FROM FOOD WASTE TO VALUE an ON-SITE SOLUTION



Addressing your current waste management fees, producing your own renewable energy and natural fertilizer.







Company profile

- Dutch company working towards creating a Circular Economy through the on-site valorization of food waste
- Incorporated in 2014
- As of May 2023, 12 employees, international and growing!
- Turnover 2022 EUR 800K, projected 2023 EUR 3.5M
- Capital raised to date EUR 5M (equity/loans/prizes), in final stages negotiations investment round for further raise of EUR 5M (1st stage, 2nd stage further 5M)
- Key Contact:
 - Martin Rohleder (Sales Director) <u>martin.rohleder@thewastetransformers.com</u>
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Our Joint Mission Around Sustainability

The Waste Transformers



ENVIRONMENTAL IMPACT

- Reducing environmental footprint through:
 - green energy and mobility
 - waste reduction
 - water reduction

SOCIAL IMPACT

- A better image and reputation
- Serve and support local communities

GOVERNANCE

• Good governance, transparency and compliance

REVENUE STREAMS

- Cost savings
- More income

The Waste Transformers

ENVIRONMENTAL IMPACT

- Reduced environmental footprint:
 - divert waste from landfill/incineration
 - drive engagement on waste reduction
 - support switch to green energy (including for e-mobility)
 - support switch from synthetic to natural fertilizers
 - potential to reduce fresh water usage on grass

SOCIALIMPACT

- Create jobs, improve health and sanitation communities (diverting waste from landfill/incineration; natural fertilizers) and support farmers to enhance soil fertility and crop outputs.
- Drive awareness and engagement of fans/sponsors/employees/ community around La Liga cluba taking ownership of their food waste

GOVERNANCE

- Impact data reports to support good governance and compliance REVENUE STREAMS
- Bring energy, waste management, fertilizer and water usage savings
- Attract more sponsorship monies, more events through reduced CO2 impact and community engagement

ONE OF THE GLOBAL ISSUES: FOOD WASTE 'CAUSED 3 TIMES A DAY'

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1/3

of all food is wasted globally*

30%

of global greenhouse gases is caused by our food system* CO2 and methane production

25,000

plastic bottles in landfill have the same environmental impact as landfilling one kg of food waste

most impactful individual solution to the climate crisis**



*<u>http://www.fao.org/platform-food-loss-waste/en/</u>; **https://drawdown.org/solutions/table-of-solutions

When Waste Is Wasted

Besides recycling, the two main methods of waste disposal across Europe are **landfill** and **incineration**.

Neither is in line with a circular economy, with sustainability, with zero waste.

Incineration is becoming more common in Europe, yet, high cost aside, for each tonne of MSW incinerated between 0.7 and 1.7 tonnes of CO2 is released.*

Neither maximizes the valorization of food waste.

* UK Environment Agency 2020



Status Quo Waste to Landfill Spain

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50%

Of all MSW in Spain was still being landfilled in 2020*, yet EU target for 2035 is max. 10%. Biggest % is organic waste.

*https://www.eea.europa.eu/ims/diversion-of-waste-from-landfill

Madrid's **Colmenar Viejo landfill**, replenished by 100 truckloads per day, is causing hundreds of White Storks to get hooked on a trash diet, nesting near landfills instead of migrating to Africa.

25,000

plastic bottles in landfill have same environmental impact as 1 kg of food waste in landfill [Zero Waste Scotland].

Organic waste in dumpsites attracts vermin, flies, birds and other carriers of communicable diseases (5 ISWA (2015) The Tragic Case of Dumpsites).

Waste transportation contributes to CO2 footprint

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Waste being transported to one of the twelve incineration plants in the Netherlands by diesel powered trucks.

Transportation alone emits 177.347 tonnes of CO2e/year

Waste transportation travels 86 million km/year in the Netherlands 2.7 million trees need to grow every year to take up an equivalent of the emitted transportation CO2.

