

BUSINESS REVIEW



malakoff
Environmental
Solutions

Environmental
Solutions

Read more on pages
88 to 93.

Water Desalination

Read more on pages
94 to 97.

Environmental Solutions



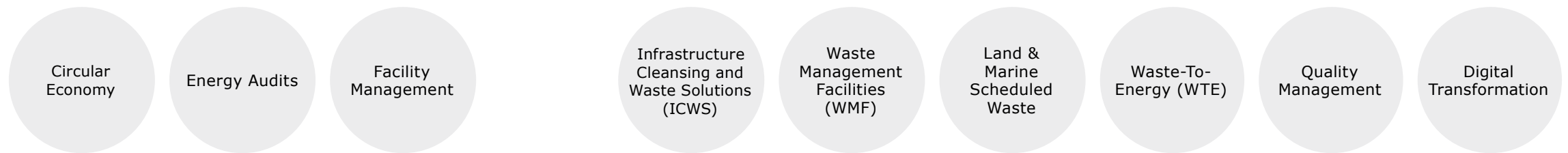
WHO WE ARE AND WHAT WE DO

Alam Flora Sdn Bhd (AFSB) and its subsidiary, Alam Flora Environmental Solutions Sdn Bhd (AFES), are leaders in environmental solutions for commercial and residential clients in Malaysia. AFSB holds the concession to collect waste and provide public cleansing services in Kuala Lumpur, Putrajaya and Pahang. Our operational assets include a landfill and two incinerators. We also run leachate treatment plants, a Material Recovery Facility (MRF), buy-back centres and an anaerobic digester. Presently, Alam Flora manages 4,386 tonnes of waste daily across its three operational areas and non-concession areas, including recyclables that were collected.

In 2013, AFSB established a wholly-owned subsidiary known as AFES. This allows us to provide comprehensive environmental solutions, spanning from Asset Facility Management (AFM), Waste Management Facilities (WMF) & Infrastructure Cleansing and Waste Solutions (ICWS) catering to diverse corporations, government agencies and institutions nationwide in our non-concession business. We expanded our services to include energy audits and consultancy in 2019. Our operational portfolio comprises a landfill, two incinerators located on Pulau Pangkor and in Cameron Highlands, five leachate treatment plants, two recently established MRFs, which are Fasiliti Inovasi Kitar Semula (FIKS) Putrajaya and Recovery Initiative Sustainable Eco-Facility Kuala Lumpur (RISE@KL), ten buy-back centres (BBC) and an anaerobic digester.

Our target is to collect, handle and manage waste volume of 10,000 tonnes per day by 2031, achieving a recycling rate of 15% to 20%. This reflects our commitment to driving responsible waste management and environmental stewardship in Malaysia.

KEY FOCUS AREAS



BUSINESS ENVIRONMENT

Demand for waste management services continues to remain robust due to increased consumption and increased waste generation. In 2023, it was estimated that Malaysia generated over 40,000 tonnes of waste per day, equivalent to 1.2 kg per person. Aside from solid waste collection, demand for recycling, upcycling and WTE conversion is anticipated to grow further, primarily driven by heightened consumer awareness of environmental issues and the imperative to reduce landfill waste. In 2023, domestic waste in Kuala Lumpur, Pahang and Putrajaya increased by 2.2% to 12 million metric tonnes while recyclable material collected increased by 14.7%, mainly due to the higher waste collected and the implementation of a new buyback centre in Pahang. This further strengthens our commitment to meet the rising demand for sustainable waste management practices, aligning with global requirements.

Recognising the challenges involving cost in doing business today, including labour intensive operations and high fleet maintenance cost of aging vehicles, Alam Flora implemented operational initiatives such as resource rationalisation as well as mechanisation and automation of operations to minimise the impact.

OPERATIONAL RESULTS

Plant	2023 '000 Mt	2022 '000 Mt	2021 '000 Mt
Domestic Waste Collected	1,142.6	1,118.3	1,132.77
Recycling Tonnage for Kuala Lumpur, Putrajaya and Pahang	6,108.9	5,324.1	4,593.49
Total Waste Handled	452.2	924.2	889.10

Note:

The total waste handled in 2022 and 2021 included Eco Green/Green Waste.

