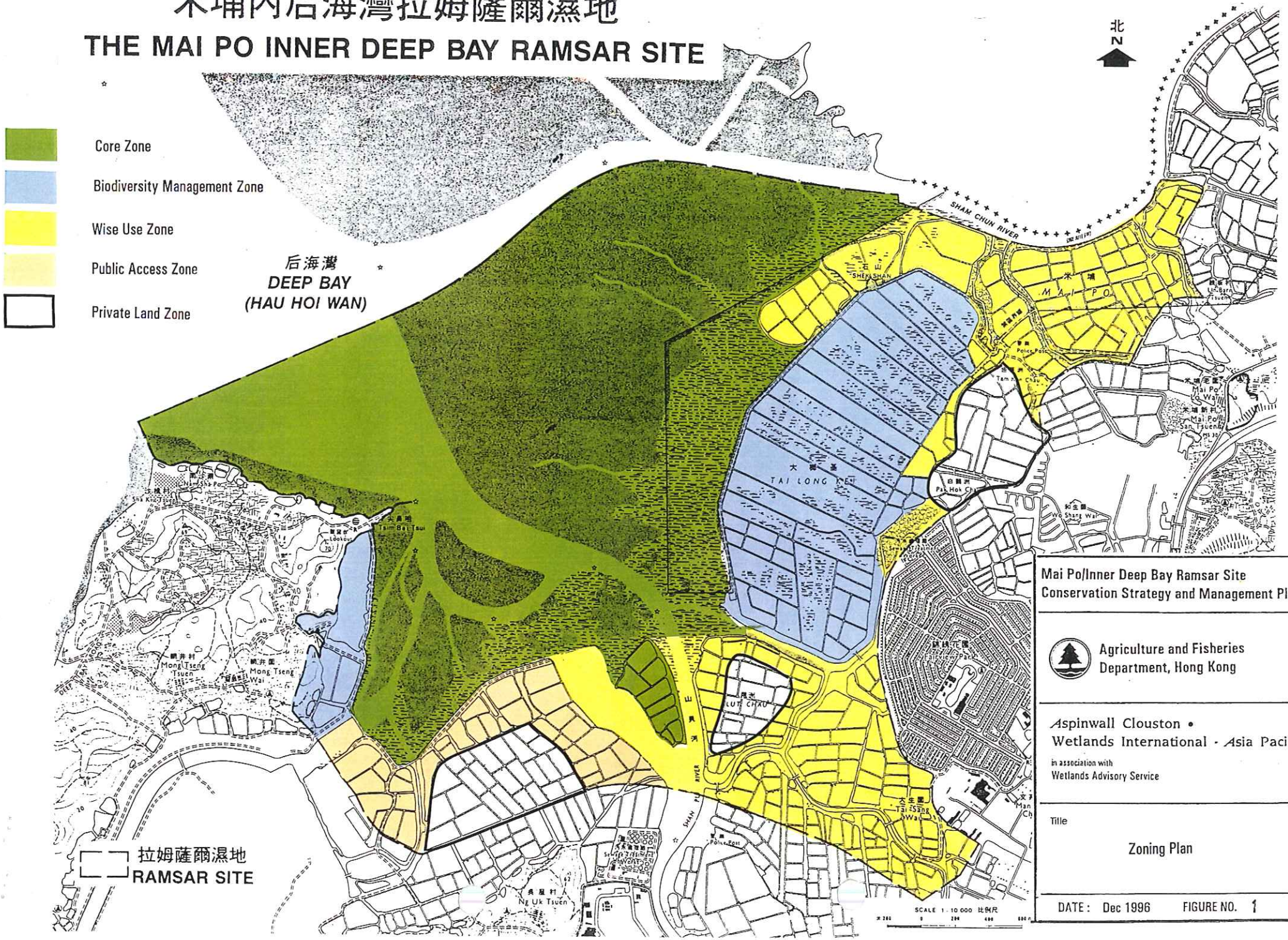
THE MAI PO INNER DEEP BAY RAMSAR SITE



Mai Po/Inner Deep Bay Ramsar Site
Conservation Strategy and Management Plan

Agriculture and Fisheries
Department, Hong Kong

Aspinwall Clouston •
Wetlands International - Asia Pacific

