



WASTE TO VALUE

Processing of household waste





OVERVIEW

Think green!

Coping with waste is a major challenge for countries and administrations. Growing populations and increasing urbanization are leading to ever higher waste volumes, which burden human living spaces and the natural environment. Waste avoidance and recycling are the first steps in dealing with this. The second step is the proper utilization of waste.

Many countries in Africa and Asia are only now beginning to treat their waste as a resource, but they can profit from the knowledge gained by countries with more experience in the area. As one of the leading international technology providers for mechanical and biological waste treatment, Komptech wants to be part of this information and technology transfer. We want to make a contribution that takes into account people, the environment and sustainable economic growth, in equal measure.

Sustainability is our business and our conviction. Together we want to make the world greener.



General value creation



Environmental and sanitary improvements



Fertilizer



Jobs



Climate protection



Each year the world produces over 2 billion tonnes of municipal and commercial waste, and in 2050 it is projected to be 3.4 billion tonnes (Source: World Bank 2016). As the world population grows, so do the challenges from growing waste volumes. For example, the population of Africa is expected to double in the next 30 years, to about 2.5 billion people. That means the environmental problems will also grow.

If properly treated, waste can be a valuable resource. An estimated 70 to 80 percent of waste in Africa is recyclable. Around half of this is organic material. This can be composted and used as fertilizer in agriculture. A smaller part of the waste contains important

secondary raw materials that can be returned to production. The only things that should go to landfill should be things that cannot be reused or reclaimed in any way.

Through recycling and composting, resources can be recovered, less land used for tipping, and greenhouse gas emissions reduced. What's more, an organized waste economy with collection, separation and processing creates workplaces, in the region and beyond.

“Diverting waste away from dumpsites / landfills towards reuse, recycling and recovery ... could inject resources worth US\$8 billion per year into the African economy.”

Prof. Linda Godfrey, Manager of the Waste RDI Roadmap Implementation Unit in Pretoria, South Africa and lead author of the UNEP Report

Source: UNEP (2018), Africa Waste Management Outlook

2,01 Bn.

tonnes of waste are produced annually



+30% in 2030



+70% in 2050

Waste disposal (in Africa as an example)

~96%



landfilling

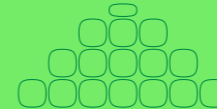
~4%



recycling

MSW composition (in sub-Saharan Africa as an example)

57%



organic

13%



plastic

17%



metal, glass, paper

13%



others



Advantages with Komptech

Komptech is a leading international manufacturer of machines and systems for the mechanical and biological treatment of solid waste. We have more than 4,000 customers in over 50 countries around the world, and understand the different requirements of different markets. With our customers, we create solutions that fit local conditions. Our assistance extends from project development to plant commissioning.

Even after that, we do everything we can to keep machines and plants running, with service offerings tailored to the needs of our customers and their local conditions. With the Connect! monitoring tool we can detect machine and operating faults remotely, and help customers right away. We also offer training and seminars to ensure long-term successful plant operation.

All-in solutions

As a solution provider, we offer comprehensive support. Komptech has extensive experience in assisting with financing models at the international level. At the EU level, bank loans can be secured through export insurance agencies, in order to get better credit terms. We take care of a large part of the handling. If desired, we can also calculate the CO₂ balance of a complete treatment plant and support the entry into emissions trading.

Training of local personnel in the care and maintenance of machines and plants is a high priority.



Worldwide solutions for wide-ranging applications

Komptech's dedicated Plant Engineering department develops stationary solutions for the ever more complex challenges of waste and biomass processing. Our capabilities range from individual machines to complete processing lines, consisting of our own machines and suitable third-party products. This flexible approach makes us a valuable resource for a very wide variety of projects, from replacing individual machines to upgrading parts of systems to setting up whole new plants.

The applications of our technologies are also varied. Whether compact waste wood processing lines, mechanical pre- and post-processing of household, commercial and organic waste, pre-treatment of waste for dry or wet fermentation, or special splitting and recycling tasks, our specialists have an answer for almost everything. We accompany customers from the initial idea to detailed project planning to professional execution, including installation and training of operating personnel.

