UAE ALLIANCE FOR CLIMATE ACTION
MEMBER SPOTLIGHT

ALSERKAL ENVIROL

Grease Trap
Waste Treatment

ALSERKAL ENVIROL

Alserkal Envirol (a subsidiary of Alserkal Group) is the only facility of its kind in the entire MENA region to recycle Fats, Oils and Grease (FOG) waste.

Envirol managed to divert over 170 million gallons of hazardous FOG waste away from landfills and city drainage networks in Dubai where such sustainable recycling process produces 3 end-products to contribute to the UAE's circular economy. Various awareness campaigns have been held targeting different stakeholders within the food establishments' community in Dubai.

In 2018, Envirol has expanded their facility to double their treatment capacity to meet the market's demand and ensure being aligned with Dubai's market growth.

Envirol had remarkable success in Dubai and plans are being studied for potential opportunities in order to expand to other regions of the UAE as well as other countries worldwide.

SUSTAINABILITY AT ALSERKAL ENVIROL

Alserkal Envirol is committed to maintain hazard free working environment for their workers and sub-contractors and to minimize their activities' environmental impact.

Within their Integrated Management System (IMS) Policy, among others Alserkal Group aims to

- Implement an IMS based on the requirements of ISO 9001, ISO 14001 and OHSAS 18001 standards, enabling excellent and continually improved service provision considering all business requirements of their customers and stakeholders,
- Implement a fact based monitoring of all their business goals including service quality, environmental protection, health, safety and legal compliance,
- Provide attractive ergonomic and safe workplaces enabling the organisation to prevent environmental pollution, injuries and ill-health,
- Ensure all operational activities are performed as per best Health Safety and Environment (HSE) practices.*

Diverted over 170 million gallons of Fat, Oil and Grease from landfill

Produced over 4,020,000 liters of brown oil for Soap Manufacturing

Produced over 9,000 tonnes of biosolids can be used for composting

MAKING THE BUSINESS CASE

GREASE TRAP (GT) WASTE TREATMENT FROM ECOLOGY, ECONOMY AND SOCIAL RESPONSIBILITY ASPECTS

Reconciling the aspects of ecology, economy and social responsibility are at the heart of the group family values and the corporate culture of Alserkal Group.

ECOLOGY

- Alserkal Envirol is committed to divert hazardous Grease Trap waste from being discharged at the landfills and municipal drain lines
- Envirol has set ambitious targets to achieve carbon neutrality across the entire value-chain by 2050

ECONOMY

- Envirol played a key role in ensuring the job creation to support the economic growth
- It supported the tourism sector of Dubai where all food establishments are safe from any FOG waste service interruptions which affects the health and economy.
- The costs of sewer line blockages in the city drainage network and in the food establishments are drastically reduced by collecting and treating FOG waste generated from the food establishments which contributes significantly to the economic growth

SOCIAL RESPONSIBILITY

- To ensure the direct inclusion of Dubai's community, Alserkal Envirol has conducted various awareness campaigns that target students at different education levels – from elementary school up to university – to develop healthy habits of food waste recycling
- Best Kitchen Campaign programs consisting of workshops that targets kitchens around Dubai to promote best-operating practices in grease waste handling were held

Area	Target	Targeted year
Brown oil	Re-use 30% of brown oil for thermal heater	2024
Wastewater	Recycle and use 30% of wastewater for irrigation and internal purposes	2024
Bio-solids	100% diversion of bio-solids to fertilizer, compost	2025

THE DECARBONIZATION CHALLENGE

GT WASTE MANAGEMENT IMPLEMENTATION

Challenge within Envirol's decarbonization journey: Grease Trap waste management implementation for Grease Trap waste collection, transportation, treatment, and recycling.

The challenge faced by Envirol was resolved by setting-up a Grease Trap waste recycling facility in Dubai, with the construction of phase 1 of Alserkal Envirol with 50,000 gallons/day and phase 2 with 100,000 gallons/day in Dubai, which was known to be one of its kind in the MENA region with its unique technology to treat such complex waste being produced at the food establishments in Dubai.

