

Newsletter #12

October 2021 - MSWM & Marine Litter



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Intro: What does municipal solid waste management (MSWM) have to do with marine litter?

Marine litter poses a serious threat to the oceans, wildlife and human health. More than 800 species of marine life suffer from adverse effect such as blockage of digestion and entanglement¹. Marine litter can also have serious consequences on economic activities such as fishing and tourism. In the Asia-Pacific Economic Cooperation region alone, marine litter is estimated to cause losses to the tourism sector of about USD 622 million per year², whereas the fishing sector in the European Union reports losses of USD 81.7 million per year of net income. Considering financial losses to fisheries, tourism and time spent on clean-up activities, the global cost of environmental damage to marine ecosystems accounts for USD 13 billion³.

A significant amount of marine litter originates from sea-based sources⁴; mostly through direct dumping and abandoned, lost or discarded fishing gear. However, the majority of marine litter originates on land and includes waste either littered or inadequately managed finding its way to the ocean by wind, tidal transport, or inland waterways. Plastic waste -accounting for 60-80% of all marine litter- is a matter of specific concern, also due to its durability and inability to biodegrade¹. Each year around 8 million tons of plastic enter the ocean, mostly across middle- and low-income countries⁵, mainly due to a lack of effective municipal solid waste management systems. As such, high-income countries

-although having higher waste generation rates per capita- most likely contribute less to marine litter. This means that the improvement of waste management systems across all steps (generation, collection, treatment and disposal) plays a pivotal role in decreasing and avoiding marine litter generation.



© Bukavu City

Evidence from cities

In order to improve waste management systems across all steps and avoid the leakage of waste into the environment, ending up as marine litter, reliable and up-to-date data is needed to inform the planning process. For this reason, the [Global Partnership on Marine Litter \(GPML\)](#) supported the application of the Waste Wise Cities Tool (WaCT) and the [Waste Flow Diagram \(WFD\)](#) in 5 cities in 2021: Dar es Salaam (Tanzania), Karachi (Pakistan), Khulna (Bangladesh), Lagos (Nigeria) and Santo Domingo (Dominican Republic), with some interesting results.

In Dar es Salaam, it was found out that about 6,000 tonnes of MSW is generated every day of which 36% is collected and only 1% is managed in controlled facilities, resulting in 3.3 kg/person/year of plastics

leaking into water bodies. In Karachi, about 12,000 tonnes of MSW is generated daily of which 80% is collected and 0% managed in controlled facilities, leading to 3.4 kg/person/year of plastic leakage to water bodies. In Lagos, approximately 12,000 tonnes of MSW is generated daily of which 48% is collected and managed in controlled facilities resulting in a city plastic leakage to water bodies of 17.9 kg/person/year. The reason why the amount of plastic leaking from Lagos' waste management system is so much higher than in the other cities is due to a higher plastic consumption in low income areas, where many households engage in small businesses but do not have access to waste collection services. On the other hand, in Khulna, waste collection rate is relatively low at 63%, but the plastic

leakage was only about 1.1 kg/person/year, mainly due to the lower plastic consumption by households.



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1 German Environment Agency, 2016. Available online at: https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/final_policy_brief_plastics_recycling.pdf

2 Mcllgorm, A.; Campbell, H.F.; Rule, M.J. The economic cost and control of marine debris damage in the Asia-Pacific region. *Ocean Coast. Manag.* 2011, 54, 643–651.

3 Watkins, E.; Brink, P.; Withana, S.; Mutafoğlu, K.; Schweitzer, J.-P.; Russi, D.; Kettunen, M. *Marine litter: Socio-Economic Study: Scoping Report*; Institute for European Environmental Policy: London, UK; Brussels, Belgium, 2015; Available online: https://wedocs.unep.org/bitstream/handle/20.500.11822/26014/Marinelitter_socioeco_study.pdf?sequence

4 UNEP 2005, Allsop et al 2006, Eunomia 2016

5 Jambeck, J.R., Geyer, R., Wilcox, C., Siegler, T.R., Perryman, M., Andrady, A., Narayan, R. and Law, K.L., 2015. Plastic waste inputs from land into the ocean. *Science*, 347(6223), pp.768-771.

