The Shape of Things to Come

An Overview of the Role of Harbour Reclamations in the Future Development of Hong Kong

Planning, Environment and Lands Branch, Hong Kong Government
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Planning, Environment and Lands Branch
Hong Kong Government
Contents

- LIST OF TABLES 3
- ACKNOWLEDGEMENTS 4
- FOREWORD 5
- PART 1 INTRODUCTION 6
- PART 2 THE QUEST FOR LAND 8
- PART 3 BROAD OVERVIEW OF HARBOUR RECLAMATIONS 34
- PART 4 PRINCIPAL POINTS OF CONCERN 86
- PART 5 A FINAL WORD 132
- ANNEX LIST OF PRINCIPAL GOVERNMENT REPORTS RELATING TO HARBOUR RECLAMATIONS 134
List Of Tables

Table 1  Estimated Additional Land Required for Major Uses (1994 - 2011)
Table 2  Forecasts of Land Needs for Port Facilities
Table 3  Estimated Population Capacity of Potential Strategic Growth Areas
Table 4  Reclamation Projects Under Construction in the Harbour (1995)
Table 5  Proposed Medium and Longer Term Harbour Reclamations
Table 6  Schedule of Uses for Newly Formed and Proposed Harbour Reclamations and Associated Areas
Table 7  Public Consultation on Strategic Plans
Table 8  Public Consultation on Metroplan
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- Mr. R. Tupper, Assistant Director, Marine Department;
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Foreword

Over the past 20 years or so, considerable efforts have been directed by the Hong Kong Government and private developers towards the development of completely new urban communities in various parts of the New Territories. Currently, there are nine new towns at various stages of completion. As a result of these endeavours, there has been a steady decentralisation away from the crowded Metro area. Thus, in 1986, about 78% of the population lived in the Metro area with the balance of 22% in the New Territories. By 1991, the balance was 70% and 30% respectively. This trend is expected to continue for some years to come.

Faced with a continued expansion in population over the next 15 years, growing expectations for better and more spacious living and working environments, and the development of Hong Kong as a regional hub, our needs for more land for various kinds of activities will continue to grow steadily in both scale and diversity. To meet this challenge, our Territorial Development Strategy and component sub-regional plans are being reviewed to identify potential new development areas, involving both the reclamation of suitable areas around the harbour and the provision of land-based sites in other parts of the territory. Our strategic planning studies suggest that the full potential of both types of development area will be required over the next 15 years or so.

In this context, we need to move ahead in an incremental way with new harbour rejections, each of which has a key role to play in support of the development of Hong Kong's hub functions and also to facilitate the restructuring of obsolete parts of the Metro area. Now that large areas of reclaimed land are beginning to appear in various locations around the harbour, more people are becoming aware of the significant changes taking place. At this stage, most of the new rejections are “raw-looking” areas and it may be difficult for the casual observer to envisage what positive improvements they can help to achieve.

The current harbour reclamation works now proceeding are the outcome of a substantial number of carefully conducted feasibility studies and public consultation exercises and it is the intention to continue to proceed in such a measured and incremental way with other schemes which, as yet, are still only planning proposals. However, from time-to-time, expressions of concern have been raised over the location, scale and impact of such rejections. It is in response to such concerns that this overview has been produced to keep the general community as fully informed as possible.

Bowen Leung
Secretary for Planning, Environment and Lands
Introduction

1. Current plans and programmes promulgated by the Hong Kong Government over the past 10 years or so to promote the socio-economic development of the territory and the restructuring of the Metro area provide for additional reclamations around certain parts of Victoria Harbour (Figure 1) and also, the further development of suitable areas in the New Territories.

2. The principal harbour reclamations for general urban use now under construction or nearly completed cover a total area of over 410 hectares. Other potential reclamations for general urban uses cover about 650 hectares. These latter schemes are at various stages of planning and any final commitment will depend on the outcome of detailed feasibility studies.

3. New port-related reclamations for container terminals and back up areas are covered under the Port Development Plan and Programme with an immediate priority being the commencement of works for Container Terminal 9 at Tsing Yi. In parallel, we now need to move ahead with reclamation works to ensure the timely provision of Container Terminals 10-12 at North Lantau, along with the provision of back-up land. Thereafter, there would be scope for the development of a further two terminals and back up areas at North Lantau.

4. Such schemes originate from the outcome of the first Territorial Development Strategy (TDS - approved in 1984), from the Port and Airport Development Strategy (PADS - approved in 1989), from Metroplan (approved in 1991) and from the latest Review of the TDS (ongoing). Such strategic plans are the product of a very comprehensive planning process involving numerous technical studies (Annex), wide public consultation and the dissemination of information.

5. However, there have been points of concern raised by various individuals over the need for new reclamations. Accordingly, this publication has been prepared to explain more fully the need for and rationale of the current reclamation plans, which are integral to a wider strategy to provide a foundation to enhance the hub functions of Hong Kong and reinforce its international image as a "City of Vision". Three substantive areas of interest are addressed, covering:

- the quest for land to meet the future needs of our community for a very wide range of land uses and key infrastructure facilities;

- the purpose and scale of current and proposed harbour reclamation schemes; and

- principal points of concern.
1. Current and proposed medium and longer term reclamation projects

2. Victoria harbour will see some dramatic changes over the next decade
The Quest For Land
A LAND-HUNGRY PLACE

1. Hong Kong is a “land hungry” place and, from the early days of development, has had to rely heavily on reclamation projects to satisfy growing needs for more housing, community uses, port activities and other economic needs. Initially, reclamation projects were formed principally around Victoria Harbour (Figure 6) and, generally, were of small scale and were undertaken on an ad hoc basis.

2. Up until about 1970, urban growth was concentrated in the Metro area comprising Hong Kong Island, Kowloon, New Kowloon and Tsuen Wan - Kwai Tsing. Subsequently, in order to satisfy rapidly escalating needs for housing and manufacturing industry, a new town development programme was launched. This involved both the acquisition of private (mostly agricultural) land holdings and the creation of large reclamation projects, especially in the new towns of Sha Tin, Tuen Mun and Tai Po. In parallel, steps had to be taken to extend the runway at Kai Tak Airport and to build a succession of container terminals at Kwai Chung, requiring the reclamation of substantial areas of land.

3. The momentum of the new town development programme has been maintained and, as economic growth in the Pearl River Delta has grown apace (with a high level of dependency on export-based manufacturing industries), it has been necessary to continue with the timely provision of additional container terminals and other port facilities. Concurrently, more land is needed to accommodate activities that contribute to the growth of the economy. Also, provision needs to be made for the creation of “solution spaces” on areas of reclamation to facilitate the restructuring of the Metro area, many parts of which remain highly congested and suffer from a range of environmental problems.
6. Historical sequence of harbour reclaims
PLANNING AHEAD

4. An ongoing commitment of the Hong Kong Government is to be proactive in taking steps to produce plans to meet long-term needs for various kinds of development and in the commitment of considerable resources for the creation of a land bank from which sites can be released in a timely way to meet the needs of the community.

5. On the basis of past trends and forecasts of future requirements for a range of land uses to meet the evolving needs both of this community and the pressures arising from economic growth in the wider region of South China, we are focusing efforts on:

- the further review of the Territorial Development Strategy (TDS) with the aim of creating for Hong Kong as a whole, an updated land use - transport - environmental framework to provide a basis for detailed planning and the implementation of works within limits set by resource availability;

- the periodic review of the Port and Airport Development Strategy (PADS) with the aim of ensuring that Hong Kong can continue to play a key role as an entrepot, trading and service centre, taking into account the development of other port and airport facilities in the wider region;

- the more progressive implementation of projects to facilitate the more orderly restructuring of the Metro area within the framework of Metroplan; and

- the formulation of a series of more detailed plans and programmes through carefully conducted feasibility studies and the reapplication of tests to assess the global and cumulative impacts on the hydrology of the harbour and water quality.

6. The TDS, PADS and Metroplan all contain concepts and proposals relating to reclamations, each of which fulfils a key role associated with maintaining the efficiency of economic functions and also with the aim of improving Hong Kong to become a better place in which to live and work.
FUTURE LAND REQUIREMENTS

The Broad Picture

7. Future requirements for the provision of land for a wide range of urban land uses arise principally from:

- needs associated with the further growth of the population of Hong Kong and rising expectations for more space to create a better environment in which to live and work;

- needs associated with demands generated by economic growth in the wider region, requiring land to be provided for the expansion of "hub functions" in Hong Kong, especially in connection with the further incremental development of port facilities; and

- needs associated with the restructuring of the Metro area, large parts of which remain highly congested, environmentally degraded and lacking in terms of urban design.

9. Hong Kong is one of the densest cities in the world

10. Intermodal transport facilities are required to cope with the increasing economic activities in the region

11. Expansion of port facilities is required
**Land for More People**

8. At present, the population of Hong Kong is about 6.2 million. In the longer term, it is possible that there could be an additional 1.5 million people living in the territory. Consequently, in broad terms, demands for additional land at current planning standards can be expected to increase by about 25%, with land for housing being a major requirement (Table 1). However, it may be expected that additional spatial allowance will also have to be made to provide for improved standards arising from new policies e.g. the reservation of additional sites for uni-sessional primary schools.

**Land for Hub Functions**

9. The very rapid economic growth in the Pearl River Delta and other parts of South China has had a major impact on the economic functions of Hong Kong. Manufacturing enterprises have shifted many production activities to new, cross-border locations and it is now estimated that about 3 million people in the Pearl River Delta work in enterprises set up by Hong Kong investors. Fortunately, this has not resulted in our conventional industrial zones becoming deserted and derelict areas as has happened, for example, in certain cities in western Europe. Rather, such areas have expanded their industrial support functions in terms of such activities as design and research, marketing, resource acquisition, quality control, information processing and cost control, and other head-office managerial activities. And, as the regional network of such activities has grown, other allied business, financial, trading, professional and academic hub functions in Hong Kong have expanded, creating demands for yet more land.
### Table 1
**Estimated Additional Land Required for Major Uses**
*(1994 - 2011)*

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Housing Gross Ha</th>
<th>Offices Gross Ha</th>
<th>Industry Gross Ha</th>
<th>Total Gross Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario A</td>
<td>580</td>
<td>54</td>
<td>124</td>
<td>893</td>
</tr>
<tr>
<td>Scenario B</td>
<td>850</td>
<td>66</td>
<td>175</td>
<td>1488</td>
</tr>
</tbody>
</table>


Note: Scenario A assumes that the primary economic hinterland of Hong Kong will be the Pearl River Delta. Scenario B assumes a wider economic hinterland encompassing Guangdong Province and other adjoining regions.

### Table 2
**Forecasts of Land Needs for Port Facilities**

<table>
<thead>
<tr>
<th>Port Facility</th>
<th>Measure</th>
<th>1996</th>
<th>2001</th>
<th>2006</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cumulative Totals</td>
</tr>
<tr>
<td>1. Container Terminals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) No. of Berths</td>
<td>No.</td>
<td>15</td>
<td>29</td>
<td>39</td>
<td>42</td>
</tr>
<tr>
<td>(b) Area of Land</td>
<td>Ha</td>
<td>323</td>
<td>533</td>
<td>653</td>
<td>789</td>
</tr>
<tr>
<td>2. Container Terminals, Off-Port, Back-Up</td>
<td>Ha</td>
<td>162</td>
<td>258</td>
<td>319</td>
<td>395</td>
</tr>
<tr>
<td>3. Mid Stream Cargo Handling Areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Waterfrontage</td>
<td>Metres</td>
<td>6777</td>
<td>6927</td>
<td>7202</td>
<td></td>
</tr>
<tr>
<td>(b) Area of Land</td>
<td>Ha</td>
<td>114</td>
<td>116</td>
<td>122</td>
<td></td>
</tr>
<tr>
<td>4. River Trade Terminals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Waterfrontage</td>
<td>Metres</td>
<td>2732</td>
<td>6051</td>
<td>4390</td>
<td>4665</td>
</tr>
<tr>
<td>(b) Area of Land</td>
<td>Ha</td>
<td>50</td>
<td>109</td>
<td>157</td>
<td>231</td>
</tr>
<tr>
<td>5. Public Cargo Working Area</td>
<td>Ha</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>6. Total Area of Land</td>
<td>Ha</td>
<td>555</td>
<td>1034</td>
<td>1265</td>
<td>1557</td>
</tr>
</tbody>
</table>
10. Additionally, in response to and as a catalyst for the growth of manufacturing industry in the Pearl River Delta, Hong Kong has taken proactive steps to expand its role as a hub port, especially for the handling of containerised cargoes. That, in turn, requires the staged reclamation of land to provide berths in suitable locations accessible by deep-water shipping channels (Table 2 and Figure 15). Other port-related activities are also needed, such as typhoon shelters, ship-repair facilities, mid-stream cargo handling areas and off-port, container back-up land (Figure 24). In broad terms, our present port development strategy comprises the following principal elements:

- the earliest possible completion of Container Terminal 9 at Tsing Yi, thus completing the container port of Kwai Tsing;

- the phased development of a new port at North Lantau to provide up to a further 24 berths;

- the provision of about 4,700 hectares of anchorage space, mostly to the west of Hong Kong Island and between Lamma Island and Cheung Chau. This would be linked with the provision of a new breakwater between Lamma Island and Cheung Chau;

- the dredging of a new deep-water channel, west of Lamma Island, to give access to the Lantau Port;

- the development of new River Trade Terminals at Tuen Mun and on the north shore of Lantau;

- the provision of new cargo working areas at Tseung Kwan O, Kowloon Bay, Stonecutters Island, Tuen Mun and North Lantau;

- the development of three typhoon shelters at Kowloon Bay, Hei Ling Chau and Siu Lam;

- the provision of dockyard facilities on the north shore of Lantau Island; and

- the provision of new trunk roads and freight railway lines in a western corridor to provide better links between the container terminals and other port facilities, on the one hand, and cross-border points on the other.
15. Broad long term pattern of port development
11 In parallel with such initiatives, there has been a need to build a replacement airport at Chek Lap Kok on North Lantau to provide a further major prop for supporting other hub functions. That has required the development of a number of harbour reclamation to enable the provision of airport related transport links and downtown passenger terminals which form key elements of the Airport Core Programme (ACP).

