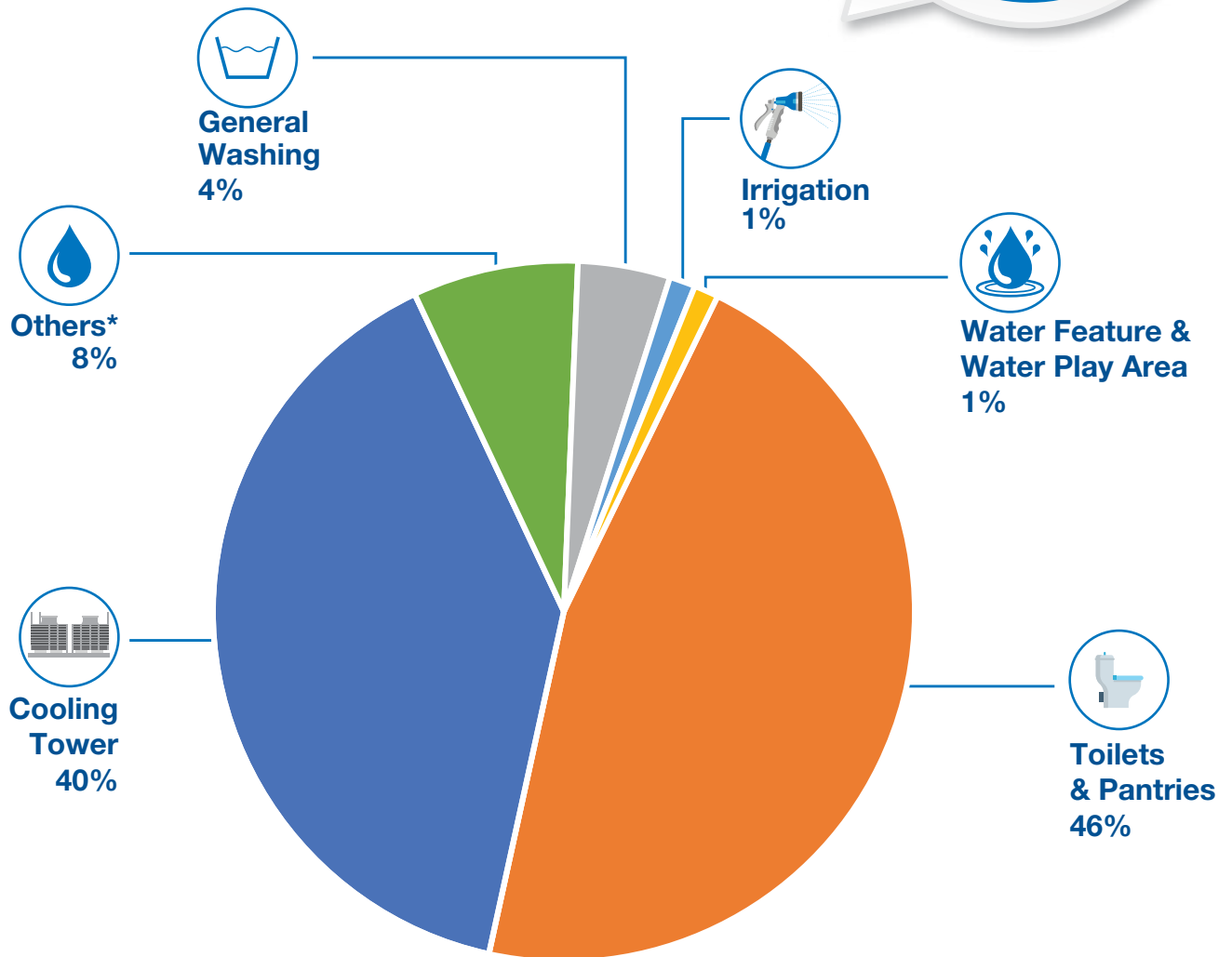


Retail Benchmarks

About 86% of water usage in the retail malls goes to cooling towers, toilets and pantries.

Figure 1 below shows a breakdown of the overall water usage statistics in the retail sector.