Global Partnership on Marine Litter



(c) UNEP

Through this collaboration, the GPML supported UN-Habitat in the development of the Waste Wise Cities Tool (WaCT) and its application in several cities around the world in 2021 (see above). This provides key data for SDGs 14, 11 and 12 which informs UNEP's National Source Inventories of marine

litter and plastic pollution and supports the development of National Action Plans. National Source Inventories aim to identify and quantify the main sources, pathways, and hotspots of marine litter and plastic pollution emissions from countries, and

the WaCT is well suited to collect this data at city level, helping cities to identify policy interventions and infrastructure investment gaps by facilitating evidence-based decision making. UNEP is also developing the GPML Digital Platform, a one-stop-shop online data hub aiming to bring together all stakeholders working on marine litter and plastic pollution. The platform provides a unique opportunity to share knowledge and experience, where partners are able to work together to create and advance solutions to this pressing global issue. You can access the GPML Digital Platform [here](#).

The Global Partnership on Marine Litter (GPML) was founded at the Rio+20 summit in 2012 with the mission to protect the global marine environment by addressing the global problem of marine litter and plastic pollution. It is a multi-stakeholder partnership that brings together over 400 organisations working to prevent marine litter and plastic pollution. GPML is led by a Steering Committee and the United Nations Environment Programme (UNEP) provides its secretariat services. You can read more [here](#).

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Global Partnership on Marine Litter

Get to know our Affiliates

In this section we give our Waste Wise Cities Affiliates the possibility to introduce themselves.

Environment and Food Foundation (E2F)



"Cameroon's economic capital Douala, with a population of about 4 million inhabitants has recently been experiencing an upsurge of plastics waste pollution. This is mostly due to increased production from the breweries and water bottling companies, combined with increasing population and poor waste management systems.

In 2017, the coastal city of Douala produced more than 20,000 tons of plastics waste daily of which about 5% was collected and less than 1% recycled.

Environment and Food Foundation (E2F) is a nongovernmental organization (NGO) based in Douala, Cameroon working on the collection and valorization of plastics waste (plastic bottles, wrappings, nylons, plastic bags). Our innovative approach seeks to strengthen the plastics supply and value chains, create new jobs, as well as relieve Douala from plastics pollution through:

- Organizing cleanup events on a regular basis in beaches, landfills, mangroves, streams, rivers, communities, dumpsites.
- Incentivizing the collection of plastics

wastes from informal waste pickers.

- Recycling plastics waste into paving tiles (eco-bricks) and other products.
- Reusing plastic waste bottles to construct eco-benches, eco-chairs, eco-tables, and bulb coverings.
- Increasing awareness and sensitization in schools and communities among students and community members on the importance of proper plastics waste management and recycling.

Our goal is setting up modern waste management and recycling factories in Douala and other cities in Cameroon highly polluted with plastics waste in order to provide a cleaner and healthier environment."

Alternative Energy Systems Ltd



“Alternative Energy Systems Limited (AESL) is a Kenyan-owned and -operated company which has pioneered the use of pyrolysis on soft plastic waste sourced from municipal solid waste streams. The output is high quality synthetic oil with a competitive calorific content against diesel and furnace oil. Soft plastic waste includes food wrappers, carrier bags, and other thin-film PP, PE, LDPE, and HDPE.

The benefits of AESL's proprietary advancements to plastic-to-energy technology are many. First, using municipal waste as a source of soft plastics diverts a sizeable fraction of waste from landfills. Second, AESL can tap into accumulated plastic waste deposits, further reducing pressure on overloaded landfills. Third, soft plastic waste is not commonly recycled, thus creating a market value for an otherwise unmarketable fraction of plastic waste. Fourth, AESL's process captures this soft plastic waste and prevents it from leaking into the environment.

AESL's product has been independently verified by globally recognised Intertek Laboratories and found to have a calorific content similar to that of diesel and better than that of furnace oil, while boasting near-zero SO₂ and NO₂ emissions. With furnace oil being a leading source of atmospheric SO₂ emissions, this can have wide-reaching implications on air quality and human health.

To find out more, please contact info@alternativeenergy.co.ke

Waste Wise Cities Affiliates



Do you want to:

- Support Waste Wise Cities and improve waste management in cities around the world?
- Be an official partner of Waste Wise Cities and UN-Habitat?
- Show up on the Waste Wise Cities website?
- Implement the Waste Wise Cities Tool?
- Read about your activities in this newsletter?
- Do much more?

Then [contact us](#) and become a Waste Wise Cities Affiliate! Together we can become Waste Wise!