12 The development of both new port and airport facilities has been carefully co-ordinated within the framework of the Port and Airport Development Strategy that has been carried forward through well co-ordinated development programmes and periodic reviews of overall planning proposals. Future trends and needs are being closely monitored with the provision of land and associated infrastructure considered in the context of the TDS Review.
19. Expressway built over the Airport Railway

20. Tsing Ma Bridge under construction
21. Penny's Bay - Lantau Port before development

22. Lantau Port after development

23. Sketch of Tsing Ma Bridge
24. Strategic concept for provision of port back-up land

25. Sketch of Lantau Fixed Crossing
Land Needs for Restructuring the Metro Area

13 Whilst the decentralisation of the population to the new towns will continue to have an important role to play in reducing congested conditions in high density inner city areas, restructuring of the Metro area will depend substantially on the reclamation of suitable areas in close proximity to those built up areas where urban renewal is required. This is particularly important for the implementation of major redevelopment schemes involving the displacement of residents and business activities that have long standing socio-economic attachments to the districts in which they are currently located. Further needs for harbour reclamations arise from having to provide new transport links to relieve congestion in already congested corridors, to recriss shortfalls in the provision of essential community uses, to create a better shaped and more efficiently organised city and to eliminate heavily polluted coastal embayments where the seabed has become impregnated with toxic wastes.
PRINCIPLES FOR SELECTION OF POTENTIAL DEVELOPMENT AREAS

14. In order to satisfy our growing requirements for new land, studies have been carried out under the current review of the TDS to identify potential strategic development areas both by means of reclamation and by reutilisation of existing land resources, which might also require formation works. There are certain principles which need to be taken into account in identifying areas for strategic growth. Briefly, it is seen that areas selected for development should be:

- of "adequate" size and shape to facilitate comprehensive planning and development and, in the process, help achieve economies of scale. No hard and fast rules can be laid down as to what might be considered an optimal size but, as broad yardsticks, the recently formed West Kowloon Reclamation covers about 340 hectares and the proposed Green Island Reclamation totals about 190 hectares;

- capable of being implemented in a logical sequence of phases, bearing in mind possible delays that might arise over the programming of works due to the constrained availability of resources or for other unpredictable reasons, such as undiscovered geotechnical problems;

- under consolidated land ownership and relatively free of such encumbrances as existing, permanent or temporary uses, "fung shui" limitations, legal claims, etc;

- within close and convenient proximity to sources of fill needed for reclamation and/or for raising the levels of land-based sites;

- free of any difficult geotechnical problems or other major natural (e.g. recurrent flooding) or man-made hazards (e.g. close proximity to potentially hazardous installations);
• in locations where timely and cost-effective provision can be made for public transport services and utility systems;

• compatible with existing adjoining uses in terms of environmental, aesthetic and functional attributes;

• situated in locations that would not cause irreparable damage to important areas of natural habitat (e.g. fish breeding grounds), ecological value (e.g. Mai Po Marshes) and high landscape/recreational value (e.g. country parks);

• upwind of any major source of aerial pollution from fumes and/or particulates;

• well buffered from major static (e.g. shipyards) or mobile noise emitters (e.g. traffic along a trunk highway);

• capable of being developed in a way that enables any unwanted by-products (e.g. polluted mud) to be treated or disposed of in a satisfactory manner; and

• capable, in the case of reclamations, of being formed in such a way as to obviate any unacceptable impact on tidal regimes, water quality, sedimentation, shipping movements and other port activities.
15. It cannot be expected that every area will meet all the above criteria. Nor can it be assumed that every area would be capable of being used for any of a general range of land uses. On such accounts, areas need to be ranked according to their potential suitability for various major land uses. This can be done by measuring different attributes according to a scale of values and combining such attributes to produce maps showing potential development areas according to degrees of suitability. Figure 32 shows the general location of potential new strategic growth areas involving both reclamation from the sea and the formation of land-based sites.

32. Potential new strategic growth areas involve both rejections and land-based sites

LEGEND

- Reclamation Based Areas
- Land-Based Areas
- Reclamation and Land-Based Areas
- Existing and Proposed Major Roads
- Existing and Proposed Railways
- Marine Sand Sources
- Land Based Fill Sources
RELATIVE MERITS

16. Taking account of the above broad site selection criteria, the principal merits and problems associated with reclamations, on the one hand, and land-based site formation projects, on the other, are briefly described below.

RECLAMATIONS

Principal Advantages

17. The principal advantages of reclamations are as follows:

- can provide solution spaces near to where they are needed;
- can provide for the "natural" growth of adjoining urbanised areas and the extension of utility services and transport networks;
- can be completed fairly rapidly, especially through the use of hydraulically placed marine sand deposits;
- for many "special" uses (e.g. ports and airports) reclamation may be the only practical way of providing the required land;
- can eliminate polluted bodies of confined waters (e.g. Kowloon Bay) which, because of highly contaminated sediments, would otherwise remain, even with the implementation of new sewerage/drainage schemes within the associated catchment area;
- can be designed so that the alignment of seawalls facilitates tidal flows and enhances the flushing of harbour waters;
- can make use of relatively large areas of unencumbered seabed, all under public ownership;
- unit costs are usually at competitive rates given relatively shallow waters, no removal of significant amounts of mud deposits, and maximisation of land area contained within perimeter seawalls;
- if land-based sources of fill are used, a double benefit can be created i.e. the reclamation itself and formed platforms on the "borrow area" site;
- can provide essential and conveniently located areas for public dumping (e.g. Kowloon Bay industrial zone, Hung Hom Bay reclamation); and
- usually a very high community benefit can be gained in terms of the high value of land created relative to formation costs (e.g. for the West Kowloon and Kowloon Bay reclamation projects, the current value : cost ratio is about 5:1).
33. Reclamations facilitate expansion of the Central Business District

35. Heavily polluted Kowloon Bay

36. Pollutants are discharged into the Kai Tak Nullah

37. South East Kowloon Development - a source of high value land supply
**Principal Disadvantages**

18. The principal disadvantages of relocations are as follows:

- some projects may create adverse changes to hydraulic and water quality regimes;

- sources of easily accessible fill in sufficient quantities may be difficult to find;

- if marine sand is taken as the source of fill materials, dredging and dumping operations may adversely affect fishing areas and ecologically important habitats;

- heavy vehicles travelling between land-based borrow sites and relocation areas may cause traffic and environmental problems along the roads they have to use;

- waterfront marine rights may have to be extinguished, requiring payments of compensation and the reprovisioning of existing facilities;

- port facilities (e.g. mid stream buoys), shipping access channels and seabed pipelines and cables may have to be reprovisioned; and

- the extension of major sewers and drainage channels may require special pumping arrangements or works to modify the hydraulic gradients of existing drainage/sewerage systems.
LAND-BASED SITE FORMATION

Principal Advantages
19. The principal advantages of land-based site formation are as follows:

- makes use of existing land resources, the current utilisation of which may, for economic/environmental/planning reasons, warrant a change to some other acceptable forms of development;

- if the raising of levels is required, a double benefit can be obtained i.e. the newly formed land itself and the platforms on the borrow area from which fill is extracted;

- if the land is already under the ownership of the potential private-sector developer, costs to the public sector in acquiring an equivalent area of land elsewhere can be avoided;

- if adjoining an existing developed area, the new site can provide for "natural" urban growth and the extension of utility services; and

- privately funded projects in a suburban setting may create an "up-market" alternative life style form of development.
Principal Disadvantages

20. The principal disadvantages of land based site formation are as follows:

- the land produced for development may not be in the most appropriately located area;

- for public sector projects, land resumption/acquisition by negotiation is required. This can be an expensive and very time consuming process;

- for strategic growth requirements, generally there are now relatively few areas left that are under consolidated land ownership and are free from existing land use constraints (e.g. storage of containers) and other encumbrances (e.g. “fung shui” issues);

- most areas of private land use are in lowland valleys and flood plains that are subject to periodic inundation;

- certain flood plain areas are of scenic and/or ecological value, the character and functions of which could be severely compromised by their development for urban-type uses;

- the acquisition of suitable and easily accessible sources of fill for raising site levels is usually difficult and expensive. Borrowing operations may adversely affect stream networks, air quality, local noise levels, landscape features and ecologically important areas;

- land holdings developed by private investors are usually of relatively limited size, irregular in shape and in scattered locations. This makes it difficult to arrange the co-ordinated provision of services and also to produce comprehensively planned development; and

- the filling up of low lying areas may severely disrupt natural drainage systems and reduce/eliminate flood-ponding areas, thus creating potential inundation problems for adjoining areas.

21. From the above, it is apparent that, regardless of whether new land for urban growth is produced either by reclamation or from existing land-based sites, there is a whole range of points in favour of and against either choice. Not only is Hong Kong a "land hungry" place, it is also a compact territory where various constraints interact to limit the choice of potential strategic growth areas to satisfy development needs.

42. The character and functions of scenic flood plains could be compromised by urban-type development
22. With regard to rural areas, for example, about 40% of the territory comprises co-incidental water catchments and country parks, in addition to which there are other large expanses of hill country that are geographically unsuitable for development. Other rural areas are a complicated "jigsaw" of small holdings, village settlements, unplanned container storage sites, flood prone lowland areas, abandoned land, pig and chicken farms, golf courses, fish ponds, "fung shui" areas, burial grounds, wrecked car dumps, sites of special scientific interest, etc.

23. In the case of marine areas, the choice of sites for new development through reclamation is constrained by such factors as the need to conserve certain areas for their recreational, landscape and ecological value; the need to ensure that key areas are safeguarded for the development of new port and airport facilities; the depth of littoral waters and mud deposits; the availability of easily accessible sand deposits of adequate quantity; the need to find suitable mud disposal sites, especially for contaminated sediments; and so on.

43. Country park

44. Location of country parks in Hong Kong
POTENTIAL DEVELOPMENT CAPACITY

24. From our studies for the TDS Review, it has been established that, including some further redevelopment potential and the utilisation of as yet uncommitted (but limited) capacities in the new towns, it should be possible to provide additional capacity for about 1.6 million people, over and above a capacity of about 6.5 million people in existing and committed urban development areas (Table 3). This potential should therefore be able to satisfy Hong Kong's future growth needs (para 6), ultimately providing for a total population of up to about 8.1 million people, which might be reached in the longer term. It is emphasised, however, that the suitability of certain areas, such as the possible extension of Tseung Kwan O, has yet to be established by means of detailed feasibility studies.

MAKING A CHOICE

25. Hong Kong needs to continue to develop its hub functions as an entrepôt and service centre for South China; as an international centre for business and finance; as a centre for professional and academic expertise; as a city of culture; as a base for high technology industry and research; as a nodal point for regional communications and information dissemination; and as a major tourist destination and conference centre. It is thus essential to have an overall framework for strategic growth, making optimal use of its potential land resources and associated infrastructure systems.

26. In the formulation of the TDS Review, a key task is to identify all potential new development areas that are either land-based or could be created by reclamation. The total potential capacity of such areas for different kinds of development then needs to be compared with the projected territorial needs for various broad categories of land use.

27. Making a rational choice requires the consistent application of a complex, iterative process whereby a range of increasingly detailed but reducing number of land use - transport development patterns are tested against a number of agreed objectives. This is no simple task and, for the current TDS Review, it has involved about five years of persistent, corporate endeavour to produce a wide range of technical studies in the fields of land use, transport and environmental planning. We are now at a final stage of our studies from which, on the basis of comments from the general public, professional institutes and other bodies, followed by further evaluations by expert panels, results will be produced to identify a recommended broad Long Term Strategy (2011) and a more detailed Medium Term Strategy (up to 2006). Until that point has been reached, it would be imprudent to jump to any conclusions as to which particular new areas (whether formed by either reclamation or from land-based sites) should be given priority. However, it is already clear that, over the long term, all potentially suitable areas will be required, subject to the outcome of detailed feasibility studies.
<table>
<thead>
<tr>
<th>Potential Strategic Growth Area</th>
<th>Broad Type RA</th>
<th>Reclamation Area</th>
<th>Potential Population Capacity ('000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Redevelopment (including Metro) through up-zoning and intensification</td>
<td>RD</td>
<td></td>
<td>say 230*</td>
</tr>
<tr>
<td>2. Kai Tak - Kowloon Bay Phase 1</td>
<td>RD + RA</td>
<td></td>
<td>176</td>
</tr>
<tr>
<td>4. Green Island</td>
<td>RA</td>
<td></td>
<td>124</td>
</tr>
<tr>
<td>5. Central - Wan chai Reclamation (part)</td>
<td>RA</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>6. Tuen Wan Bay</td>
<td>RA</td>
<td></td>
<td>30*</td>
</tr>
<tr>
<td>7. Hong Kong Island South</td>
<td>LB</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>8. Tseung Kwan O, Phase III</td>
<td>RA + LB</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>9. Tseung Kwan O Extension</td>
<td>RA</td>
<td></td>
<td>120*</td>
</tr>
<tr>
<td>10. Tung Chung/ Tai Ho</td>
<td>RA + LB</td>
<td></td>
<td>235*</td>
</tr>
<tr>
<td>11. North Lantau Extension</td>
<td>RA + LB</td>
<td></td>
<td>115*</td>
</tr>
<tr>
<td>12. Kam Tin</td>
<td>LB</td>
<td></td>
<td>36</td>
</tr>
<tr>
<td>13. Lok Ma Cho/ San Tin</td>
<td>LB</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>14. Yuen Long South</td>
<td>LB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Fanling North</td>
<td>LB</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>16. Tuen Mun - Yuen Long Corridor</td>
<td>LB</td>
<td></td>
<td>50*</td>
</tr>
<tr>
<td>17. Tuen Mun East</td>
<td>LB</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>18. Border Zone</td>
<td>LB</td>
<td></td>
<td>100*</td>
</tr>
<tr>
<td>19. Other (Scattered Rural - based Sites)</td>
<td>LB</td>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>


* Provisional
HISTORICAL BACKGROUND

Early Reclamations

1. During the early days of settlement under British administration, Hong Kong soon attracted people from many parts of South China and also business entrepreneurs from overseas seeking opportunities for bilateral trade. To begin with, development was concentrated in the Western and Central districts along a narrow strip of the northern shoreline of Hong Kong Island. Trade and business flourished, acting as a magnet for yet more immigrants from mainland China. Consequently, the supply of easily developable land quickly diminished and this prompted the formation of a succession of relatively small reclamations forcing the shoreline to creep outwards from the line of Queen's Road (Figure 46).

