

Presenter Information

e Baartjes

ons: MSc; MBA; Doctoral Candidate

ons: Pr.Sci.Nat; Reg. EAP

Consulting – MD EcoPartners; Mining; Waste Management

> 1000 projects; > 1200 Auditing hours; > 2500 Trainings

20th Conference & Exhibition 18 - 20 October 2022



Presenter Information

- Charlaine Baartjes
- Qualifications: MSc; MBA; Doctoral Candidate
- Registrations: Pr.Sci.Nat; Reg. EAP
- Experience: Consulting – MD EcoPartners; Mining; Waste Management
- Projects: > 1000 projects; > 1200 Auditing hours; > 1200 Consulting hours.

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VISION

To be the leading organisation supporting the secondary resource sector in Southern Africa, a clean and



MISSION

To support and promote sustainable best practice in the waste and secondary resources sectors.



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South African Licence and Permit examples

Vissershok, near Cape Town:

- Bi-annually (variables in Annexure VI),
- Quarterly (variables in Annexure V), or
- At frequency determined by the relevant Director.

Coastal Park:

- Twice annually, within 3 days of 15 January and 15 July (variables in paragraph (a) of Annexure III), and
- Annually within 3 days of 15 July for other variables (those listed in paragraph (b) of Annexure III).

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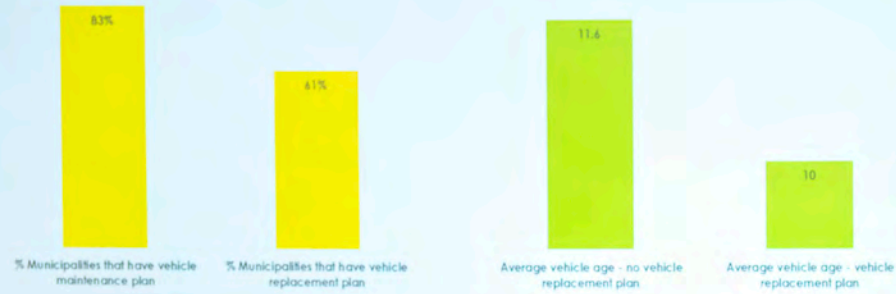
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EXIT



Vehicle Maintenance and Replacement



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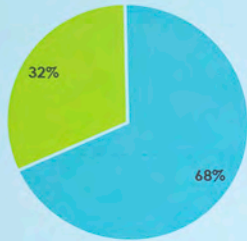
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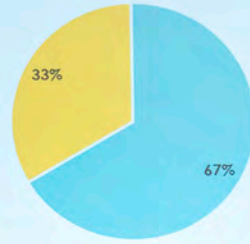
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Vehicle Maintenance and Repair



■ Yes ■ No

Percentage of municipalities with a dedicated fleet manager



■ Externally ■ Internally and externally

Percentage of municipalities that undertake inhouse maintenance

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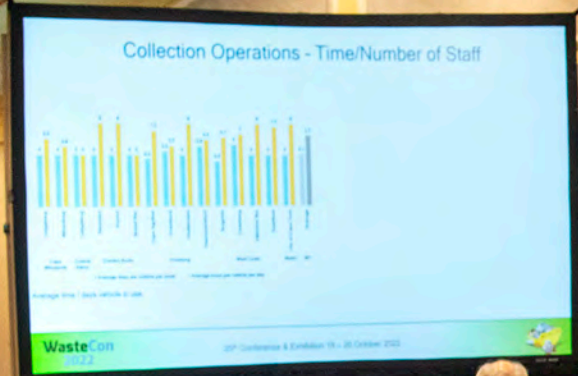
To be the leading organisation supporting the sector to achieve health

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Zero Waste?

system approach and a "linear landfill system" to a "circular economy system"

Zero Waste system is Waste-at-Source.

| | |
|--|-----------------------------|
| 1. Door-to-Door Collection | 3. Composting |
| 2. Repair, & Construction | 6. Economic Incentives |
| 4. Industrial Separation & Research Centre | 9. Better Industrial Design |

...m landfill site

VISION

To be the leading organisation supporting the waste and secondary resources sector in Southern Africa to achieve a clean and healthy environment.



