

Focus Group on Terrestrial Habitat Biodiversity Strategy and Action Plan (Sixth Draft)

OBJECTIVES

The objectives of the Terrestrial Habitat Focus Group are to recommend and to prioritize **strategies and actions** which address gaps and issues in the ***classification, identification, assessment, protection, restoration or rehabilitation, and management*** of terrestrial and freshwater habitats – *in an effort to conserve and restore biodiversity, reduce biodiversity loss, mitigate threats and enhance ecological resilience in line with the principles of the Convention on Biological Diversity.*

DRAFTING PROCESS

Meetings were held on 10 December 2013 (Brainstorming key priorities, HKU), 22 January 2014 (Information gaps, Fringe), 7 May 2014 (Wetlands, AFCD), 8 July 2014 (Wetlands, AFCD), 28 July 2014 (Actions draft 1, AFCD), 8 August 2014 (Actions draft 2, AFCD), and 19 August (Actions draft 3, AFCD). Agriculture, Fisheries and Conservation Department attended all meetings. Planning Department (PlanD) attended the wetland meetings. Papers were circulated among members (list appended) for input. The fourth draft was reviewed during the Eighth Meeting of the Terrestrial Biodiversity Working Group on 3 September 2014. The fifth and sixth drafts were amended in response to comments from members and AFCD.

The next step, i.e. the recommended strategies and actions, will have to be deliberated with relevant Government departments and stakeholders before the Focus Group can submit final recommended Actions and Strategies.

CONVENTION ON BIOLOGICAL DIVERSITY AND HONG KONG'S TERRESTRIAL HABITATS

The critical Aichi Biodiversity Targets (ABTs) relevant to the current status and trend of Hong Kong's terrestrial habitats are:

ABT 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

ABT 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

ABT 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

With Hong Kong's much celebrated network of protected areas ABT 11 appears to have been met in 1977. However given the permitted and planned land uses under prevailing policies today, the rate of loss of terrestrial habitats is set to increase.

To take effective and urgent action to halt the loss of biodiversity there is a need to ensure pressures on terrestrial biodiversity are reduced and ecosystems are restored or rehabilitated.

STRATEGIES AND ACTIONS FOR PROTECTION AND ENHANCEMENT OF HONG KONG'S TERRESTRIAL BIODIVERSITY

The members of the focus group concurred on the following 13 strategies and actions which are set out in detail in the next sections:

1. Enhance classification, identification and assessment of terrestrial habitats in Hong Kong;
2. Recognize and mitigate the inherent loss of biodiversity due to on-going and planned development;
3. Expand and enhance protection for Deep Bay, Mai Po and the Ramsar site;
4. Enhance management of the existing Country Parks and Special Areas;
5. Protect enclaves and surrounding Country Parks from development;
6. Protect the biodiversity legacy and habitats within the Frontier Closed Area;
7. Expand the Protected Areas System as a comprehensive safety net for Hong Kong biodiversity;
8. Better protect and manage land zoned for conservation and agricultural uses;
9. Critical review of rezoning of conservation, green belts and agriculture zones for development;
10. Protect, enhance and manage streams, rivers and riparian zones;
11. Protect Hong Kong's remaining natural lowlands and freshwater wetlands;
12. Retain and enhance connectivity among and between protected areas by developing a system of wildlife corridors;
13. Set up and manage an ecological hotspots and eco-vandalism alert system.

1. Enhance classification, identification and assessment of terrestrial habitats in Hong Kong

Coverage: 1,104 km²

STATUS

- a. Protected areas and zoning for conservation uses help protect valuable habitats. Existing protected areas and areas zoned for conservation uses do not include all areas of good quality natural landscapes and habitats.
- b. Detailed data on the extent or rate of current and forecasted change of habitat conditions outside protected areas are lacking.
- c. Decisions to conserve and protect valuable areas and habitats are derived from policies and studies from Government, and input from non-government organizations and the community.
- d. Information on the quality of habitats influences policy decisions and the intention to conserve and protect.
- e. Mapping, classification and ranking of ecological values of landscapes and habitats has been the subject of various Government and academic studies. Different studies are and have been conducted to identify habitats of specific taxa; to identify specific habitat types; to survey local biodiversity and ecological values of areas subject to planning, development or infrastructure; etc. The scope, the scale, the classification and ranking of habitats and ecology in these studies vary.
- f. Although some studies (**AFCD provide the formal names**) were territory wide and a territory-wide inventory of terrestrial and freshwater (including wetland) biodiversity was created in 2001 (with new and old data), the inventory is not complete, up-to-date or comprehensive, and is not based on any formal classification of terrestrial habitat types.
- g. The AFCD territory wide biodiversity surveys looked at the major taxa groups, including mammals, birds, freshwater fish, herpetofauna, butterflies, odonates, some beetles and plant communities. Habitats have also been mapped in studies on wetlands, fung shui woods etc. Lesser known taxa groups have yet to be identified and studied. Coverage of invertebrates – especially some major insect orders - is fragmentary. Areas of lesser priority or remote sites have yet to be studied. Our ability to assess habitat conditions in the lowland New Territories is limited, and this is a matter for concern given rates of land-use change and likely habitat degradation.
- h. Emergent threats to Hong Kong's habitats and biodiversity from climate change or those inherent in ongoing, approved or provisional development plans, or permitted land uses, have yet to be identified and/or adequately quantified.

ACTIONS

- i. Develop a standardized classification of habitat types reflecting among others irreplaceability, ecological integrity, representativeness, management-dependence, and taking into account among others the Ratcliffe Criteria.
- j. Review and consolidate the habitat inventory classification systems across different regulatory systems.
- k. Review the methodology and develop guidelines for use of biological indicators including ecological guilds susceptible to different types of threat.
- l. Maintain an up-to-date database of previous and ongoing habitat surveys and assessments and make the information accessible to the public (with selected data subject to security clearance to minimize risk of poaching or eco-vandalism).

- m. Review and consolidate all available information, identify knowledge gaps in habitats, areas, taxa, threats and action plans, and fund studies to address shortfalls in information.
- n. Develop a GIS map identifying habitats and regularly update the habitat map by monitoring the status and trends of habitats. The map should identify the conservation and protection status of each and all habitats and reflect among others irreplaceability, ecological integrity, representativeness, and management-dependence
- o. Monitor and report annually, the actual as well as the anticipated rate of loss in the extent and quality of terrestrial habitats.
- p. In the meantime, urgently review policies, plans and zoning, and assess emergent threats, in order to forecast or predict changes to Hong Kong's habitats and their biodiversity.

BENEFITS

- q. Measuring trends allows decision makers and public to better understand the extent and severity of impacts as well as progress of conservation under different policies, plans and actions.
- r. Generation of information that will allow conservation efforts (including habitat restoration or rehabilitation) to be focused on critical areas where rates of change are highest, or where species of particular conservation importance reside.
- s. The information generated provides the basis necessary for reporting the effectiveness in meeting the conservation and biodiversity targets agreed.