Environmental Solutions



Plant	2023 Mt	2022 Mt	2021 Mt
KLTS (Contract expired on 14 June 2023)	372,830.59	798,309.70	771,273.30
Landfill	67,989.22	85,002.80	79,242.82
Cameron Highlands Incinerator (Contract expired on 23 July 2023. Incoming waste stopped entering from 15 March 2023 until end of contract with government)	3,424.51	16,069.20	14,355.35
Pulau Pangkor Incinerator	5,107.92	4,938.10	4,230.39
Port Reception Facilities	2,803.88	3,527.90	2,509.72

NON-INDUSTRIAL MATERIALS – RECYCLABLE ITEMS COLLECTED			
Items	2023 Mt	2022 Mt	2021 Mt
Paper	4,096.4	3,607.18	3,240.21
Aluminium	22.9	26.82	20.88
Metal	454.8	391.16	319.96
Plastic	811.0	662.40	535.68
Beverage Carton	20.9	18.94	6.68
E-Waste	31.8	32.89	11.52
Used Cooking Oil	229.7	149.30	155.60
Other	441.4	435.48	303.04
Total (tonne)	6,108.9	5,324.17	4,593.57

PERFORMANCE REVIEW		
OBJECTIVES	INITIATIVES	PROGRESS/OUTCOMES
Business Expansion	Promoted programmes that contributed to a circular economy	<ul style="list-style-type: none"> Operated ten BBCs (three in Putrajaya, five in Kuala Lumpur and two in Pahang). Distributed WarOnWaste (WOW) Boxes to five locations and collected 6,420 points in total. Launched RISE@KL, Batu Caves, Selangor.
	Developed MRFs and pursued collaborations with businesses	<ul style="list-style-type: none"> Continued to partner with Nestlé via the joint kerbside recycling programme to increase the recovery of packaging materials. Partnered with Technip Energies to promote recycling and sustainability.
	Community engagement	<ul style="list-style-type: none"> Involved communities in recycling awareness activities, including visits to RISE@KL and FIKS. Conducted briefings to communities on recycling and its importance to the environment.

PERFORMANCE REVIEW		
OBJECTIVES	INITIATIVES	PROGRESS/OUTCOMES
	Technological applications	<ul style="list-style-type: none"> Implemented a waste sorting line, plastic shredder and press machine to optimise the efficiency of existing recycling processes.
Enhance Sustainable Waste Management	Implemented the circular economy concept	<ul style="list-style-type: none"> Developed and operated RISE@KL and FIKS Putrajaya. Introduced Drive-Thru Recycling Centre (DTRC) via our collaboration with a large number of retail grocery outlets.
	Implemented digital transformation initiatives	<ul style="list-style-type: none"> Introduced an automatic vehicle location system to monitor and report waste collection in real time.
	Made steady progress in the development of the Group's first WTE Project	<ul style="list-style-type: none"> Pursuing discussions with the Ministry of Local Government Development (KPKT) and the Solid Waste Management and Public Cleansing Corporation (SWCorp) to develop a WTE project. Targeted commencement of operations in 2028.
	Entered into a conditional Share Sales and Purchase Agreement (SSPA) dated 27 October 2023 between Metacorp Berhad and Tuah Utama Sdn Bhd in relation to the proposed acquisition of 49% equity interest in E-Idaman Sdn Bhd	<ul style="list-style-type: none"> The parties involved are in the process of fulfilling the conditions precedent under the SSPA.
Strengthen Energy Audit Portfolio	Engage with potential customers to drive new contracts	<ul style="list-style-type: none"> Conducted two electrical Energy Audits for PETRONAS Dagangan Berhad and one for Lumut Power Plant. Facilitated EMEER 2008 Regulations Consultation with POS Mel Nasional in Shah Alam and Senai International Airport. <ul style="list-style-type: none"> Implemented energy monitoring and saving measures through the EMIS system, ensuring compliance with standards and submission of reports every six months.