MISSION

Support and promote the waste and secondary resources sector to achieve the best possible outcomes for the waste and secondary resources sector.

What is Zero Waste?

- Zero Waste is a whole system approach paradigm shift from the "linear economy system" to a "circular economy system"
- An integral part of the Zero Waste system is Separation-of-Organic-Waste-at-Source.

| | |
|-------------------------------|--|
| 1. Source Separation | 2. Door-to-Door Collection |
| 4. Recycling | 5. Reuse, Repair, Deconstruction |
| 7. Waste Reduction Incentives | 8. Residual Separation & Research Centre |
| 10. Interim landfill | |













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Depart Env Affairs & Dev
Planning

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our future through science

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Aubrey Muswema





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Jan Palm
JPCCE
LEGATE



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Urban Elements
WWSA
COUNCIL MEMBER



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MUSA
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BLX2

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Avoid, separation at source,
reuse, recycle

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Dr. Claudine Roos
Unit for Environmental Sciences and
Management, North-West University
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LINEAR APPROACH



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LINEAR APPROACH



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• Take – Make - Dispose

• Focus on mass production

• Focus on materials as we

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SOLUTIONS GROUP LANDFILL
MANAGEMENT OF SOLID WASTE
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CHALLENGES

Innovation in the industry seek clean energy

Financial Impacts

Policy Driven

Collaborate to achieve a common goal



Economic Activity vs Environmental Aspects

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To support and

Transitioning to a Circular Economy for Plastics

- Strengthen local and regional recycling markets
- Align trade and environment policies to boost circularity
- Enhance the management of plastic and plastic waste at the borders
- Services liberalization and investment facilitation for circularity
- Leverage trade agreements to advance plastics circularity
- Build leadership as a global player and regional leader

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Leading organisation
managing the waste and
resources sector
in Africa to achieve
a healthy
environment







Transitioning to a Circular Economy for Plastics

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future in the
region

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DELEGATE

- Enhance the management
 - Services liberalization
 - Leverage trade agreements
- Build leadership as a g

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Global Plastic Action
Partnership
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Nompheo Daniel

Buffalo City Metropolitan
Municipality





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Lerato Likhole
Department of Agriculture
Development and Rural
Affairs



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Yashika Ramakrishna
University of KwaZulu-Natal

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Pilot Study

Determine the optimal sample volume and mass for adequately quantifying MPs

Sampling

| Water Volume (ml) | Sediment Mass (g) | |
|-------------------|-------------------|------------|
| | Wet weight | Dry Weight |
| 100 | | |
| 350 | 18 | 14.9 |
| 800 | 1008 | 852.5 |
| 1000 | 2091 | 1738.8 |
| 1800 | 4198 | 3505 |
| 8000 | | |
| 40 000 | | |

Sample Processing

| Water samples | Sediment |
|--|--|
| <ul style="list-style-type: none">FiltrationVisual inspection | <ul style="list-style-type: none">FlotationFiltrationVisual inspectionAir (24 hours) and oven drying (48 hours at 60°C) |





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Mahmood Patel
EnviroServ Waste
Management (Pty) Ltd

QR Code





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Marcin Durski
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registration

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DCLM
Operated by VEOLIA



MISSION STATEMENT

In a world facing resource scarcity and climate change, companies and local authorities, seeking responsible development.

Our mission is evident in Our Purpose of Fundamental and indispensable waste services, it's a continuous progress approach.



ACCREDITATIONS & CERTIFICATIONS
ISO 14001 ISO 45001 ISO 9001

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WASTE VALUE CHAIN

DCLM operates waste plants built in the framework of long-term customer partnership, offering them the full benefit of a state-of-the-art waste sorting technology, expertise, and cutting-edge technological innovation, ready tailored to provide the best possible solution to their specific requirements.



HABIBUS WASTE SERVICES

ISO / IEC 17025: 2017 ACCREDITED

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DCLM

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MISSION STATEMENT

In a world facing resource scarcity, our mission is to provide our customers and local authorities with the most responsible development. Our mission is evident in our commitment to environmental and design excellence, and our multi-faceted approach to waste management.