Waste Wise Cities Tool (WaCT)

You have forgotten what the Waste Wise Cities Tool is? No worries, you can find all information on our [website](#). [Here](#) you find out which cities have already submitted data collected with the WaCT and as you can see from the articles below, more data will become available.

Updates – Updates – Updates!

Evaluating the control level of waste management facilities is an essential part of the WaCT. After applying the WaCT in a variety of cities around the world, the ladders of control and decision-making trees for evaluating the same needed to be updated to capture the various situations on the ground. Therefore, the ladders of control (Table 2-4) and decision-making trees (Annex 7) were updated after consultation with experts

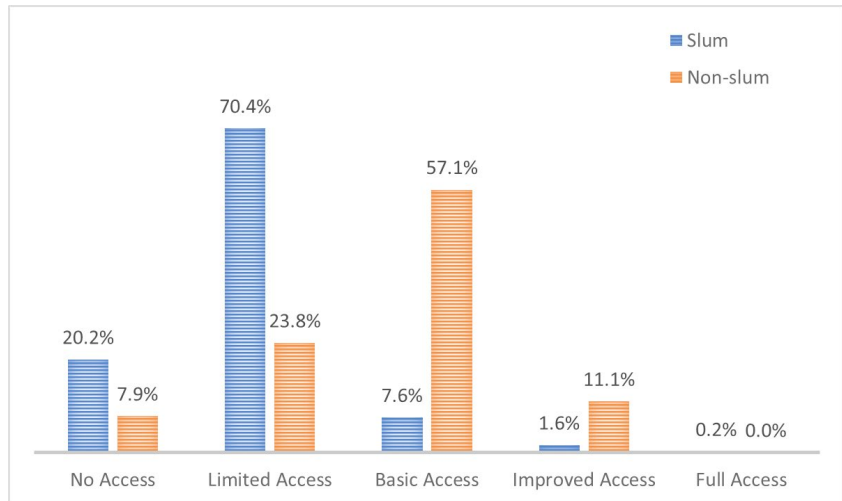
from Wasteaware engaged in the WaCT surveys in the Philippines and Lebanon. The updated ladders of control and decision-making trees contain more detailed sub-categories and criteria, to be able to respond to different situations.

Another update is the ladder of service level for waste collection (Table 1). This table defined the concept of 'proportion of population with access to basic solid waste collection service' and WaCT suggested that this should be monitored

under the framework of SDG 1.4.1 on access to basic services. However, current global household survey systems such as the Demographic Health Survey or UNICEF's Multiple Indicator Cluster Surveys (UNICEF MICS) do not fully cover this aspect. Therefore, UN-Habitat developed this year a household survey questionnaire module to assess the proportion of population with access to basic waste collection service for UNICEF MICS. As part of the process of the household questionnaire module

development, pilot testing of a pre-designed questionnaire was done in Nairobi, Kenya, and Kampala, Uganda. The survey results showed that there is a clear inequality in access to basic waste collection service between slum and non-slum residents, as can be seen in the diagram.

This pilot testing resulted in a slight change of the ladder of service level for waste collection (Table 1 WaCT), to include 'without major littering' in the criteria to be met for Basic, Improved and Full access to waste collection service level.



Insights collected on MSWM in Addis Ababa and Bahir Dar, Ethiopia

UN-Habitat Ethiopia County Office jointly with the city governments of Addis Ababa and Bahir Dar has successfully applied the Waste Wise Cities Tool (WaCT) in the two cities, under the Feasibility Study Waste Wise Cities: Tackling Plastic Waste in the Environment funded by the Alliances to End Plastic Waste.



The overall aim of the project is to support the cities of Addis Ababa and Bahir Dar in assessing the performance and status of solid waste management system, identify infrastructure and policy gaps, and develop city specific project proposals in coordination with potential waste stakeholders.