80%
WASTE
RECOVERY
RATE

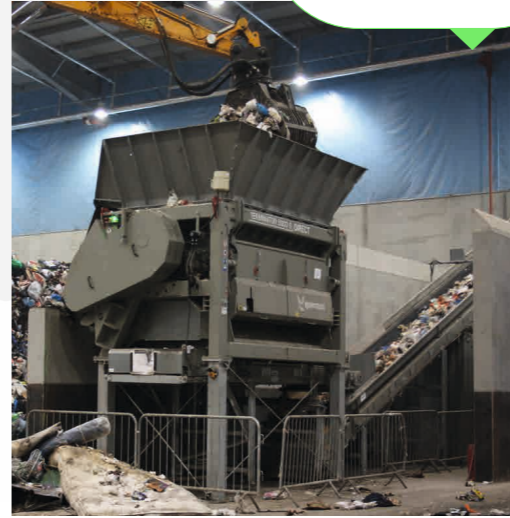
Mechanical-Biological Waste Treatment

Compost and recyclables from household waste



Waste to Energy

Pre-treatment of mixed waste for energy reclamation



Refuse-derived Fuel Processing

Defined fuel from high-caloric waste



Composting

High-quality compost from organic waste and green cuttings



Fermentation

Renewable energy and fertilizer from organic waste



Treatment of Woody Biomass

Material or energy reclamation of waste wood



C&D Recycling

Processing of mixed construction waste for recycling





Integrated Recycling And Compost Plant (IRECOP)
 Location: Accra, GHANA
 Start of operation: 2019
 Capacity: 200 tons per day

Autonomous and flexible – the semi-mobile solution

Modern waste treatment with machines adapted to local conditions is the recipe for success for countries taking their first steps towards a regulated waste economy. Where the organized collection and subsequent re-use of recycled materials are still in the early stages, semi-mobile machines can be flexibly adapted as conditions change.

Machines that are easy to transport and quick to set up, and are powered independently by diesel engines, can easily handle the challenges of infrastructures that are still coming together. Komptech machines are distinguished by their ease of use. Their operation can be learnt quickly, and their tough construction is forgiving of the occasional learner's error.

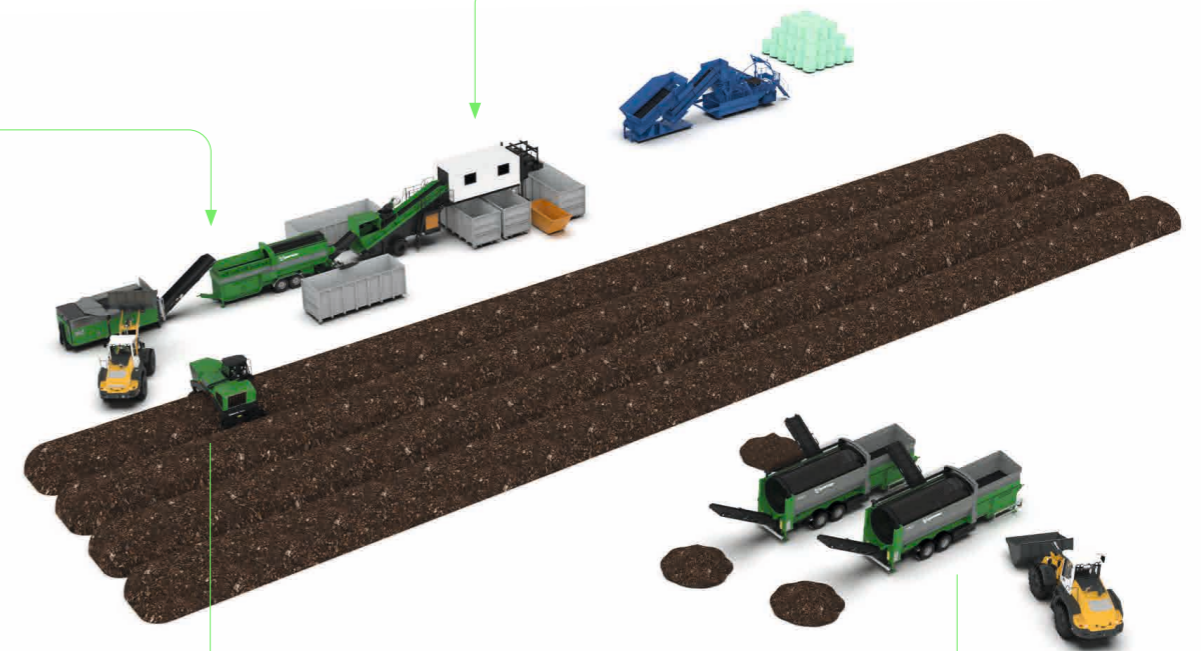
SEMI-MOBILE PROCESSING

01 Shredding and screening

At the start of treatment, household waste is opened up by a pre-shredder. Pre-sorting can be done prior to this if necessary. Following shredding, a drum screen separates out the organics as the undersize fraction.