ISO 14001
ISO 9001
ISO 45001

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WASTE VALUE

2023, our best performance yet



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PRO LIVING

KURA

REFUSE TRANSFER STATIONS MATERIAL RECYCLING

Husmann







Framework for Waste Prevention in Organisations
(Interactive Workshop)

 Charlene Bantjes, PrSciNat, Reg. EAP
National Director, Government of Northern Cape, Kimberley, 0830 8030




WasteCon 2012




 **VISION**
To be the leading organisation supporting the voluntary sector Southern Africa a clean and green world

 **MISSION**
To support and encourage the use of best practice in the waste management industry

Framework for Waste Prevention in Organisations
(Interactive Workshop)

 Charlene Bantjes, PrSciNat, Reg. EAP
National Director, Government of Northern Cape, Kimberley, 0830 8030



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BACK ON TRACK?

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To be the leading organization
responsible for the
health and safety of
our members and
the community.

MISSION
To support our
members and the
community.



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INSPECTING IN BEST PRACTICE



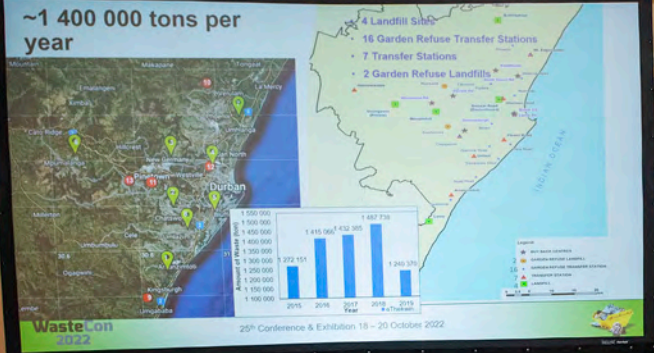
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~1 400 000 tons per year



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To be the leading organisation supporting the waste and secondary resources sector in Southern Africa to achieve a clean and healthy environment





Collection Route Design

- City of Cape Town and Mossel Bay Municipality make use of route planning or GIS software
- Stellenbosch Municipality - truck drivers create their own routes, however waste collection beats are not evenly distributed among vehicles, overlapping of collection points. The Municipality has completed a route mapping and vehicle optimisation study.
- Routes planned by operations teams (Overstrand Municipality)
- Population size per ward and number of vehicles available (Knysna Municipality)

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Waste Management of Southern Africa

VISION
To be the leading organisation supporting the waste and secondary resources in Southern Africa



MISSION
To support waste practice in Southern Africa with resources

Collection Route Design

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Treviso (Italy) ingredients for success

1. The system is managed by a public entity. Contarina manages 50 municipalities with 260,000 households
2. The Province decided to keep out incineration
3. Separation of waste at source
4. PAYT incentive scheme
5. Compliance monitoring
6. IT Database & Control centre
7. Continuous Education and Awareness
8. Political cross-party consensus



Source: Zero Waste Case Studies "The Story of Contarina" by Joan Marc Simon



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...ery resources sector
...n Africa to achieve
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Suggested Hierarchy - General Waste

| Level 1 | Level 2 | Level 3 | Example |
|---------------|-----------------------------|-------------------------------------|---|
| GENERAL WASTE | Recyclable Waste | Paper | Cardboard Wraps Misc Newspaper Magazines Flysheds Recyclable bottles/cans |
| | | Glass | Food cans Cordless tools Litre/2 litre bottles |
| | | Metal | Other |
| | | Plastic hard / rigid | PE LDPE PVC PP PS |
| | | Plastic soft / flexible Textiles | |
| | Non-Recyclable Materials | Plastic soft / flexible | LDPE Other |
| | | Composite Packaging | Tetra Pak liquid board packaging |
| | | Packaging | Food bags Crumble Clear glass Coloured glass |
| | Organic Waste (Compostable) | Food | Bones Vegetable and fruit scraps Meat scraps |
| | | Garden | Brown (bark, twigs etc.) Cem (leaves, twigs, glass, etc.) |