2. **Recognize and mitigate the inherent loss of biodiversity due to on-going and planned development**

Coverage: xxx km²

STATUS

- a. The loss of biodiversity is inherent in the loss of natural habitats due to development permitted under existing planning and land conditions for undeveloped sites, or as a result of changes in land uses under policies and plans drafted to respond to perceived future economic and social circumstances such as:
1. Plans for New Development Areas (**PlanD: xxx km²**) are under preparation;
 2. Sites (**PlanD: xxx km²**) currently zoned for conservation uses including green belt have been identified for development;
 3. New reclamation plans which may impact (**PlanD: xxx km²**) natural shore lines;
 4. Opening up parts (**PlanD: xxx km²**) of the Frontier Closed Area for development and village expansion;
 5. (**PlanD: 1,500ha??**) of mostly vegetated village land is available for small house development;
 6. Village expansion areas (**PlanD: xxx km²**) identified in country park enclaves;
 7. Destructive and polluting uses ("Melhado") and land filling permitted on private agriculture land;
 8. Various ongoing infrastructure developments (Examples: XRL, Tuen Mun Chep Lap Kok Link, road widening, Heung Yuen Wai cross border crossings, etc.) (**PlanD: xxx km²**);
- b. The extent of biodiversity losses due to development of habitats depends on the area of habitat, habitat type, mitigation measures and the avoidance of development of land which is of high ecological value. The ecological values of the land impacted by ongoing development varies since it can include areas of brown field; de-vegetated areas; vegetated land that serves as foraging areas for wildlife; mature secondary forest; and, wetlands and streams which are particularly important habitats for wildlife.

ACTIONS

- c. With the implementation of the Convention on Biological Diversity as well as existing policies, guidelines and mechanisms to minimize biodiversity losses, the cumulative impacts of ongoing, planned and committed development on the loss of habitats and biodiversity will need to be adequately assessed. Increased conservation commitment and resources are needed to account for and mitigate these inherent losses.
- d. Identify the land areas (**PlanD: xxx km²**) where development and infrastructure is permitted, planned, committed or in progress, and the areas of surrounding land susceptible to impacts from such developments, and estimate the expected loss of habitats.
- e. Identify the extent and quality of the different habitats which will be lost and predict the potential losses of biodiversity.
- f. Estimate and predict the potential losses of habitats and biodiversity inherent due to development permitted under current zoning and land conditions and losses likely to occur under scenarios envisaged by prevailing planning studies and policy initiatives.
- g. Conduct Strategic Environmental Assessments including cumulative impact assessments of the many ongoing policy initiatives and plans, and identify and estimate biodiversity gains and unavoidable losses of alternative scenarios.

- h. Estimate, identify and improve biodiversity benefits under the prevailing environmental impact assessment process.
- i. Explore opportunities for new and additional ecological compensation measures on a territorial or project scale (e.g. expanding protected areas; 'development tax' to fund high-priority conservation needs; etc.)

BENEFITS

- j. True-cost accounting of the individual and cumulative impacts of development.
- k. Ability to forecast and predict biodiversity losses, and thus to be able to plan for and implement mitigation and alternative measures to meet CBD targets.
- l. Justification for territorial strategies for mitigation including restoration or rehabilitation of degraded habitats to enhance their value for wildlife; expanding protected areas elsewhere; and other measures.

3. Expand and enhance protection for Deep Bay, Mai Po and the Ramsar site

Coverage: 15-20 km²

STATUS

- a. 15 km² of mudflat, mangroves and fish pond/gei wai within the Inner Deep Bay are listed as a “Wetland of International Importance” under the Ramsar Convention. The Government is obligated to promote the conservation of the Mai Po Inner Deep Bay Ramsar Site. The existing and contiguous, active or abandoned fish ponds in the Deep Bay area is designated as a ‘Wetland Conservation Area’ (WCA) and Wetland Buffer Area (WBA) under the Town Planning Board Guideline 12C to conserve the ecological value of the fish ponds which form an integral part of the wetland ecosystem in the Deep Bay Area.
- b. The Hong Kong Wetland Park is managed by AFCD while WWF, with support from the Government, is responsible for the conservation management of the wetland habitats at the Mai Po Marshes Nature Reserve. The annual subvention currently provided by Government for management is significantly less than the cost of that management. The reliance on donations may not be sustainable in the long term and is not compatible with HKSAR Government’s responsibility to manage the inner Deep Bay Ramsar site under the Ramsar Convention.
- c. Development pressure from small land owners and private developers in and surrounding the Deep Bay area continues, as does the intensification of fish farming that involves concreting the mud bunds, putting plastic sheets on bunds and adopting measures to prevent water birds from foraging in the ponds.
- d. There are concerns among various stakeholders including green groups, land owners as well as developers over the Public Private Partnership mechanism. The policy, long-term arrangement and mechanism of mitigation wetlands as part of development approvals under EIA, planning permission or nature conservation policies requires further review.

ACTIONS

e. Site protection and management

- i. To establish the ecological value of the Outer DB wetlands (e.g. Pak Nai, intertidal mud flats) through survey/inventory.
- ii. To review the justifications including ecological data for extending the present zoning plan, Ramsar site and/or MA scheme to include outer Deep Bay area.
- iii. To consider increasing the annual Government support so that the costs of managing a significant portion of the Mai Po Marshes Nature Reserve can be met with stable funding as public donations, inevitably, fluctuate over time.
- iv. To consider the provision of visitor screening (to avoid disturbance of wildlife), as well as other facilities and educational materials for visitors, to reduce impacts on sensitive sites in Deep Bay, such as Nam Sang Wai development and the future cycle track, and to enhance their educational/recreational value.

f. Filling key knowledge gaps

- i. To launch a new wetland study to examine the ecological value of different management practices for existing wetland areas including traditional fish ponds, commercial fish ponds and abandoned fish ponds with a view to improving the ecological values of fish ponds.

- ii. To carry out surveys to produce an inventory of fish pond and gei wai communities and to identify the basis of biological production in these systems.
 - iii. To gather and consolidate existing regional information (e.g. bird populations and trends, wetland habitats and species under threats) and to identify information gaps for further study.
 - iv. To explore possibilities to incorporate target surveys on wetland associated taxa during regular monitoring of MA programme to compare traditional vs intensively farmed ponds.
 - v. Study the current and projected impacts of Red Fire Ants and other invasive species, such as Tilapia and Mosquito fish, on Deep Bay wetlands and their biota.
 - vi. To include nocturnal use of fish ponds/mangroves by water birds in current and future monitoring/surveys.
- g. Monitoring**
- i. Future and on-going monitoring should be targeted towards answering specific questions that can help guide management and conservation, with regular analysis and dissemination of findings built into the programme.
- h. Holistic planning and management**
- i. To set up, in consultation with ACE-NCSC, a “Deep Bay Advisory/Steering Committee” to improve participation of all key stakeholders in advising the Conservation Authority (AFCD) and Government to formulate a holistic plan of wetland conservation and management for Deep Bay area.
 - ii. To set up a Statutory Wetland Trust (or to include this function under a territory-wide Nature Conservation Trust) into which land can be vested and funds donated to manage the vested wetlands as an improvement on the current mechanisms available under ECF. The vesting of land and funds to the Trust is to be recognized in surrender and re-grant of land for development.