ENVIROLS CIRCULAR ECONOMY MODEL

SOLUTION DEVELOPMENT PROCESS

(BASELINE: 2022) - TENTATIVE

SCOPE 1

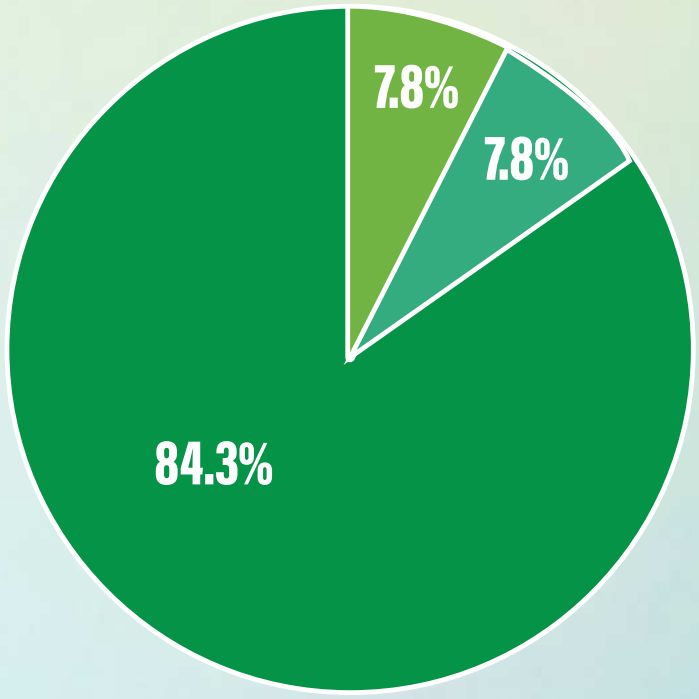
Fuel consumption for 1 company-owned van, 2 diesel forklifts and machineries constitutes the scope 1 of the GHG emission sources captured in this inventory, which accounts for 388.2 tCO2e (7.8%)

SCOPE 2

Grid electricity consumption constitutes the scope 2 of the GHG emission sources captured in this inventory, which accounts for -- 388.897 tCO2e (7.8%)

SCOPE 3

Emissions from air freight, business travel and from desalinated water consumption constitute the scope 3 of the GHG emission sources captured in this inventory, which account for 4186.119 tCO2e (84.3%)



SOLUTIONS

CONSTRUCTION OF ENVIROL GREASE TRAP WASTE TREATMENT FACILITY

With he construction of Envirol Grease Trap waste treatment facility, Dubai has been able to increase a larger proportion of monitoring and controlling such hazardous waste from entering the environment through the landfill discharge.

The successful implementation of phase 1 and 2 of the Envirol's plant led to diverting more than 170 million gallon of Grease Trap waste from the landfill.

The Grease Trap waste collected from the food establishments in Dubai is teated of Alserkal Envirol plant and transformed into 3 end products that can be reused for composting, irrigation and cosmetics industry which include:

FERTILIZER

WATER

REFINED OIL

GT WASTE MANAGEMENT SYSTEM

- Public Awareness
- Policy, Legislation & inspection
- Grease Trap Consulting
- Grease Trap Supply, Installation & Maintenance
- Grease Trap Cleaning & Disposal
- Grease Trap Waste Recycling
- Smart System

FATS, OIL AND GREASE (FOG) SMART SYSTEM - FOGWATCH

- Alserkal Envirol provides a unified Smart FOG Waste Management system (FOG watch) for managing all FOG waste such as Grease Trap Waste-related activities and database.

OBJECTIVE OF THE INITIATIVE IS TO

- digitize the process flow of overall FOG waste management activities
- achieve seamless and paperless operations from the generator through the collector and transporter to the recycling facility and the regulating authority
- develop live dashboard showcasing environmental and stakeholders operations
- provide ease of access and availability of database for all relevant stakeholders
- provide cashless transactions and online payment gateways
- ensure the accuracy of data analysis

OVERVIEW OF EMISSIONS

CO2 EMISSIONS TRACKING

The emissions at Envirol were tracked by the amount of Grease Trap waste discharged at the recycling facility. The coupons were manually recorded which included the amount of Grease Trap waste discharged at the receiving area in the facility from 2009 - 2016 by the Data Control Team. From 2016 till present, the coupons which are received from the Grease Trap cleaning companies are registered and recorded in SAP system to ensure accurate tracking of the discharged Grease Trap waste in which the emissions are also tracked

CO2 EMISSIONS REDUCTION

The emissions to the environment for landfill in relation to Grease Trap waste have been significantly reduced. This is due to the hazardous Grease Trap waste now being treated and recycled into 3 useful end products which include: treated wastewater used for irrigation, bio-solids used for composting and brown oil used for soap manufacturing.