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Suggested Hierarchy - Hazardous Waste

| Level 1 | Level 2 | Level 3 | Example | |
|---------------------------|----------------------|---------------------|--|----------------|
| HOUSEHOLD HAZARDOUS WASTE | Non-Recyclable Waste | Medical | Medicines Sharps Blood and bandages Band Aids Mentholation | |
| | | Sanitary | Nappies Condoms Masks and gloves | |
| | | Household Chemicals | Fertilisers / Nourishers Herbicides / pesticides Aerocils Clearing agents | |
| | Recyclable Waste | Oils | All oils (food oils and motor oils) | |
| | | E-waste | Batteries | |
| | | | WEEE | WEEE Cables |
| MISCELLANEOUS | | | | |

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Quantities Imported into South Africa

| Year | Alkaline, Air-Zinc | Ni-Cd | Ni-Fe | NiMH | Li-Ion |
|------|--------------------|---------|--------|-----------|-----------|
| 2020 | 51,438,026 | 807,502 | 23,400 | 1,342,419 | 6,503,614 |
| 2021 | 47,433,156 | 607,263 | 3,376 | 579,520 | 7,379,169 |

Battery Volume by Year



Source: <https://www.ecpa.gov.za/industry>

Primary Batteries Quantity Recycled 2022

- 50 tons which is approx. 5%

Source: <https://www.ecpa.gov.za/industry>



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in Southern Africa to...
clean and health...
environment

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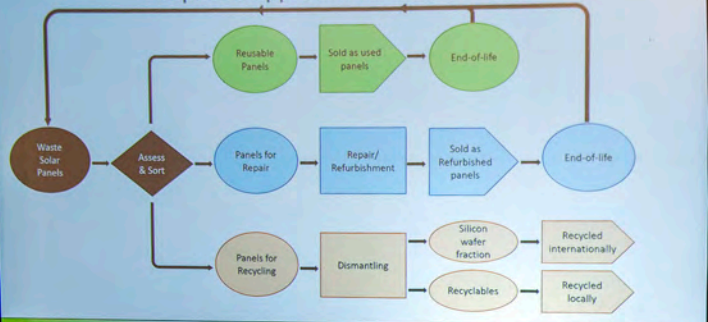
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Proposed approach for South Africa





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Annual Congress and General
Assembly of the International
Solid Waste
Association

We look forward to
hosting you
in Cape Town, South
Africa in
2024



Acknowledgments

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Sustainable Capital Transformation

NRF RISA
National Research Foundation Research and Innovation Support and Assessment

CSIR
our future through science

iwwg
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A WASTE RDI ROADMAP FOR SOUTH AFRICA
The importance of research, development and innovation (RDI) in transforming the South African waste sector

Prof Leticia Goolbsy
Project Manager - Waste Roadmap 1.1
CSIR Implementation Unit

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Transitioning to a Circular Economy for Plastics

- Strengthen local and regional recycling markets
- Align trade and environment policies to boost circularity
- Enhance the management of plastic and plastic waste at the borders
- Services liberalization and investment facilitation for circularity
- Leverage trade agreements to advance plastics circularity
- Build leadership as a global player and regional leader

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Transitioning to a Circular Economy for Plastics

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Africa to add
value and health
to the environment

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BIOSAFE ENGINEERING

D

PANDAE GREEN SOLUTIONS

E

NIC

THE DST/MINTEK NIC WATER DEVELOPMENT UNIT

VISION
To provide technical assistance and training for the effective treatment of water & wastewater in the rural areas of the people of Southern Africa.

FOCUS AREAS

- Wastewater Treatment
- Sanitation
- Electrical
- Automation

TRAINING COURSES

- Wastewater Treatment
- Sanitation
- Electrical
- Automation



Source

RMAL

zero TO LANDFILL

oting integrated resources management

3

Water Sanitation

AquaPlan
Embracing the Future of reuse

Two men are seated at a table covered with a black cloth featuring the 'NIC' logo. They are looking at a laptop. A tall white water filtration unit is positioned on the table. The table also has several bottles of water and some papers.

Two women are seated at a table covered with a black cloth. They are working on laptops. There are several bottles of orange juice and some papers on the table.

A man in a light blue shirt is seated at a table, looking at a laptop. There are some papers and a bottle of water on the table.