FINANCIAL PERFORMANCE

Alam Flora's revenue grew slightly in 2023, attributed to the increase in the cleansing services and the collection of solid waste activities under the concession business. Alam Flora's revenue and profitability for 2023 are within Malakoff's group expectations.

Environmental Solutions



CHALLENGES AND MITIGATING ACTIONS

CHALLENGES	MITIGATING ACTIONS
Lack of vehicles may hamper waste collection	<ul style="list-style-type: none"> Introduced the Fleet Recovery Programme to extend the life span of vehicles, optimise operational costs and ensure daily availability of vehicles to improve collection performance.
Limited public awareness on responsible waste management led to inadequate feedstock received at RISE@KL	<ul style="list-style-type: none"> Implemented Communication, Education and Public Announcement (CEPA) initiatives while supporting CEPA programmes by the government agencies such as SWCorp, JPSPN, DBKL, Perbadanan Putrajaya and local municipalities. Established a collaborative partnership with leading consumer packaged goods enterprises like Nestlé to execute the kerbside recycling initiative within Scheme 11 to boost the volume of recyclables for Separation @ Source (S@S). This collaborative effort incorporates Nestlé's recyclable waste, if any, during the collection phase for S@S from 10,000 designated households in Kuala Lumpur. This initiative supports Nestlé's target of zero waste going into landfills.
Lack of waste segregation practices by the public leads to waste that cannot be burned	<ul style="list-style-type: none"> Continued public education initiatives on separation at source to encourage waste segregation.



Recovery Initiative Sustainable Eco-Facility Kuala Lumpur (RISE@KL)

ACHIEVEMENTS

- Waste Management Association of Malaysia
 - Technological Advancement and Innovation Awards 2023
 - Notable Achievement on Waste Reduction and Circularity Award 2023
- National Energy Awards 2023
 - Renewable Energy in Off-Grid (Thermal) Merit Winner for Production of Biogas from food waste through Anaerobic Digester
- Malaysia Society for Occupational Safety and Health
 - Gold 2 Class Award for Belenggu Halt Sanitary Landfill
- UN Global Compact Network Malaysia and Brunei
 - Forward Faster Sustainability Awards for Partnership for the Goals Recognition category
- Human Resource Development Awards 2022
 - Human Resource Minister Award - Large Employers' category
- GeoInnovation Awards 2023
 - Esri Malaysia GeoInnovation Award for geospatial platform, GeoFlora
- Prime Minister Hibiscus Award 2021/2022
 - Exceptional Achievement Award for Environmental Performance (FIKS Project)
- Sustainability and CSR Malaysia Award 2023
 - Company of the Year (Waste Management) for Excellence in Community Support Initiatives

OUTLOOK

Currently, Malaysians produce up to 38,142 MT waste per day while the government's recycling target is to achieve a recycling rate of 40% by 2025. This is in line with our 'beyond waste management' approach as it places emphasis on recycling and waste diversion initiatives.

In driving sustainable waste management, Malakoff's forthcoming WTE plant is poised to deliver substantial benefits to the community. By converting waste into energy, it is positioned to enhance waste management efficiency, curb dependence on open landfills and mitigate environmental impact. However, achieving full operational status for Malakoff's WTE plant will take four years as it involves at least a year to obtain the necessary regulatory permits and completion of construction. Once operational, the plant will emerge as a reliable and sustainable source of renewable energy for the area. Moving forward, Malakoff remains steadfast in its commitment to pursue more WTE projects, reinforcing its dedication to the community's sustainability efforts. This strategic initiative represents a positive step towards fostering a cleaner and more environmentally conscious future.

Moving into 2024, Alam Flora is poised to expand its business into Wilayah Persekutuan Labuan, Terengganu and Kelantan. Towards this end, a series of meetings with local authorities and the federal government are being conducted, including due diligence exercises to re-assess the latest expenses on the solid waste management of each state and acceptance of Act 672 by these states, an important step in expanding our business to these regions.