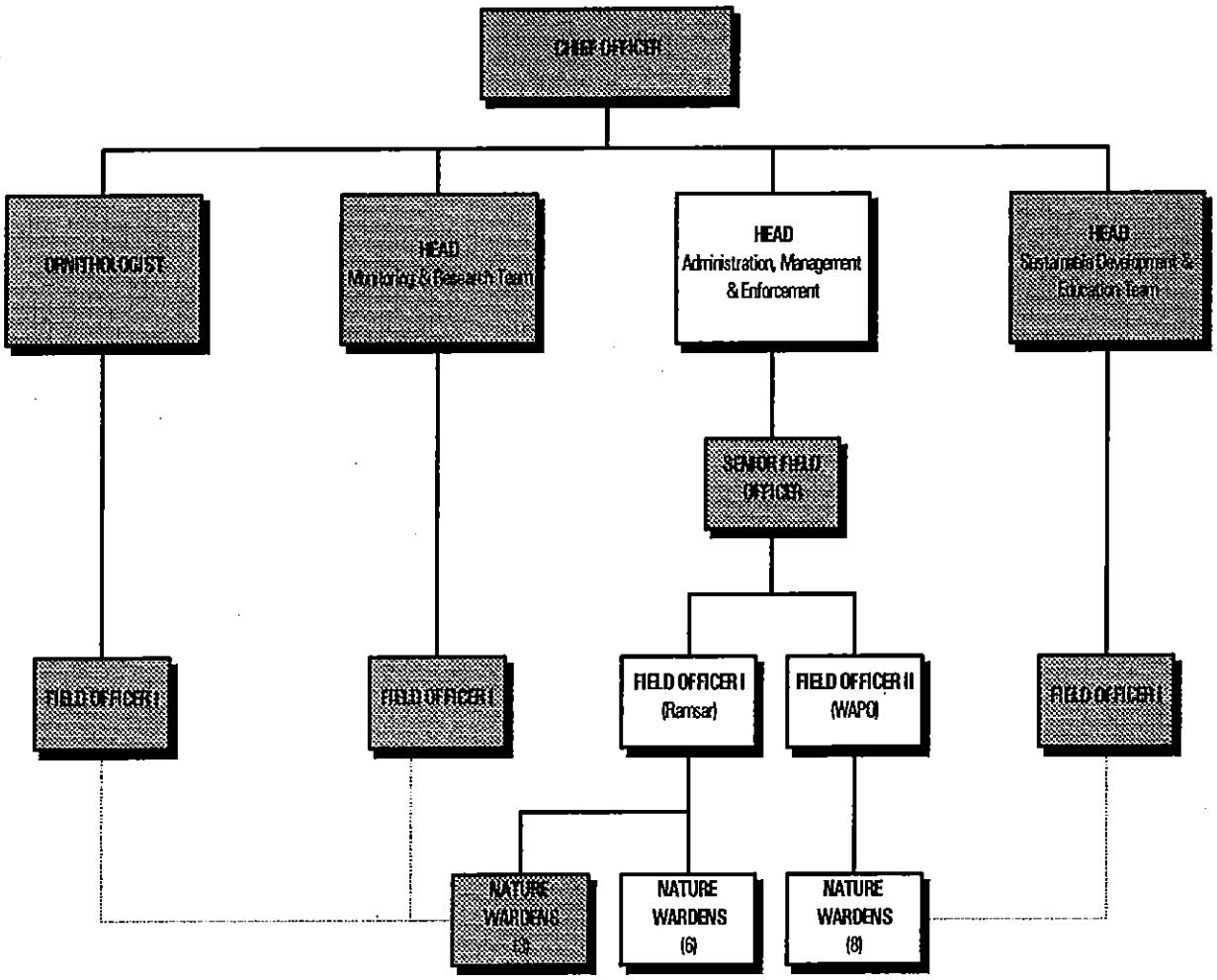
in association with
Wetlands Advisory Service

Title

Zoning Plan

DATE : Dec 1996 FIGURE NO. 1

FIGURE 2: Recommended Staffing Structure



Posts in shaded boxes are new positions within AFD requiring recruitment.

