

## FINAL REPORT

### CIRCULAR (WASTE) ECONOMY & BIOMASS VALORISATION TRADE MISSION TO SOUTH AFRICA. WESTERN CAPE, CAPE TOWN 22-25 MAY 2018.

**Biobased and Waste streams:** Organic wet streams) / biomass (invasive species) valorisation, construction and demolition waste: builder's rubble, plastics, and waste electrical and electronic equipment (WEEE)

Date: 20.06.2018

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## Background: G2G Waste Economy Project & Biobases Valorisation

This trade mission from the Netherlands to South Africa was part of the ongoing G2G Waste Economy and G2G Biomass Valorisation project (2016-2018) of the Netherlands Government to assist the South African Government and private sector in developing their waste economy and biomass wastes valorisation. The mission was organized in close cooperation with GreenCape as the local (knowledge and network) partner in the G2G Waste Economy and Biobased Valorisation project.

The Netherlands has years of experience in developing a robust waste economy with a waste policy that was sufficient for achieving 'zero' landfill and a stabilized recycling rate of 81% for all waste streams and 52 % for its household waste in 2013. The Dutch waste economy is moving towards a circular economy. The lessons learned along the way, would be beneficial to South African during their journey of designing, planning and implementation. During the G2G Waste Economy project and trade mission a transfer and exchange of knowledge in the form of, Government to Government, Business to Business and Government to Business engagements have taken place, sharing and developing technical expertise. A similar approach was set up for Valorisation of biobased wastes, and where specifically companies have been identified to collaborate on potential collaboration between the Netherlands and South Africa.

## DAY 1: 22.05.2018 INTRODUCTION & EXCURSIONS

The purpose of day 1 was the on boarding of the delegates, explaining the purpose of the mission and providing an introduction to South African (Western Cape) business environment.

The day started at the Cape Investor Centre, hosted by WESGRO<sup>1</sup>. This "One Stop Shop" is an ideal place to meet and conduct business as it provides access to the key agencies<sup>2</sup> that facilitates investment in South Africa.

Consul General Bonnie Horbach of the [Dutch Consulate in Cape Town](#) welcomed the Dutch delegation to Western Cape providing an overview of her experience of working in the Western Cape. She provided insight in the differences, similarities and the opportunities that exist between the Netherlands and the South Africa. GreenCape provided an introduction of their role in facilitating the growth of the Green Economy ([PPT:Link-O](#)), and provided the background of their collaboration with the Netherlands and its companies. Lastly, The Netherlands Enterprise Agency<sup>3</sup> (RVO), tasked with coordinating the knowledge transfer, and the Ministry of Infrastructure and Water Management (Netherlands) introduced the mission goals and provided an outline of the mission.

More information about South Africa and the Netherlands [here](#).

After the introductions the field visits started which demonstrated the status of the implementation of processes and technologies that add value to waste, and the opportunities for partnership. The companies visited are interested in learning from the Dutch experts and willing to collaborate/partner with Dutch Companies.

There are opportunities for supply of technology and know-how for New Horizons Energy and for Reliance Compost. The main opportunity in the Construction and Demolition Waste (C&DW) sector is the development of crushing standards and the potential supply of crushing technology.

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<sup>1</sup> The Official Tourism, Trade & Investment Promotion Agency for Cape Town and the Western Cape

<sup>2</sup> he Department of Home Affairs, The Department of Trade and Industry, The Department of Labour, SARS, WESGRO, Western Cape Government, Invest Cape-City of Cape Town, Red Tape Reduction

<sup>3</sup> Rijksdienst voor Ondernemend Nederland

The following companies were visited:

### New Horizons Energy (NHE):

NHE is a privately owned integrated waste management facility in Athlone, Cape Town. The facility processes municipal solid and commercial waste, separates recyclables, converts the organics into biogas, and is looking at waste-to-energy solutions to dirty mixed tailings. It served as a great start for both streams to start excursions. The full plant can convert about 7% of Cape Town's waste, or 500 tons/day. However, at this moment it is not running at full potential. It is currently processing 25 tons/day organic waste which is sold as a slurry to AgriProtein – a commercial insect production and processing facility in Cape Town. We had a very open discussion tour at the premises explaining the status of the factory and its improvements requirements.



### CDEL Crushing and Cape Brick

At a combined site, the two companies CDEL Crushing and Cape Brick work together within the principles of industrial symbiosis. CDEL Crushing is a static crushing operation that supplies the <10cm aggregate material to their neighbour Cape Brick. Cape Brick is the most established Western Cape manufacturer of concrete masonry. They have demonstrated a profitable business model using a secondary material (builders' rubble) as an input. The primary reason of including secondary materials, is because it makes business sense. Cape Brick is able to reduce their input costs (compared to using virgin material) and still produce a quality, market competitive, product. Their main concern is getting (national or regional) quality standards in place to establish a more mature market for secondary materials and improve client trust of their product.