2. In 1860, the Kowloon Peninsula up to Boundary Street was ceded to Britain under the Convention of Peking, providing further room for urban growth which the prospering trade of the port had continued to stimulate. Further room for expansion was made available when the New Territories and areas north of Boundary Street were leased from China for a period of 99 years. However, development continued to cluster around Victoria Harbour along the shores of both Hong Kong Island north and the Kowloon Peninsula with new pressures for land being met by a series of reclamation projects, initiated both by the Government and private developers. For example, in 1924, two local businessmen - Mr. HO Kai and Mr. AU Tak - started to reclaim land in Kowloon Bay for a speculative "garden city" project. The reclamation was completed but the venture failed and the land reverted to the Government, subsequently to become the locally known "Kai Tak" airport. It is also worth noting that two large reclamation schemes at North Point and Wanchai were completed over the period 1924 to 1945 (Figure 6).
47. Extent of harbour reclamations up till 1977
Reclamations Since 1945

3 Following the end of the Pacific War in 1945, Hong Kong quickly recovered its role as an entrepot for South China and, in the 1950s, broadened its economic base through the development of manufacturing industry. Large numbers of people from China flooded into the territory causing the population to grow from about 2 million people in 1950 to over 3 million by 1961. This upward trend continued along with the development of new economic activities creating intense pressure for the supply of new land, especially for housing. The Government's response to this situation was to carve out new sites from hill slopes using the excavated soil and rock for the reclamation of areas of seabed, this being a concept proposed in a special report prepared in 1948 by Sir Patrick Abercrombie, the well-known British town planner. By these means, large public housing estates were created in such areas as Kwun Tong and Kwei Chung with reclamation areas being made available for industrial uses.

4 Further planning initiatives were taken in 1966 when work was started on the preparation of an outline strategic development plan for the whole of Hong Kong, with a 1986 time horizon. A number of alternative strategies were considered, ranging from large scale decentralisation from the main urban areas of Hong Kong Island, Kowloon and New Kowloon to maximum consolidation within the same areas. The conclusion finally reached was that

"Government's basic policy should be decentralisation to new towns and improvement of the environment in the existing urban areas. Within this framework development programmes should be followed which allow for the gradual evolution and expansion of urban functions."

(Source: Colony Outline Plan, 1972)
PLAN TO ILLUSTRATE
SIR PATRICK ABERCRUMBIE’S
REPORT ON HONG KONG

50. Development plan proposed by Sir Patrick Abercrombie in 1948
5. Within the framework of this broad strategy (submitted to the Executive Council in 1972), a bold, long-term housing plan and associated new town development programme were launched in 1972. This shifted the focus of efforts to the development of comprehensively designed communities in the New Territories with new towns being built at Sha Tin, Tuen Mun, Tsuen Wan-Kwai Tsing, Yuen Long, Tai Po and Fanling-Sheung Shui. The massive scale of works involved again the joint formation of platforms on hill slopes and the reclamation of large areas of seabed, with each being developed as a series of interrelated packages. For many years, these six new towns collectively resembled a huge construction camp with large, "raw" areas of land at different stages of development. Yet, today, the new towns are recognised internationally as being remarkably good achievements.

6. Whilst the new towns were being built at a vigorous pace, it became apparent that Hong Kong needed to upgrade its port facilities to provide for the development of container terminals on reclamation at Kwai Chung. Initially, three terminals were commissioned in 1972, principally to handle Hong Kong's own domestic trade. However, by the early 1980s it became apparent that an increasing amount of the trade handled by the port comprised re-exports arising from the rapid growth of manufacturing industry in the Pearl River Delta. It thus became necessary to continue with reclamation works to provide additional terminals at Kwai Chung, with four more being brought into operation up to September 1990. Currently, there are eight terminals that handled about 7.5 million TEUs (Twenty feet Equivalent (container box) Units) in 1994. The only remaining potential for further expansion in the same general area is at south-west Tsing Yi where plans have been prepared for the development of Container Terminal 9 to provide an additional four berths that could, as a whole, handle about 2 million TEUs.
54. Existing container terminals

55. Increasing volumes of cargo call for expansion of container terminals

56. The increasing amount of trade handled by the port arises from the rapid growth of industry in the Pearl River Delta
7. A parallel concern was the need to expand the capacity of the Hong Kong international airport at Kai Tak. Following the completion of a consultant's report in 1951 (the Broadbent Report) and subsequent feasibility studies, a decision was taken to construct a 2,542 metre long runway on a 242 metre wide promontory. This required over 11 million cubic metres of fill for the reclamation using both marine sand deposits and decomposed granite and rock obtained by excavation from the Kowloon hills. The works were completed in 1958. However, demand for additional capacity grew rapidly making it necessary to lengthen the runway to 3,392 metres so that it could handle larger, wide-bodied craft. That scheme, plus extensions to the passenger terminal and aircraft apron areas, is now at the limit to which additional capacity can be provided, sufficient to handle about 24 million passengers per annum.

8. The total area of harbour reclamation carried out by the Government after World War II amounts to nearly 3,400 hectares, as illustrated by Figure 6. Private-sector reclamation in the harbour were mainly carried out for the construction of the container terminals, amounting to just over 200 hectares.
Private sector reclamation projects were mainly for the construction of container terminals.
OUR CURRENT STRATEGIC PLANNING FRAMEWORK

9. From the above, it will be seen that reclamations in Hong Kong have played a very significant role in helping to meet the seemingly never-ending demands for more land for a wide range of needs generated by population growth and economic development. But, reclamations per se have not been the single-preferred way of creating new land. Rather, they have commonly been designed and developed in conjunction with the formation of land-based sites according to the roles they need to fulfil within the framework of carefully produced strategic development plans, as follows:

- **Territorial Development Strategy (TDS) - 1984**
  By the end of the 1970s it had become apparent that, despite the sustained efforts to build the new towns, there would be on-going needs to formulate a strategic plan with a time horizon to at least the turn of the century. Accordingly, a series of sub-regional planning studies were produced to assess the overall development potential of various parts of the territory. One such study was the "Study on Urban Growth and Harbour Reclamations" or "SHRUG," which considered a range of options for harbour reclamations for an Airport-Retained Strategy and an Airport-Relocated Strategy (Figures 60 and 61). Similar studies for other parts of the territory came up with a range of bold proposals for strategic development in such areas as North Lantau, the northern New Territories and Tseung Kwan O. The results from these studies were then used as a basis for formulating a number of overall strategic development plans for both an airport-retained scenario and an airport-relocated scenario. For that purpose, a number of alternative primary development objectives were formulated e.g. "minimise net financial costs, resource costs and transport operating costs to the community."
  The final outcome was a medium-term strategy that provided for the continued implementation of current new town development schemes and a number of harbour reclamations (Figure 62) for an "Airport-Retained Scenario." The results of all this work were made public in 1985 by means of a bilingual booklet "Planning for Growth."
Possible future extension to container port

Hong Kong Reclamation —
for 100,000 persons

West Kowloon Reclamation —
for 200,000 persons

New typhoon shelter (alternatives under investigation)

Green Island Reclamation —
for 200,000 persons

For 180,000 persons

Central Reclamation — for new commercial offices & govt/ cultural areas

Extension of Western Reclamation —
for 60,000 persons

Hong Kong Bay Reclamation — for commercial, govt. & for 100,000 persons

For 160,000 persons

For 160,000 persons
Territorial Development Strategy (TDS) Review - 1995/96

The 1984 TDS was very much "housing led" to respond to Hong Kong's urgent needs for more and better housing. However, in 1990, it became apparent that, given the scale and nature of changes that had occurred over the past decade, particularly with regard to economic restructuring in both Hong Kong and the Pearl River Delta, our overall strategic planning concepts needed to be reviewed. Accordingly, another corporate based programme of work was initiated with the time horizon extended to 2011. In 1993, a bilingual consultation digest "Territorial Development Strategy Development Options", together with a "Foundation Report" and an "Environmental Baseline Conditions Report," were released for public comment and discussion. A stage has now been reached at which a TDS Review Final Technical Report will shortly be completed in three parts. Subsequently, an "Executive Report" will be compiled for public use and reference.
By the mid 1980s it was very apparent that a comprehensive review was required of Hong Kong's future, long-term needs for new port and airport facilities, along with associated land uses and infrastructure. These needs arose from demands both from continued rapid growth in Hong Kong and economic development in the wider region. Not only did the Hong Kong Government realise the need for a review, but so did certain individuals and bodies in the private sector.
Accordingly, in early 1987, a specialist team of consultants was appointed, working in close association with a number of Government-led working groups under the direction of a study steering group and policy group. As for the TDS 1984, two broad scenarios were assumed - with and without a replacement airport. For the "with replacement airport scenario" there were two principal choices for a new airport - either at Chek Lap Kok or in the western harbour. Fifty-one Strategic development options were initially reviewed and, through a very demanding evaluation process, a diminishing number of more detailed strategic development options were produced until, for each scenario, recommended strategies were produced. All such options involved to some greater or lesser degree various harbour reclamations, especially to make provision for related port and airport infrastructure. The potential hydraulic and water quality impacts of alternative reclamation profiles were tested using a then recently completed Water Quality and Hydraulic Model (WAHMO).

A final decision was taken in October 1989 in favour of building a new airport at Chek Lap Kok and the provision of new container terminals at Kwai Tsing and North Lantau. The essential components of the selected strategy were made public through the issue of a bilingual booklet “Gateway to New opportunities - Hong Kong’s Port and Airport Development Strategy.” Subsequently, two separate streams of work were established. Priority was first given to the setting up of an "Airport Core Programme" for implementation through various Government and other public bodies, especially the Hong Kong Airport Authority, the main utility companies and the Mass Transit Railway Corporation. For the port, a Port Development Board was established and, through the Planning Department, a detailed Port Development Plan and Programme was set up along with a system for monitoring and review.
68. New airport apron area

69. New airport and the control tower

70. Image of the interior of the passenger terminal building

71. Roof design of the passenger terminal building
72. Model of Tung Chung New Town

73. Computer generated image of Tung Chung Town Centre
74. Recommended land uses in Tung Chung New Town

75. Tung Chung New Town as a supporting community for the new airport
Metroplan - 1991

Not long after work commenced on the PADS studies, it was realised that it would be prudent to take a close look at the need for establishing a comprehensive plan for the restructuring of the Metro area, bearing in mind that relocation of the airport from Kai Tak, expansion of the port and economic development in the Pearl River Delta would create substantial pressures for change. Again, the same two airport scenarios were assumed, within the framework of which a range of initial options was formulated for evaluation and subsequent translation into more detailed, preferred strategies. In the process, an extensive programme of public consultation was undertaken, starting in 1988 with the issue of a bilingual consultation digest "Metroplan - the Aims." Then, in 1990 another digest, "Metroplan - Initial Options" and a technical report, "Metroplan - the Foundations and the Framework" were released for public comment and discussion by numerous bodies, including all the relevant District Boards. A special two-day seminar was also arranged for leaders of the business community. Following a review of such comments and further corporate-based studies by specialist teams and working groups, a recommended strategy was finally endorsed by the Executive Council in September 1991. A third digest and an Executive Summary were subsequently made available for public use and reference.

From all such studies, there is one inevitable conclusion, namely that reshaping the city, resolution of difficult environmental problems, rehousing people affected by urban renewal schemes and the provision of essential new infrastructure simply cannot be achieved without new reclamation. Figures 76 and 77 illustrate this point.
76. Approaches to restructuring the city

SCENARIO 1
- Needs of Area A for additional community uses provided mainly in Area B
- Density in Area A very high
- Overall density for Areas A & B low

SCENARIO 2
- Minimum improvements made in Area A
- Public sector revenues in Area A high
- Social costs stay high for Area A
- Overall urban environment and layout improved

SCENARIO 3
- Area A upgraded by providing community facilities
- Area B developed as for Scenario 2
- Overall densities are moderate

SCENARIO 4
- Area A redeveloped to New Town standard
- Public sector costs are high and revenues are moderate
- Overall urban environment and layout greatly improved

---

50,000 People 70,000 People

50,000 People 50,000 People
"Breathing life" into Metroplan is being accomplished through various channels. A high-level Sub-committee for Co-ordinating the Implementation of Metroplan has been set up to facilitate restructuring proposals, especially through the preparation of a series of Development Statements for each broad Metro district, involving close consultation with district boards and community groups. Also, bodies such as the Town Planning Board, the Hong Kong Housing Authority, the Land Development Corporation, the Mass Transit Railway Corporation and private developers all play key roles as "agents of change" to bring about the more orderly restructuring of the city.

However, time marches on and circumstances change. It is therefore the intention to initiate a comprehensive review of Metroplan to take particular account of the outcome of the latest review of the TDS and other related studies and information. Views from the general public, professional, business and academic bodies, advisory boards and other community groups will be solicited at various stages.