Water Desalination

WHO WE ARE AND WHAT WE DO

Malakoff's International Assets and Investment Development department oversees the Group's investments in an Independent Water Producer (IWP) and Independent Water and Power Producers (IWPPs) in Saudi Arabia, Bahrain and Oman. With a total effective capacity of 472,975 m³ a day, these ventures play a significant role in our portfolio. We contribute to Malakoff's business growth through strategic acquisitions and greenfield development.

Name	Location	Gross Capacity (m ³ /day)
Shuaibah Phase 3 IWPP (SIWPP)	Saudi Arabia	880,000
Shuaibah Phase 3 Expansion IWP (SIWEP)	Saudi Arabia	150,000
Al-Hidd IWPP	Bahrain	410,000
Al-Ghubrah IWP	Oman	191,000



KEY FOCUS AREAS

Explore Merger and Acquisitions (M&A) opportunities and greenfield projects to drive growth in the desalination portfolio to replace expiring Power/Water Purchase Agreements (P/WPAs)

Pursue international expansion through renewable energy (RE) based desalination projects

Forge strategic partnerships in the Middle East and North Africa (MENA) region to enhance operational capabilities in water and power market

BUSINESS ENVIRONMENT

The desalination market is poised for continuous growth until 2030, primarily driven by the MENA region, accounting for 60% of global market expansion. We anticipate key projects in the Middle East, sub-Saharan Africa, North America and Latin America in 2024. Demand for desalination services remains in high water-stressed regions, where seawater desalination is crucial to meet local population needs.

To minimise the water sector's carbon footprint, upcoming projects involving private-sector collaboration will focus on leveraging technology and innovations. This includes constructing greenfield seawater reverse osmosis (SWRO) plants and repurposing old thermal desalination plants into SWRO, and implementing digital twins and solar photovoltaic (PV) power plants to decrease reliance on the electricity grid. As P/WPAs approach expiration, extension negotiations are underway and new contracts in the MENA region are being explored. Additionally, efforts are being made to extend our services to markets beyond the MENA region to mitigate our geographic concentration risk.

OPERATIONAL RESULTS

Plant	TOTAL WATER PRODUCTION (m ³ /day)			EQUIVALENT AVAILABILITY FACTOR (%)			CAPACITY FACTOR (%)		
	2023	2022	2021	2023	2022	2021	2023	2022	2021
Shuaibah Phase 3 IWPP	301,730,066	295,350,580	289,330,153	93.94	92.00	90.00	93.93	92.00	90.00
Shuaibah Phase 3 Expansion*	45,112,253	51,771,706	52,436,720	96.83	96.00	95.00	82.40	96.00	95.00
Al-Hidd IWPP Bahrain**	99,505,502	117,848,255	135,062,459	90.10	96.00	95.00	66.63	79.00	90.00
Al-Ghubrah IWP Oman	66,577,497	66,926,208	66,188,226	95.18	97.00	95.00	95.54	96.00	95.00

Notes:

* Lower dispatch instruction by offtaker
 ** Phase 1 seawater pump header pipe breakdown

Water Desalination



PERFORMANCE REVIEW		
OBJECTIVES	INITIATIVES	PROGRESS/OUTCOMES
Business Expansion	<ul style="list-style-type: none"> Pursued strategic brownfield (acquisition) and greenfield opportunities. Explored strategic partnerships. 	<ul style="list-style-type: none"> Prequalified for competitive bidding for the following projects: <ul style="list-style-type: none"> Kuwait Al Khairan Phase 1 IWPP Kuwait Az-Zour North Phase 2 and Phase 3 IWPP UAE Hamriyah IWP Forged strategic alliances with global industry players for collaboration on upcoming power and water projects.
Contract Renewals	<ul style="list-style-type: none"> Explored contract extensions for existing assets. 	<ul style="list-style-type: none"> Engaged in continuous discussions with clients on potential contract extensions.
Cost Management	<ul style="list-style-type: none"> Evaluated cost-effective financing alternatives. Increased operational efficiencies. 	<ul style="list-style-type: none"> Successfully completed Shuaibah Phase 3 IWPP refinancing exercise. Consistently looked into strategies to optimise scheduled outages. Optimised approach on CAPEX projects and systematic inventory reduction based on utilisation.