*Others include fire protection, kitchens etc.

Figure 1: Breakdown of Water Usage for Retail Sector with Water-Cooled Cooling Towers

For the retail sector, two sets of data are collected as Business Activity Indicators (BAIs):

- 1) Gross Floor Area (GFA) per m² of the mall
- 2) Average number of occupants and visitors at the mall (footfall) annually

Unlike an office building, a retail mall has higher footfall traffic, hence two sets of benchmarks are used to better reflect water usage pattern for this type of facility.

The benchmarking formulae and corresponding median values are shown in Table 1. The distribution of Water Efficiency Index (WEI) for retail malls are shown in Figure 2 and Figure 3 respectively.



Indicator	Formula	Median
A	$\frac{\text{Annual Water Consumption (Excludes Toilets)}}{\text{GFA}}$	1.3 m ³ /m ² /year
B	$\frac{\text{Annual Water Consumption of Toilets}}{\text{Annual Footfall}^*}$	2.5 L/p/d

Table 1: Benchmarking Formulae and Median Values for Retail Malls

*Footfall is also known as people counting or shopper counting. It is a measurement of the number of people entering a shopping mall.

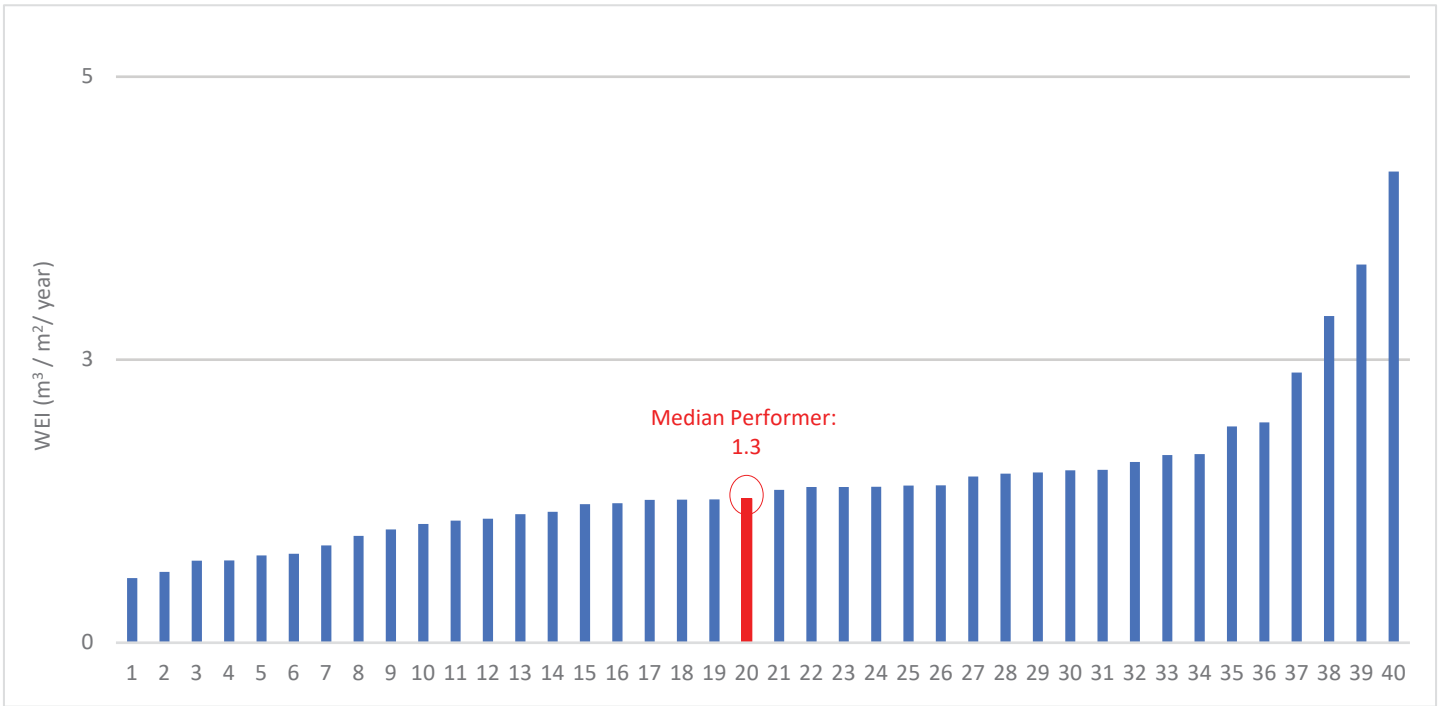


Figure 2 : WEI for Retail Malls using GFA

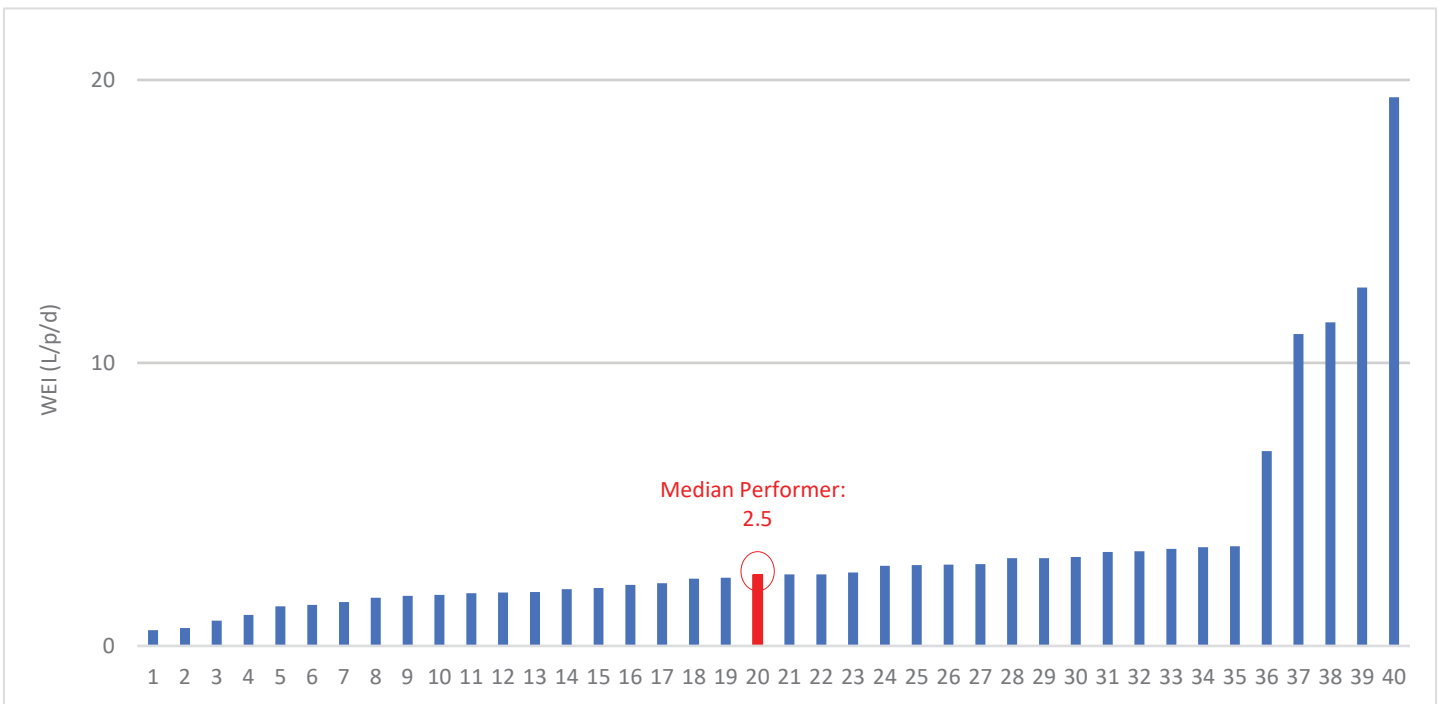


Figure 3: WEI for Retail Malls using Annual Footfall