

VIDRAS GROUP

Deventer, The Netherlands

**We clean cities, supply renewable energy
and close landfills!**



Vidras Mission

Vidras is a concept- and project development company for innovative **upcycling solutions for city waste, biomass waste and (waste) water.**

Upcycling means the conversion of waste into high value (semi-) finished products. This in contrary of recycling and down cycling.

Vidras focuses on the following waste issues:

- Municipality Solid Waste (MSW)
- Bio Mass waste to Energy
- Waste Water purification for surface or drinking water
- End of Life tires (*specialty*).

Re- and upcycling of city waste is a valuable but also necessary solution to world's waste problem. It is also a fast growing market (2016: > 10%). The focus on upcycling forces Vidras to think beyond the regular well known solutions in recycling. In upcycling synergies with other value chains offer creative high value solutions. Most of the time upcycling business cases have an attractive return.

Vidras has based its solutions mainly on own ideas (registered IP's) and for realization Vidras cooperates with technology partners with proven technology and funding partners.

Vidras Solutions

Vidras solutions are all based on 3 ideas:

1. Waste should be completely converted into usable semi-finished products, whereby **zero waste** is left. This requires a view and control over the full upcycling value chain.
2. **Circular** solutions on a decentral scale have high valuable climate contributions
3. Solutions should be **self-supporting** for energy and should generate profits instead of only costs.

Municipality Solid Waste (MSW)

Landfills are a source of money. But the best solution for MSW is never to use a landfill due to daily treatment of the collected waste. Vidras uses the Mechanical Biological Treatment to have the highest production of energy products (electricity or gas), best economic ratio and after all hardly any waste is left. The MSW process steps are: separation of recyclables, conversion of organics to energy and compost and production of solid fuels out of the an-organics (RDF). Rest heat and treated process water will be re-used in own processes. This solution generates an employability for some 30 – 50 employees. In general, Vidras has concepts for modular MSW plants with a capacity of 100 ton, 250 ton, 500 ton and 1000 ton MSW per day.

Bio Mass waste into energy and compost

Energy is on many locations in the world a scarce product. The conversion from bio mass waste into energy is a well-known process but the right recipe and industrial treatment of bio mass drives the success. Several techniques, not only fermentation, are available for the different kind of end-products. Energy can be bio-gas, LNG (*Liquefied natural gas*) and electricity as a converted product from gas. The digestate is converted into compost.

Waste Water purification for surface or drinking water

One of the world's biggest issues is the availability and affordability of clean and safe drinking water for everybody. Vidras uses technology and business concepts to purify all types of industrial and municipality waste water into surface water or drinking water, even desalination of sea water is part of the possibilities.

Many times the waste water approach is part of the Waste-to-Energy solutions like MSW.

End of Life car tire recycling

Vidras has developed a new approach based on a new innovative technology. This solution provides high value semi-finished products which are attractive, as raw materials, for the rubber industry.

Our approach consists of 3 steps:

1. Pre-treatment; tire selection and downsizing to chips. (not comparable to existing market solutions)
2. Treatment of the chips with an innovative variant of oxygen free gasification, which has higher carbon output and a surplus of energy.

Post treatment to produce so-called 'rubber compounds and/or master-batches' based on requirements of the rubber industry.

Examples of flow charts for these issues are presented below.

Vidras Group

Vidras together with its consortium partners, offers the full range of services to its clients, like design, finance, build, operate, maintain, transfer. Vidras works with several technologies for a wide variety of upcycling issues:

- Separation, sorting and briquetting technology
- Intermittent Fluidized Bed Pyrolysis
- Wet and dry fermentation
- Water purification
- Greenhouse technology

Vidras works with preferred technology suppliers but what is best for the solution is leading.

The main driver for success is our Feasibility Study, which includes feedstock tests. These Studies are performed by the owners of Vidras itself. In the end, you can only believe your own eyes.

Vidras Organisation

Vidras started in 2010 with concept-development and is a network organisation focused on world's best solutions for local waste issues. We work a network of specialised professionals in area like biology, technology and finance. The business plan and business case based on a local feasibility study, are the leading drivers for us. Next to an attractive financial return, we also strive for a social return. In the network of Vidras we work together with the following partners: Vidras works with own **local agents** for project acquisition in Latin America (e.g. Peru, Colombia), Africa (e.g. Ghana), Asia (e.g. China, India) and Europe (e.g. The Netherlands, United Kingdom).

Vidras' **technology network** consists of suppliers for wet and dry fermentation, separation and recycling technology, waste water treatment, production of electricity and natural gas.

Vidras cooperates with several financial organisations, mainly located in Europe.

Currently Vidras is working on projects in The Netherlands, United Kingdom, Peru and Colombia.