By decentralising food waste processing

- + Take away the environmental impact of transporting waste
- + Enable companies to extract value from their own waste stream
- + Inspire others in sustainable behaviour.

Promoting Regenerative Agriculture to Drive Food Security

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Soil fertility is a global challenge

What is the net effect of applying **synthetic nitrogen**?

<u>It leads to a reduction in soil's organic</u> <u>matter content</u> as nitrogen fertilizer stimulates soil microbes, which feast on organic matter. As organic matter dissipates, soil's ability to <u>store</u> <u>organic nitrogen declines</u>.

Prolonged application of synthetic fertilizers <u>decreases the water retention capacity</u> of the soil.

Besides <u>nitrous oxide emissions</u>, high level nitrogen and phosphorus runoff <u>adversely affect ecosystems</u>, contributing to water toxicity and algae build.

Using chemical fertilizer is harming our soil.





CO2 Reduction Impact by Life Cycle Analysis

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On average, for each kg of food waste transformed in an on-site Waste Transformer, thereby eliminating diesel transport of waste to landfill, diverting food waste from landfill (elimination of methane production from landfilled food waste), switching fossil-based fuel to clean energy, and replacing artificial fertilizer by natural fertilizer from the food waste,

5,19 KG CO2 eq is saved*

That is what we call <u>sustainable impact</u>.

*Ask for our Life Cycle Analysis report

Being prepared for forcing regulations around food waste management in Europe

Legally binding targets for recycling in EU.

By 31 Dec 2023, bio (food)waste is either collected separately or recycled at source

SPAIN: LEGISLATIVE CHANGES INTRODUCED BY ACT 7/2022 ON WASTE AND CONTAMINATED SOIL FOR A CIRCULAR ECONOMY

Law 7/2022 of April 8, 2022 creates an excise tax on non-reusable plastic packaging and a

tax on waste sent to landfill, incineration and co-incineration, which will come into force

s on January 1, 2023. It moreover imposes an obligation on local authorities to charge a fee 👔

EU to deal new blow to Dutch farmers by tightening fertilizer rules; Nitrogen protests continue

A food waste to landfill ban



European Council Council of the European Union





This is a Waste Transformer

(a biodigester)

A comprehensive solution for businesses to valorize their own on-site produced food waste.



Food waste valorization, an on-site solution

The Waste Transformers

A Waste Transformer is an anaerobic digester, modular designed and build in 20-foot shipping containers producing biogas. The number of containers is scaled, thereby able to transform between 350 - 2500 kg food waste per day.

What's in it for you?

- 1. Energy is produced in the form of biogas, converted into electricity and heat, lowering energy bills.
- 2. Waste collection costs decrease due to the onsite processing of food waste.
- 3. Liquid natural fertilizer is produced to
 - substitute chemical fertilizers.

A Waste Transformer on-site reduces CO2 by 323% compared to landfilling food waste and reduces 31% more CO2 compared to large scale anaerobic digesters*



Daily feeding with food waste with standard waste bins. No change in operations needed.

Waste Transformer processes food waste continuously. Feeding it every day with food waste.

Output streams are green energy, in the form of biogas or electricity and heat. Natural liquid fertilizer is the single material output stream.

The plug-and-play system allows various industries to stop sending their food waste to landfill, and instead create financial value streams next to their company. The value returns to the business where the food waste is coming from. The process is monitored online by the technical support team in Amsterdam.



[* numbers based on an independent LCA conducted together with IKEA]

The process of on-site food waste valorization

A multi-issue on-site solution for several industries

The Waste Transformers

In a nutshell: How can we help you manage your food waste and turn it into value?

A Waste Transformer is placed next to the location that produces food waste. Food waste from your operations are separated in a standard waste bin and brought to the Waste Transformer. The bins are emptied daily into the hopper. Food waste is shredded and pumped into the digester tank (closed system, without oxygen, no worries about smells and flies).