BENEFITS

- i. Local and regional conservation gains through sustainable management of Deep Bay wetlands.
- j. As coastal areas in the region are facing development pressure, Deep Bay is gaining regional significance in the conservation of biodiversity as a major stop for migratory birds along the East Asian Australasian Flyway and also the largest mangrove area in the Pearl River Estuary.
- k. Pioneer and showcase effective wetlands management models, and sustainable management of Mai Po Marshes Nature Reserve and the associated Ramsar site.

4. Enhance management of existing Country Parks and Special Areas

Coverage: 442 km²

STATUS

- a. There are currently 24 country parks and 11 special areas outside country parks with a total area of about 442 km².

ACTIONS

- b. Increase resources to enable the Country and Marine Parks Authority to better manage and safe guard the country parks from poaching, eco-vandalism, hill fires and other risks to the local biodiversity.
- c. Review and enhance the biodiversity conservation objectives, management plans and management works of the country and marine parks authority to enhance the ecological value of country parks.
- d. Proactive management of selected habitat types such as freshwater wetlands and montane grassland is required to maintain the continued existence of these habitats, and to maintain the mosaic of succession to safeguard and enhance HK's biodiversity, especially threatened species confined to these habitat types.
- e. To pursue the restoration or rehabilitation and management of terrestrial and freshwater habitats (e.g. rice paddies as recommended by the Status and Trend and Red List FG) to sustain and enhance biodiversity in accordance with the conservation objectives to be adopted, with ongoing monitoring and adaptive management to ensure that stated targets are met; relevant findings in this regard should be accessible to the public.
- f. Enhance transparency and public participation in the decision making regarding the country parks and special areas by opening up the Country Park Committee meetings to the public, and by publishing all papers, agenda and minutes, except when a closed door meeting is justified to deal with a specific sensitive matter.
- g. Revisit the strategy for the designation of new country parks as recommended by the Audit Commission in 2013.

BENEFITS

- h. The ecological values of country parks can be maintained and further enhanced.
- i. Local conservation gains with the enhancement of the ecological values of country parks and special areas may, under certain circumstances, be adopted as a cost-effective mechanism to mitigate biodiversity losses elsewhere.

5. Protect enclaves and surrounding Country Parks from development

Coverage: 442 km² plus 14km²

STATUS

- a. 54 enclaves (about 1,400ha in total) most of which are located deep inside country parks were identified in 2010 as outside the control of both the Country Park Ordinance and the Town Planning Ordinance. They comprise a mosaic of private land and government land, often associated with remotely located, depopulated indigenous villages.
- b. In the 2010-11 Policy Address the Government undertook to either include these 54 enclaves into country parks (Country Park Ordinance (CPO)), or to determine their proper uses through statutory planning (Town Planning Ordinance (TPO)), so as to meet conservation and social development needs.
- c. 27 (some 1,100ha) or so of the 54 enclaves face development pressure under the Small House Policy and from incompatible uses of agricultural land.
- d. Under TPO the Planning Department or the Town Planning Board would not allocate the resources for habitat/amenity improvement. Under CPO the Government will manage the areas, habitat and vegetation, improve supporting facilities, provide patrols and enforcement of Country Park Regulations, and arrange refuse collection. Under the CPO the Country and Marine Park Authority will assess any proposed development of land, and aggrieved occupiers may seek compensation when uses permitted under existing land lease conditions are denied. Within V-zones under TPO, oversight is further limited to the Lands Department's prevailing administration of the small house policy.
- e. Under the prevailing small house policy, construction and increase in population will result in water pollution due to lack of effective sewage and drainage facilities; sediment run-off; increase in traffic; demand for roads and transport facilities; light pollution; tree felling; loss of vegetation and erosion of hill-sides; as well as increase the risk exposure to poaching; fire; littering and unauthorized waste disposal.
- f. A substantial increase in population and associated infrastructure will impact the ecology and landscape values of the enclaves themselves and the surrounding country and marine parks.

ACTIONS

- g. Apply the precautionary principle in permitting village expansion in enclaves surrounded by country and marine parks.
- h. Study the cumulative impacts of permitting village expansion and control development pressure to protect the enclaves and the surrounding country and marine parks.
- i. Protect the 54 enclaves by restricting the areas where small house development is permitted.
- j. Protect the country parks by incorporating the enclaves within the parks so that they benefit from management and control under the Country Park Ordinance. Or at a minimum by incorporating the ecologically important habitats within these enclaves within the parks under the Country Parks Ordinance (CPO) and by determining the proper uses of the remainder through statutory planning.
- k. Ensure the enclaves or at least all the areas with high landscape and/or ecological value are actively managed under the Country Park Regulations.
- l. Where (small house) developments are considered, stringent percolation tests are required prior to deciding on the appropriate sewage treatment systems. All geotechnical works,

roads, trails, footpaths, sewage, drainage, waterworks , and all other supporting facilities and infrastructure should be designed, coordinated and implemented by Government.

BENEFITS

- m. Protecting the country parks and the important habitats inside the enclaves.
- n. Minimize destruction of the few remaining freshwater wetlands and other lowland habitats within enclaves arising from small house developments and associated infrastructure.
- o. Reduce the extent of cumulative degradation of the surrounding protected areas.

6. Protect the biodiversity legacy and habitats within the Frontier Closed Area

Coverage: 24km²

STATUS

- a. In January 2008, the Security Bureau announced that about 2,400 hectares of land will be released from the Frontier Closed Area (FCA) in phases. This former closed area remained underdeveloped relative to the urbanization of the remainder of the New Territories that has occurred in recent decades.
- b. The FCA is a buffer zone with high ecological values between densely developed Shenzhen and urban development in the New Territories. It connects with country parks in the New Territories. Part of the FCA, i.e. Robin Nest, acts as the only remaining wildlife corridor linking habitats in Shenzhen (the Wutongshan Forest Park) and those in Hong Kong.
- c. Some locations within the FCA such as Hoo Hok Wai have been designated appropriately for conservation land uses (**PlanD: xxkm², xx%**), while other areas have been zoned for development, infrastructure and village expansion (**PlanD: xx km², xx%**).
- d. An estimated area (**PlanD: xxx km²**) of land with high ecological values including the following habitats (**PlanD: hectares of different habitat types zoned for potential development**)
- e. Lin Ma Hang Stream which is an SSSI will be impacted by adjacent development including small houses. Wetland habitats in areas such as Sha Tau Kok are increasingly impacted by authorized and unauthorized developments after opening of the FCA.

ACTIONS

- f. Apply the precautionary principle in allowing development in the former FCA.
- g. Identify the habitat types impacted by permitted, planned and committed developments, and the extent of the areas.
- h. Assess and fully acknowledge the ecological value of the FCA area, and its potential importance to the Hong Kong and regional community, and identify and adopt special and stringent measures which can help minimize spill-over impacts of these developments on adjacent sensitive areas.
- i. Where (small house) developments are considered, stringent percolation tests are required prior to deciding on the appropriate sewage treatment systems. All geotechnical works, roads, trails, footpaths, sewage, drainage, waterworks, and all other supporting facilities and infrastructure should be designed, coordinated and implemented by Government.