SCOPE 1

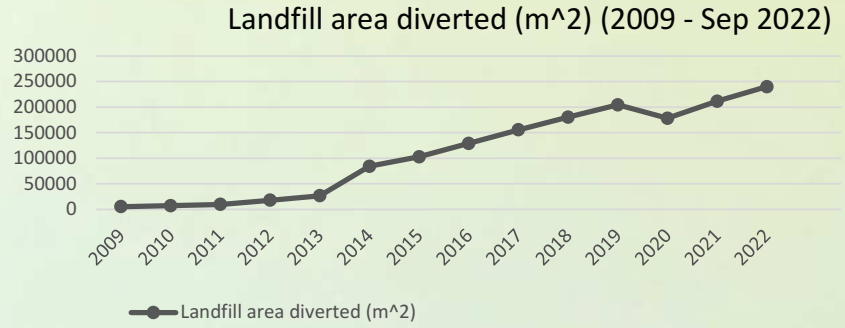
388.2 tCO2e

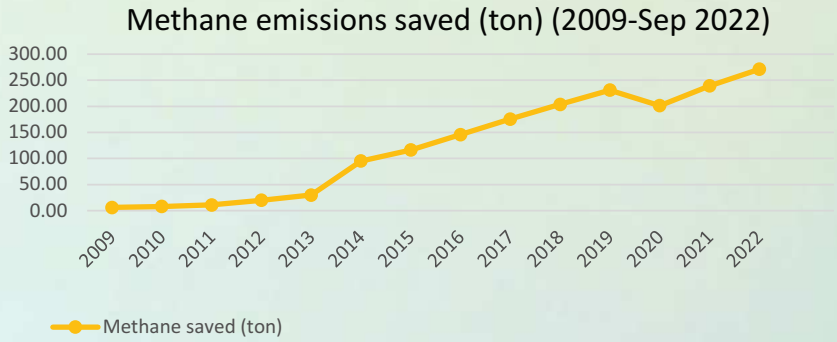
SCOPE 1

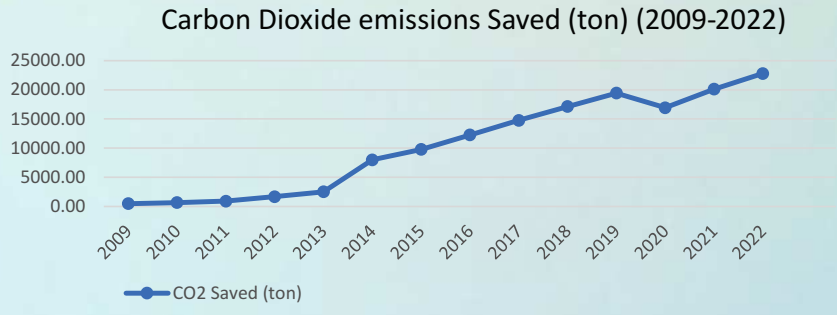
388.897 tCO2e

SCOPE 1

4186.119 tCO2e







AI-DRIVE

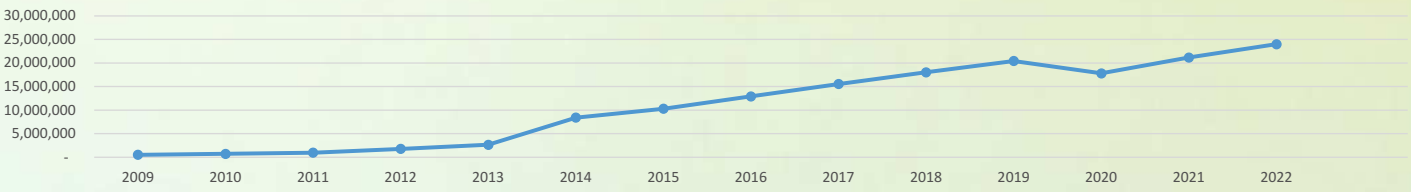
FOG WASTE TREATMENT MANAGEMENT DASHBOARD 2009 - SEP 2022

FOG WASTE COLLECTION & DISCHARGE RESOURCES

TOTAL KITCHENS	TOTAL GREASE TRAPS	TOTAL GTCC	VEHICLES USED	LABOR FORCE
12,669 ENTITIES	18,141 UNITS	62 ENTITIES	142 TANKER	450 STAFF