## Reliance Compost



One of the largest green waste composting facilities in the Western Cape (60MT/annum). They primarily use garden waste from Cape Town. The owner comes from an agricultural background and there is a clear focus on the quality of the final product – it is a high value product used in agriculture.

There are plans to extend the site and include an anaerobic digester facility with a 5MWe output.

The day ended with a Meet & Greet drinks at the Consular Generals residency, located in the beautiful suburb of Higgovale. As the day ended, the delegation chatted and reminisced on what they saw and learned, on day 1, and reflected on the potential of the opportunities.

## DAY 2: 23.05.2018 SECTOR WORKSHOPS & MATCHMAKING - GETTING TO KNOW EACH OTHER'S ACTIVITIES

Jeroen Nagel, Rijkswaterstaat, provided the introduction, the purpose of the mission and an outline of the day. The 23 South African companies and 3 Dutch companies, invited to participate in the mission, were allowed to pitch their businesses and main challenges. This served to highlight opportunities and potential partnerships that could be facilitated between the South African and Dutch companies.

Below, the 3 Dutch companies present. Find download the presentation via the WeTransfer link (PPT: Link-A).

1. [Partners for Innovation](#), Emile Hanekamp, consultant in bioenergy
2. [iLive](#), Werner Euler, active in RE business, as a follow up of SASOL work, now green waste valorisation, in cooking stoves, production of biodiesel in Johannesburg and tyre pyrolysis,
3. [Ecosave](#), with water saving (composting) toilets. Sustainable, slim design, easy to install).

The list of South African companies present can be found in Annex 1.

### Export financing

Due to technical difficulties the **Skype-presentation on financing solutions (Export Credit and DGGF- Dutch Good Growth Fund)** by Marijn Kastelein from Atradius had to be postponed to a later date. The presentation is available via the WeTransfer (Zip File). In case you are interested to speak to Marijn, please e-mail: [Marijn.Kastelein@atradius.com](mailto:Marijn.Kastelein@atradius.com) or give him a call at +312205532403.

Additionally, in the ZipFile you can also find a presentation on the European Union fund for financing South African SME's called: EU Funding SMME- Programme Sector Support ([PPT: Link B-1](#)).

### Sector Workshops

Herman Huisman, Rijkswaterstaat, introduced the next component – the interactive workshops. He discussed the waste management history of The Netherlands ([PPT: Link C](#)) followed by several circular business model examples provided by Freek van Eyk of Acceleratio ([PPT: Link D](#)). The delegates were split into workshops based on their interests and expertise:

- Circular Economy and Secondary Material
- Bio-based Economy & Biomass Valorisation

### Circular Economy & Secondary Materials

In this workshop the company interests were largely construction and demolitions waste, plastic recycling and e-waste. Rijkswaterstaat and Acceleratio provide a technical overview of how the waste is managed in the Netherlands and Europe.

In general, the following points were discussed:

- The differences between South Africa and the Netherlands in terms of Extended Producer Responsibility, the implementation on bans and taxes.
  - In the Netherlands landfill bans were coupled with taxes at the municipal level, which slowly increased the cost of disposal on certain materials. This slowly made alternative treatment technology business cases more viable.
  - Funds generated from levies and taxes should be reinvested into in to the sector.
- C&DW companies: how to assure the quality of their aggregate. The quality control systems and norms. (how can we create standards on sector level) - regional and national discussion.

### Bio-based Economy & Biomass Valorisation

Several potential business cases were discussed, including:

1. Further development of a partially-established SA-NL biomass beneficiation case: “Eastern Cape forest residues and alien invasive vegetation beneficiation”. This was driven by. iLive and consortium of stakeholders involved with alien invasive species (presentation available via [werner.euler@iliveworld.co.za](mailto:werner.euler@iliveworld.co.za)).
2. Investment opportunities with New Horizon Energy.
3. A PSI (Paardeberg Sustainability Initiative) business case around the decentralised conversion of waste Insect production from organic waste through partnership with Inseco.

## Day 3: 24.05.2018: Theory & Practice: Business Case Development

This session was split into two streams: government-to-government knowledge transfer and business case development. On the national (government) level, representatives from the Department of Environmental Affairs and Department of Trade and Industry were present. On the provincial level, representatives from the Department of Economic Development and Tourism, Department of Environmental Affairs and Development Planning. On municipal level the following representatives were present: Stellenbosch, the City of Cape Town and Eden District. Lastly, representatives from BioGas SA, JG Afrika and the African Circular Economy Network, South African Ewaste Alliance and PETCO (the PET recycling company) were present.