Appendix I

Objectives Serving the Ramsar Site Management Goals

Objectives serving GOAL 1:

OBJECTIVE 1.1: Establish and maintain the institutional infrastructure, staff capacity, equipment, planning and reporting systems, work schedules and other resources required to manage the Ramsar site adequately.

OBJECTIVE 1.2: Identify, monitor and adhere to all legal obligations pertaining to Ramsar site designation, ownership and occupation, administration and management.

OBJECTIVE 1.3: Formulate and apply appropriate legislation and regulations to secure and enhance Ramsar site protection and management.

OBJECTIVE 1.4: Mark and monitor the Ramsar site boundaries and internal zones.

OBJECTIVE 1.5: Establish and conduct a Ramsar site monitoring programme for management of biodiversity conservation and use of resources within their carrying capacity employing standardised methods of data collection and compilation utilising GIS techniques.

OBJECTIVE 1.6: Develop and coordinate the scientific research opportunities the Ramsar site provides into a coherent programme, particularly where this can assist applied management of the Ramsar site.

OBJECTIVE 1.7: Formulate response plans to deal with accidents and emergencies.

OBJECTIVE 1.8: Encourage community-led projects for ecologically sustainable development based on the Ramsar site's resources, particularly those which can attract private investment.

Objectives serving GOAL 2

OBJECTIVE 2.1: Prepare and implement recovery plans for all globally threatened species for which the Ramsar site is or could be significant for maintaining their population at a local level.

OBJECTIVE 2.2: Prepare and implement conservation plans for all other species of waterfowl for which the Ramsar site supports a significant proportion of the global or biogeographic population.

OBJECTIVE 2.3: Maintain the capacity of the Ramsar site to support internationally important numbers of waterfowl.

OBJECTIVE 2.4: Ensure the adequate protection and maintenance of all organisms for which the Ramsar site is a taxonomic type locality.

Objectives serving GOAL 3:

OBJECTIVE 3.1: Maintain and where appropriate increase the numbers of other species of conservation importance.

OBJECTIVE 3.2: Identify and prepare distribution maps of exotic or invasive species, evaluate their ecological functions, and prevent any deleterious extension in the Ramsar site.

OBJECTIVE 3.3: Maintain and improve wetland habitat quality, including the restoration of wetland habitats.

Objectives serving GOAL 4:

OBJECTIVE 4.1: Promote and facilitate community involvement in all aspects of the Ramsar site and its management.

OBJECTIVE 4.2: Remove rubbish, scrap, disused machinery and dilapidated structures from the Ramsar site.

OBJECTIVE 4.3: Maintain features of historic or cultural value.

OBJECTIVE 4.4: Develop the potential of the Ramsar site for environmental education and raising awareness in harmony with the ecological objectives of the Ramsar site.

OBJECTIVE 4.5: Facilitate increased public access to the Ramsar site for uses that are in harmony with the ecological objectives of the Ramsar site and which can encourage investment from the private sector.

Objectives serving GOAL 5:

OBJECTIVE 5.1: Co-operate with external organisations, especially internationally, to broaden experience and generate support for the implementation of the management plan.

OBJECTIVE 5.2: Participate in activities relating to the improved conservation of wetlands and waterfowl in the East Asian/Australasian flyway.

OBJECTIVE 5.3: Identify areas outside the Ramsar site which are important for the continued existence of species within the Ramsar site and draw them to the attention of the competent authorities in order to protect them.