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Source Separation – Is It Worth The Costs?



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Contents

- Introduction
- Case Studies
- Comparison of Different Approaches to Source Separation
- Summary and Conclusion



Introduction

Norms and Standards

- All Domestic Waste should be sorted at source
- Provide Guidelines
- Collect or provide facilities
- Community involvement in recycling shall be encouraged



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Introduction

Actual Practices

- Adherence depends on local resources and conditions
- Three methodologies are being applied:
 - Collected by Municipality
 - Collected by external Service Provider
 - Collected from communal facilities
- Most Municipalities embark on Source Separation without knowing the cost thereof

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Introduction

Purpose of Paper

- To provide info to other municipalities to assist them with decision making



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Case Studies

Municipality A

- Implementing Source Separation ward by ward.
- Collection of clear bags by an External Service Provider who also operates municipal MRF.
- Municipality constructed MRF and is responsible for mechanical maintenance.
- Service Provider remunerated by fixed monthly amount and incentive based on recycling volume.
- Tailings transported to landfill by another external Service Provider

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Case Studies

Municipality B

- Do not collect source separated recyclables, but has provided communal recycling bins.
- Municipality services recycling bins.
- Sorting black bags from high and middle income areas as well as material from recycling bins at MRF located at landfill by operating Service Provider of landfill.
- Municipality pay an incentive based on airspace saved.
- Tailings taken to landfill workface by Service Provider



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Case Studies

Municipality C

- Municipality collects source separated material.
- Sorting at municipal MRF by external Service Provider that also sorts black bags from high and middle income areas
- Municipality constructed MRF and is responsible for mechanical maintenance
- Municipality pays a monthly fixed tariff
- Tailings transported to landfill by another external Service Provider

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Comparison of Different Approaches to Source Separation

Public Participation

- Source Separation is dependent on public participation.
- Public Awareness campaign is not once-off.
- Actual participation rates between 25% and 40%
- Post Collection Recovery is not dependent on participation



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Comparison of Different Approaches to Source Separation

Diversion Statistics

- Diversion Definition: Recyclables as percentage of general waste excluding garden waste and builder's rubble.



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Comparison of Different Approaches to Source Separation

Diversion during 2011/2012 in t/a

Municipality	Annual General Waste	Annual Recycling	%
A	60 274.11	595.87	1.0%
B	19 950.26	1 145.35	5.7%
C	40 494.05	2 458.65	6.1%



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Comparison of Different Approaches to Source Separation

Recycling Costs – Municipality A

- Capital Cost – R0, Old Facility.
- Collection Cost – included in operating cost of MRF
- Operating Cost of MRF – R765,834/a
- Cost per tonne of recyclables – R1,285

- Extras: Clear Bags, Awareness Campaign, Maintenance of MRF



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Comparison of Different Approaches to Source Separation

Recycling Costs – Municipality B

- Capital Cost – R0 (build by Service Provider)
 - Collection Cost – R0 (no collection)
 - Operating Cost of MRF – R120,000/a (max incentive)
 - Cost per tonne of recyclables – R105
-
- Extras: Recycling Bins financed with CTC, Awareness Campaign



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Comparison of Different Approaches to Source Separation

Recycling Costs – Municipality C

- Capital Cost – R657,278/a
- Collection Cost – R184,399/a (R1,401,000/a)
- Operating Cost of MRF – R522,660/a
- Cost per tonne of recyclables – R551

- Extras: Clear Bags, Awareness Campaign



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Comparison of Different Approaches to Source Separation

Avoided Costs – Municipality C

- Transport Cost to Landfill – R288,264/a
- Disposal Cost (operating) – R91,342/a
- Airspace saving not calculated

- Other “Income” : Sales = R1,912,832/a



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Summary and Conclusion

Municipality C

- Total Cost: R1,354,861/a (R551/t)
- Total Income: R2,292,420/a (R932/t)
- Profit: R937,559/a (R381/t)

- With no existing collection infrastructure
- Loss: R279,474/a (R113/t)



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Summary and Conclusion

- Recycling can be profitable under specific circumstances
- No “one size fits all”
- Source Separation vs Post Collection Recycling
 - Similar recovery rates
 - Main difference in cost is collection
 - Public Awareness is greater where source separation is practised



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Summary and Conclusion

Is Source Separation worth the costs?

- In monetary terms, perhaps not always
- In added public awareness, definitely
- Source Separation is only one method of recovery, post collection recovery is another.
- Unique local conditions will determine which method to employ to achieve sustainable recovery



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Thank you for your attention.
Any questions?



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