BENEFITS

- j. Limit the loss of biodiversity arising from planned development, infrastructure and village expansion.

**7. Expand the Protected Areas System as a comprehensive safety net for Hong Kong biodiversity;
Coverage: XXX km²**

STATUS

- a. Hong Kong has an extensive system of protected areas. (**PlanD: xx%**) of Hong Kong's land is protected as Country Parks, Special Areas, or under strict conservation use zoning including Conservation Area and Coastal Protection Area. In all, **over 50% (PlanD confirm)** of Hong Kong's countryside is protected.
- b. Lowland and valley bottoms are under-represented in the Protected Area System (Yip et al. 2004¹), and as a result lowland habitats and associated taxa have been and continue to be subject to development pressure.
- c. Under the New Nature Conservation Policy in 2004, 12 priority sites were identified for management agreements and public-private partnerships (PPP) as practicable ways to conserve ecologically important sites under private ownership within limited resources. In 2014 limited progress has been recorded.
- d. Over time, new protected areas have been proposed or discussed.

ACTIONS

- e. Maintain the Protected Area System, and extend where appropriate and practicable
- f. Cover ecologically important habitats currently outside the Protected Area System, by extension of existing Country Parks and Special Areas; and/or designating conservation zonings under statutory plans.
- g. Actively identify areas for protection in this way. Commence soonest consultation of the community on potential areas for designation and protection under Hong Kong's Protected Area System
- h. Acknowledge conservation as a public purpose under the land resumption ordinance to expedite protecting habitats.
- i. Reconsider land resumption, land exchange, off-site mitigation and transfer of development rights in support of conservation of habitats on private land – measures which were first proposed during the 1991 town planning review and the 2003 consultation on the new nature conservation policy.
- j. Proceed with the designation of Robin's Nest as a new country park.
- k. Reconsider Lamma Island, Tung Lung Chau, Po Toi and other areas which have previously been identified, proposed or discussed (**AFCD TO PROVIDE LIST**) as potential sites for Country Park and Special Area designation.
- l. Reconsider actively the designation of Shui Hau mud flat as an SSSI (see also Marine FG)
- m. Ensure that that all SSSI (**PLAND/AFCD to confirm status of each SSSI**) (statutory, administrative, CPO, TPO) are formalized under the Town Planning Ordinance.
- n. Monitor and review the conservation effectiveness of the system of protected areas, including production of regular (e.g. five-yearly) reports that are widely disseminated so as to provide an opportunity to communicate and for public appraisal and comment.

¹ Yip, J.Y., Corlett, R.T. & Dudgeon, D. (2004). A fine-scale gap analysis of the existing protected area system in Hong Kong, China. *Biodiversity & Conservation* 13: 943-957

BENEFITS

- o. Active and ongoing review of protection of land and habitats in light of changing public aspirations and economic, social and environmental circumstances.
- p. Decisions and actions aligned with BSAP policies and targets
- q. Transparent evidence of and discussion over the optimal functioning of the protected area system in biodiversity conservation and the provision of ecosystem services.

8. Better protect and manage land zoned for conservation and agricultural uses

Coverage: xxx km²

STATUS

- a. The Town Planning Ordinance empowers the Town Planning Board to prepare town plans with statutory land use zones under clause 4(1)(g) for '*country parks (CP), coastal protection areas (CPA), sites of special scientific interest (SSSI), conservation areas (CA), green belts (GB) or other specified uses*' to promote conservation or protection of the environment.
- b. **(PlanD: XX km² or XX%)** of all land is zoned for conservation uses, including **(PlanD: breakdown XX km² and % each zoning type)**. In addition, **(PlanD: xx km² or xx%)** is zoned for agriculture uses.
- c. Private as well as government land zoned for conservation uses continue to be subject to eco-vandalism, with limitation in legislation, enforcement, restoration and resources.
- d. For areas without prior Development Permission Area plans (DPA) limited planning control enforcement can be carried out despite subsequent conservation zoning.
- e. Planning approvals for development under the TPO have at times included conditions for habitat management (e.g. Fung Lok Wai case). Also tree preservation and other relevant clauses have at times been included in land leases.
- f. There are inadequate arrangements for habitat management and restoration under the Town Planning Ordinance, or under Lands Department.

ACTIONS

- g. Publish Development Permission Area plans (DPA) for all land not yet covered with statutory plans (identified on visual appended to this document) to ensure there is adequate protection against eco-vandalism and incompatible and polluting land uses.
- h. Ensure that that all SSSIs are formalized under the Town Planning Ordinance, and that their importance is recognized (and appropriate action recommended) in the EIA process.
- i. Establish regulations and by laws similar to CPO regulations for improved management and control of GB, CA, CPA and SSSI in line with local circumstances.
- j. Monitor the effectiveness of zoning for conservation and agriculture uses with regular reports and opportunity for public appraisal and comment.
- k. To initiate a community engagement process under the auspices of the CBD BSAP to identify natural landscapes and habitats for conservation, including soliciting proposals from the public for zoning for areas for conservation uses.
- l. Identify and protect areas to promote sustainable agriculture to contribute to biodiversity conservation.
- m. Regulate agricultural use of abandoned farmland which, due to natural ecological succession processes, have become covered by sensitive or potentially-valuable habitats (e.g. foraging areas for animals of conservation concern) (e.g. by moving agriculture uses to column 2 under TPO, so they are not always permitted uses on abandoned but vegetated farmland).
- n. Review and improve the adequacy of protection of land and habitats with zoning for conservation (GB, CA, CPA, SSSI) and agriculture uses under the town planning ordinances, and specifically where there is a lack of enforcement due to absence of prior DPA.
- o. Identify and address the needs to strengthen enforcement and powers against vegetation clearance, pollution, land and stream filling, stream diversion, culverting, unauthorized road building, and other forms of eco-vandalism on private land.

- p. Establish administrative measures and guidelines, and legislation, against vegetation clearance and tree-felling on private land under protection zonings.
- q. Streams and rivers (and the narrow riparian margins) are usually on Government land. The land and planning authorities should safeguard these by not having “V” zones or approving small house developments next to these. Enforcement regarding illegal stream diversion, filling and destruction on Government land should also be strengthened.
- r. Strengthen monitoring work by the government and enforcement powers against failures to reinstate land back to its original condition/habitat type and to ensure compensation for the lost ecological functions.

BENEFITS

- s. Safeguard biodiversity and limit, prevent or, preferably, reverse the extent of habitat degradation and losses.