YEARLY WASTE COLLECTION (GALLONS) 2009 - 2022

CAGR 51%



ENVIRONMENTAL SAVINGS

CARBON DIOXIDE (CO2)
161,912.24 TONS

METHANE (CH4)
1,925.90 TONS

LANDFILL AREA DIVERTED
1,704,339.37 M^2

PAPERS
41,048

PRODUCED FROM RECYCLED END-PRODUCT

IRRIGATION WATER
483,872 CUBIC METERS

SOAP
197,580,963 PIECES

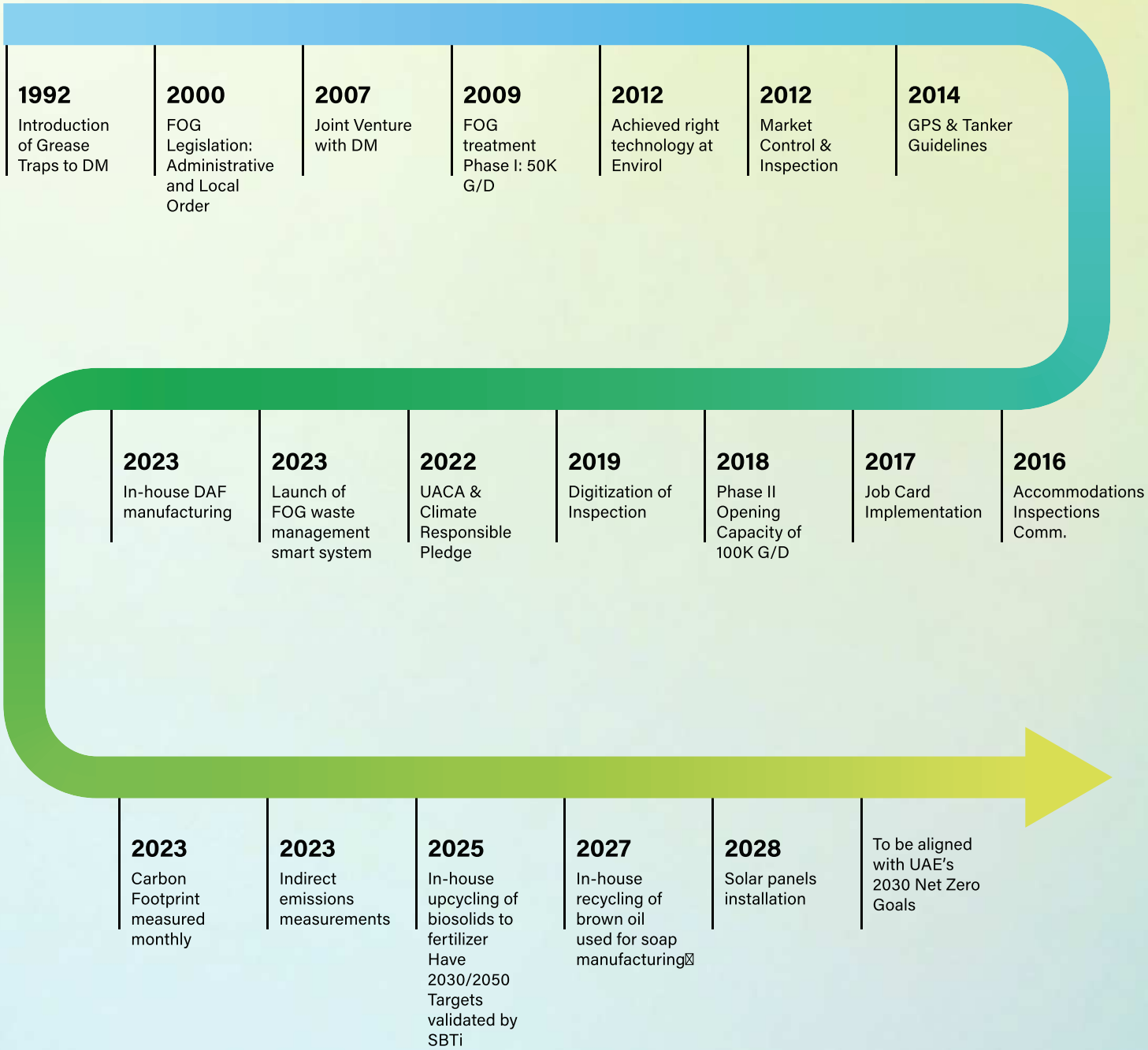
BIO-FUEL
45,161,363 LITERS

NEXT STEPS FOR THE FUTURE

LESSONS LEARNED AND LOOKING AHEAD TO THE FUTURE

Continuous control of Grease Trap waste will contribute to the achievement of the circular economy and sustainability goals of the UAE as well as Dubai.

Having a sustainable future requires policies to be established and implemented with close monitor ing of the progress.



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