**Legend**

- **Emphasis on major improvement, renewal and redevelopment (predominantly by private sector)**
- **Proposed high priority action areas for redevelopment/upgrading**
- **Emphasis on selective improvement, renewal and redevelopment**
- **Emphasis on control of development, minimal improvement and redevelopment**
- **Emphasis on landscape enhancement and recreation**
- **Emphasis on new development to highest practicable standards**
- **Areas requiring special action**
- **Recent development areas requiring little/no action**
- **Country park**
- **Boundary of Metro sub-region**
Target areas for restructuring the Metro area
The General Picture

10. Overall, nearly completed harbour reclamation projects, recently committed schemes, future proposals and other possible works cover a total of over 2,200 hectares, as shown by Figure 79 and Tables 4 and 5. Each reclamation area has a key role to play in terms of providing land for such principal uses as:

- the expansion of port facilities and related uses;
- the provision of sites for projects covered by the Airport Core Programme;
- the supply of land for new housing, offices, hotels, recreational amenities, community uses, cultural facilities and essential utility installations;
- the creation of "solution spaces" to facilitate the restructuring of adjoining, obsolete urban areas; and
- the provision of land to enable the extension of new road and railway links to create a more efficient and better integrated transport system.

Current Harbour Reclamation Projects

11. There are seven reclamation projects currently under construction in the harbour, namely:

- Central Reclamation Phase I - 20 hectares
- Central Reclamation Phase II - 5.3 hectares
- Wanchai Reclamation Phase I - 7 hectares
- Aldrich Bay Reclamation - 18 hectares
- Belcher Bay Reclamation - 10 hectares
- West Kowloon Reclamation - 340 hectares
- Stonecutters Island Naval Base at the South Shore of Stonecutters Island - 12 hectares
79. Current and proposed medium and longer term reclamation projects
### Table 4
Reclamation Projects under Construction in the Harbour (1995)

<table>
<thead>
<tr>
<th>Reclamation Area (ha)</th>
<th>Functions</th>
</tr>
</thead>
</table>
| (a) Central Reclamation Phase I 20 | - Airport Core Programme (ACP) project.  
- To provide land for the construction of the Hong Kong Station of the Airport Railway and the western portion of the Central-Wanchai Bypass.  
- To provide land for the expansion of the Central Business District.  
- To be completed in June 1997. |
| (b) Central Reclamation Phase II 5.3 | - To provide land for five commercial development sites.  
- To be completed in December 1996. |
| (c) Wanchai Reclamation Phase I 7 | - To provide land for building an extension to the Hong Kong Convention and Exhibition Centre.  
- To be completed by January 1997. |
| (d) Aldrich Bay Reclamation 18 | - To provide land for housing 23,000 people and sites for open spaces and community facilities to meet shortfalls in adjoining built up areas.  
- To be completed by August 1997. |
| (e) Belcher Bay Reclamation 10 | - To provide land for construction of the Belcher Bay Link which will form part of the Western Harbour Crossing connection.  
- To be completed by early 1997. |
| (f) West Kowloon Reclamation 340 | - ACP project.  
- To accommodate other ACP projects, including West Kowloon Expressway, Airport Railway, Western Harbour Crossing.  
- To provide land for housing 91,000 people and improving the environment in the adjacent areas.  
- To be completed in October 1996. |
| (g) Stonecutters Island Naval Base at the South Shore of Stonecutters Island 12 | - To provide land to build a naval base for the future People's Republic of China Navy.  
- To be completed in early 1997. |

Source: Territory Development Department
Table 5
Proposed Medium and Longer Term Harbour Reclamation Projects for General Urban Use

<table>
<thead>
<tr>
<th>Reclamation Area (ha)</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Central Reclamation Phase III</td>
<td>30 - Start time under review. Completion at end of 2000. - To provide land for the Central-Wanchai Bypass and the Airport Railway overrun tunnel expansion for the relief of traffic congestion in the Central Business District.</td>
</tr>
<tr>
<td>(b) Wanchai Reclamation Phase II</td>
<td>48 - To start in 1998 for completion in 2002. - To provide land for the completion of the Central-Wanchai Bypass, public cargo working area and waterfront promenades.</td>
</tr>
<tr>
<td>(c) Green Island Development - Advanced Reclamation by Public Dumping</td>
<td>37 - To provide land for Route 7 for the improvement of traffic conditions in the western part of Hong Kong Island. - To provide a better alternative use of construction waste. - To start in mid 1996 for completion in 2003.</td>
</tr>
<tr>
<td>(d) Green Island Development - Stage 1 Reclamation and Reprovisioning of Waterfront Facilities</td>
<td>29 - To provide waterfront facilities affected by subsequent phases of the reclamation. - To start in late 1998 for completion in 2002.</td>
</tr>
<tr>
<td>(e) Green Island Development - Remaining Reclamation</td>
<td>110 - To provide land for housing 124,000 people and facilitate urban renewal in the Western District. - Implementation programme to be determined by the outcome of the TDS Review and relevant feasibility studies.</td>
</tr>
<tr>
<td>(f) Tsuen Wan Bay Further Reclamation</td>
<td>30 - To provide land for public housing and other community facilities to facilitate the restructuring of built-up areas. - To start in 2000 for completion by 2003.</td>
</tr>
<tr>
<td>(g) Kowloon Point Development</td>
<td>48 - To provide a new commercial/residential/cultural focal point for Kowloon. - To provide land for the extension of major roads and passenger rail links from Tsim Sha Tsui to West Kowloon Reclamation. - A feasibility study will commence in late 1995 to establish its viability.</td>
</tr>
<tr>
<td>(h) South East Kowloon Development</td>
<td>300 - To provide a new development site comprising the Kai Tak Airport site and the adjacent urban areas for housing 285,000 people and 110,000 jobs. - To provide land to help environmental improvement in adjoining old built up areas and to reduce water pollution in Kowloon Bay. - To provide a new typhoon shelter and cargo working area. - A feasibility study will commence in late 1995 to establish the scope of detailed works.</td>
</tr>
</tbody>
</table>

Source: Territory Development Department

"Start" means the date when construction works start on site. These projects are at an early stage of planning. Neither Hong Kong Government nor the future Special Administrative Region Government are committed to their implementation. As such, dates for start and completion of works are subject to confirmation.
Central Reclamation Phase I

12 Phase 1 of the Central Reclamation (Figure 80) extends from Rumsey Street to Pedder Street and will provide land for:

- the construction of the Airport Railway Hong Kong Station opposite Exchange Square,

- the construction of the western portion of Central Wanchai Bypass,

- the expansion of the Central Business District, and

- the reprovisioning of piers, cooling water pumphouses and other facilities displaced by the reclamation.

13 The reclamation has been phased to ensure that the existing ferry services, cooling water supply and drainage outfall are fully operational at all times. This Airport Core Programme project commenced on 1 September 1993 and is expected to be completed by 1997.
<table>
<thead>
<tr>
<th>Pier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pier 4</td>
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<tr>
<td>Pier 5</td>
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<tr>
<td>Pier 6</td>
<td></td>
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<tr>
<td>Pier 7</td>
<td></td>
</tr>
</tbody>
</table>

**87. Location of Central Ferry Pier**

- MTDC Building
- Hong Kong Station

**86. Central Ferry Pier Redevelopment**

- Pier 4
- Pier 5
- Pier 6
- Pier 7

**The Shape of Things to Come**

62
88. Model of one of the piers
Central Reclamation Phase II
14 The Central Reclamation Phase II mainly comprises reclamation of the Tamar Basin. This will provide land for five commercial development sites, the first of which was sold by tender in August 1995. The second and third sites should be available for sale about one year later. The remaining two sites can only be disposed of after the completion of the road network on the Central Reclamation Phase III area. The reclamation and infrastructure contract commenced on 5 December 1994 and is scheduled to be completed in December 1996.

Wanchai Reclamation Phase I
15 This scheme comprises an island of approximately seven hectares to provide land for the construction of an extension to the Hong Kong Convention and Exhibition Centre (HKCEC). Wanchai Reclamation Phase I is being carried out under three contracts. Advanced dredging of contaminated mud was completed on 31 May 1994. The second contract, which comprises mainly the reclamation works and the construction of one of the two proposed bridges linking the island with the mainland, commenced on 1 June 1994. The works were completed in mid 1995. The third contract commenced on 20 February 1995 for the infrastructure works, including the other bridge serving the extension. Civil engineering works will be completed by January 1997.
91. An overview of Central and Wanchai Reclamations

92 - 94. Exhibition District
95. Location of the Hong Kong Convention and Exhibition Centre (HKCEC) extension

96. Sectional view of HKCEC extension
97. Computer generated image of HKCEC extension

98. Computer generated image of HKCEC extension main foyer
Aldrich Bay Reclamation

16. This reclamation (Figure 99) will provide land for a Private Sector Participation Scheme, a public rental housing cum Home Ownership Scheme, and private residential housing for 23,000 people. It will also provide sites for open spaces and Government, Institution and Community facilities to meet shortfalls in adjoining built-up areas. Reclamation works are underway for completion in August 1997. Two housing developments are scheduled to start in late 1995 on the reclamation and the roads and drainage works are scheduled to start in mid 1997 to tie in with the population intake of the housing developments by end 1999.
Belcher Bay Reclamation

17. The Belcher Bay reclamation is part of the initial phase of the Green Island Reclamation between Shek Tong Tsui and Kennedy Town (Figure 100). The reclaimed land is primarily for the construction of the Belcher Bay Link - a dual carriageway to link up the existing upgraded Connaught Road West with Sands Street in Kennedy Town. It will form part of the Western Harbour Crossing connection. The reclamation works commenced in May 1993 for completion in early 1997. The existing cargo handling facilities along Kennedy Town Praya will be relocated to the new seafront to enable cargo working activities to be moved further away from residential areas. The project will also include a 1.7 hectare site for a temporary district open space to provide a much needed leisure facility in the Western District. Permanent open spaces will be provided on the main part of the Green Island Reclamation scheme.

100. Staging of reclamation works at Green Island
West Kowloon Reclamation

18. This project, including an area of reclamation at Stonecutters Island, covers an area of 340 hectares of land along the West Kowloon waterfront from Yau Ma Tei to Lai Chi Kok (Figure 106). Works commenced in August 1990 for completion in October 1996. This reclamation is one of the projects in the Airport Core Programme and is required to accommodate major transport links, viz West Kowloon Expressway, Airport Railway, Western Harbour Crossing and other port and port-related facilities, besides housing for 91,000 people and providing land to help improve the environment in the adjacent areas. It will also provide an opportunity to establish a new secondary office and hotel centre around two, almost adjoining, downtown passenger railway terminals to be built by the MTRC and the KCRC. That, in turn, would create a new, conveniently located employment node for the concentration of people living in the Kowloon Peninsula and other non-Metro areas. The reclamation works were carried out very rapidly using marine sand deposits extracted by suction dredgers that pumped their loads onto designated reclamation areas covering contaminated mud deposits.
103. Model of West Kowloon Reclamation

104. Reclamation works at West Kowloon

105. Reclamation works at West Kowloon

106. Broad land use and transport patterns for West Kowloon
107. KCRC extension at Hung Hom

108. Airport Railway Tai Kok Tsui Station and adjacent property development

109. Property development at Airport Railway Kowloon Station
**Stonecutters Island Naval Base**

19. This reclamation at the south shore of Stonecutters Island is required for a new Naval Base for the People's Republic of China Navy to replace the former Tamar Naval Base. The project commenced in November 1994 and will be handed over on 1 July 1997.

**Proposed Medium Term Harbour Reclamation Projects**

20. There are five reclamation projects in the harbour likely to commence in the medium term, namely:

- Central Reclamation Phase III  - 30 hectares
- Green Island Development - Advanced Reclamation by Public Dumping  - 37 hectares
- Permanent Site for Mid-stream Operations at Stonecutters Island  - 6.6 hectares
- Container Terminal 9 and Back-up  - 106 hectares
- Lantau Port  - 1020 hectares

111. A new naval base to be developed at the south shore of Stonecutters Island
112. Major transport projects in central and western harbour areas

Central Reclamation Phase III

21. Current thinking is for the Central Reclamation Phase III to commence in time for completion by the end of 2000 to enable the Central-Wanchai Bypass to be completed by 2003 (Figure 112). The opportunity will also be taken to plan for the full overrun tunnel extension (about 420 metres) necessary to facilitate the future improvement and expansion of the Airport Railway services.

22. A short section of the Airport Railway full overrun tunnel extension, approximately 50 metres long, is likely to be required ahead of the rest of the extension to meet the operational requirement for the commissioning of the Airport Railway. Hence, the careful timing of reclamation works will be necessary.

23. The Central-Wanchai Bypass needs to be completed by 2003 not only to service the development on Central and Wanchai Reclamation but also to provide relief to the traffic congestion presently being experienced in the hinterland, particularly along Connaught Road Central, Harcourt Road and Gloucester Road. There are programming advantages for the tunnel box of the bypass to be constructed with the Central Reclamation Phase III works. The tunnel box will take about 20 months to complete with a further 18 months for a separate electrical and mechanical contract for the installation of the associated electrical and mechanical equipment. The whole purpose of adopting this approach is to meet the target completion date by 2003.
The project is to reclaim the portion of Sulphur Channel between Green Island and Kennedy Town by means of public dumping (which mainly consists of construction waste) forming an area of 37 hectares (Figure 113). The area forms part of the site for the proposed Route 7, which is required to improve general traffic conditions in the western part of Hong Kong Island. The immediate aim of the project is to provide a much-needed, long-term public dumping site for Hong Kong Island. With a predicted annual demand of one million cubic metres of public dumping materials, this reclamation should provide sufficient capacity to meet suitable waste arising from Hong Kong Island for seven years from 1996 to 2002. The scheme will thus enable a better alternative use to be made of construction waste through the creation of land for various community uses.
Container Terminal 9 Development

25. The early commencement of this project (Figure 115) is important in order to provide additional capacity to handle rapidly rising demands generated largely by the Chinese re-export trade. Promulgation of this scheme depends on reaching agreement with the Chinese Government.

