

Potentially Hazardous Installations

Chapter 9



CHAPTER NINE

POTENTIALLY HAZARDOUS INSTALLATIONS

1. Potentially Hazardous Installations (PHIs) are those facilities where hazardous materials equal to or greater than a prescribed amount are stored on-site (the amount varies depending upon the material in question). In order to protect the public in terms of residential and transient populations, consultation zones (CZs) are designated for each potentially hazardous installation depending upon the nature and extent of the hazard. At present there are 34 PHI sites in Hong Kong including chemical stores, explosive depots, gas production plant, LPG/oil termini and LPG Stores which are illustrated in Figure 9.1.
2. Planning restrictions are imposed on future developments around PHIs and development proposals within the CZs are evaluated against a set of guidelines which define the extent of the potential risks. The overall aim of these restrictions are to ensure any risks to the public at large are confined to acceptable limits. With increasing development pressure, new PHI sites which are suitable for the storage of materials for water treatment works, gas and oil supplies are increasingly difficult to find.

Transient Population Travelling Through PHI CZ

3. In the Metro area the increases in transport links which are necessary to satisfy the forecast demand present the greatest problem in terms of the largest transient population travelling through PHI consultation zones, on a daily basis. The assessment focused on the length of new strategic roads and railway lines which traverse existing PHI consultation zones and the number of rail and road users which could be affected by travelling on them. In strategic growth areas the sizes of the new population assumed to be located within existing PHI consultation zones were also estimated.
4. Both peak and total daily volumes of rail and road users travelling through the Consultation Zones were estimated by extracting the information from the traffic model. The greatest number of road and rail users passing through PHI consultation zones are in the Metro area. The number of people travelling through existing PHI CZs is forecast to increase by 30% for scenario A and by 80% for scenario B in the medium term compared to the short term, with even greater increases forecast in the longer term. In the medium and short term the greatest number of people passing through PHI CZs will travel by train rather than by road based vehicles, the latter represents a small proportion of the transient population potentially at risk.
5. In NENT the new roads which pass through the CZs for the Water Treatment Works at Sheung Shui and the LPG store at Tai Po Area 24 account for the increase in the number of people travelling through CZs. In NWNT the new road through the CZ for the Air/Gas Mixing Plant at Tuen Mun will result in an increase in the number of people potentially affected in the medium and long term.
6. To determine the actual extent of the strategic transport links traversing existing CZs, data was extracted from the Transport Model and used to identify the length of new road or rail tracks in these areas. New railway lines account for the greatest proportion of transport links through PHI CZs especially in the Metro area. Only short lengths of new roads through existing PHI CZs are planned for in the NWNT and NENT.
7. With the exception of the medium term for Scenario B there are very minor differences between the performance of the two scenarios in the extent of risks associated with PHIs.



The Ma Tau Kok gas plant incompatibly situated in an urban area



The Oil Depot at Tsing Yi Island

Existing Population Within PHI CZ

8. Reference was made to the PHI Register, to provide guidance on the possible extent of each CZ. In the absence of a defined CZ, a radius of 1000m was conservatively assumed as in the Assessment of Initial and Hybrid Options. It should be stressed that the siting of new PHIs would require detailed EIA and hazard assessments to be undertaken and as such, possible new PHIs have not been considered in the present assessment. Existing population within PHI Consultation Zones has not been considered either, as the focus of this assessment is on strategic growth and development potential.
9. The majority of PHIs which are relevant to the present assessment are storage facilities for oil and gas, and for chemicals used at the water treatment works particularly at Au Tau and Sheung Shui.

