

1. SCOPE AND COVERAGE

The Annual Economic Survey 2022 comprised of registered establishments including Water supply agencies under state government in the Water Supply; Sewerage, Waste Management and Remediation Activities Services sector. This sector encompass of six (6) industries at 3-digit level according to the Malaysia Standard Industrial Classification (MSIC), 2008 Version 1.0 section E. The complete lists of industry covered as per appendix.

2. LIST OF BUSINESS AND COMPANIES

The main source of information for the establishment list is from the Companies Commission of Malaysia (SSM). In addition, the establishments' information is updated from various sources such as the National Water Services Commission (SPAN), National Solid Waste Management Department (NSWMD), Local Authorities (PBT) and mass media.

List of establishments is updated in order to record any changes in the status of the establishments such as closed down, not in operation, change in activity and location/correspondence address to ensure that the frame is at the most current status including new establishments being added.

3. TYPE OF BUSINESS ACTIVITY

Type of business activity refers to both principal and secondary activities. The principal activity refers to the activity to which the establishment devoted most of its resources or activity which derived most of its income. Secondary activities are defined as those incidental or ancillary to the principal activity. The classification of the industry of the establishment is based on the principal activity and is in accordance with the Malaysia Standard Industrial Classification (MSIC), 2008 Version 1.0 in accordance with the International Standard Industrial Classification of All Economic Activities (ISIC) Revision 4.

4. CONCEPTS AND DEFINITIONS

Concepts and definitions used are based on the International Recommendations for Industrial Statistics, 2008 by United Nation Statistical Division. This concept adheres to accept practices, thereby facilitating data comparison at the international level.

The definition used is in accordance with the MSIC 2008 Version 1.0, which is activities related to water treatment and supply. Related activities in waste management is included encompass collection, treatment and disposal such as scheduled waste, solid waste and wastewater from industrial and household, including recovery materials and contaminated sites. The waste from the treatment process can be disposed off or used as input for other production processes.

5. SURVEY YEAR

Survey year refers to the year in which a survey was conducted.

6. REFERENCE YEAR

The reference year of the survey was the calendar year 2021. Establishments whose accounting year differed from the calendar year were requested to report according to the accounting year or financial year covering at least six (6) months in the reference year.

7. METHOD OF COLLECTION AND ESTIMATION

This survey is generally conducted through three (3) methods of data collection, namely, online method through the e-AES portal; data collection via e-mail, post, fax and telephone; and face-to-face data collection.

8. SAMPLING FRAME

*Based on the identified population, the sampling frame covered **1,840** active establishments.*

9. SAMPLING DESIGN

The sampling design of the survey is a one-stage stratified random sampling. Categories of industries at three (3) digit MSIC at state level have been classified as stratum and the establishment as the sampling unit.

Each stratum (industry) has been set up into four substrata to ensure the distributed sample takes into account the economic characteristics of the industry. The main substratum is heterogeneous and was fully covered. Whereas, other substratum that is homogeneous were sampled.

The main substratum includes large establishments that have significant total revenue in the industry while for the second to fourth substratum is based on small and medium enterprise (SME) categories.

10. SAMPLE SIZE

The main statistics used to estimate the sample size is the total revenue. The formula used in the estimation of the sample size for a stratum is as follows:

$$n = \frac{(\sum N_i S_i)^2}{V + \sum N_i S_i^2}$$

where,

n	=	Sample size
N_i	=	Population size for stratum i
S_i^2	=	Variance for stratum i
V	=	Desired variance

$$V = RSE^2 \left(\frac{\hat{Y}_i}{Z} \right)^2$$

where,

\hat{Y}_i	=	Total revenues for stratum i
RSE	=	Relative standard error
Z	=	Value of confidence level

Sample is distributed to substratum of the industry using Neyman Allocation Method as follows:

$$n_{hi} = \left(\frac{N_h S_h}{\sum N_h S_h} \right) n'_i$$

$h = 2, 3 \text{ and } 4$

$i = 1, 2, \dots k$

where,

n_{hi}	=	Sample size for substratum h of stratum i
N_h	=	Population size for substratum h
S_h	=	Standard deviation for substratum h
n_i	=	Sample size for stratum i
h	=	Substratum
i	=	Stratum

All establishments of the large categories were selected while establishments of the second to the fourth substratum were randomly selected using systematic random sampling.

11. SAMPLING WEIGHTS

Weighted analysis is done using sampling weight to ensure that the selected sample can reflect the population survey. The weights required are the sampling design weight and non-response weight.

The sampling design weight for the establishment at stratum h is as follows:

$$W_h = \frac{N_h}{n_h}, n = 1, \dots, 4$$

where,

N_h = Total population of substratum h

n_h = Total sample of substratum h

Non response weight at substratum h as below:

$$NRW_h = \frac{1}{n'_h/n_h}, h = 1, \dots, 4$$

where,

n'_h = Number of response sample size for substratum h

n_h = Number of sample size for substratum h

The method of calculating the sampling design weight after the survey (adjusted weight) on substratum h as below:

$$W'_h = W_h \times NRW_h, h = 1, \dots, 4$$

where,

W_h = Sampling design weight at substratum h

NRW_h = Non response weight at substratum h

12. REPORTING UNIT

The reporting unit used in the survey was **establishment**. An establishment is defined as "an economic unit that engaged in one activity, under a single legal entity and operating in a single physical location". Each establishment was assigned to an industry classification based on its principal activity.

