



# INNOVATING IN THE WATER-FOOD-ENERGY NEXUS **KULU ECO-SERVICES**



[kuluecoservices.com](http://kuluecoservices.com)

# 122

**MILLION TONS**  
waste generated annually in  
South Africa

# < 10%

is recycled or recovered

# ~ 33

**MILLION TONS**  
of food waste ends up  
in landfill



**VIABLE ALTERNATIVES TO LANDFILL IN  
SOUTH AFRICA DO NOT EXIST AT SCALE!**





OUR **SMART WASTE CONVERSION** HUBS ARE THE SOLUTION!

A **SUSTAINABLE ALTERNATIVE** FOR LIQUID WASTE TO LANDFILL  
TRANSFORMING THE WASTE STREAMS INTO VALUE STREAMS  
SUCH AS **BIO-FUELS, BIO-GAS AND AGRI-PRODUCTS**

YOUR WASTE TO VALUE **PARTNER**

# SMART INNOVATION AND TECHNOLOGY:

## *Waste-to-fuel: Untreatable Becomes Usable*

**INNOVATION 1 = TAILORED SOLUTIONS FOR COMPLEX WASTE:** Kulu's innovative process design tackles previously untreatable waste streams through a combination of **integrated plant layout, advanced separation technologies, and waste-to-fuel solutions.**

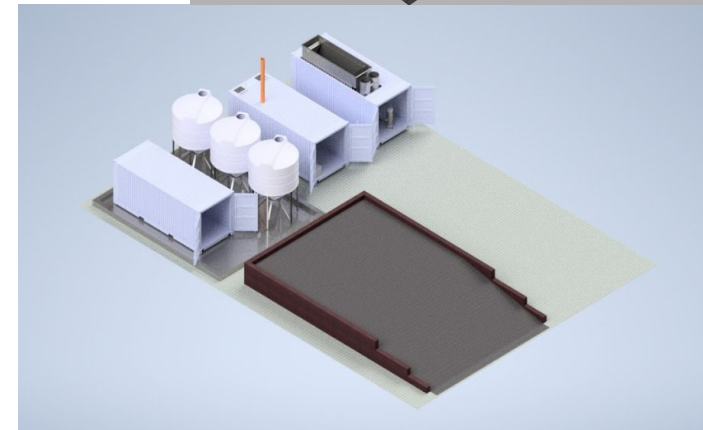
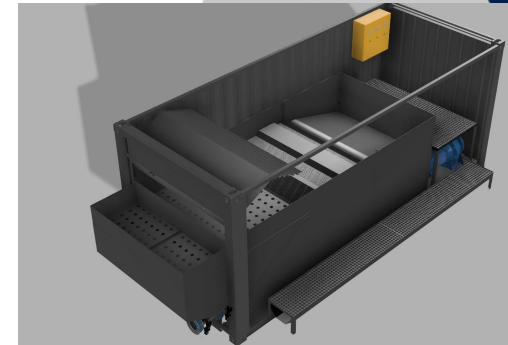
**INNOVATION IN WASTE, WATER & ENERGY:** Kulu has led advancements in waste stream separation for renewable fuel and energy generation, with ongoing intellectual property (IP) and patent developments.

These include:

- **Efficient dewatering, solid separation, and oil reclamation** from challenging wastes such as grease trap waste and Fats, Oils, and Grease (FOG) waste.
- **Development of solvent extraction facilities** tailored for complex waste streams.
- **Integrated biofuel and biogas facilities into the plant configurations,** maximizing resource recovery and promoting sustainability. This reduces reliance on fossil fuels and promotes renewable energy sources.

**INNOVATION 2 = LOCAL SOLUTIONS, GLOBAL IMPACT:** Kulu's decentralized hubs, equipped with unique and industry-leading technology, convert food and liquid waste into valuable resources, promoting sustainability at a local level

**National Expansion:** Kulu's innovative hubs are designed for national expansion. Kulu continues to pioneer intellectual property and patents for the hub-and-spoke model.



# OUR BUSINESS & OPERATIONS TO DATE





# ADAPTATION & CIRCULAR ECONOMY IMPACT



## TO DATE

> 30 000

TONS OF ORGANIC WASTE DIVERTED FROM  
LANDFILL

43

JOBS CREATED

66 %

FEMALE SENIOR  
MANAGEMENT

18 250

TONS OF CO<sub>2</sub> REDUCED

180

COMMUNITY MEMBERS  
DIRECTLY IMPACTED

32

CLIENTS

R 50 MILLION

TURNOVER

## IMPACT DURING THE NEXT 24 MONTH PERIOD

> 50 000

TONS OF ORGANIC WASTE DIVERTED FROM  
LANDFILL

55

JOBS CREATED

75 %

FEMALE SENIOR  
MANAGEMENT

54 750

TONS OF CO<sub>2</sub> REDUCED

230

COMMUNITY MEMBERS  
DIRECTLY IMPACTED

42

CLIENTS

R 140 MILLION

TURNOVER

# Business Models & Units



## SERVICES MODEL

- Serve restaurant chains and FSE's as a one-stop-shop sustainability company,
- Provide technological, smart and customized engineering solutions for wide variety of clients focused on waste, water, energy and agri- systems.