115. Development phasing of Container Terminal 9 at Tsing Yi
Lantau Port

26. Whilst awaiting a "green light" on Container Terminal (CT) 9, it is now necessary to move ahead as quickly as possible with the phased implementation of the Lantau Port (Figure 116), covering a total of 1,020 hectares and providing up to 24 berths (5 terminals). The detailed design of CT10 and CT11 is near completion. The most realistic target date for the commissioning of the first berth of CT10 is late 1998. Thereafter, other new terminals would need to be developed in fairly rapid succession up to the commissioning of CT13 by end 2004. A decision on the final terminal, CT14, would be taken once it becomes clear whether or not its operation would create unacceptable noise problems for residents at Discovery Bay and Peng Chau.

Proposed Longer Term Harbour Reclamation Projects

27. There are six reclamation projects in the harbour that are likely to commence in the longer term, with the timing of each project being subject to decisions by the new government of the Special Administrative Region. These schemes comprise:

- Green Island Development - Stage I - Reclamation and Recprovising of Waterfront Facilities - 29 hectares
- Green Island Development - Remaining Reclamation - 110 hectares
- Tsuen Wan Bay Further Reclamation - 30 hectares
- Wan Chai Reclamation Phase II - 48 hectares
- Kowloon Point Development - 48 hectares
- South East Kowloon Development - 300 hectares
Green Island Development - Stage I Reclamation and Reprovisioning of Waterfront Facilities

28. Green Island Development is a major strategic growth area identified in the current Territorial Development Strategy Review to provide both housing for some 124,000 people and land to facilitate urban renewal in adjoining Western District (Figure 117). Stage I of the project, together with the reprovisioning of waterfront facilities, is scheduled to commence in late 1998 for completion in 2002. All the existing waterfront facilities will then be relocated to the new reclamation. The remaining stages would follow for completion, possibly by 2006.

Green Island Development - Remaining Reclamation

29. The remaining stages of the Green Island Reclamation will produce a valuable land bank to facilitate the restructuring of obsolete areas in the Western District and also to provide a range of new employment opportunities, tourist facilities and attractions. The timing of development will need to have regard for the final outcome of the current TDS Review.

Tsuen Wan Bay Further Reclamation

30. The reclamation of Tsuen Wan Bay (Figure 118) could possibly start in 2000 for completion by 2003 to provide land for housing and other urban uses to facilitate the restructuring of the general area. A new China Ferry Terminal might also be built alongside the reclamation with an interchange to a KCR station on the currently proposed Western Corridor Railway connecting the Metro area with the North West New Territories.

Wanchai Reclamation Phase II

31. This is the last and also the largest phase for the Central and Wanchai Reclamation. Works could take about four years to complete to enable completion of the last section of the Central-Wanchai Bypass. Additionally, the scheme would involve the reprovisioning of the existing public cargo working area in Wanchai. Land would also be made available for new commercial and residential development and the further extension of waterfront promenades and associated civic squares.
Kowloon Point Development

32. Consultants have recently been commissioned to carry out a feasibility study to assess the merits of this scheme. Under Metroplan, it is seen that this reclamation would enable extension of major roads and passenger rail links from Tsim Sha Tsui to the West Kowloon Reclamation where both the MTRC and the KCRC are to develop major, inter-connected downtown passenger rail terminals. A further potential benefit of reclamation at Kowloon Point is that it could be developed as a new commercial/office node to counter-balance the concentration of business activities in the Central Business District on Hong Kong Island. Additionally, it would make it possible to provide a waterfront promenade, thus enhancing the attraction of Tsim Sha Tsui as a main tourist area.
South East Kowloon Development Scheme

33. The South East Kowloon Development Scheme (Figure 120) covers an area of about 940 hectares comprising the Kai Tak Airport site (270 hectares), adjacent urban areas at Hung Hom, To Kwa Wan, Ma Tau Kok and Kowloon City (270 hectares), new development sites (300 hectares) to be reclaimed from Kowloon Bay, a new typhoon shelter (55 hectares) and cargo working area (45 hectares) at Cha Kwo Ling. Together with the existing Kai Tak Airport, this reclamation would provide an opportunity to develop a new “city within a city” for 285,000 people and to provide 110,000 jobs. Sites on the new reclamation could be made available for the rehousing of people affected by redevelopment schemes in Central and East Kowloon. Along with these proposals, provision could also be made for new North-South and East-West road and passenger rail links to help improve the overall efficiency of the transport network in Kowloon. Reclamation of the highly polluted Kowloon Bay and the provision of district parks, community and tourist facilities would be additional benefits. An outline development plan for the area has been produced and consultants have recently been commissioned to carry out detailed feasibility studies.
124. Open space and pedestrian links in South East Kowloon

125. Extensive waterfront promenade

126. New commercial centre - South East Kowloon
CONCLUSION

34. Taking the above projects as a whole, there would be a composite potential to provide some 1,002 hectares of land for various urban uses as part of a strategy to restructure the Metro area on a carefully co-ordinated, incremental basis. In broad terms, the principal reclamation areas related to Metroplan would be:

- Central - Wanchai Reclamation - 110 hectares
- Aldrich Bay - 18 hectares
- Green Island - 186 hectares
- West Kowloon - 340 hectares
- South East Kowloon (Kowloon Bay) - 300 hectares
- Kowloon Point - 48 hectares

35. The associated population capacity of such areas would be in the order of about 0.55 million, a significant part of which would arise from the rehousing of people from congested Metro districts. The new reclamations would also facilitate the provision of new transport systems, the creation of comprehensively designed new communities and the development of new employment nodes and tourist facilities clustered around high-capacity transport interchanges.

36. It is of paramount importance to have timely provision of land in the Metro area to help redress the various complex land use, transport and environmental problems of the city and in the process, satisfy socio-economic demands for the creation of a better city in which to live and work. Without such reclamations, it would cause pressure for the provision of additional land in more inaccessible locations. That, in turn, would create an imbalance in the distribution of population and jobs, resulting in more commuter traffic on already overloaded transport systems. Additionally, there would be increased pressure on the environmental capacities and ecological attributes of rural areas. At the same time, it must be acknowledged that, in meeting the needs of the Metro area through new reclamation schemes, there will remain a demand for new urban areas in selected locations in the New Territories to satisfy other strategic growth demands.

37. In the case of the port, potential harbour reclamations could provide about 1,020 hectares of land, principally for the development of new container terminals and associated back-up land.
Principal Points Of Concern
WHAT OTHER PEOPLE THINK

1. As the scale of new harbour reclamations becomes more apparent by the day to the many people who live and work in areas around the harbour, questions are bound to arise at individual and corporate levels as to why such works are necessary and what implications they will have for the city and its way of life. From comments received from various sources and from statements made in public by concerned parties, the following have been identified as the principal points of concern:

- the extent to which newly created shoreline profiles would adversely affect the hydrology of the harbour;
- the degree to which new reclamations would compromise port and other marine-based activities;
- the extent of threats to the environment, particularly with regard to water quality;
- the loss of the scenic value of the harbour;
- the appropriateness of a harbour-oriented, reclamation-dependent development strategy and an over supply of land, resulting in adverse effects on the property market; and
- the apparent lack of an adequate process of public consultation and dissemination of information.

2. Such matters cover a wide range of related topics, the principal aspects of which are covered below, based on a synthesis of a number of substantive studies undertaken over the past 10 years or so. For any reader who wishes to delve deeper into the details of a particular topic there is a list of technical reports in the Annex, copies of which are held in the archives of the relevant Government departments and which are available, in most cases, for reference under the provisions of Government's Code on Access to Information.

THE SHAPE OF THINGS TO COME
HARBOUR RECLAMATIONS AND HYDROLOGY

Principal Points of Concern

3. As the current harbour reclamation projects have been taking shape, some measure of concern has been expressed over the potential impacts that the reshaping of shorelines could have on the diurnal tidal flows through the harbour and on other related aspects. This is an area of study that certainly requires careful investigations which, fortunately, the Government is well equipped to do through the use of both a large physical model of the harbour (located in a special laboratory at Tuen Mun) and computer models that can simulate and test a wide range of reclamation assumptions.

Technical Background

4. Hydrological conditions most important to the beneficial use of the harbour are largely determined by tidal flow currents, waves, and sediment content. These parameters directly affect port operations. Currents and waves affect the facility of navigation, berthing and mooring. The interaction of the flow and sediment content affects the siltation in fairways, anchorage areas, berthing and cargo-handling areas. In addition, tidal currents and waves are the primary driving force in the transport and distribution of dissolved or suspended materials in the harbour and which, in combination with pollution loadings, determines the quality of harbour waters.
Hydrological Conditions

5. The main marine activities take place in the Victoria Harbour and increasingly in the western harbour. Victoria Harbour is well sheltered from swells by Hong Kong Island and has been the focus of port operations in Hong Kong. It is surrounded by high-density urban development and receives largely untreated sewage, discharged through a number of outfalls. The western harbour is an open fetch of water to the west of Hong Kong Island and Lamma Island. It is exposed to swells from the south and is used mainly as a ship anchorage for ships waiting for berths, dangerous goods vessels and typhoon anchorage. The average depth of water is 10 metres in Victoria Harbour and eight metres in the western harbour. The general flow patterns in Victoria Harbour and the western harbour before the implementation of the major reclamation in 1990 are depicted in Figure 129.

6. Lei Yue Mun is the eastern entrance to the harbour. It has a width of 450 metres and has a maximum depth of 40 metres. The maximum tidal velocity is 1.5 metres/second at peak ebb conditions during diurnal spring tides. The main channel of the harbour runs east-west and has an average depth of about 10 metres. The minimum width of 1,150 metres in the harbour occurs at Tsim Sha Tsui, where maximum tidal currents of 1.2 metres/second are recorded.

7. The north-western entrance to the harbour is Ma Wan Channel which has a minimum width of 850 metres and a water depth of 35 metres. The maximum current is 2.5 metres/second. This channel is, at present, the only means of passage for large vessels destined for ports to the west of Lantau Island and is subject to restrictions permitting passage of certain large ocean-going vessels only during slack water tidal "windows" and day light.

8. The East Lamma Channel is, at present, the only deep-water channel for large ocean-going vessels visiting Hong Kong, having a minimum depth of 20 metres. Maximum current speeds in the Channel are in the order of 1.0 metres/second.

9. The West Lamma Channel is the widest of the Channels. Except for a portion leading to the power station on Northwest Lamma which is dredged to 16 metres, the water depth in the Channel averages about 8 metres.

10. Victoria Harbour is well protected by Hong Kong Island from swells. During normal weather conditions, maximum swells with heights of 0.35 metres occur between Green Island and Tsing Yi. The Western Harbour is exposed to southerly swells where heights of 0.5 metres have been recorded during normal weather conditions. For this reason, the PADS proposals allow for the eventual provision of a five kilometre breakwater between Lamma Island and Cheung Chau.

11. Siltation in Victoria Harbour is mainly from the suspended material in the Pearl River flow. However, sediments carried in the stormwater flows discharged at outfalls around the harbour also contribute to siltation. The average sedimentation rate in Victoria Harbour from such sources is 20mm/year. In the western harbour, the sole source of siltation is the Pearl River discharge. The estimated siltation rate is 80mm/year. Figure 130 shows the distribution of suspended mud concentrations in the harbour under different tidal conditions.
Hydraulic Studies

12. In recent years, Government has put forward a major port development programme and a number of large scale reclamations for providing land for urban growth. To ensure that the harbour hydraulic conditions at any stages of these projects will suit the waterborne activities, thorough hydraulic studies have been carried out.

13. The Civil Engineering Department has been conducting engineering hydraulic studies for many years in close association with such bodies as the Planning Department, the Territory Development Department, the Marine Department and the Environmental Protection Department. In recent years, with the advances in computer technology, a suite of mathematical models has been developed for studying the effects of reclamations and other harbour engineering works on tidal flows, wave propagation and sediment deposition. A large physical tidal model has also been built to facilitate in-depth investigation of the hydraulic effects of coastal developments. Since 1989, the Department has conducted more than 30 hydraulic studies using these models. These studies have helped with the selection of optimum layouts of reclamation, the prediction of their hydraulic effects, and the provision of detailed data for the hydraulic design of marine structures.

14. Among the 30 studies, the most representative ones are those conducted on three major reclamations in the central part of Victoria Harbour and on the Lantau Port Development in the western harbour area. The three reclamations are the West Kowloon Reclamation, the Central and Wanchai Reclamation and the Green Island Reclamation. The areas to be reclaimed under these three projects are 340, 110 and 186 hectares respectively. Altogether, they will occupy approximately 13% of the surface area of Victoria Harbour. This still leaves very substantial areas for marine uses (about 4,850 hectares - almost four times the size of the new airport at Chek Lap Kok). The Lantau Port Development is a key element of Government's continuing efforts to provide new container terminal facilities to keep pace with rising demands, taking account of other port development in the Pearl River Delta. The development involves a reclamation of over 1,000 hectares, far exceeding the total area of the above-mentioned three reclamation projects whilst leaving a vast expanse of the "outer harbour" for other marine activities. In addition, the development may include the construction of a five kilometre long breakwater situated between Lamma Island and Cheung Chau. The following is a summary of the key results of the hydraulic studies of these four major projects in the harbour.
Effects of Reclamation on Harbour Hydrology

15. Modelling studies of the three reclamations in Victoria Harbour show that, despite the extensive area involved, they have relatively insignificant effect on the key hydrological parameters of the harbour. Upon completion of the three reclamation projects, the peak current velocity between Central and Tsim Sha Tsui would reduce by 12%. Those in other areas would basically remain unchanged. Thus, these three reclamations would have negligible effects on navigation and other water-borne activities in the harbour. Upon the further completion of the Lantau Port and the Lamma Breakwater, there would be little change to the tidal flows in Victoria Harbour. The peak flow speed in East Lamma Channel would remain practically unchanged. Moreover, this further development would render a more uniform distribution of tidal flow in the western part of the harbour. Therefore, it can be concluded that the Lantau Port generally has no adverse effect on the harbour hydrology. The tidal flow patterns in Victoria Harbour and the western harbour at several representative stages of construction of the harbour reclamation projects are shown in Figures 132 and 133.