Strategic Development Within PHI CZ

10. The levels of new population planned in strategic growth areas which could be located within PHI CZs were also estimated to identify areas which are undesirable in terms of future development proposals. New residential population within strategic growth areas which fall into this category are those proposed for Kam Tin and at Ngau Tam Mei. New residential dwellings will not be required at Kam Tin before 2011 and even then these are only proposed for Scenario B. The total population forecast for this development area is 35,600 although the number of people potentially affected would depend on the layout of the growth area and the exact demarcation of the consultation zone.
11. The rural NWNT strategic growth areas are expected to be developed in the early stages (taken for this assessment to be either at 2001 or before 2006), there is hence the need to define the extent of the PHI and the estimated size of the population planned for the area (within the CZ per se).
12. Within the Metro area it is becoming increasingly difficult to accommodate new solution spaces for transport corridors which do not have an adverse environmental impact. This is reflected in the number of passengers on roads and railways passing through CZs for existing PHIs. In terms of identifying solution spaces for strategic residential growth areas, the impact of PHIs is only significant in the NWNT. Development pressures may require the early development of the site at Ngau Tam Mei, but this will need to be carefully considered in terms of the proximity to the PHI as well drainage and effluent collection, treatment and disposal requirements.
13. In overall terms, there is very little difference between the two Scenarios A and B in the medium term. In the longer term, the influence of the new residential development proposed at Ngau Tam Mei and the increases in the number of passengers travelling through the PHI CZs result in increases in population under Scenario B by 2011.
14. While existing PHIs will not generally impede the developments proposed under Scenarios A and B, the planning of new facilities will require extreme care to ensure that societal risks are minimised. The search for sites for new PHI's may have to extend further afield as the proposed developments encroach on the NWNT and NENT.

LEGEND

● POTENTIALLY HAZARDOUS INSTALLATION

H3 SHELL LPG STORE, HENG FA CHUEN, CHAI Y
 H4 HONG KONG & CHINA GAS CO. LTD, SHEK P
 WAN, ABERDEEN
 H6 SHELL LPG TRANSIT DEPOT/BULK DOMESTIC
 SUPPLY, AP LEI CHAU

K1 HONG KONG & CHINA GAS CO. LTD, MA TAI
 KOK ROAD
 K3 MOBIL LPG STORE, MEI FOO SUN CHEUN
 K5 GOVERNMENT EXPLOSIVES DEPOT ON
 STONECUTTERS ISLAND

N1 ESSO LPG STORE, BUTTERFLY ESTATE,
 TUEN MUN AREA 28
 N2 CALTEX OIL, TYTL 48-RP, TSING YI
 N4 ESSO LPG STORE, FU SHIN ESTATE, TAI PO
 AREA 17
 N5 CONCORD & CHINA GAS CO. LTD, TAI PO
 AREA 26
 N6 ESSO HONG KONG LTD, TYTL 62, TSING YI
 N8 MOBIL OIL HONG KONG LTD, TYTL 62, TSING
 N9 CONCORD OIL LTD, TSING YI
 N10 CATLIX OIL HONG KONG LTD, KWONG FUK
 ESTATE, TAI PO AREA 24
 N11 CHINA RESOURCES CO. LTD, TYTL 67, TSING
 N12 HONG KONG & CHINA GAS CO. LTD, TUEN M
 AREA 16

N13 WSD SHATIN WATER TREATMENT WORKS
 N14 WSD TAI PO TAU WATER TREATMENT WORK
 TAI PO AREA 21
 N15 WSD TSUEN WAN WATER TREATMENT WOR
 N16 WSD TUEN MUN WATER TREATMENT WORKS
 N17 YAU KOM TAU WATER TREATMENT WORKS,
 CASTLE PEAK ROAD, TSUEN WAN
 N18 WSD SHEUNG SHUI WATER TREATMENT WOI
 FU TEI AU ROAD, SHEUNG SHUI

N19 WSD SILVERMINE BAY WATER TREATMENT
 WORKS, SOUTH LANTAU ROAD, LANTAU
 N20 WSD TAI LAM CHUNG PRECHLORINATION PL
 TAI LAM CHUNG