### Stream 1: G2G Knowledge Sharing

The following presentations and knowledge transfer took place during this session:

1. Approach of Circular Economy in The Netherlands, Jeroen Nagel, Rijkswaterstaat (PPT:Link-H).
2. Waste Management history of The Netherlands, Herman Huisman, Rijkswaterstaat (PPT:Link-I).
3. Extended Producer Responsibility (Industry Plans), Herman Huisman, Rijkswaterstaat (PPT:Link-J).
4. Policies & Regulation overview enhancing a Circular Economy, Freek van Eijk, Acceleratio (PPT:Link-K).
5. The Netherlands Green Deal policy approach and sustainable/circular procurement (asphalt example), Jeroen Nagel, Rijkswaterstaat (PPT:link-L) not presented as a result of insufficient time in the program.
6. Renewable Energy support in The Netherlands was presented by Kees Kwant from RVO and the South Africa policy by Green Cape. The Renewable situation in South Africa is expected to improve and the procedure is that with the new Minister a new Integrated Resource Plan will be ready in August 2018 and lead to new bids under the REIPPPP<sup>4</sup> scheme (PPT: Link M&N).

### Stream 2: Business Case development

The afternoon was focused on the development, presentation and selection of business cases. The following business cases were presented:

1. Inseco (Jack Channels): small scale valorisation organic residues by production of insect-derived animal feed
1. Y-waste (Emile Fourie): compost-based treatment of organic waste
2. iLive (Werner Euler) and New Carbon (Marius van der Merwe) – joint proposal: Development of a value chain based on solid biomass and invasive species
3. Western Cape (Gray Maguire): The development of a new green financing system to allow for investments in greener systems (green bonds: [PPT Link- O](#)).

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<sup>4</sup> Renewable Energy Independent Power Producer Procurement Programme

4. EcoSave Daniel Vandy: Water saving toilets.

**Business Case (pitches) presentations to Jury**

Jury members	Evaluation criteria	Ranking made
1. Bonnie Horbach, Dutch Consul General 2. Eugene van Rensburg, bioenergy expert from the University of Stellenbosch 3. Jarrod Lyons, green economy specialist at Wesgro 4. Herman Huisman, waste specialist from RWS.	1. Market perspective, 2. Sustainability 3. Collaboration opportunities with Dutch partners.	1. Inseco 2. A tie between iLive / New Carbon and Y-waste 3. A vote by the participants in the room revealed that iLive / New Carbon was second and Y-waste was third.

**Day 4: 25.05.2018: Follow-up Meetings and Evaluation:**

Day four was reserved for follow up meetings where delegates could further engage with sector experts and/or for business to continue business to business engagements. The following meetings took place:

- City of Cape Town, waste minimisation, solid waste management: planning.
- PPC, feasibility study using RDF as secondary fuel.

**Follow-up after this mission:**

- On the BioValsa side, in case SA companies are looking for support or have questions related to the business cases they can contact GreenCape and RVO
- The organisation team will explore the potential and opportunity for a Dutch trade mission to the WasteCon in Johannesburg in October (15-18) (optional: organise side events (parallel to the program) e.g. biomass valorisation (anaerobic digestion, EPR plans- evaluation, circular economy).

## Annex 1: South African Companies present on the 23<sup>rd</sup> of May

1. Rec-o-Quip: tech supplier, distributor of technology
2. Meganika: technology provider, small- scale continuous gasifier
3. Simple Active Plastics: mineral recycler, recycling for granular abrasive
4. Citrus Energy: biomass valorisation (aliens/ invasive species)
5. New Carbon: wood value adding, biomass for carbon
6. Pallet Cycle: pallet (timber/wood) recycling, packaging
7. Cape E-Waste: e-waste aggregator, e-waste recycling
8. Dekro Paint: solvent recycling
9. AgriProtein: organic recycling: biomass for animal feed
10. PSI: decentralized anaerobic digestion solutions
11. Rebul: biomass alien vegetation for solid fuel
12. WWF: biomass beneficiation
13. Aggreg8: builders rubble recycler
14. Averda: waste logistics and waste management
15. Zero waste: project development waste solutions
16. Ywaste: Food waste recycling and anaerobic digestion for social development
17. GCX Zero waste: waste to energy
18. New Horizons Energy: Anaerobic digester to convert municipal waste into gas and organic waste.
19. Cape Nature: alien species valorisation
20. Interwaste: waste logistics: waste divert from landfill
21. Mzansi BioEnergy: biomass from alien vegetation
22. Atlantic Plastics: Plastics recycler