9. Critical review of rezoning conservation, green belt and agriculture zones for development

Coverage: xxx km²

STATUS

- a. Green belts conserve the existing natural environment amid the built-up areas at the urban fringe, and this zoning contains a general presumption against development; green belts can also serve as a buffer between Country Parks and developed areas and can add landscape value to the latter.
- b. Conservation areas protect and retain the existing natural landscape, ecological or topographical features of the area for conservation, educational and research purposes and to separate sensitive natural environment such as SSSI or Country Park from the adverse effects of development. There is a general presumption against development in these zones.
- c. Agriculture zone protects good quality land for agricultural uses.
- d. If located in strategic areas between country parks, green belts, conservation areas and/or agriculture zones can play the important role of wildlife corridor and contribute towards the connectivity of the protected area system.
- e. Under the Land Supply Strategy, individual sites currently zoned for conservation and agricultural uses, including green belt, have been identified for change to development uses. Some are well vegetated and/or close to ecologically sensitive areas.

ACTIONS

- f. Apply the precautionary principle in deciding on rezoning land reserved for conservation and agriculture uses for conversion to land set aside for development uses.
- g. Clearly stated criteria and objectives for assessments of ecological values (including connectivity function), tree preservation, and landscape values should be formulated and tested against CBD targets prior to rezoning conservation and agriculture areas for development uses. Alternatives should be assessed and evaluated.
- h. Clearly stated criteria and objectives for assessments of ecosystem services and biodiversity values (including connectivity function) of green belts should be formulated and tested against CBD targets prior to rezoning conservation and agriculture areas for development uses. Alternatives should be assessed and evaluated.
- i. Ecological surveys and impact assessments (including cumulative impacts) should be conducted during site selection stage prior to rezoning or approval of planning applications, not at the design stage. The detailed assessment results (not just a page of brief summary) should be published during public consultations and submitted to Town Planning Board for consideration.
- j. When areas zoned for conservation and agriculture are lost, land for conservation zoning should be sought as compensation for the biodiversity losses.

BENEFITS

- k. Active and ongoing review of land usage and protection of habitats in light of changing public aspirations and economic, social and environmental circumstances
- l. Evaluate decisions against biodiversity policy and targets set up in the BSAP, and act accordingly.
- m. Conserving the landscape value and ecosystem services (e.g., clean air, cooling effect) provided by land zoned for conservation and agriculture uses to maintain the connectivity of the protected area system

10. Protect and enhance streams, rivers and riparian zones

Length of engineered channels: 338km (March 2012)

STATUS

- a. The ecological importance of streams, watercourses and freshwater systems have long been ignored and underestimated; thus many watercourses have been channelised in response to the perceived needs to prevent flooding, and to make land available for development.
- b. Many streams in urban areas/ rural villages have disappeared or became concreted channels, while others are receiving polluted discharges and have become ecological dead zones. This has been and is leading to local extinction of fish species; and the disappearance of breeding and nursery sites for herpetofauna, odonates and many other invertebrates. Furthermore the channelized areas create fragmentation of adjacent habitats, essentially creating barriers to movement for many fauna groups including reptiles, amphibians and mammals.
- c. Many streams and rivers (and their riparian zones) have been seriously degraded, modified or channelized due to development pressure on lowlands, the lack of enforceable zoning plans, permitted development in Country Park Enclaves and FCA areas, new town development and new development areas, and the demand for flood control measures.
- d. Once destroyed, natural stream/river systems and their complex biotic communities are very difficult if not impossible to recreate fully. Hence it is most effective and costs a lot less to protect natural rivers/streams than trying to restore channels.
- e. The policy to protect natural streams as captured in the ETWB TCW 5/2005 technical circular is insufficient to achieve stated aims.
- f. The Water Pollution Control Ordinance is also not able to be appropriately enforced to control stream/ river pollution in many rural areas, and thus many streams, as aforementioned, have been highly polluted and become ecological dead zones. This has been recognised by the Government².

ACTIONS

- g. Identify and protect important streams/rivers (please refer to the Ecologically Important Stream (EIS) list (existing and recommended) and the BSAP document entitled "Status, Trends, Red List Assessment and Recommendations on Freshwater Fish") and their riparian areas by incorporating them into the PAS so as to establish a network with a comprehensive and connected coverage of different habitat types, wildlife communities, and biodiversity.
- h. To avoid adverse impact on natural streams as well as its riparian zones from development as far as practicable.
- i. Promote safeguarding the remaining natural and semi-natural streams and rivers and their riparian zones from development, engineering works and eco-vandalism; as a general concept for all government departments.
- j. Aquatic habitats such as streams, riparian zones, marshes and ponds in relatively undeveloped areas such as the Country Park Enclaves and areas such as Tung Chung river valley, Pui O, and others should be urgently protected under the PAS. Immediate action is required for areas without enforceable zoning plans.
- k. For EISs (existing or recommended) in areas that currently lack any enforceable zoning plans (e.g., Tung Chung, Pui O, Sham Wat) or outside protected areas, appropriate and enforceable zoning plans/ measures for their protection should be put in place (e.g., through

² <http://www.legco.gov.hk/yr04-05/english/counmtg/hansard/cm0126ti-translate-e.pdf>

the gazette of appropriate zoning plans, re-zoning, publication of new practice notes to guide land use planning/application, incorporating these habitats into the PAS). Protection of these habitats should also involve establishment of appropriate buffer zones; in particular, protection of stream riparian zones should be mandated. The current EIS list should also be updated, revised and finalized and made effective through statutory/non-statutory measures.

- l. For large-scale development projects such as the Tung Chung Remaining Area Development, NENT NDA, North NT NDA, Yuen Long South NDA, etc., the natural and semi-natural streams, rivers and freshwater marshes (and their surrounding riparian zones) should be protected through appropriate land use planning (i.e., Integrating natural streams, rivers and riparian zones with new town development through appropriate land use designation, urban design, and drainage management to maintain their biodiversity value and outlook) beyond the current practice and in accordance with Aichii targets.
- m. For (g), (j), (k) and (l) above, a holistic and ecosystem approach should be applied (i.e., the whole stretch of the watercourse (e.g., from the estuarine area to the upper section) should be protected).
- n. Study, promote and adopt “integrated river basin management approach” in land-use planning and drainage strategies in line with international best practices.
- o. Channelisation of rivers and streams should be avoided and, only if there is no reasonable alternative, a channel should be eco-friendly with site-specific design, engineering and stream maintenance should be improved following liaison between relevant departments, stakeholders and environmental NGOs.
- p. Forcefully implement rural and village sewerage and ensure full connection. Where there are no communal sewers, development should be restricted.
- q. The effectiveness of the Water Pollution Control Ordinance should be reviewed (i.e., in relation to stream/ river pollution).
- r. Identify opportunities for habitat enhancement at existing river channels that will make a significant contribution to biodiversity conservation, and provide ecologically friendly measures for new river improvement works. A pro-active and well-funded program is required for restoration of channelised watercourses and clear biodiversity objectives is needed to guide such work
- s. Identify and adopt innovative ways to collect and discharge surface runoff to reduce pollution of rivers and streams (e.g. artificial wetlands).
- t. Review the impacts and procedures for river/ stream maintenance and hygiene works (e.g., desilting, weeding, mosquito and pest control) with an aim to improve these works to minimize ecological impacts.
- u. Water quality and biodiversity of all important stream/ aquatic habitats should be closely monitored and reported.
- v. There is a need to establish environmental flow allocations for Hong Kong streams to ensure that aggressive water extraction, particularly during the dry seasons, does not impair conditions in lowland streams below water extraction points. At present, over-extraction of water from streams (either by government for water supplies, or by local, unauthorised users) can lead to dewatering of channels downstream.