A woman in a black dress is standing and holding a tray of food. She is looking towards the camera. A man in a dark shirt is standing behind her, talking on a mobile phone.

A man in a light blue shirt is seated at a table, looking at a laptop. There are some papers and a bottle of water on the table.







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#allhandsonwaste

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AQUATAI
TOTAL SOLUTION

ALL HANDS ON WASTE®
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Municipal Village

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MUNICIPAL VILLAGE
RECYCLE
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AQUATAN
WATER SYSTEMS - THE TOTAL SOLUTION

TECHNICAL LEADERS
SINCE 1966

AQUATAN
WATER SOLUTION



ALL HANDS ON WASTE

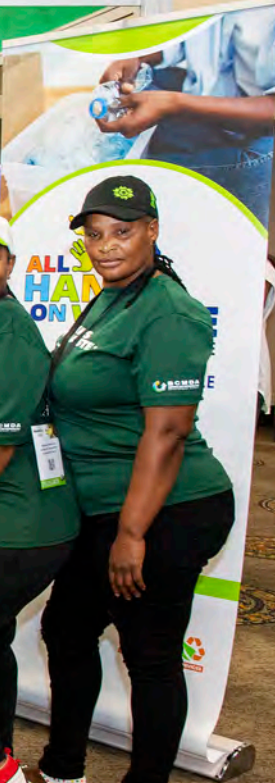
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AQUATAN
LIQUID SYSTEMS - THE TOTAL SOLUTION

TEAM LEADERS

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- THE TOTAL SOLUTION

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THE END OF ONE JOURNEY IS THE BEGINNING OF THE NEXT

INTERWASTE

WASTE AND TRASH

WASTE AND TRASH

Purpose and objectives of the diagnostic

- A rapid assessment of the waste management businesses in South Africa's Metros with specific focus on financial, operational and institutional performance
- The final product is a concise report that articulates the main issues and provide clear evidence-based recommendations and mitigating actions
- Report is undergoing final review by National Treasury and is not yet publicly available

| | | | |
|-------------------------------------|---|--|---------------------------------|
| 1. Priorities for technical support | Adjustments to utility businesses budgets | Recommendations for policy, regulatory and fiscal reform | Opportunities for peer learning |
|-------------------------------------|---|--|---------------------------------|

25th Conference & Exhibition 18 - 20 October 2022

WasteCon 2022

VISION

To be the leading organisation supporting the waste and secondary resources sector in Southern Africa to achieve a clean and healthy environment

Institute of Management of Southern Africa



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18 - 20 October 2022





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| | | | |
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Local Option For The Management Of Household Hazardous Waste: A Case Study Of Buffalo City Metropolitan Municipality



Nomphele Daniel, Ms.
General Manager, Solid Waste Management
Services Department



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2022

Local Option For The Management Of Household Hazardous Waste: A Case Study Of Buffalo City Metropolitan Municipality



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To support the waste industry in Southern Africa to be a clean and green environment



Background

BCMM was identified by the partnership of the National Department of Environmental Affairs Forestry and Fisheries (DEFF) and the Swedish Environment Protection Agency (SEPA) for piloting the development and piloting of a system for collection of hazardous waste from households.

The aims of the pilot project were among others to:

- Identify and estimate hazardous waste generated from households
- Identify suitable methods for at-source separation as well as collection of this waste-stream.

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The aims
• Identify a
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MISSION

To support
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www.bcm

Head Office

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Overview of the presentation



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Catherine Schmitt
University of the West
of Scotland
PRESENTER

Research settings



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EXIT



Mahmood Patel,
EnviroServ Waste
Management
National Laboratory
Manager
South Africa

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The Systemic Impacts of Depleted Airspace - Lessons from Stellenbosch



Clayton Hendricks & Aiden Bowers
Stellenbosch Municipality JG Afrika
Senior manager: SWM Consultant



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EXIT



- Landfilling continues to be t
- Landfilling still seen as lowe
internalized in gate fees
- Many cities are facing airsp
alternatives. Costs will incre
increased haulage
- T and times in establishi
quires planning far in
budget cycles
- enbosch Municipal
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EXIT