N21 WSD PAK KONG WATER TREATMENT WORKS
 SAI KUNG

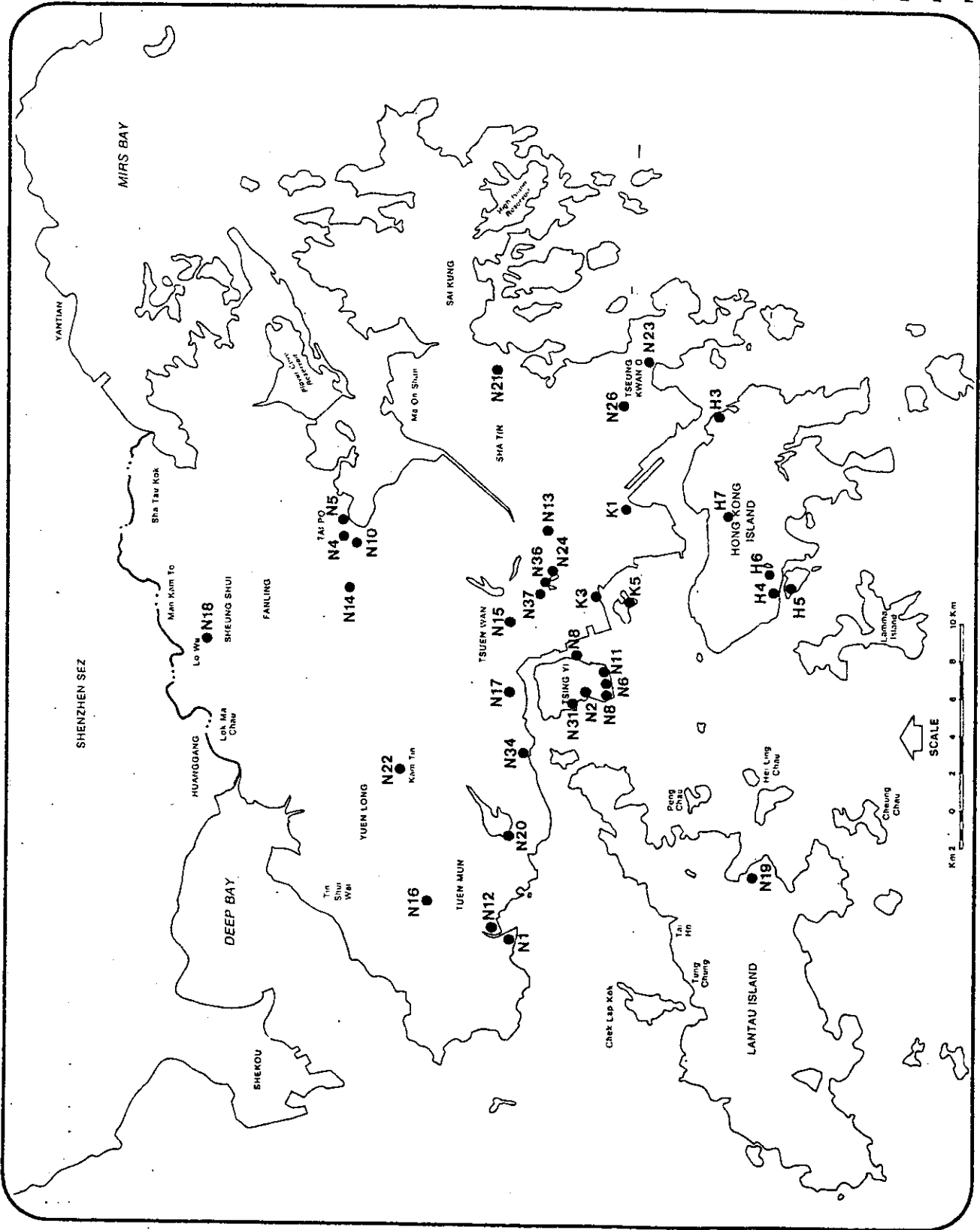
N22 WSD AU TAU WATER TREATMENT WORKS,
 YUEN LONG

N23 HONG KONG OXYGEN & ACETYLENE CO. LTD
 TSEUNG KWAN O

N24 KOLWOON GOVERNMENT EXPLOSIVES DEPOT
 TAI PO ROAD

N26 MA YAU TONG AMMONIUM NITRATE/FUEL OI
 (AN/FO) PLANT NO. 1 & 2, MA YAU TONG

N31 SHELL CO. HONG KONG LTD, WEST TSING YI
 N34 SHELL LPG STORE IN SAN MIGUEL BREWERY,
 SHAM TSENG



TERRITORIAL DEVELOPMENT STRATEGY REVIEW ENVIRONMENTAL PROFILES
 LOCATION OF EXISTING SITES FOR POTENTIALLY HAZARDOUS INSTALLATIONS