

## Chapter 9 : Environment

1. Environmental factors and criteria have to be incorporated into the land use planning process in order to prevent adverse environmental problems. This chapter is to provide guidance for environmental planning of both public and private developments. The guidelines may be applied at three broad planning levels : strategic/territorial, sub-regional and district/local planning.
2. The general environmental guidelines for major land uses are summarized below :

<b>Land use</b>	<b>Guidelines and Siting Requirements to Minimize Environmental Problems</b>
<b>Industry</b>	<ul style="list-style-type: none"> <li>• Avoid airsheds with limited air dispersive capacity or areas subject to serious air pollution</li> <li>• Provide adequate buffer areas or intervening uses as buffer against sensitive land uses</li> <li>• Avoid noise sensitive uses</li> <li>• Provide noise mitigation measures such as purpose-built noise barriers and innovative site layouts to minimise noise impacts whenever possible, if buffer or screening cannot be provided</li> <li>• Avoid line-of-sight to major noisy activities from adjacent noise sensitive uses</li> <li>• Locate in areas adequately served by public foul sewerage</li> <li>• Provide adequate suitable land and access for installation of effluent pre-treatment facilities for effluent-producing industries and for the collection, storage and transportation of waste</li> <li>• Centralise industries of the same category, wherever possible, to economise the provision of wastewater collection and treatment facilities</li> <li>• Locate offensive trades in purpose-built industrial buildings within designated industrial areas and provide adequate buffer to minimise potential odour nuisance</li> </ul>
<b>Residential</b>	<ul style="list-style-type: none"> <li>• Provide adequate buffer and/or intervening uses from industrial uses and adopt design guidelines to reduce noise exposure if adequate buffer cannot be provided</li> <li>• Allow no noise sensitive uses in areas within aircraft NEF 25</li> <li>• Avoid proximity to, and with direct line-of-sight to, fixed noise sources, railways, helicopter facilities and routes and road with heavy traffic such that the maximum noise criteria are exceeded</li> </ul>

<b>Land use</b>	<b>Guidelines and Siting Requirements to Minimize Environmental Problems</b>
<b>Residential (con't)</b>	<ul style="list-style-type: none"> <li>• Avoid areas within 150m of uncovered MTR lines, 85m of KCR lines and 25m of LRT lines.</li> <li>• Locate in areas adequately served by existing or new public sewerage and sewage treatment facilities.</li> <li>• Avoid stagnant waters, enclosed waterbodies and existing water pollution black spots</li> <li>• Provide suitable space and access for waste separation and collection facilities</li> </ul>
<b>Transport Facilities</b>	<ul style="list-style-type: none"> <li>• Encourage the development and use of railways, especially in metropolitan and topographically-confined areas</li> <li>• Avoid routing major trunk roads and nodes with heavy traffic through existing air pollution black spots</li> <li>• Promote balanced land uses to minimise the need to travel, hence the traffic volume</li> <li>• Maintain a ventilation corridor for the dispersion of otherwise locally-trapped air pollutants</li> <li>• Avoid noise sensitive uses</li> <li>• Ensure that noise levels do not exceed acceptable limits and adequate separation from sensitive uses is provided</li> </ul>
<b>Government / Institution / Community (GIC) Uses</b>	<ul style="list-style-type: none"> <li>• Avoid locating sensitive GIC uses such as schools and hospitals in proximity to existing pollution black spots or sites that are subject to plume impingement</li> <li>• Provide adequate buffering for potentially polluting GIC uses such as markets and refuse collection points etc., against sensitive uses and ensure that the site layout does not restrict local air circulation</li> <li>• Provide suitable land and vehicular access for refuse transfer stations, public filling barging points, refuse collection points, collection, treatment and transportation of liquid and solid wastes, if required</li> <li>• Avoid direct line-of-sight to noise sources from noise sensitive uses and provide adequate buffer and screen (e.g. noise-tolerant GIC uses such as multi-storey car parks and markets)</li> <li>• Allow no noise sensitive developments within aircraft NEF 25.</li> </ul>

<b>Land use</b>	<b>Guidelines and Siting Requirements to Minimize Environmental Problems</b>
<b>Slaughterhouses</b>	<ul style="list-style-type: none"> <li>• Provide adequate buffer from sensitive uses and commercial areas</li> <li>• Provide suitable space and access for the collection, storage, transportation and/or pre-treatment of waste and wastewater arising from the operations</li> </ul>
<b>Commercial</b>	<ul style="list-style-type: none"> <li>• Avoid areas where the traffic generated will cause adverse air pollution and noise impacts on nearby sensitive uses</li> <li>• Avoid locating offices within aircraft NEF 30 unless buildings are insulated</li> <li>• Make full use of insulated office blocks as noise screening structure</li> <li>• Provide suitable space and access for waste separation, collection and transportation facilities</li> </ul>
<b>Open space</b>	<ul style="list-style-type: none"> <li>• Provide adequate buffer from road network and industrial area</li> <li>• Make use of earth berms wherever practicable in passive recreation areas as noise screening structures to minimise noise impact from roads and rail lines</li> </ul>

3. The recommended buffer distances for various polluting uses :

<b>Polluting Uses</b>	<b>Sensitive Uses</b>	<b>Buffer Distance</b>
Multi-storey industrial building	(a) residential areas, schools	100m
	(b) commercial and GIC uses	30m
Industrial areas	hospitals	500m
Industrial chimneys	(a) sensitive uses	within 500m, consult EPD
	(b) high-rise buildings	200m
	(c) active open spaces	10-100m
Slaughterhouses	sensitive uses and commercial areas	300m or 200m (with or without a rendering plant)
Village incinerator	sensitive uses	100m
Odour sources	sensitive uses	200m
Offensive trades	sensitive uses	200m
Dusty uses	sensitive uses	100m
Trunk roads	(a) active and passive recreational uses	> 20m
	(b) passive recreational uses	3-20m
	(c) amenity areas	< 3m
	(d) residential uses	300m 50m (with screening)
Primary distributors	(a) active and passive recreational uses	> 20m
	(b) passive recreational uses	3-20m
	(c) residential uses	180m 40m (with screening)
District distributors	(a) active and passive recreational uses	> 10m
	(b) passive recreational uses	< 10m
	(c) residential uses	120m 30m (with screening)
Local distributors	(a) active and passive recreational uses	> 5m
	(b) passive recreational uses	< 5m
	(c) residential uses	120m 30m (with screening)
Construction and Earth Moving Activities	(a) active and passive recreational uses	> 50m
	(b) passive recreational uses	< 50m
MTR lines	noise sensitive uses	150m
KCR lines	noise sensitive uses	85m
LRT lines	noise sensitive uses	25m