BENEFITS

- w. Implementation of the integrated river basin management approach and other actions will help limit any loss of aquatic biodiversity, encourage recolonisation and the reintroduction of flora and fauna and to reduce the flooding risks to property and life.
- x. Improved health of watercourses and their banks will benefit the ecosystems to which they are connected, including riparian zones, the broader terrestrial landscape, and the coastal waters downstream. Maintaining the land water connection is especially important for amphibiotic species that have aquatic juveniles and terrestrial adults (e.g. newts, frogs, dragonflies and other aquatic insects).
- y. A comprehensive and connected protected area network that covers all representative habitats and communities and offers adequate protection to HK biodiversity and minimize extinction of species.
- z. Restoring channelised watercourse increases landscape and ecological values

11. Protect Hong Kong's remaining natural lowlands and freshwater wetlands

Coverage: xxx km²

STATUS

- a. Lowland areas and valley bottoms are under-represented in the protected area systems and are subject to high development pressure.
- b. In terms of area, freshwater wetlands are the most poorly represented (non-marine) habitat type in Hong Kong's Country Parks (Yip et al. 2014³).
- c. Unmanaged wetlands are facing various threats, such as natural succession turning them into terrestrial habitats, saline intrusion, and colonization of invasive species

ACTIONS

- d. Special status to be awarded to remaining important lowland habitats and the protection and management of the top sites
- e. Conduct regular on-the-ground surveys of wetlands of conservation interest to monitor the status of wetland communities
- f. Identify conservation actions to restore or rehabilitate and manage freshwater wetlands to maximize their biodiversity

BENEFITS

- g. Safeguard or enhance wetland biodiversity, limit the extent of degradation or loss of wetland habitat, and begin to enhance and restore these habitats and their associated biodiversity.

³ Yip, J.Y., Corlett, R.T. & Dudgeon, D. (2004). A fine-scale gap analysis of the existing protected area system in Hong Kong, China. *Biodiversity & Conservation* 13: 943-957

12. Retain and enhance connectivity among and between protected areas by developing a system of wildlife corridors

Coverage: xxx km²

STATUS

- a. The study on the Action Plan For Livable Bay Area of the Pearl River Estuary 2014 (PlanD) recognizes the wildlife corridor concept and ecological connectivity on a regional scale. Locally, some – but by no means all - protected areas are well connected.
- b. Habitat fragmentation was recognized during this BSAP process in an expert consultation as a major threat to biodiversity. The effects may act synergistically with climate change and cause a bigger impact. Areas which are adequately connected are inherently more valuable for biodiversity conservation and also represent habitat that tends to be more stable in the long term.

ACTIONS

- c. Identify lack of connectivity and risk of loss of connectivity between habitats and especially the protected areas. Employ creative ideas to link the fragmented areas e.g. under road animal highways, green bridges connecting fragmented patches over channelized streams, fish-ladders to allow movements across weirs and silt pits etc.
- d. Implement measures to protect, enhance and secure connectivity between protected areas, habitats and to the seas, in particular the following:
 1. Hong Kong Island
 - i. Wong Nai Chung Gap between Aberdeen CP and Tai Tam CP
 2. New Territories (Central and North East)
 - i. The Lower Shing Mun Reservoir Area, that is Smugglers Pass to the South and Needle Hill to the North, to connect Kam Shan CP and Shing Mun CP as an ecological corridor;
 - ii. Lam Tsuen Valley to connect Tai Mo Shan CP and Lam Tsuen CP. Even Small Houses have been encroached into Agricultural Zones of the Valley;
 - iii. Lam Tsuen CP is divided into two parts by Fan Kam Road;
 - iv. Robin Nest and Wo Hang area including Man Uk Bin which is connected with Ng Tung Shan to the north while the network extends to the Pat Sin Leng CP.
 3. Sai Kung
 - i. The Ma On Shan CP and Sai Kung West CP are narrowly connected at a tiny point between Shui Long Wo and Ngong Wo. This should be widened.
 4. Other concerned areas
 - i. The connectivity between the North East and Central New Territories;
 - ii. The connectivity between Deep Bay with Kai Kung Leng;
 - iii. The connectivity between Tai Po Kau Nature Reserve and Tolo Harbour.
- e. Identify and protect streams and riparian zones as corridors. Review connectivity options based on effectiveness and feasibility.

BENEFITS

- f. Ensuring connectivity between isolated populations will increase effective population size, allow out-breeding, and enhance their viability or ability to respond or adapt to environmental and climate change.
- g. Maintaining connectivity in a landscape level will allow natural (re)-colonisation and the range expansion of restricted/threatened species when conditions are suitable.

13. Set up and manage an ecological hotspot and eco-vandalism alert system

Cases reported each year: xxxx. Coverage: xxx km²

STATUS

- a. Not all recognized ecological hotspots (sites with disproportionate species richness) are protected, nor are all irreplaceable sites of species of conservation importance (Bogadek's legless lizard, Ayu sweetfish, Chinese Rasbora). Some are entirely unprotected such as along the Lantau coast including Pui O, Shui Hau, and other areas.
- b. As for areas zoned as Coastal Protection Area and Green Belt under the gazetted Outline Zoning Plans, ecological hotspots are under threat from eco-vandalism, pollution, land and stream filling, stream diversion, culverting, and unauthorized road building.
- c. Private as well as government land zoned for conservation uses continue to be subject to eco-vandalism, with limitation in legislation, enforcement, restoration and resources.
- d. The failure of enforcement is more poignant for areas without a prior DPA. Areas along the coast of Lantau (both north and south) for example are at risk of this legal loophole including the Tung Chung river valley.
- e. The process of designating protected areas takes time and resources.
- f. Enhancing enforcement is resource intensive as this requires cross-department coordination, investigation and evidence gathering, and legislation amendments.
- g. Better intelligence will help enforcement and deter eco-vandalism

ACTIONS

- h. Set up and publicise a user-friendly alert system so that members of the general public can report eco-vandalism cases.
- i. Set up and manage a cross-departmental team (under EPD?) to receive and act on reports of eco-vandalism and reports of ecological hot spots which are identified as under threat from development pressure. The cross departmental team can evaluate the situation and circumstances, and decide on interim and long term actions to ensure the identified hotspot is protected, and eco-vandalism is responded to with enforcement and reinstatement
- j. The cross-departmental team also recommends changes to practice notes, guidelines and regulations to address and improve shortfalls and shortcomings in the protection of ecological hotspots and the protection of habitats against eco-vandalism.