16. Excessive sediment deposition could, of course, jeopardize the normal operation in fairways, anchorage areas, berthing and cargo handling areas. This must be taken into account in designing coastal engineering projects. The mathematical sediment transport modelling studies indicate that after the completion of the Lantau Port Development, as well as the major reclamations in Victoria Harbour, the siltation rate in Victoria Harbour and the western harbour would actually decrease by 10% and 20% respectively. These findings provide a very useful reference for future detailed design of the coastal development projects. Figures 134 and 135 show the distribution of suspended mud concentrations in the harbour at several representative stages of construction of the harbour reclamation projects under different tidal conditions.
132. Predicted tidal current after completion of 3 TDS reclamations

133. Predicted tidal current after completion of North Lantau Port reclamation
134. Predicted mud concentration after completion of 3 TDS reclamation

135. Predicted suspended mud concentration after completion of North Lantau Port reclamation
17. The Lantau Port development project includes the extension of the anchorage area at the western part of the harbour. Figure 136 shows the distribution of extreme wave heights (of 100-year return period) under existing conditions. Without the Lamma Breakwater, wave heights could reach four to five metres in the proposed western harbour anchorage area between Lamma Island and Cheung Chau. Thus, this anchorage area requires the construction of the Lamma Breakwater. Hydraulic studies on the effect of the breakwater on the wave climate were conducted using the mathematical model. The conclusion is that upon the completion of the Lantau Port development project, the percentage time of occurrence of waves exceeding 0.75 metres high in the western harbour area would reduce from 9.5% to 1.8%. There would consequently be a significant improvement to cargo handling and navigation safety.

Conclusion and Limitations

18. From the modelling results, it is concluded that the reclamation projects would have no adverse effect on the key hydrological conditions of the harbour. They would not adversely affect port operations in particular. However, while the mathematical models are sophisticated tools for predicting hydrological conditions, their limitations should be noted. First, the computations are based on a grid representation of the bathometry and coastal features. Because of the capacity limitation of the computer, the grid size of the model has to be in the order of 100 metres, thereby limiting the capabilities of the model to simulate the effect of detailed coastal features such as breakwaters and narrow channels. Likewise, the physical model is limited by the accuracy of the hydraulic conditions which are input into the models. However, the predictions of both the mathematical and the physical tidal models are sufficiently accurate for evaluating macroscopic harbour conditions, viz averaged over 100 metre distances. Secondly, the complex three-dimensional behaviour of the hydrological conditions cannot be accurately simulated, especially if the variation over the depth is required. However, this is not important as the depth changes relatively little in Hong Kong harbour, except at the deep channels as described earlier. A further point to note is that in the design of individual reclamation projects more detailed studies are undertaken of potential environmental and hydraulic impacts, with the results thus obtained being used to improve engineering designs and the way in which reclamation works are carried out. Also, during the formation of reclamations, it is a usual requirement for the responsible agent to set up a monitoring and audit system to ensure compliance with environmental standards and to implement corrective measures whenever necessary.
136. Predicted transformation of extreme waves from offshore to harbour after completion of 3 TDS reclamations and Lantau Port reclamation
HARBOUR RECLAMATIONS AND PORT DEVELOPMENT

Principal Points of Concern

19. On most days of the year, the wide harbour areas of Hong Kong that are visible from most high vantage points in the Metro area are full of ocean-going vessels and many other types of small craft. Indeed, the port has in many ways become symbolic of the vibrancy that permeates the general character of Hong Kong. Thus, in the promulgation of new reclamation projects care must be taken to ensure that port functions are not adversely affected. And, of course, we must also be proactive in the formation of new land for port activities on their own account.

Significance of the Port to Hong Kong and China

20. Hong Kong is the world's eighth largest trading entity. Some 87% of that trade goes through the port. In 1994 the port handled some 140 million tonnes of cargo, transactions from which add greatly to our economy. Port and port-related business generate 20% of our Gross Domestic Product and employ one in every eight of our entire workforce.

21. With a throughput of well over 11 million TEUs in 1994, Hong Kong is the busiest container port in the world, with Singapore a close second. During the year about 37,000 ocean-going ships, representing more than 200 shipping lines, and some 155,000 river trade and passenger vessels called at Hong Kong. There was, on average, one arrival and departure every 1.4 minutes, compared to one aircraft every 3.7 minutes on average handled by the airport.

22. The port is vital, not only for Hong Kong, but also for China. More than 60 per cent of all cargo passing through Hong Kong's port is bound for or from China. Despite the upgrading of Chinese port facilities, Hong Kong will remain the hub port for the region well into the next century.
139. Hong Kong and the adjacent ports in South China

140. Ocean-going vessels moored in the western harbour
Harbour Reclamations and Port Operations

Traffic Growth

23. Figure 142 shows a consistent growth in all aspects of shipping activities over the last decade or more. For instance, the number of vessel movements to and from the port has increased by 125% over the last 10 years, containers handled at the Kwai Chung container terminals by 304% and at anchorages and buoys by 826%.

24. In addition, there have been significant increases in both international and local ferry services operating from the Central Harbour area. Over the past decade international passenger services have increased by 82%. Local services to expanding satellite developments such as Discovery Bay at Lantau have also had to be introduced and expanded.

25. Since much of this growth is related to economic expansion in the Pearl River Delta, it will be difficult for Hong Kong to avoid having to handle the resultant traffic, unless there is an increased substantive provision of port facilities elsewhere in the region.

26. During this period the Marine Department has evolved its traffic management system from conventional monitoring through radio reports to an advanced Vessel Traffic System (VTS) utilising radar tracking equipment. This has enabled traffic growth to continue without any significant deterioration in levels of safety. In addition, the phased introduction of compulsory pilotage for ocean going ships since 1985 provides for ease of contact between the VTS controller and ships in passage.
141. Increasing amounts of international and local ferry services operate in the central harbour area.

142. Tremendous growth of cargo and vessel call in the last decade.
Movement of Port Operations

27. The 1980's and early 1990's have also been a period of development for port facilities, brought about by the need to accommodate growing traffic demands, the world-wide trend towards containerisation and the increasing size of cargo vessels requiring deeper and wider channels. With deeper and more open water available in the western harbour area, the hub of port activities has been shifting to the west. This has enabled many industrial activities associated with shipping, such as cargo wharves and godowns, oil depots and shipyards to be relocated from environmentally sensitive urban areas to remote sites where their activities can continue. Where port facilities such as buoys, cargo working areas and typhoon shelters are displaced by land developments, the cost of reprovisioning on a like-for-like basis is underwritten as part of the land development cost.
28. In determining the general locality of port facilities, the following navigational safety factors are considered:

- they should be consistent with the positioning of cargo handling activities in the western harbour area;

- the position of cargo handling facilities for ocean going cargo vessels, such as container terminals and harbour mooring areas, should be close to the main deep water approach channels;

- the necessary support facilities for cargo handling from ocean-going vessels at harbour moorings, such as typhoon shelters and cargo working areas, should be situated close to the area of activity;

- where possible, facilities and associated activities should be consolidated to provide economies of scale and reduce vessel movements;

- increase in marine traffic through the navigationally congested Ma Wan channel should be minimised; and

- facilities should be consistent with prevailing marine traffic patterns and not create unacceptable levels of vessel encounters.
29. The resulting movement of port activities from the inner harbour to the west can be summed up in four points:

- the cargo handling wharves in Kowloon have been decommissioned, being replaced by container terminals at Kwai Chung and, in future, at Lantau;

- the ship repair facilities at Hung Hom and Quarry Bay have been redeveloped and operations moved to west Tsing Yi and Yam O;

- the harbour mooring buoys have been relocated from Yau Ma Tei and Sham Shui Po anchorages to the Kellett Bank and Tseung Kwan O; and

- cargo working anchorages have been established north and south of Kau Yi Chau and north of Lamma Island.

30. The planning of these relocations and other reclamations in the harbour has been the subject of marine traffic impact assessments at both the conceptual and design stages to forecast the likely levels of marine traffic, the likely courses of ship movements and resultant number of vessel encounters. Such information is used, where appropriate, to set limits to new shorelines and, in all cases, to design the necessary marine traffic management measures to contain the vessel encounters within acceptable limits. Also, mitigation measures are incorporated into the design work before work commences to ensure that our harbour remains a safe place for navigation.

31. Whilst developments are in progress, especially in the narrowest part of the harbour between Central and Tsim Sha Tsui, irregular traffic patterns will temporarily exist (e.g. from construction vessels) giving rise to close quarter situations in vessel encounters. This has a number of possible detrimental effects:

- large numbers of vessels manoeuvring within a relatively confined water area around which there may be vertical seawalls can create confused surface wave conditions over certain "busy" periods;

- such surface conditions can give rise to discomfort to passengers on vessels, lead to the distraction of crew members from their normal diligence, and create for those embarking and disembarking an uncomfortable experience;

- small vessels may need to take evasive action when encountering large bow waves and in doing so manoeuvre in an erratic manner; and

- vessels may have to navigate closer to each other than is the case elsewhere in the harbour and can thus compound problems arising in the event of a mistaken manoeuvre.
147. Simpyarus atmung mun have been redeveloped into a private residential development and operations moved to the western harbour.
32. These effects are being addressed in the following ways:

- the adoption of less wave-reflective designs for seawalls in the harbour and imposing appropriate speed controls on vessels;

- the commissioning of a study of inner harbour waves and their reduction;

- establishing additional vessel traffic management and control including reorganisation of marine traffic patterns;

- increasing awareness of the need for greater vigilance by coxswains of vessels and advising passengers and crew to exercise extra precautions when embarking/disembarking and when vessels moving about in the central harbour area; and

- pursuing a strategy to relocate cargo working activities to the west through the provision of a West Lamma Breakwater (to provide the necessary sheltered water for this activity) and the development of cargo working areas for mid-stream barges at the Lantau Port.

33. Given the increase in traffic volumes experienced over the last decade and relocation of port facilities to the west, the cumulative effects on traffic flow patterns and levels of risk will be examined by a comprehensive marine traffic analysis. This will provide a blueprint for optimum vessel traffic management and the necessary tools to adequately monitor vessel movements. The aim is to ensure that the present high levels of marine traffic safety are maintained in the future.
148 & 149. Less wave-reflective seawall design
HARBOUR RECLAMATIONS AND THE ENVIRONMENT

Principal Points of Concern

34 Clearly, the need to provide new land resources for the further development of our city and port, along with the provision of essential infrastructure, raises questions over the extent to which the works involved will affect the quality of the environment and the integrity of ecological habitats both during construction stages and, subsequently, following the completion of development.

Water Quality

35. Every day, we discharge 1.5 million cubic metres of domestic sewage and industrial wastewater into Victoria Harbour with screening only to remove debris. The water quality of harbour waters has consequently deteriorated to a point where it may be classified as "extremely poor" (Figure 150) and, as a semantic by-product, has given a new meaning to the term "Fragrant Harbour," which is normally the literal translation for "Hong Kong." Faced with this critical situation, it is no wonder that some observers take the view that any more harbour reclamations could exacerbate the situation. However, there are two ways of looking at this issue, namely, with regard to individual projects on the one hand and in a wider context on the other.

36. Individual reclamations may lead to a local but temporary decline in water quality brought about by the dumping of fill at the reclamation site in such a way that creates sediment plumes that may be carried to other downstream areas. The most desirable answer to this problem is to ensure, as far as is practical, that seawalls are first completed to contain suspended sediments within the reclamation area. Reclamation works may also temporarily or permanently create semi-enclosed water bodies in which pollutants become trapped. Such a situation may be avoided through modifications to the design of reclamations to facilitate hydraulic flows and the provision of new drainage and sewerage systems to divert/treat polluted discharges. On account of the latter, we have produced a series of district Sewage Master Plans, the implementation of which is currently an ongoing commitment. However, it has not always been possible to arrange the timely programming of works for Sewage Master Plans and there have been instances where reclamations have exacerbated local pollution problems temporarily.
QUALITY OF MARINE WATERS IN HONG KONG

150. Quality of marine waters in Hong Kong
37. The problem of water pollution in the harbour is on such a large scale that effective improvement in the quality of harbour waters calls for a broader strategic plan of action. Thus, Government took action by promulgating in November 1994 the first phase of the Victoria Harbour Water Control Zone. The associated controls require that all discharge, except domestic sewage, into communal foul sewers and unpolluted water shall be controlled. The declaration specified that, before 1 July 1995, all waste water dischargers had to apply for a licence in order to continue their operations. A further bold step to redeem the quality of harbour waters is also being taken through the phased implementation of the Strategic Sewage Disposal Scheme, providing for the construction of a network of trunk sewers to deliver effluents for treatment at a new facility at Stonecutters Island, followed by discharge by underwater outfalls. Initially, there will be a short, temporary outfall to the west of Stonecutters Island. Studies are ongoing as to the best form of sewage treatment and also with regard to options for a deep-sea outfall (Figure 151), which requires agreement with the Chinese Government Authorities.

