



The 5th TECHNIUM International Conference

18-07-2020

Municipal Solid Waste Sorting in Burundi, Inventory and Perspectives: Case of Bujumbura City

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Background:

- Sorting of Municipal Solid Waste (MSW) by residents is recommended and is an inexpensive practice;
- Sustainable waste management with recovery of homogeneous fractions for further valorization.
- Dumping of unsorted MSW on uncontrolled open-air landfills, despite recommendations is still in practice.

Purpose of study:

- To propose a MSW management for Bujumbura city ;
- To identify the main problems that hinder the sorting of waste by the inhabitants.



Persistent unsorted solid waste at the old landfill of Buterere -Bujumbura city

Material :

pH-meter, GPS, block notes, laptop, ICP-MS, Questionnaire, SPSS software;

Method:

- Visit on site to establish an inventory of the dispersion of MSW in the city.
- Leachate sampling and characterization (pH, electrical conductivity and heavy metal content by ICP-MS).
- Survey questionnaire used on a random sample of 80 citizens aged 10 years and over.

Results and discussion

- MSW is dumped in an unsorted and uncontrolled open-air landfill for reasons discovered using the results of the survey questionnaire
- Analyzed leachates show a heavy metals content exceeding the limit values for Cu, Cr, Fe and Mn.

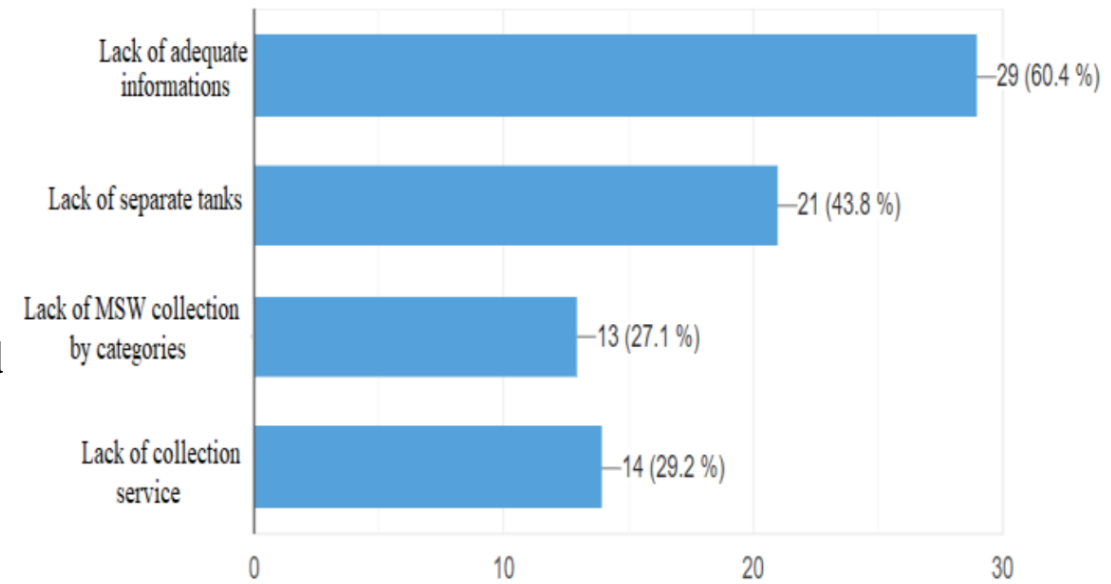
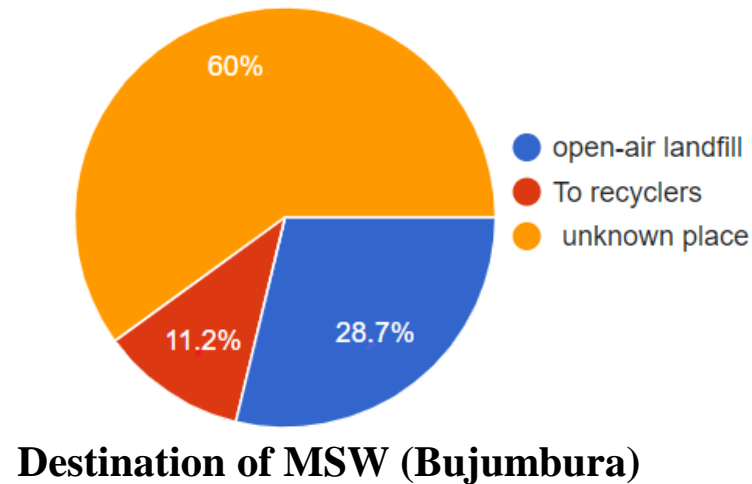