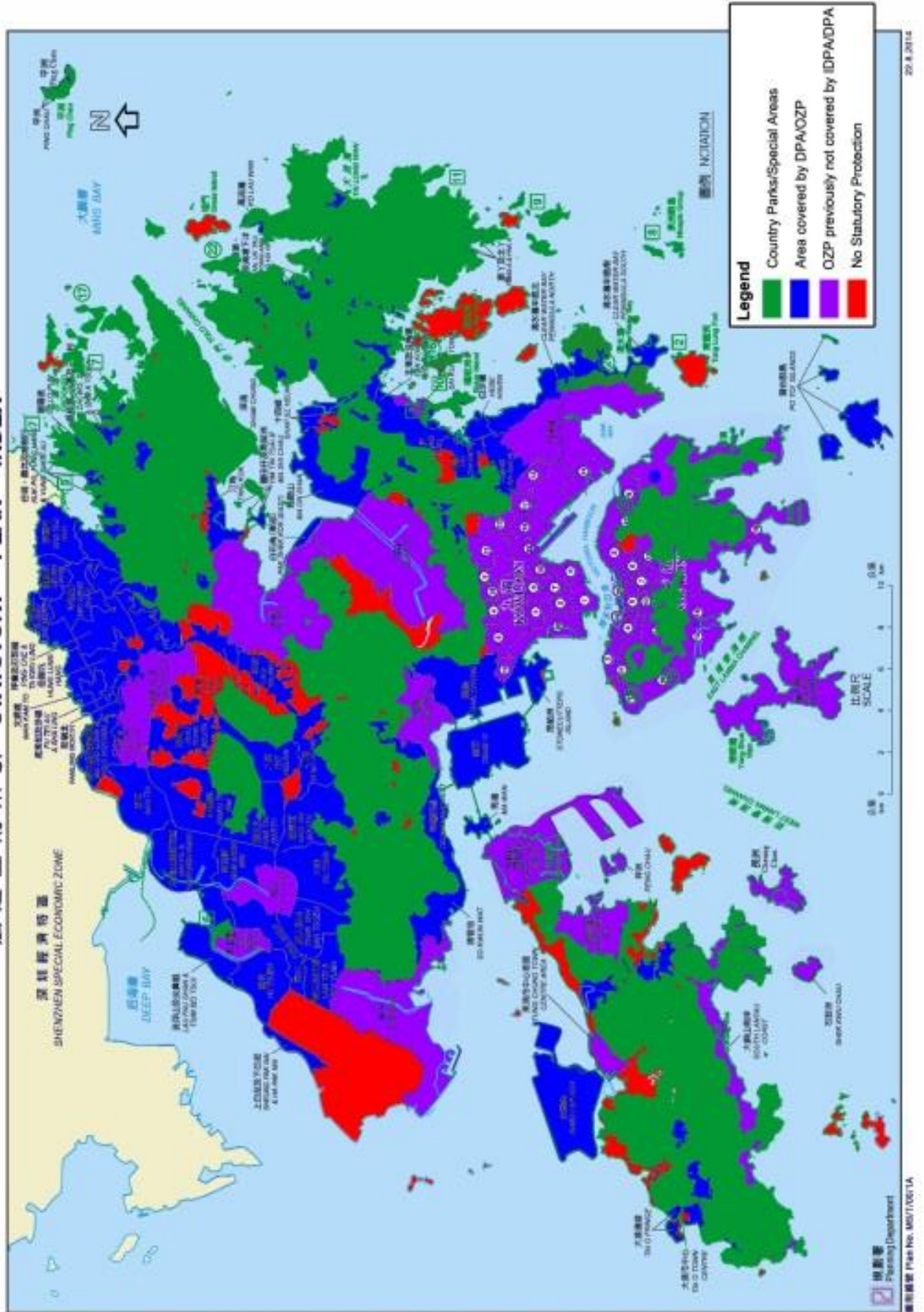
BENEFITS

- k. Ecological hotspots are monitored and protected; biodiversity loss caused by inappropriate developments and vandalism can be greatly reduced; this greatly complies with the requirements of the CBD.
- l. Interim measures can be identified and implemented in a timely manner to address immediate risks.
- m. The experience can be used to promote long term changes including amendment of laws and regulations as found appropriate

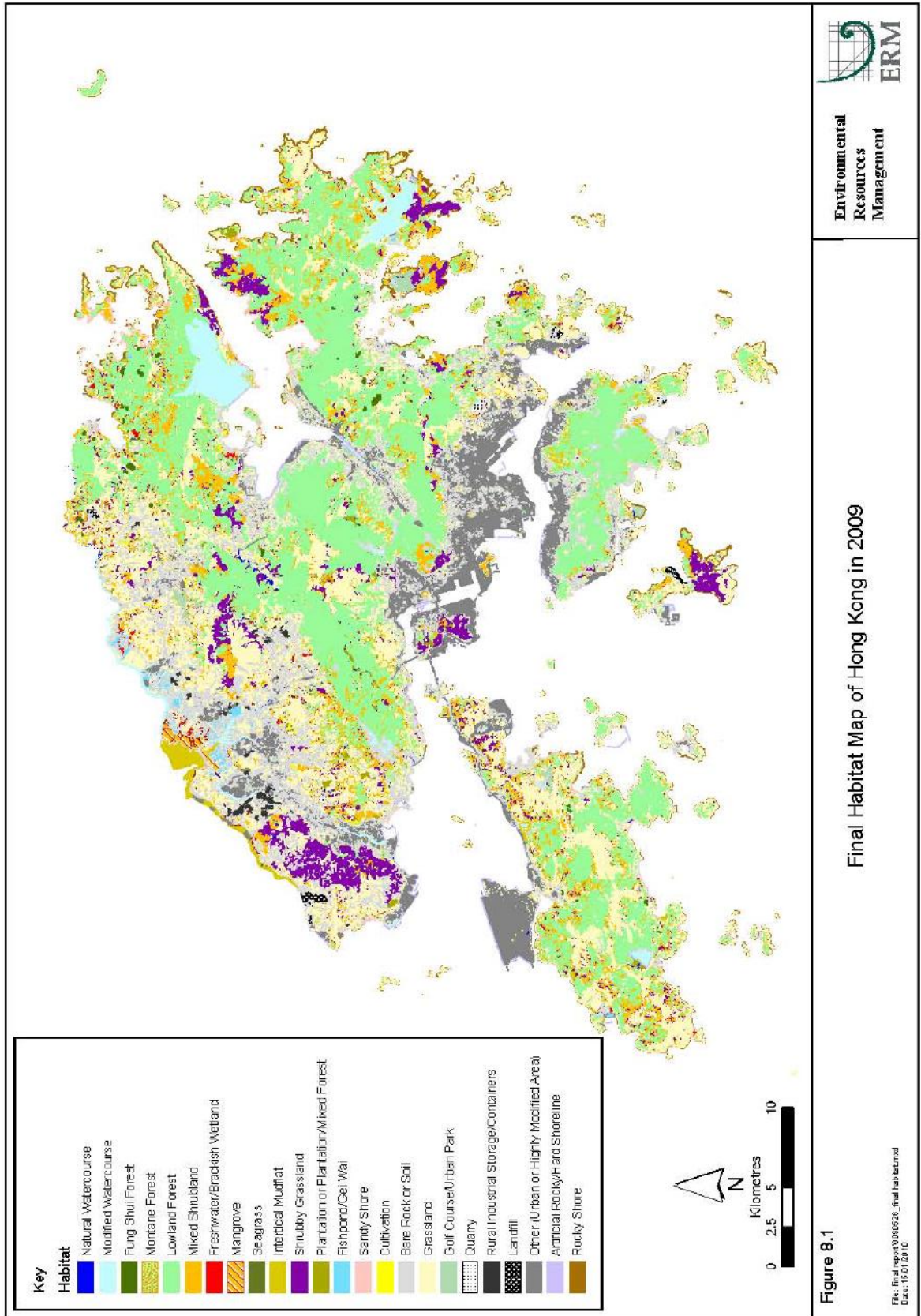
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法定圖則索引 STATUTORY PLAN INDEX