Vidras Group Information

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Disclaimer: This document has been prepared solely for the purpose of assisting interested parties in deciding whether to cooperate with Vidras and does not purport to contain all the information that may or should be required to evaluate the proposed cooperation

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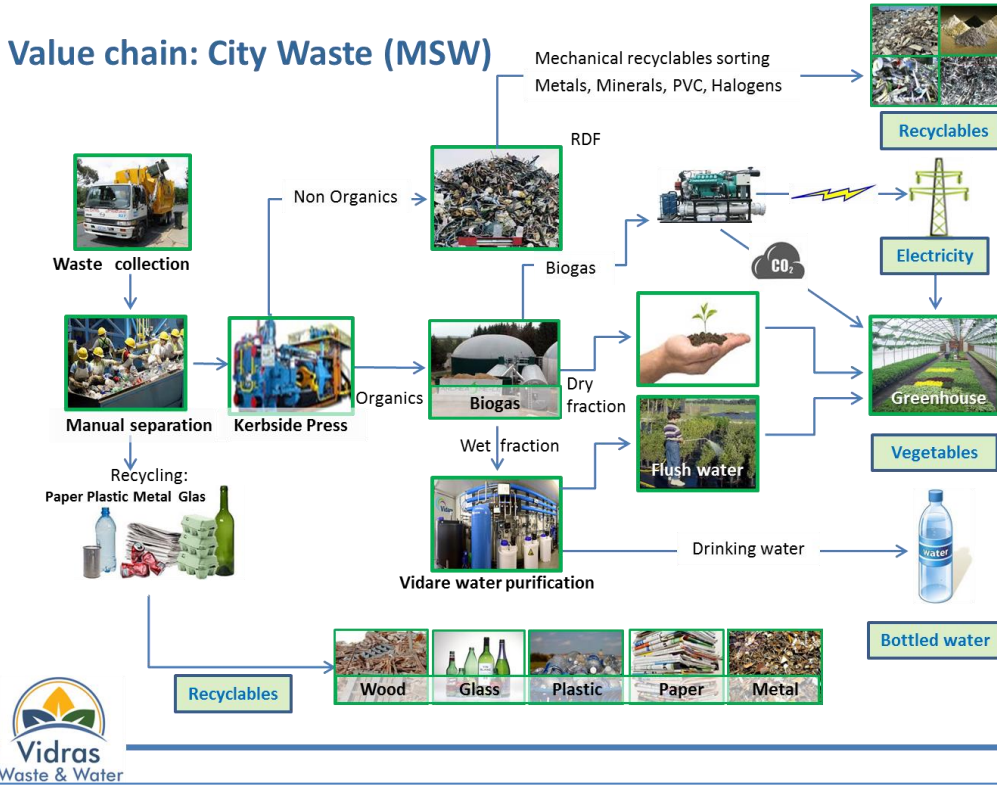
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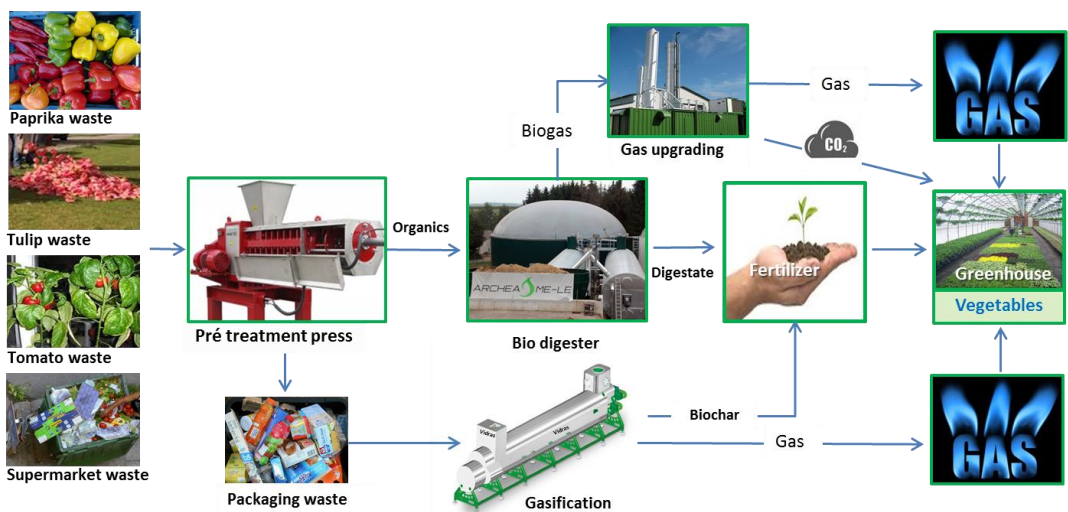
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Value chain: City Waste (MSW)



Value chain: Biowaste Variant



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