Appendix 11.2   Estimation of Occupancy Factor and Outdoor Population Fraction

1.   The estimation of occupancy factor and outdoor population fraction of various locations are presented below.

Occupancy Factor

2.   With reference to the EIA Report of *Liquefied Natural Gas (LNG) Receiving Terminal and Associated Facilities*, population during daytime can be categorized into 3 time periods: weekday, peak hours and weekend day. These are defined as below:

Weekday	9:00am to 5:00pm Monday through Friday
	9:00am to 1:00pm Saturdays
	(total 44 hours in a week)
Peak hours	7:00am to 9am and 5:00pm to 7:00pm, Monday to Friday
	7:00am to 9am and 1:00pm to 3:00pm, Saturdays
	(total 24 hours in a week)
Weekend day	3:00pm to 7:00pm Saturdays, and 7:00am to 7:00pm Sundays
	(total 16 hours in a week)

3.   Different occupancy figures were assumed for industrial and residential populations in the *LNG Receiving Terminal and Associated Facilities* EIA, as follows:

	Occupancy		
Population Type	Peak hours	Weekday	Weekend day
Industrial	10%	100%	10%
Residential	50%	20%	80%

4.   Based on the above figures, the average occupancy factor for the industrial and residential populations during daytime can be estimated as follows:

Occupancy factor for industrial population = $(0.1 \times 24/84^1) + (1 \times 44/84) + (0.1 \times 16/84)$

$$= 0.57$$

Occupancy factor for residential population = $(0.5 \times 24/84) + (0.2 \times 44/84) + (0.8 \times 16/84)$

$$= 0.4$$

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[1] Total number of daytime hours in a week.

5.   School population are considered only present in the school in about 75% of 365 days of a year, taking into account the school holidays of about 2 months and weekend days. Also, school population generally would be only present in school for 9 hours in school days.   Therefore, an occupancy factor of 0.75 x 9/12[2] = 0.5625.

6.   Specific consideration was given to population at Ngong Sheun Chau Barracks, FSD Diving Training Centre, Car Parks, Lai Chi Kok Park and open storage area.   A conservative occupancy factor of 1 was assumed for these populations.

Outdoor Population Fraction

7.   Different outdoor population fraction were assumed for industrial and residential populations in the *LNG Receiving Terminal and Associated Facilities* EIA, as follows:

	Outdoor Population Fraction		
Population Type	Peak hours	Weekday	Weekend day
Industrial	10%	10%	10%
Residential	30%	10%	20%

8.   Based on the above figures, the average outdoor population fraction for the industrial and residential populations during daytime can be estimated as follows:

Outdoor population fraction for industrial population
= (0.1 x 24/84) + (0.1 x 44/84) + (0.1 x 16/84)
= 0.1, which is also consistent with the observation in site survey
Outdoor population fraction for residential population
= (0.3 x 24/84) + (0.1 x 44/84) + (0.2 x 16/84)
= 0.18

9.   An outdoor population fraction of 0.1 was assumed for school population, which is considered an appropriate assumption since the population would stay in indoor environment for lessons at most of the time.

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[2] Number of hours for daytime.

10. Specific consideration was given to population at Ngong Sheun Chau Barracks, FSD Diving Training Centre and Container Terminal No. 7 and 8; an outdoor population fraction of 0.5 was assumed.   The justifications were provided in the Remark Column of **Table 11.1**.   For population of Car Parks, Lai Chi Kok Park and open storage area, an outdoor population fraction 1 was assumed because there is no or very little indoor area at those locations.