Each branch of a multi-branch organisation at a different location was conceptually treated as a different establishment. The establishment was requested to give separate returns for each activity in terms of value. However, if in practice, the accounts were centrally kept such that it was not possible to obtain separate data for each individual unit or branch. That entity or enterprise was treated as a single reporting unit and allowed to submit a consolidated questionnaire covering all units or branches.

13. VALUE OF GROSS OUTPUT

The value of gross output of water supply; sewerage, waste management and remediation activities sector includes:

- + Total income from main activities*
- + Fees received for processing of goods for other establishments on their materials*
- + Income from service for repairs and maintenance*
- + Value of goods/ materials purchased for resale without further*
- + Value of other industrial work done*
- + Professional fees received*
- + Commissions and brokerage earned*
- + Rental income received from others*
- + Royalties, copyrights, licensing and franchise fees*
- + Others operating income*
- + Capital expenditure by self-produced/ built*
- Purchase of treated water*
- Cost of goods/materials purchased for resale without undergoing further processing*
- + Research and development expenditure (in-house)*

14. VALUE OF INTERMEDIATE INPUT

Value of intermediate input of water supply; sewerage, waste management and remediation activities sector includes:

- + Purchase of raw water*
- + Subcontractor payment*
- + Disposal charges*
- + Cost of raw materials/components/parts used*

- + *Materials used for repairs and maintenance*
- + *Factory requisites*
- + *Stationery and office supplies consumed*
- + *Water purchased*
- + *Electricity purchased*
- + *Fuel, lubricants and gas used*
- + *Payments for processing work done by others on materials supply by this establishment*
- + *Payments for current repairs and maintenance work done by others on this establishment's fixed assets*
- + *Research and development expenditure*
- + *Transportation*
- + *Travelling expenses*
- + *Accounting, auditing and secretarial fees*
- + *Legal fees*
- + *Management fees*
- + *Entertainment expenses*
- + *Postage and courier service charges*
- + *Bank charges*
- + *Insurance premium on building, machinery, transport equipment and goods.*
- + *Commission and agency fees*
- + *Advertising and promotion*
- + *Professional charges*
- + *Payment for data processing and other services related to information technology*
- + *Telecommunication fees*
- + *Other payments for non-industrial services*
- + *Operational lease (exclude payment for rent of land)*
- + *Royalties paid to: Non-Government organisations/corporate sponsorship*
- + *Others operating expenditure*
- + *Fees paid to non-working directors for their attendance at Board of Directors, meetings*
- + *Value of free wearing apparel provided*
- + *Staff training cost*
- + *Payment to other establishment for providing workers*
- + *Payment for security services*

15. VALUE ADDED

Value added is the difference between output and intermediate input. It represents the added value of goods and services by economic activity. Hence, it is approximately equivalent to commercial profit, salaries and wages, depreciation and indirect taxes; plus, interest paid less interest received.

16. NUMBER OF PERSONS ENGAGED

Employment covers all persons engaged during December or the last pay period of the reference year. The number of persons engaged was classified under the following categories:

a. **Working proprietors and active business partners**

This category refers to all individual proprietors and partners, part-time or full time, who are actively engaged in the work of the establishment. Therefore, excludes silent and inactive partners.

b. **Unpaid family workers**

This is defined as all persons (full-time or part-time) in the household of any of the owners of the establishment who perform a specified job and work for a minimum of one third of the normal working time for the establishment, but do not receive regular payment either in cash or in kind for the work done. Such workers generally receive food, shelter and other support as part of the household of an owner but this would continue whether they worked in the establishment or not.

c. **Paid employees (full-time)**

This is defined as all paid workers who work for at least 6 hours a day and at least 20 days a month.

d. **Paid employees (part-time)**

This is defined as all paid workers who work for less than 6 hours a day and/or less than 20 days a month.

17. CATEGORY OF SKILLS

Job category has also been categorized according to Malaysia Standard Classification of Occupations 2013 (MASCO) as follow:

a. High-skilled

Managers, Professionals, Technicians and Associate Professionals;

b. Semi-skilled

Clerical Support Workers; Service & Sales Workers; Craft & Related Trades Workers; Plant and Machine Operators & Assemblers; and

c. Low-skilled

Elementary occupations

18. VALUE OF FIXED ASSETS

Fixed assets are produced assets that are used repeatedly or continuously in production processes for more than one year. This includes land, buildings and structure, transport equipment, computer and peripheral equipment, other machinery, equipment and furniture and fittings. Value of fixed assets as at the beginning and end of 2021 was based on net book value. Purchases, alterations and major repairs or capital expenditure during the year were valued at actual costs incurred. Value of fixed assets sold during the year refers to the actual value.

19. ROUNDING

The sum of the components may not add up to the total in the tables presented due to rounding.

20. ANNUAL GROWTH RATE

The calculation of annual growth rate (r) is based on the following formula:

$$y_t = y_0 (1 + r)^t$$

where,

$$r = \left[e^{\frac{1}{t} \ln \left(\frac{y_t}{y_0} \right)} - 1 \right] \times 100$$

where,

y_t	=	Value at current year
y_0	=	Value at previous year
t	=	Number of years, $y_t - y_0$
r	=	Compound annual growth rate

21. SYMBOLS AND ABBREVIATIONS

&	:	and
%	:	per cent
}	:	combine
-	:	nil
0	:	Less than 0.5
r	:	revised
<i>n.a</i>	:	Not applicable
<i>etc.</i>	:	et cetera
<i>RM</i>	:	Ringgit Malaysia
<i>n.e.c</i>	:	not elsewhere classified
<i>W.P.</i>	:	Wilayah Persekutuan