Your food waste is then turned into green energy (biogas or electricity and heat/cooling), directly feeding back into the building (just like solar panels on the roof). The nutrients from the waste are also turned into a nutrient rich natural fertilizer that can be used on the same site (for landscaping or to grow fresh food) or be sold back to the local community (we will arrange an off-taker for this if needed).

This means for your business direct financial savings of food waste collection fees, reduced energy costs, and savings or revenue streams from the fertilizer.





- A Waste Transformer is modular and scalable, capable of processing from 350kg food waste per day, on your own site.
- Plug-and-play system, easy to place, easy to operate, low maintenance. We monitor the processes online. On-site you need a person with the knowledge similar to a dishwasher technician. For example someone from your technical support department.
- With full compliance with strict EU health & safety rules.
- The outside look-and-feel can be designed to local needs to integrate with the surroundings.
- Via impact reports, we can provide you with data supported proof that you practice what you preach around sustainability and around making a real positive impact.

*Ask for our Life Cycle Analysis report

A Circular Solution helping you tackle 11 SDGs



OUR GLOBAL RECOGNITION

- VOTED A TOP 3 GLOBAL IMPACT INVESTMENT PROPOSITION, BY MORGAN STANLEY, IN THEIR IMPACT INVESTMENT CHALLENGE, 2016
- WINNER OF THE 2017 SHARE AWARD FOR THE MOST CIRCULAR COMPANY
- FINALIST IN THE POSTCODE LOTTERY GREEN CHALLENGE FOR MOST GLOBAL IMPACT, 2017
- WINNER OF THE 2018 BEST BUSINESS PLAN AWARD FOR RENEWABLE ENERGY IN WEST AFRICA, AFDB & UNIDO
- WINNER 2019, GLOBAL INNOVATION AWARD, ABU DHABI SUSTAINABILITY WEEK UAE
- WINNER 2019 WHAT DESIGN CAN DO, (IKEA FOUNDATION & UNCC)
- 2020: AWARDED THE SOLAR IMPULSE EFFICIENT SOLUTION LABEL
- FINALIST IN THE SOL (SMART OPEN LISBON) BOOT CAMP, 2021
- FINALIST IN THE "RE-IMAGINE FOOTBALL" COMPETITION SUPPORTED BY UEFA, 2022
- FINALIST KVK TOP 100 2022
- SILVER WINNER AFRICA GROWS GREEN AWARD AT COP27 IN SHARM EL-SHEIKH 2022
- WINNER DUBAI EXPO LIVE CHALLENGE 2023









Football Stadium Case Study: The Johan Cruijff Arena project

The Waste Transformers

- The JCA is at the forefront of innovation and sustainability, implementing and testing pilots from future focused companies.
- Organic waste from surrounding buildings will be collected with an e-van and fed into The Waste Transformer.
- Clean electricity, heat and natural fertilizer as endproducts.





 People with a distance from the labour market (refugees, people with disabilities) will be employed in the project.

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• The community will have a clearer picture on how much food waste is produced on a daily basis, as well as on how waste has value for the society itself.

UEFA Innovation Hub Incubation Program

• The Waste Transformers is currently taking part in the Incubation Program of the UEFA Innovation Hub.

- The aim of this program is to adapt our solutions for stadiums and municipal sports facilities that could transform waste management from a cost centre into a revenue opportunity, as well as to turn football facilities into sustainable assets for the community.
- See press release:

https://www.uefa.com/insideuefa/news/027e-1743ace82dd4-28ff39dde259-1000--uefa-innovation-hub-partners-with-two-start-ups/





JOIN THE GLOBAL LEADERS TRANFORMING THEIR FOOD WASTE

The Waste Transformers





Welcome to MUT, the first urban market in Chile.

A new destination for the urban dweller, where workspaces integrate with shopping, dining and culture to create a collaborative and sustainable ecosystem.



Nice to meet you.

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WILL YOU BECOME A WASTE TRANSFORMER?

Visit us on: Contact us on: Contact us on: www.thewastetransformers.com enquiries@thewastetransformers.com martin.rohleder@thewastetransformers.com