FINANCIAL PERFORMANCE

- In 2023, both SIWPP and SIWEP plants recorded higher net profits, contributed by improvements in plant performance, leading to an increase in Availability and Capacity Factor.
- Al-Hidd IWPP recorded a significant net loss in 2023, primarily impacted by assets impairment as the Power and Water Purchase Agreement (PWPA) extension is projected on a short-term basis after expiry.
- Meanwhile, Al-Ghubrah IWP saw its net profit reduced by 6% in 2023, mainly due to plant outages caused by the cleaning of the seawater intake chamber, equipment replacements, and the upgrading of the plant automation system.

CHALLENGES AND MITIGATING ACTIONS

CHALLENGES	MITIGATING ACTIONS
Intense competition from major utilities, global trading firms and new players	<ul style="list-style-type: none"> Pursued strategic alliances with qualified partners to boost our competitive advantage. Proactively engaged with domestic and international financial institutions and export credit agencies.
Increased regulatory and governmental scrutiny on SWRO energy consumption and its effect on the marine environment	<ul style="list-style-type: none"> Consistently strengthened internal capabilities to foster innovation and resilience to effectively adapt to major trends.
Faced obstacles in entering new markets, encompassing factors such as political risks, changes in policies and market risks in the respective country/region	<ul style="list-style-type: none"> Rigorously tracked energy policies and opportunities in diverse markets. Engaged in active discussions/forums with stakeholders. Prioritised key countries/regions, strategically assessing risks against returns.

ACHIEVEMENTS

- Recorded zero Lost Time Injuries (LTI) or Lost Time Accidents (LTA) for Shuaibah Phase 3 IWPP, Shuaibah Phase 3 Expansion and Al-Ghubrah IWP
- Shuaibah IWPP
 - Successfully produced seedlings from the plant nursery under the Shuaibah Phase 3 IWPP Green Initiative Programme and distributed them to government agencies (MEWA, Taif National Park, Jeddah University)
 - Attained the ISO/IEC 17025:(2017) certification for Shuaibah Phase 3 IWPP
- Al-Hidd IWPP
 - Obtained the ISO 14001 and ISO 18001 recertification.
 - Received the Royal Society for the Prevention of Accidents (ROSPA) Gold Medal Award for the ninth consecutive year
 - Completed the transition from the London Inter-Bank Offered Rate (LIBOR) to the Secured Overnight Financing Rate (SOFR)
- Al-Ghubrah IWP
 - Completed the transition from LIBOR to SOFR for Al-Ghubrah IWP
 - Awarded the Corporate Excellence Award 2023 to Muscat City Desalination Company (MCD) under the Small-Cap companies category by Oman Economic Review (OER) Magazine based on Moore Global's Survey.
 - Obtained the ISO 14001:2015 (previously known as ISO 14001:2004) and ISO 45001:2018 recertification

OUTLOOK

Despite the subdued global economic outlook due to geopolitical uncertainties and fiscal challenges post the Covid-19 recovery period, the demand for potable water via desalination in the MENA region has been increasing steadily and is expected to persist through the coming years. The underlying driver for this trend is the growing concern over water scarcity, which may hinder long-term economic plans, causing it to emerge as an investment catalyst for improving the sector's capacity and efficiency.

Desalination projects in the MENA region are experiencing remarkable expansion in response to the challenges of prolonged water scarcity. Numerous countries in the region are confronted with the complex task of ensuring a reliable water supply in the face of arid climates, population growth and escalating water demands.

Subsequently, demand for the services provided by our IWPs and IWPPs are likely to remain constant, if not increase due to the abovementioned factors. In 2024, our focus is directed towards sustaining efforts in exploring potential greenfield projects that align with Malakoff's commercial and growth requirements while improving operations at the existing facilities within our portfolio.