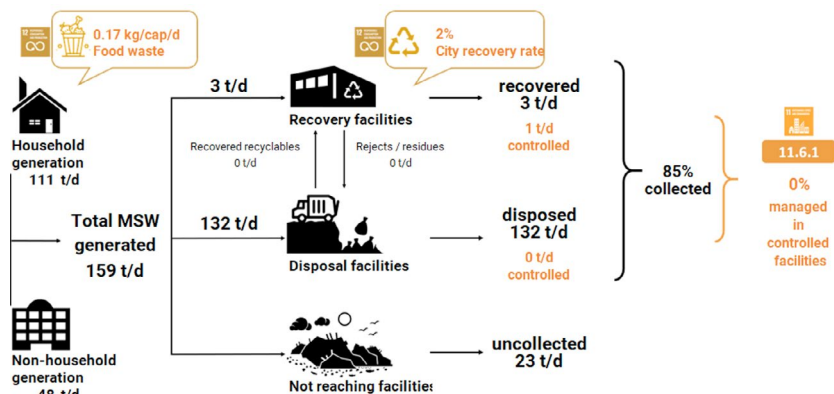
disposal facilities, waste composition at disposal facilities in both cities from mid-May to end of July and the 1st stakeholders workshops for data presentation and discussion on interventions are scheduled for the end of August 2021.

data on socio-economics, recovery facilities, business licenses etc. and lack of willingness to participate in the household waste survey as well as assessment of recovery facilities. The availability of key government partners was also challenged due to the national election happening during the survey period.

Some of the challenges encountered applying the WaCT include lack of reliable

The project team started the ground assessment in April 2021 and has finalized the application of the WaCT both in Addis Ababa and Bahir Dar cities. The major activities implemented include socioeconomic stratification using a clearly defined housing structure classes, that serve as a proxy for socioeconomic level, neighborhood selection based on income group, a full day training for volunteers, household waste sampling and waste composition analysis, MSW received by recovery facilities and control level of recovery facilities, MSW received by disposal facilities and control level of

The following chart shows the results for Bahir Dar.



The most challenging WaCT so far - Santo Domingo, Dominican Republic

The first WaCT application in a Caribbean city was realised in Santo Domingo in the Dominican Republic in June 2021. The actual implementation was done in two Waste Wise Cities member cities, East Santo Domingo and Boca Chica, where municipalities have made many efforts to improve solid waste management.



During the survey a few challenges were encountered. For example, in Step 2 – household waste generation and composition analysis - problems with the waste collection from the households occurred, due to the limited availability of collection trucks and misuse of the provided waste liner bags by the households. Furthermore, unexpected heavy rains affected the composition survey which was conducted outside. Also, in Step 4 – amount of waste received by recovery facilities and their level of control – the identification of and interviews with recovery facilities was difficult as they were reluctant to share the relevant information with the municipality.

Nevertheless, basic information on waste generation, collection, composition and the amount received at the disposal facilities could be generated. To determine the city's recovery rate (amount managed in recovery facilities) more accurate

information needs to be gathered, which will also make it possible to identify policy and investment interventions. As the interests of the mayors is high in both cities, we hope that further analyses lead to establishment of sustainable MSWM systems.



Collecting data on MSWM in the Democratic Republic of Congo: the example of Bukavu

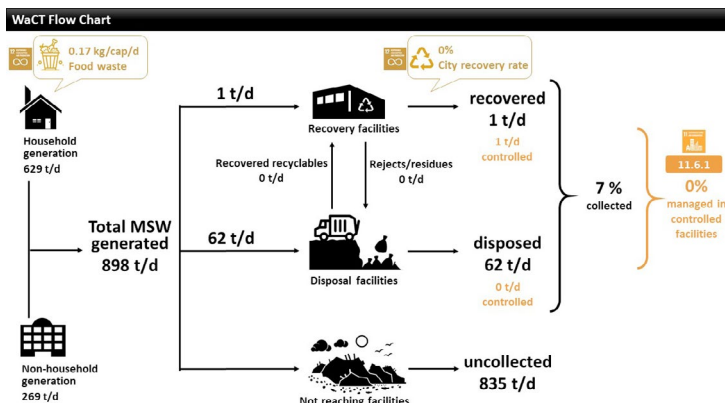
Under the African Clean Cities Platform, Bukavu was selected this year for the WaCT application. Bukavu is located in the eastern Democratic Republic of Congo and has a population of 1,493,743 (2020 City Annual Report) in the urban area.

The survey was conducted in July and the result showed that approximately 900 t/d of MSW is generated (0.69 kg/capita/day), of which 7% are collected. Overall, a total of 1 t/d of waste is recovered in controlled facilities.

The survey was followed by a local stakeholder workshop in August to discuss why the collection and city recovery rates are low and to identify policy and infrastructure gaps, as well as possible interventions. Concerning the collection, many actions were discussed, such as reviewing the cost of registration to encourage residents to pay for waste collection, investing in the municipality's collection equipment to strengthen the municipal solid waste collection capacity, building the capacities of youth collection associations to appropriately cover the area and boost their economic empowerment through municipal solid waste-related activities, as well as

increasing the awareness of households, traders, and municipal council staff on sustainable solid waste management practices.