Heavy metal contents (mg/l) in landfill's leachates

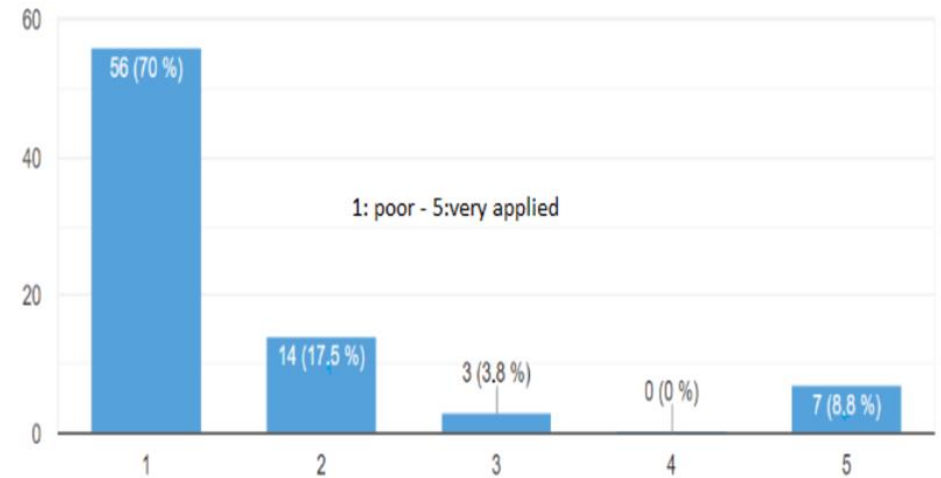
Metals	Buterere	El-Jadida (Maroc)	Burundi's standards
Cr	2.02±0.05	0.1563	1
Co	0.042±0.001	-	0.5
Cu	1.784±0.015	0.1578	0.5
Fe	56.14±0.27	24	3
Mn	3.03±0.47	1.257	<1
Ni	0.133±0.001	0.1338	0.5
Pb	0.373±0.001	-	0.05
Zn	2.260±0.037	0.7472	3

The survey realized in this study shows that:

- The majority of Bujumbura's citizens (76.3%) do not sort MSW.
- Citizens face various challenges mainly :
 - ✓ lack of adequate information on MSW management,
 - ✓ lack of containers for specific waste,
 - ✓ lack of collection services.
- The Khi2 test shows a significant dependence between the level and the role of local administration in sustainable sorting and the way MSW is managed ($p < 0.05$).
- There is a weak relation by considering the coefficient of contingency equal to 0.39
- There is a need of additional factors to justify the actual management of MSW in Bujumbura



Main problems in MSW sorting (Bujumbura)



Level and role of local administration for sustainable sorting and MSW management

Conclusion and recommendations

- This study shows that the majority of Bujumbura's citizens do not sort MSW
- To ensure MSW sorting and sustainable management in Bujumbura, specific intervention is highlighted;
- Wide dissemination of information need to be promoted through :
 - The media,
 - The local administration,
 - The development of waste collection and recycling services,
 - Environmental education enhanced through the Burundian education system;
- Government and other stakeholders should invest to promote MSW sorting and recycling in Bujumbura city.

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Acknowledgement:

We thank 4Mat Department of the Polytechnical School at ULB for their scientific support and ARES for their financial support.

**THANK YOU FOR
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