02 Sorting and separation

Recyclables are pulled from the oversize fraction by manual sorting, magnetic separation and wind sifting. The remaining high-caloric fraction can be used to make fuel (baling optional).



03 Composting and post-processing

The organics are piled into windrows and converted into compost over the course of several weeks, with regular turning. Two-stage screening by drum screen brings the compost to a uniform grain size and separates out all contraries.





Efficient solutions for complex tasks

High waste volumes in a single location and good local infrastructure are compelling reasons to choose a stationary model. The preparation work is of key importance. If the composition of the waste, and the volumes arriving over the course of time, are well known, the plant can be laid out for optimum utilization and material flow. In shift work higher operating hours per day are possible than with mobile machines, since there

are no interruptions for refuelling, engine maintenance or material handling. Properly dimensioned stationary systems give higher throughput and are significantly more economical than comparable mobile solutions. The higher efficiency of electric drive over internal combustion engines plays a major role in this.

▲ Kumasi Compost And Recycling Plant (KCARP)
 Location: Kumasi, GHANA
 Start of operation: 2020
 Capacity: 600 tons per day

STATIONARY PROCESSING

01 Shredding and screening

Shredders can be driven by hydraulics or high-efficiency mechanical systems. The subsequent screening can be by maintenance-free spiral shaft separator, compact disc screen or all-purpose drum screen.

02 Sorting and separation

In stationary plants, further processing steps like ballistic sifting and post-shredding can be applied. The waste stream can be separated more finely, and recyclables and refuse-derived fuels can be reclaimed more efficiently.



03 Composting and post-processing

Organics are composted in closed tunnels and/or windrows, with turners for aeration. After screening and fine preparation to remove contraries, the compost is ready for use, loose or as a bagged product.



The SDGs and Komptech



The Sustainable Development Goals (SDGs) were developed by a working group of the United Nations together with thousands of stakeholders, and were approved by the United Nations General Assembly as part of the World Summit on Sustainable Development in New York on September 25, 2015. 193 member states of the UN have committed to the 17 goals and 169 targets for global sustainable development and supporting objectives.

In 2019, the Komptech Group began to systematically and intensively work on the topic of CSR (Corporate Social Responsibility). Until then, CSR had consisted of many individual projects and initiatives. To ensure a comprehensive and group-wide view of CSR, the FAIR CSR program was launched for the entire Hirtenberger Group in 2019. It combines and coordinates the previously implemented projects and initiatives under the FAIR umbrella and expands them with new areas of focus. Consequently, the company also worked intensively towards the SDGs during 2020.

In the strategic alignment of the Komptech Group, the focus is on goals 7, 12 and 13. For all decisions concerning the development of business strategies, these three goals must always be taken into consideration.

- 7**
- Driving forward woody biomass as a refuse-derived fuel to replace fossil-based energy
 - Fermentation of biogenic waste to create biogas
 - Development of waste-to-energy projects and thus utilization of the previously unused energy in waste
 - Generation of high-quality refuse-derived fuels as a substitute for fossil-based energy
 - Training programs on the subject of recovering energy from waste
 - Customer training on energy-efficient treatment processes

- 12**
- Promotion of the circular economy through new and improved technologies and innovations
 - Use of compost and bark mulch as an organic fertilizer and protection against soil erosion
 - Eco-design of the products
 - Minimization of the wear and tear of tools
 - Predictive maintenance concepts
 - Komptech as a solution provider

- 13**
- Separate processing of biogenic waste through composting to avoid methane emissions
 - Replacement of primary raw materials with secondary raw materials through innovative shredding and sorting technologies
 - Reduction in the carbon footprint of products through smart machine controls and optimized drive concepts
 - Electrification of machines and equipment
 - Advancing digitalization to reduce travel activities
 - Support for customers in emerging and developing countries with project financing for faster implementation of waste management concepts
 - Manure spreading close to the ground to reduce nitrogen losses and odor emissions

Never waste an opportunity

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We create value for you



Waste-stream expertise

Because you need a setup that is tailored to your waste stream.



Innovative technology

Because you need to adapt your output to your market needs.



Flexible sales models

Because you have the choice between new, rented and used machines.



Service excellence

Because you always need to keep your system running.