## WASTE CONVERSION HUBS

- Develop & innovate for decentralized smart technology, aimed at disrupting linear systems to value-adding circular economy systems,
- Applications for smart technologies,
- Applications for system to client interface (Machine2machine; system to human; front-end).



# PARTNERSHIPS AND CLIENTS



## EXISTING CLIENT BASE

- **Independent Generators:** Businesses of all sizes seeking responsible waste solutions. (e.g., restaurants, food manufacturers, agro-processing).
- **High-Volume Sites:** Shopping centers, stadiums with large waste streams. (e.g., grocery stores, franchises).
- **Strong Global Partnerships:** Collaborations with established bio-energy companies from the EU, Netherlands and UK.



A photograph of a white Volvo truck driving on a road, viewed from the front. The truck is partially obscured by a large, stylized green leaf graphic that covers the bottom half of the image. The background shows a road curving to the left, with a yellow line on the edge, and a dense forest of green trees in the distance.

# SUPPLYING SUSTAINABLE BIOFUELS

## WASTE TO BIO-FUELS

UCO & WASTE COLLECTIONS | ON-DEMAND BIO-FUEL DELIVERY

[kulubiofuels.co.za](http://kulubiofuels.co.za)

# Biodiesel Explained

Biodiesel is an alternative fuel to diesel and is typically made from vegetable oil that is chemically modified.

## Biofuels Sustainability Programme For South Africa

Mapping  
the  
biofuels  
industry

Developing  
global  
knowledge,  
expertise, and  
technology  
exchange for the  
industry

Continuous  
R&D to  
improve  
processes  
and quality

Bringing the  
industry together to  
collaborate on a  
larger scale  
production and to  
lobby Government  
to change  
legislation

# COMPETITIVE LANDSCAPE



## LANDFILL DIVERSION

Kulu diverts liquid wastes, FOG (Fats, Oils, and Grease), and food waste from landfills and municipal sewer networks, preventing costly clogs and environmental damage.

## WATER RE-USE & RECYCLING

Kulu's provides a solution for liquid waste and re-uses grey water and recycles water in its processes.

## CREATING SUSTAINABLE ENERGY & FUEL

Kulu's innovative process transforms waste into valuable resources: Feedstocks for biodiesel and biogas production. Greywater suitable for irrigation and nutrient recycling

|                                       | LOCAL                     |                             |                         | INTERNATIONAL             |                 |
|---------------------------------------|---------------------------|-----------------------------|-------------------------|---------------------------|-----------------|
|                                       | Competitor 1:<br>Landfill | Competitor 2:<br>Composting | Competitor 3:<br>Biogas | Competitor 4:<br>Biofuels | Kulu's Solution |
| Waste Management Services             | ✓                         | ✗                           | ✗                       | ✓                         | ✓               |
| Alternative to Landfill/ Technology   | ✗                         | ✓                           | ✓                       | ✓                         | ✓               |
| Economic Benefits                     | ✗                         | ✓                           | ✓                       | ✓                         | ✓               |
| Competition for Sustainable Solutions | ✗                         | ✓                           | ✓                       | ✓                         | ✓               |
| Optimised Transportation              | ✗                         | ✓                           | ✓                       | ✗                         | ✓               |
| Reduced Environmental Impact          | ✗                         | ✓                           | ✓                       | ✓                         | ✓               |

## ENVIRONMENTAL ADAPTATION PLAN:

- **Renewable Energy:** Integrate solar energy to meet 50-70% of energy needs.
- **Biofuels:** Adopt biofuels for boilers to reduce emissions and leverage waste-derived fuels.
- **Water Conservation:** Implement water-saving initiatives like audits, rainwater harvesting, and efficient fixtures.
- **Energy Efficiency:** Enhance energy efficiency through automated controls and optimized workflows.
- **Monitoring:** Establish KPIs and continuously monitor progress.
- **Engagement:** Train staff and keep stakeholders informed.
- **Maintenance:** Implement preventive maintenance and process optimization.

**4IR Integration:** Kulu Eco-Services is a 4IR-focused sustainability company that plans to leverage AI, IoT, and predictive maintenance to optimize operations, reduce costs, and drive a more circular economy.



# OUR TEAM & SOCIAL IMPACT



# OUR TEAM



**Nicola Redelinghuys**

HEAD ENGINEER  
BSc (Chem Eng),  
Management Development.  
7Yrs in Process Engineering



**Dr. Pieter van Heyningen**

CEO  
PhD Innovation and  
Sustainability  
16Yrs in Sustainability



**Theresa Le Roux**

FINANCIAL MANAGER  
BAcc.  
B.Comp (hons)  
24Yrs in Finance



**Ismail Abrahams**

SITE MANAGER



**Dirk Smit**

MAINTENANCE  
MANAGER



**Jannie Pieterse**

PRODUCTION  
MANAGER

# 41

## TOTAL STAFF





# WE CREATE **EMPLOYMENT & SKILLS** **TRAINING**



# THANK YOU

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