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PRESENTE

Hydrometallurgy



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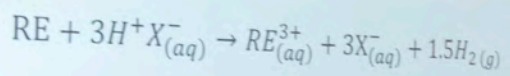
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Hydrometallurgy – chemistry of the process

Ranges of concentrations of elements in NdFeB magnets [4,5,6]

| Fe ³⁺ | Nd ³⁺ | Dy ³⁺ | Pr ³⁺ | B ³⁺ | Sm ³⁺ |
|------------------|------------------|------------------|------------------|-----------------|------------------|
| ~59-69% | ~22-33% | ~0.5-5% | ~1-7% | ~1-2.5% | ~0.6-1.6% |



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MISSION

To support and promote sustainable best practice in the waste and secondary resources sectors.



Thank You !

- Nicole, Heather, Sanki, Shantelle, Kirsty
 - Session Chairs
- Ricardo Gressel and Rusty Labuschagne
 - Exhibitors inside and outside
 - Emperor's Palace
 - Tixsa
 - DELEGATES !

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28th Conference & Exhibition 18 – 20 October 2022

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www.wtmsa.co.za | Tel: 011 675 3462
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of Southern Africa

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www.wtmsa.co.za | Tel: 011 675 3462
Address: PO Box 31061 | Totiusdal | 0134

Thank You !

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 - Session Chairs
- Ricardo Gressel and Rusty Labuschagne
- Presenters and Panelists (54 Presentations and 8 Workshops)
 - Exhibitors inside and outside
 - Emperor's Palace
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 - DELEGATES !

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29th Conference & Exhibition 18 - 20 October 2022

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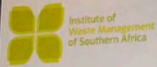
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BACK ON TRACK?

PERSPECTIVES ON WASTE AND CIRCULARITY

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DIAMOND



GOLD

INTERWASTE



"TRIPLE TRACK"



"DOUBLE TRACK"



"SINGLE TRACK"



CONFERENCE



Jones & Wagener

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PATRON MEMBERS

INTERWASTE
ENVIRONMENTAL
SOLUTIONS

 **Eskom**
Rotek Industries

Gundle
GEO SYNTHETICS



mpact
plastic containers

Sanitech

AVERDA



UD TRUCKS



DSW



PIKI
TUP

east london idz
EAST LONDON ECONOMIC ZONE



HYVA



RECUTE

Was
WASTE MANAGEMENT

ELB
EQUIPMENT

**WASTE
CARRIERS**



City of
Ekurhuleni

TALBOT
The Art of Water

KEMACH
EQUIPMENT



Attendance

| Count of Barcode Row Labels | Column Labels | | | Grand Total |
|---|---------------|------------|------------|-------------|
| | 18/10/2022 | 19/10/2022 | 20/10/2022 | |
| WasteCon 2022 Delegate Registration | 379 | 293 | 180 | 852 |
| WasteCon 2022 Exhibitor Guests | 44 | 104 | 6 | 154 |
| WasteCon 2022 IWMSA Council Member Registration | 10 | 10 | 7 | 27 |
| WasteCon 2022 Patron Registration | 42 | 20 | 21 | 83 |
| WasteCon 2022 Presenter Registration | 57 | 61 | 38 | 156 |
| WasteCon 2022 Press Registration | 7 | 4 | 2 | 13 |
| WasteCon 2022 Student Registration | 5 | 5 | 3 | 13 |
| Grand Total | 544 | 497 | 257 | 1298 |

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1. Spicy Shrimp Salad
2. Spicy Shrimp Salad

DELEGATE





2022
Audrey Masson
Council for Scientific and
Industrial Research (CSIR)
PRESENTER

2022
Mariane Bader
University of Waterloo
PRESENTER

2022
Mark Williams-Watson
PRESENTER

2022
PRESENTER





Wendy Lee
Wendy Lee
Wendy Lee
Wendy Lee
PATRÓN

Wendy Lee
Wendy Lee
Wendy Lee
Wendy Lee

Wendy Lee
Wendy Lee
Wendy Lee
Wendy Lee
DELEGATE

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Wendy Lee
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Sprite

2022
Elaine van Schalkwijk
Sales Group Services &
Division of East Africa Africa
Ltd.
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WIRDA ISAAQ

LEGATE

Plastics SA

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