38. Along with such measures, in the drawing up of new reclamation proposals during the formulation of PADS and Metroplan, a computer-driven model (WAHMO) was created to assess the likely impact of new harbour works on water quality, as well as on tidal flows. The programmes that drive the model merge together as many as 100,000 maritime records with some 50 research-derived equations. At least two-billion calculations are required to imitate a typical tidal cycle using a superfast computer that can solve 100,000 equations every second. This model has been carefully tested and tuned to ensure that it can satisfactorily simulate historically observed conditions. Using this tool, it can be demonstrated that, although completed and ongoing regradations will reduce the volume of flow through Victoria Harbour by about 20%, there will be no overall impact on water quality provided that the pollution that currently enters the harbour is removed.
Kowloon Interim Outfall

Hong Kong Island

Lamma Island

Possible Biological Stage
Sandy Bay SP
Aberdeen SP
Lamma Island PS

CEPT Stage

To Kwa Wan SP
Kwun Tong SP + PS
Tsing Yi Island SP

Interim Outfall

Central SP
Wanchai East SP
Shau Kei Wan SP
Chai Wan SP

Alternative Outfall Options

Original Outfall Option

Stage 1
Stage II
Stage III/IV
SP - Screening Plant
PS - Pumping Station

151. Strategic Sewage Disposal Scheme (1995)
Contaminated Mud

39 Reclamations may require the removal of contaminated mud to make way for a reclamation, especially along the base of seawalls. The dredging and subsequent disposal of this mud needs to be carefully managed. Disposal is by means of a proven technique at a containment site north of Lantau, which is continuously monitored. Wherever possible, however, it is the preferred practice to leave contaminated mud deposits in situ and to reclaim on top. Such steps were taken for the reclamation of the West Kowloon Reclamation.

Ecological Impacts

40 A further concern is that reclamations and the extraction of marine sand for fill may adversely affect the diverse variety of fish and other marine life in various harbour areas. In this connection, it is the Government's policy to promote sustainable utilisation of fisheries resources through efficient methods of production, with a view to maintaining a steady supply of fresh fish to local consumers. Environmental impact assessments are thus carried out for reclamation projects and sand extraction and mud disposal operations to ensure that the potential impacts on fisheries, unique species of marine life (e.g., the Chinese White Dolphin) and the marine environment are evaluated so that mitigation measures can be taken where necessary. But, where reclamation works are unavoidable and it can be established that they would have an adverse impact on the livelihood of affected fishermen, provision is made for the granting of ex gratia compensation. Fortunately, studies initiated by the Director of Environmental Protection and the Director of Agriculture and Fisheries show that the marine habitats and marine life at currently proposed reclamation sites are not of particular ecological significance. Also, in certain areas where substantial sand deposits have been identified, the extraction of such deposits has been regulated or even abandoned to avoid irreparable damage to ecological systems. The wider effects of dredging are currently the subject of a series of studies being undertaken by the Civil Engineering Department. The findings will be taken into account in all future dredging proposals.

An Overall View

41 In general terms, reclamations will inevitably reduce the volume of water flow in the harbour. However, they are not expected to have any long-term, adverse impacts on the environmental quality of our inshore waters, provided action is taken to remove existing polluting loads, appropriate infrastructure is provided to cater for the sewage the incoming population will generate, and the works themselves are carried out carefully (incorporating appropriate environmental protection measures). It is the Hong Kong Government's policy and practice that no reclamation project should be allowed to proceed until the administration is satisfied that the projects would be environmentally acceptable.
THE CHANGING ROLE AND SCENIC VALUE OF VICTORIA HARBOUR

Principal Points of Concern

42. As new areas of reclamation around the harbour have appeared, there have been expressions of concern over the potential loss of one of Hong Kong's most obvious natural attributes, namely the "inner harbour." In addressing this point of concern, a distinction has to be made between the harbour as a port, on the one hand, and the harbour as a visual and recreational amenity, on the other.

The Harbour as a Port

43. In the early days of development in Hong Kong, the main role of the inner harbour between Lei Yue Mun Gap and Green Island was to serve as a port for trade with China. However, containerisation has now become a common mode for the international transport of cargoes by sea. Having regard to longer-term forecasts of demand arising from within Hong Kong and from the Pearl River Delta and South China, our strategic plans provided for the staged expansion of port facilities. Major new provisions include a port at North Lantau to provide up to a further 24 berths, the development of 4,700 hectares of anchorage space, a new deep-water channel for the Lantau Port peninsula and new river trade terminals at Tuen Mun and North Lantau.

44. Reclamations and provisions of new port facilities have enabled the harbour area to be expanded so that port facilities will no longer need to be limited to the traditional central area of Victoria Harbour. Shipping activities have shifted westwards from the "inner harbour" to create a better organised and more efficient port. However, a deep water channel will be maintained between Lei Yue Mun Gap and Green Island as a fairway to cater for vessels (mostly semi-containerised and break-bulk vessels) with origins and destinations to the north along the China coastline.
The Harbour as a Visual Amenity

45. Within the general boundaries of the "inner harbour," Metroplan makes provision for the phased development of the following new reclamation:

- Central - Wanchai Reclamation covering about 110 hectares to provide land for the expansion of business activities; for the provision of community and cultural facilities; for the provision of waterfront, landscaped promenades and for the provision of essential new road and passenger railway links to cater for cross harbour and east-west traffic flows.

- Kowloon Bay Reclamation covering about 300 hectares of reclaimed land that forms an integral part of the comprehensive development plan for South East Kowloon, including the site of the airport at Kai Tak. It has been previously noted that this entire scheme is to provide new housing for about 285,000 people, sites for new hotels and other commercial uses, community and cultural facilities, district open spaces and large areas of open spaces and interconnected waterfront promenades.
There have been some comments to the effect that such reclamations would turn the inner harbour into a “narrow river,” thus detracting from the visual appeal of Hong Kong. However, such views need to be put into proper perspective. Upon completion of the Central - Wanchai and Kowloon Bay reclamation schemes, the distance between the northern and southern shores of the central part of the inner harbour would vary from about 450 metres at Lei Yue Mun Gap (existing), to 1,340 metres between the end of the airport runway and North Point (existing), to 1,030 metres between the southern new reclamation line of Kowloon Bay and North Point (same as between Hung Hom Point and North Point), and 860 metres between Kowloon Point and the northern limit of the Central - Wanchai reclamation (compared to an existing distance of 1,150 metres). The new shoreline profile is shown by Figure 155 from which it will be seen that along an East-West axis of about 18 kilometres from Lei Yue Mun Gap to Central there would be a wide expanse of water of variable widths. And, beyond Central, looking west, the harbour opens up dramatically to a distance of 4,600 metres between the northern tip of the Green Island Reclamation to the south tip of Tsing Yi. It is a truism that “beauty is in the eye of the beholder”. Therefore, to help put matters in perspective, it is perhaps worth noting that such harbour widths are considerably greater, for example, than the widths of such well-known rivers as the Thames (300 metres), the Seine (200 metres) and the Main (200 metres) at the points at which they pass through the centres of their respective cities (London, Paris and Frankfurt). Another interesting comparison can be made between the width of our harbour from Tsim Sha Tsui to the shoreline of the reclamation for the Hong Kong Convention and Exhibition Centre Extension at 860 metres, on the one hand, and the width of the Sydney Harbour from the Opera House to the opposite shoreline at around 450 metres.

A big problem with the inner harbour at present is that, apart from the views from hilltop vantage points, it is very difficult for people living and working in many shoreline districts to obtain unobstructed access to the harbour. There currently are very few waterfront promenades along which people can stroll to enjoy harbour views. To redress this situation, Metroplan provides for the incremental development of up to 33 kilometres of interconnected, well landscaped waterfront promenades and associated civic squares. Such concepts start to become a reality as detailed plans for individual reclamations are produced (Figure 157). Thus, the master plans for both the Central - Wanchai Reclamation and the Kowloon Bay reclamation schemes achieve the highest standards of architectural and landscape design on the Metroplan principle that “the harbour should meet the city and the city meet the harbour”. The inner harbour will therefore continue to provide an adequate setting for the new forms of modern architecture on either side of what will still be a very wide waterway.

Another point to bear in mind about these two key reclamation projects (as well as the West Kowloon, and Green Island reclamations) is that they will open up opportunities for private developers to provide new harbour-oriented attractions for local residents and overseas tourists alike. They will also make provision for new sites for hotels, for which there is a growing shortfall.
155. Our harbour remains of a sufficient width

156. Existing waterfront promenade at Tsim Sha Tsui
Principal Points of Concern

49. Under this heading, the main areas of concern appear to be that:

- the Hong Kong Government has got its strategic planning concepts "out of balance" with regard to the distribution of population;

- the decentralisation of jobs needs to be given greater emphasis;

- further development on reiterations will add to the transport problems of the Metro area;

- the harbour reiterations will produce too much land for the good of the general community; and

- a primary objective of the government is to maximise revenue returns from reiterations and deny private land owners in the New Territories a "share of their own cake."
157. Waterfront promenades and open space links

158. Population distribution between Metro area and the New Territories
Strategic Planning Issues

50. Comments have been made at times to the effect that under the TDS Review, it is the strategic planning intention of the Government to concentrate development around the harbour. However, historical trends and the proposals emerging from the TDS Review do not support such a contention.

51. In 1986, about 78% of the population lived in the Metro area, leaving 22% in the New Territories. As a result of a bold programme of new town development in the New Territories, by 1991 the balance was 70% and 30%. This trend has continued in recent years so that by 1995 the relative proportions were 60% and 40%. Current assumptions from the TDS Review is that by 2011, the balance could be about 56% and 44% respectively. It is thus clear that there is no intention to concentrate Hong Kong’s future growth in the Metro areas and that the New Territories is getting its "fair share" of development. What is also clear is the need for the timely provision of well-planned harbour reclamations in carefully selected locations to act as "solution spaces" to facilitate the restructuring of adjacent highly congested and obsolete districts. Such reclamations in the Metro area, covering about 1,000 hectares, are the "sine qua non" of any comprehensive programme for urban renewal. Indeed, should the provision of harbour reclamations be curtailed, the effect would be to over-concentrate development in the New Territories, thereby increasing development pressures on already hard-pressed, ecologically and environmentally sensitive areas.

52. It is reiterated that the current TDS Review and related sub-regional and district development plans (Figure 159) fully recognise the future needs of the New Territories in terms of potential strategic growth areas (covering about 2,000 hectares); the further development of currently planned new towns; the need to make allowance for alternative, life-style forms of development in other suitable areas, the replanning and upgrading of areas where randomly-developed urbanisation has occurred; the provision of new infrastructure (such as the extension of passenger rail services to the North Western New Territories); the amelioration of flooding problems (e.g by means of river training schemes); the elimination of environmental "black spots" by a special task force; the extension of country parks; and the identification of opportunities for the development of new recreational and tourist attractions in the context of the Visitor and Tourism Study being formulated by the Hong Kong Tourist Association.

53. To round off this commentary, it needs to be more widely appreciated that many of the problems involved in restructuring and modernising the Metro area cannot be met by development in the New Territories, although the new towns clearly have a role to play in helping to relieve population pressures in the city. Equally, resolution of the growth needs and problems in the New Territories cannot be achieved by means of harbour reclamations, although many cultural and economic functions in the city benefit the community in general. The most logical perspective to take, it is contended, is to address future needs and problems on a territory-wide basis, having regard for relative development priorities, resource availability and other pragmatic considerations.
159. Broad land use plan for North West New Territories

160. Newly developed industrial-office building - every unit can be used flexibly for both industrial and office uses

161. Provision of extensive industrial land in the New Territories
Distribution of Jobs

54. A further contention is that the new harbour reclamations will over-provide land for commercial office development and that what is needed is industrial space to provide supporting facilities in China located away from Metro areas closer to Shenzhen. It is claimed that such measures would provide employment opportunities and alleviate the problem of traffic congestion in Metro areas.

55. From in-depth studies undertaken for Metroplan, a fundamental principle that needs to be recognised is that the amount of land to be reserved for commercial office development on various reclamations is related to such factors as locational attributes, potential market trends, accessibility and the capacity of transport systems. Accordingly, allowance is made under Metroplan for some further growth of the Central Business District; for secondary office centres in various districts well served by public transport systems; and for the conversion of buildings in certain older industrial areas for Industrial/Office uses the function of which is often closely related to manufacturing enterprises that have shifted to China. In pursuing such a strategy, the amount of land disposed of by sale by the Government would have regard to prevailing market conditions.

56. Also, under the TDS Review, opportunities will be identified for employment nodes in suitable locations in other parts of the territory, especially around interchanges along existing and new passenger rail links.

57. There is also a role for manufacturing industry to play in supporting the future economic development of Hong Kong. The trend is likely to be toward the growth of “high-tech”, automated and research-based activities for which relatively land-extensive sites would be required, especially around the new airport, the North Lantau port and in a North-South “Technology Corridor” along the KCR from Hung Hom to Fanling.

58. It is thus held that, with a continuing shift towards a tertiary sector-led employment structure, market forces and locational factors have hitherto favoured a concentration of white collar jobs in the Metro area. However, the extension of new, high capacity passenger railway systems should open up commercial development opportunities in other locations. There will also be a need to provide relatively extensive areas of land in suitable locations in the New Territories for technology-related industrial and business activities.

Transport Problems

59. Another contention has been that developments on the new reclamations will attract additional traffic to the Metro areas and will aggravate congestion.

60. The TDS, Metroplan and related transport policies aim to create a pattern of development throughout the territory to achieve a rational land use distribution served by a multi-modal transport system of adequate capacity. To that end, a basic aim is to create a more widely spread distribution of employment nodes served by high capacity passenger rail systems. In this connection, an office development strategy will shortly be formulated.
To relieve congestion, a multi-modal transport system of adequate capacity is required.

Traffic congestion at the approach to the existing Cross Harbour Tunnel.
61. The presumption that the best solution is to focus development in the New Territories carries with it its own transport problems since more "out-of-town" development means higher levels of commuting to the Metro area where a high proportion of jobs are concentrated. Such a conclusion is supported by the results from a series of tests undertaken in the formulation of the original studies and subsequent reviews of the Comprehensive Transport Study.