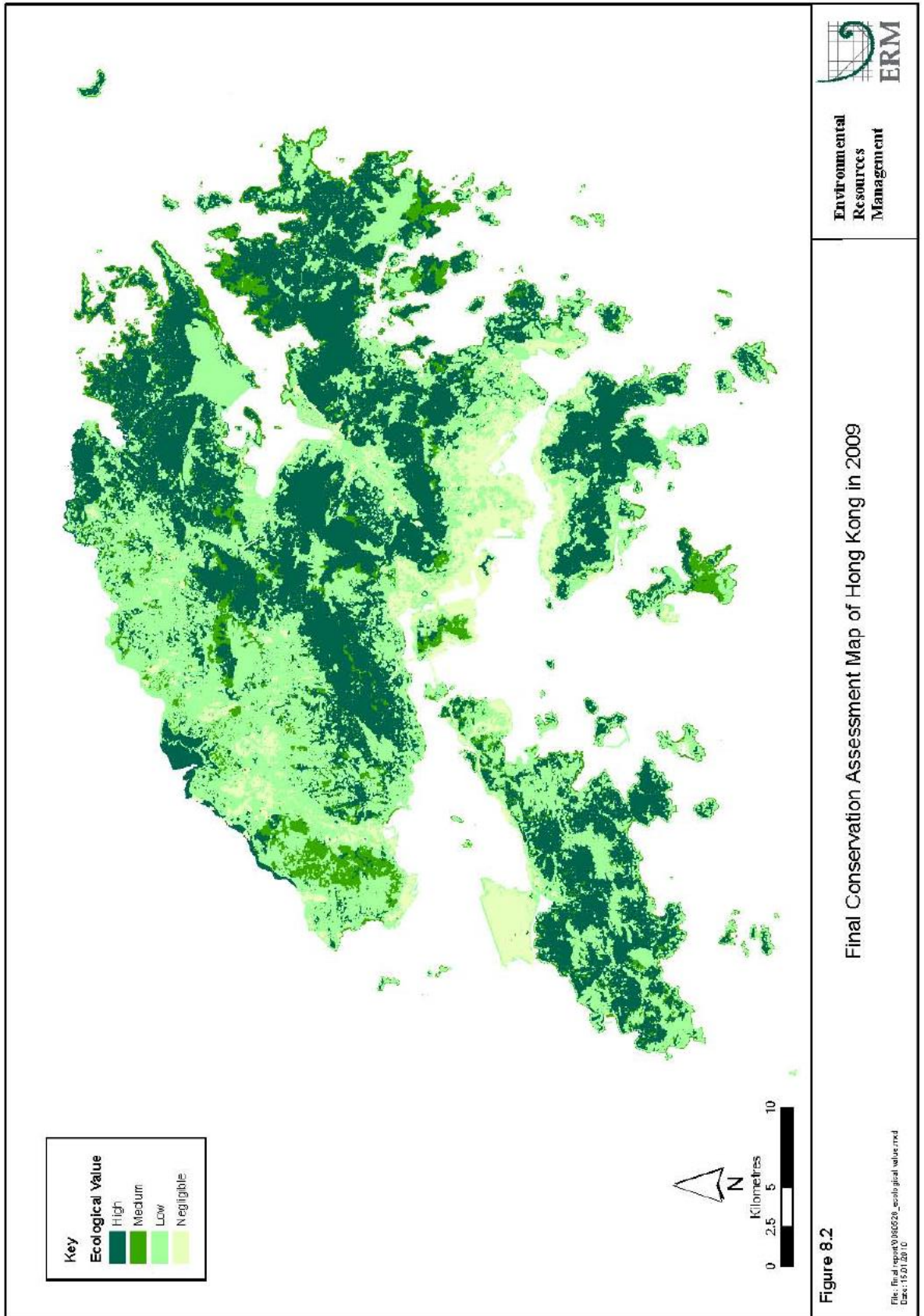


Compiled by Task Group member



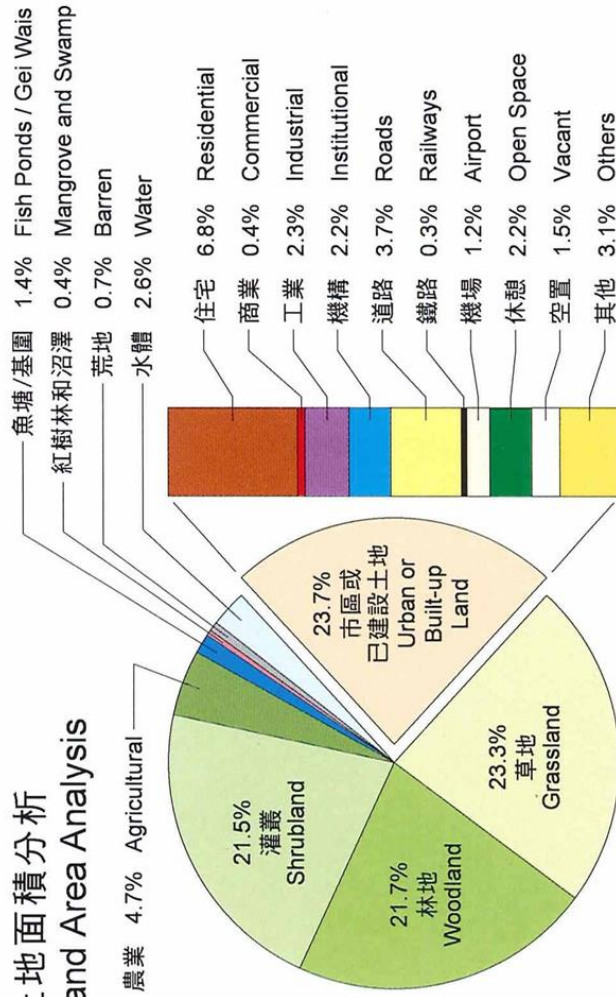
Final Habitat Map of Hong Kong in 2009

2008 Update of Terrestrial Habitat Mapping and Ranking Based on Conservation Value



2008 Update of Terrestrial Habitat Mapping and Ranking Based on Conservation Value

土地面積分析 Land Area Analysis



土地總面積為 1 108 平方公里 (包括高水位線下大約 4 平方公里的紅樹林和沼澤用地，但不包括泥灘面積)
Total land area = 1 108 km² (including about 4 km² of Mangrove and Swamp which is below the High Water Mark but excluding the area of mudflats)