Additionally, the necessity of investment in the recycling sector was discussed to establish a stable market for recyclable materials where buying and selling at a fair price are secured. This helps youth recycling associations to transform waste into briquettes, moreover, promote local initiatives and entrepreneurs to engage more in waste collection and recycling. Further necessary actions identified included the need to involve authorities in the work done by youth collecting associations and the review of administrative taxes (policies) to encourage local recycling initiatives



Let's Do It World and UN-Habitat formalize partnership!



Waste Wise Cities is happy to announce that Let's Do It World and UN-Habitat signed a Memorandum of Understanding, agreeing to collaborate to achieve the SDGs, especially focused on the topic of solid waste management including by sharing information and knowledge within their networks, and by supporting the implementation of waste management initiatives aligned with national urban policies and programmes. Let's Do It World is an international organisation which connects and empowers people and organisations around the world to make our planet waste-free and coordinator of the 'World Cleanup Day'. Let's Do It World

has been part of the Waste Wise Cities Advisory Group since 2019.

[World Cleanup Day](#) is uniting millions of people across the world to clean up the planet in just one day, being the biggest peacetime civic action in human history and engaging over 180 countries and millions of volunteers around the globe. It is contributing hugely to awareness raising and behaviour change across the globe.

For organizing three World Cleanup Days to tackle the global waste crisis and reduce carbon emissions Let's Do It World has also just been announced as one of the five winners of this year's UN-Habitat's Scroll of Honour award: "Showing deep dedication and out-of-the-box thinking, LDIW has developed a global network in 164 countries tackling the global waste crisis while reducing carbon emissions. By

engaging five per cent of the population in the piloting countries, it has created a critical momentum for taking action and catalysing solutions for sustainable development."

There were over 80 eligible nominators including individuals, cities and organizations that contributed to sustainable urbanization, a carbon-free world, and urban COVID-19 responses. The award will be presented to the winners during the Global Observance of World Habitat Day on 4 October in Yaoundé, Cameroon. Have a look at the other winners [here](#).



And another partnership was formalized: BVRio



Waste Wise Cities is further delighted to announce that BVRio and UN-Habitat signed a Memorandum of Understanding, centred on enhancing waste management and resource efficiency in the world's cities. The collaboration will be implemented with a focus on connecting local waste management activities and projects of UN-Habitat's Waste Wise Cities' Members and Affiliates, with global companies and investors, as well as with innovative financing options, through BVRio's [Circular Action Hub](#).

The Circular Action Hub is a platform that connects local waste management projects and activities with companies and investors willing to support, accelerate and strengthen a more effective and socially responsible circular economy. Launched in July 2020, there are now over 100 projects on the platform, from over 40 different countries, with a capacity to handle over half a million tonnes of solid waste every year.

As well as showcasing projects on the Circular Action Hub, BVRio will adopt UN-Habitat's Waste Wise Cities key principles and ideas in its development of its solid waste management activities. Additionally, the two organisations will share good practices and information, arranging events and webinars with a focus on capacity building.

Last but not least, BVRio is in the process of launching its [KOLEKT App](#), which brings together solid waste producers, collectors and recyclers. It is available in multiple languages and works both online and offline, in order to make it more inclusive –particularly for waste pickers who often don't have a smartphone or stable connection.



Kick off for South-South cooperation in sustainable waste management – Waste Wise Koidu

On Wednesday, 4 August 2021, a kick-off event was virtually organized to officially start the project South-south cooperation in sustainable waste management – Waste Wise Koidu, supported by United Nations Office for South-South Cooperation (UNOSSC), that will be implemented in Koidu New Sembehun City Council (KNSCC), Sierra Leone.

The event was attended by representatives from UNOSSC and UN-Habitat, stakeholders from Koidu, including the mayor, waste department staff and a representative of the youth group carrying

out waste collection services, as well as Mr. Wang Xingping, Professor and Director of Nanjing Urban Governance Research Institute, China.

The kick-off event was opened by remarks from the Mayor of Koidu, Mr. Samba Komba Matthew Sam, followed by Mr. Francois Ekoko, UNOSSC Regional Chief for Africa and Mr. Oumar Sylla, Officer in Charge, Regional Office for Africa, UN-Habitat. A brief presentation of the project followed together with an intervention from Mr. Wang who shared experiences in solid waste management from the

city of Nanjing, paving the way for south-south cooperation and mutual learning and exchanges that will continue during the project.