62. Land use-transport systems need to be developed on a territorial basis through a corporate planning process to ensure that optimal use is made of available resources and that potential problems are adequately addressed. An ad hoc approach based on unsubstantiated perceptions can create more problems than solutions.
Table 6
Schedule of Uses for Selected Newly Formed and Proposed Harbour Reclamations and Associated Areas

<table>
<thead>
<tr>
<th>Uses</th>
<th>West Kowloon Reclamation</th>
<th>Hung Hom Bay Reclamation</th>
<th>South East Kowloon Development Scheme</th>
<th>Central-Wanchai Reclamation</th>
<th>Adrich Bay Reclamation</th>
<th>Green Island Reclamation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Commercial</td>
<td>9</td>
<td>6</td>
<td>26</td>
<td>22</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2. Residential</td>
<td>28</td>
<td>3</td>
<td>146</td>
<td>3</td>
<td>11</td>
<td>53</td>
</tr>
<tr>
<td>3. Comprehensive Development Area</td>
<td>31</td>
<td>7</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4. Government/Institution/Community</td>
<td>26</td>
<td>4</td>
<td>84</td>
<td>6</td>
<td>3</td>
<td>22</td>
</tr>
<tr>
<td>5. Industrial</td>
<td>18</td>
<td>-</td>
<td>41</td>
<td>-</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>6. Open Space</td>
<td>45</td>
<td>6</td>
<td>208</td>
<td>29</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>7. Roads and Other Uses</td>
<td>183</td>
<td>11</td>
<td>70</td>
<td>46</td>
<td>7</td>
<td>87</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>340</strong></td>
<td><strong>37</strong></td>
<td><strong>575</strong></td>
<td><strong>110</strong></td>
<td><strong>30</strong></td>
<td><strong>186</strong></td>
</tr>
</tbody>
</table>

* Includes 300 ha of reclaimed land with the balance comprising the airport site at Kai Tak.
** Includes 18 ha of reclaimed land.
*** Includes Green Island and Little Green Island
Land Production and Disposal

63. A further criticism has been that the over production of land from harbour reclamations (Table 6) would flood the property market and thus undermine the viability of that sector. However, a clear distinction needs to be made between the creation of a land bank, on the one hand, and the timely and prudent disposal of sites for development, on the other. Hong Kong Government's land supply policy is to provide adequate land to meet the economic and social needs of Hong Kong. Given the scarcity of developable land in Hong Kong and long lead times for land production, the Government plans ahead in land production with a view to having a steady land supply to meet the market demand. It is on that basis, for example, that a substantial land bank has been created at Tin Shui Wai in the North West New Territories.

64. Reclamations have been a major source of land supply in Hong Kong, particularly in and around the central business districts on both sides of Victoria Harbour. Reclamations now in progress, such as West Kowloon, Hung Hom Bay, Central & Wanchai, and Aldrich Bay, will provide the necessary land for not only commercial/residential uses but also important infrastructural facilities including the Airport Railway and Western Harbour Crossing. Other reclamations on the drawing board, such as Kowloon Bay and Green Island, are subject to the usual feasibility studies before a final decision is taken. It will be more than 10 years before all these planned reclaimed areas are available for use.
65. It is again emphasised that there is no question of flooding the market with land as the amount of land that can be disposed of in various categories of land uses every year is determined by the land disposal programme for that year, which will be subject to approval by the Sino-British Land Commission until 30 June 1997. The annual land disposal programmes are drawn up taking into account the availability of land including reclaimed land, demand for various land use categories and the prevailing market situation. The Land and Building Advisory Committee, the Hong Kong Government and the Land Commission monitor closely future demands for land and amounts released for development.

Financial Aspects

66. Expressions of concern have been raised to the effect that a prime motive of the Government is to maximise financial returns from the sale of land on reclamations. The further claim has been made that, by focusing on the provision of land by reclamation, land owners in other parts of the territory would be denied the opportunity to capitalise on the development potential of their land holdings.

67. From our detailed studies of reclamations for the Central-Wanchai, West Kowloon and South East Kowloon schemes, it is acknowledged that there would be a significant net return to the public exchequer from the sale of land for various kinds of private development. However, such sales would be market driven and revenues therefrom would be credited to the general revenue account for redeployment through Government’s Resource Allocation System for such purposes as the provision of better health and education services, improved transport systems, cultural activities and the like. At the same time, there remain significant opportunities for the owners of private land to benefit from the development of their own real estate holding within the context of statutory outline zoning plans that clearly specify the range of uses that may be permitted as of right or by application to the Town Planning Board.

Safeguards Against Arbitrary Changes of Land Use

68. In association with the foregoing matter, the claim has been made that, because of the high value of land on harbour reclamations, there could be a temptation for the Government to arbitrarily rezone open spaces and other sites reserved for public uses for various commercial purposes, thereby negating the community benefit of such reclamations.
69. Hong Kong can boast of having one of the most sophisticated and publicly accountable planning systems in Asia. It has strong policies, resource allocation systems and controls to ensure that all land is put to its most beneficial and optimal use. The notable success of the new towns and public housing programme are testimony to this. Also, within the Metro area, the reservation and development of sites for such facilities as the Cultural Centre, the Museum of Science and Technology, Ocean Park, Water World, Kowloon Park, Hong Kong Park, the Hong Kong Coliseum and a very large range of local and district facilities speaks loudly of Government's commitment to making sure that land reserved for community use is, indeed, developed for such purposes. In this context, the Town Planning Board has a key role to play in ensuring that our plans properly serve the needs of the community and members of the public, all of whom have the right to raise objections to any proposals for change.

70. It is therefore held that Hong Kong's "transparent" regulatory controls under various ordinances and the complex system of checks and balances inherent in the long-standing Government system provide good safeguards against arbitrary changes of land use.
Public Consultation

71. Given the magnitude of our reclamation proposals and other major projects that have a direct and indirect bearing on the future welfare of people from all walks of life, it is clearly important that at various stages of project formulation and implementation, steps are taken to keep the general public informed and also to seek feedback. On this account, it has been recorded above that with regard to the TDS, PADS and Metroplan, considerable endeavours were made to seek the views of the general public, professional bodies and other groups at various stages of the plan formulation process. It is the intention to continue along such a path with our future studies and to extend efforts in keeping people well informed of ongoing projects and new proposals. In that respect, for example, over the period April to June 1995, a major exhibition, "Hong Kong - City of Vision", illustrating numerous planning schemes and projects (including harbour reclamations) was held at three key locations. Over 200,000 people attended.¹

¹Similar exhibitions have been held in Frankfurt, Chicago, London and Tokyo.
Table 7
Public Consultation on Strategic Plans

<table>
<thead>
<tr>
<th>Bodies Consulted</th>
<th>TDS Review</th>
<th>SEK Development Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication of Consultative Document</td>
<td>9/93</td>
<td></td>
</tr>
<tr>
<td>Bodies Consulted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LegCo Panel on Planning, Lands &amp; Works</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>District Boards</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Town Planning Board</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Urban Council</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Regional Council</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Professional Institutes</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Transport Advisory Committee</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Airport Consultative Committee</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Publication of Report on Public Consultation</td>
<td>9/94</td>
<td>7/95</td>
</tr>
</tbody>
</table>

All feasibility studies of reclamation projects are submitted for public consultation with relevant district boards, advisory bodies, and where necessary, the LegCo Panel on Planning, Lands & Works and municipal councils.
72. Nor does the process of public consultation stop at dealing with strategic development plans. As and when subsequent detailed feasibility studies are undertaken for specific projects, it has been the common practice to ensure that the findings of such studies at different stages are submitted to the relevant district boards for discussion and comment. The many technical reports produced for such studies are generally available for public reference in accordance with Government's Code on Access to Information. A further point to note is that the general public has been given the opportunity to object to specific proposals through the gazetting of outline zoning plans under the Town Planning Ordinance, Cap. 131 and also through the gazetting of reclamation proposals under the Foreshore and Seabed (Reclamations) Ordinance, Cap. 127. All such objections are dealt with through well established statutory processes. It is thus held that the Government has been proactive in seeking public views and in providing information.

73. We must also record that the production of strategic planning proposals and their subsequent implementation does not rest in the hands of a small number of bureaucrats. For all major planning schemes, such as Metroplan and PADS, the starting point has always been to ensure that various corporate bodies are convinced of the need for and the goals and objectives of any proposed study. This is often a lengthy process built around a complex system of checks and balances which, for key issues, ultimately leads to a submission via the appropriate policy branch to the Executive Council. Subsequently, studies using specialists from many fields are undertaken under the guidance of interdisciplinary steering/working groups and also in consultation with district boards and other relevant bodies. Eventually, following acceptance of the findings and recommendations of feasibility studies, the implementation of works is undertaken by various executive departments with funding through a sophisticated Resource Allocation System, which requires the Finance Committee of the Legislative Council to vote the sums needed. Such a system has served Hong Kong well for many years and is the envy of other city administrations struggling to resolve their own problems.

Table 8
Public Consultation on Metroplan

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/1987:</td>
<td>The Governor Lord Wilson announced the launch of the Metroplan Study</td>
</tr>
<tr>
<td>4/1988:</td>
<td>Public consultation through publication of &quot;Metroplan - The Aims&quot;</td>
</tr>
<tr>
<td>4/1990:</td>
<td>Public consultation through seminars</td>
</tr>
<tr>
<td>3/1992:</td>
<td>Exhibition on &quot;Metroplan&quot;</td>
</tr>
<tr>
<td>2011:</td>
<td>Planning horizon for Metroplan</td>
</tr>
</tbody>
</table>
A Final Word

1. Hong Kong has always relied on reclamations and land-based sites to supply land in various parts of the territory. Harbour reclamations are particularly important in this respect because of their strategic location. Current projects now taking shape are not new nor sudden. Rather, they are the result of long-term studies and consultation.

2. The Hong Kong Government is aware of the concerns expressed by some sectors of the community. These have been carefully considered in the planning process and, where necessary, appropriate measures have been taken either to remove the cause for concern or to mitigate possible impacts so as to contain problems within acceptable limits. A recent example is the decision to change the positioning of Container Terminal 12 at North Lantau to achieve a better orientation so as to avoid noise impacts on residential areas at Peng Chau and Discovery Bay.

3. Other medium and long-term reclamation projects remain as proposals that arise out of the normal proactive planning process. As part of this process, further studies will need to be carried out, leaving decisions on implementation of any of these projects to the new government of the Hong Kong Special Administrative Region. But it is important to recognise that the reclamations all form part of an ongoing strategic planning process that has evolved over many years involving the bringing together of a large body of professional expertise and also the promulgation of various programmes of public consultation. It is essential that we maintain a forward momentum for the planning and staged implementation of individual projects.

4. It is understandable that a multitude of major public works projects, including harbour reclamations, occurring within such a short time span and in such a small area in and around Victoria Harbour, may cause some measure of inconvenience to the public. Works in progress are, of course, unsightly and, at times, a bit of a nuisance. But we should not let this temporary phenomenon overshadow the long-term benefits to Hong Kong. When the projects are completed, the harbour, including Victoria Harbour, will take on a fresh look transforming our city into a "City of Vision".
173. Hong Kong - a city of vision
Annex

LIST OF PRINCIPAL GOVERNMENT REPORTS RELATING TO HARBOUR RECLAMATIONS

Strategic Studies

Port and Airport

Report on the Commercial Development of the Port of Hong Kong (1924)
Future Control and Development of the Port of Hong Kong (1941)
Report of the Container Committee (1966)
Second Report and Recommendation of the Container Committee (1967)
Port Development Strategy Study (1986)
Port and Airport Development Strategy (1989)
Gateway to New Opportunities - Hong Kong's Port and Airport Development Strategy (1989)
Hong Kong's Port and Airport Development Strategy - A Foundation for Growth (1991)
Port Development Strategy Review (1994)
**Metroplan**

Metroplan - The Aims (1988)

Metroplan - Initial Options (1990)


Metroplan - The Selected Strategy (1991)

**Territorial Development Strategy Review**

Hong Kong Preliminary Planning Report (1948)

The Colony Outline Plan Book 3 - Volume 1 Concepts & Outline Proposals (1972)


North Lantau Development Investigations, Further Studies, Phase 2 - Final Report (1983)

Planning for Growth - Territorial Development Strategy (1985)


Detailed Studies

Hong Kong

Central and Wanchai Reclamation Feasibility Studies (1989 and 1993)

Green Island Reclamation Feasibility Study (1993)

Hong Kong Island West Development Statement (1995)

Central Reclamation Phase III Study - Site Investigation, Design and Construction (1995)

Kowloon

Hung Hom Bay Development Planning and Feasibility Study (1987)

Planning & Engineering Feasibility Study for West Kowloon Reclamation (1990)


South East Kowloon Development Statement - Final Report and Executive Summary (1993)


West Kowloon Development Statement - Consultation Digest (1994)

Tsuen Wan - Kwai Tsing


Site Investigation and Engineering Study for Development of Container Terminal No. 8 (1989)


Tsuen Wan/Kwai Tsing Development Statement - Consultation Digest (1994)
New Territories

North Lantau Development Planning Studies (1980)

North Lantau Development Investigations Further Strategic Planning Studies Phase I (1982)

Replacement Airport at Chek Lap Kok - Civil Engineering Design Studies Final Report(1982)

North Lantau Development - Tung Chung Development (1984)

North Lantau Development Study (1992)

Lantau Port and Western Harbour Development Studies (1993)

Lantau Port Development - Stage I, Container Terminals 10 & 11 Ancillary Works (Design)(1995)

Lantau Port Development - Stage I, Design of Reclamation and Edge Structures for Container Terminals 10 & 11 and Back-up Areas (1995)

Lantau Port Development - Stage I, Container Terminals 10 & 11 (Preliminary Design) (1995)

Development Study of Tuen Mun Area 38 for Special Industries (1989)

Expanded Development Study of Tuen Mun Area 38 (1990)

Tuen Mun Port Development Study (1993)

Junk Bay Development Study (1981)

The Shape of things to come: an overview of 1995.

Planning, Environment and Lands Branch, Hong Kong Government