The event finished with an open discussion providing the opportunity to bring the project's partners and stakeholders together. Read more [here](#).



Together for Plastic Smart and Waste Wise Cities in South-East Asia – WWF and UN-Habitat

In 2020, the World Wide Fund for Nature (WWF) and UN-Habitat signed a Memorandum of Understanding to tackle the global challenges of waste management and plastic pollution.

As a result, Waste Wise Cities is delighted to announce that another project has officially started: WWF and UN-Habitat are collaborating under their respective waste management programmes, the [Plastic Smart Cities Initiative](#) and Waste Wise Cities to prevent marine litter through evidence-based City Action Planning in selected 9 cities in Indonesia, the

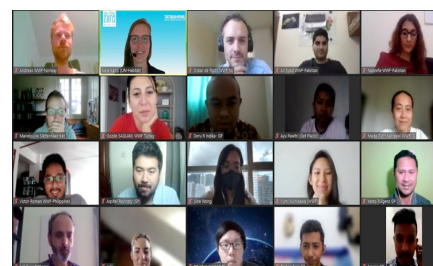
Philippines, Thailand and Vietnam.

So far, the Waste Wise Cities Team provided training for WWF staff and contractors on the Waste Wise Cities Tool and is supporting the implementation remotely. Furthermore, a kick-off meeting was held with staff from different cities in Thailand.

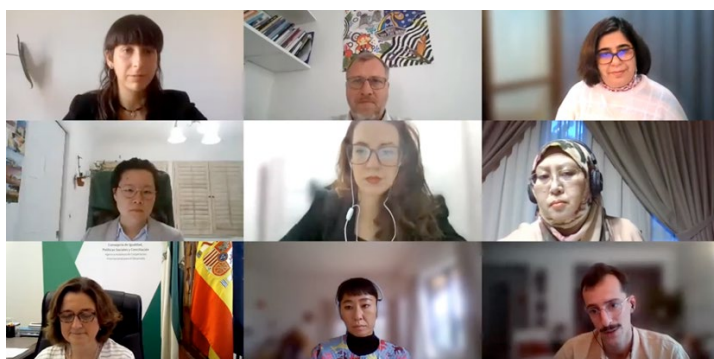
Furthermore, WWF has joined the Waste Wise Partnership (WaP) which had been officially launched in June and aims to bring partners together to enhance coordination and cooperation among

relevant organisations and deliver aligned products and methodologies, in relation to MSWM.

Waste Wise Cities is looking forward to a fruitful collaboration with WWF!



Waste Wise Cities participated in several events



On 16 July Waste Wise Cities participated in the online event [Data and Indicators in Voluntary Local Review and Voluntary Subnational Review Processes](#), a side

event held by UN-Habitat during the United Nations High-Level Political Forum. Since its adoption in 2015, the 2030 Agenda and the SDGs have been fitted

with a formal mechanism of quantitative monitoring that builds on a complex system of indicators, developed by the [IAEG-SDGs](#). The system includes 232 statistical indicators. The Waste Wise Cities Tool was featured as one example of rigid methodology that cities can use for monitoring the progress towards urban SDGs and was presented by Waste Wise Cities together with its practical Data to Action Approach. Interested to learn more? A recording of the event is available [here](#).

On 10 September 2021, Waste Wise Cities participated in the [fourth online conference of the Young Professional Group \(YPG\)](#) of the International Solid Waste Association (ISWA). The conference brought together young circular thinkers (under 35 years old), citizens, informal workers, and interdisciplinary experts to promote research and innovations focusing on sustainable solid waste management and principles of the circular economy.

This annual event gives a chance to young scientists and citizen for sharing experiences and knowledge. A recording of the first day of the conference is available [here](#).

On 15 September Waste Wise Cities participated in an online event organized by [Practical Action](#), an innovative international development organisation putting ingenious ideas in action to uplift people

out of poverty. The session [Managing Our Waste: Why we need a people-first approach](#) was organized within the 42nd Water Engineering and Development Conference (WEDC) at Loughborough University and discussed the need of people-centred solutions to solid waste management. If you missed it you can access a recording of the event [here](#).

Waste Wise Cities Roundtables

Roundtable #1: The Role of Community-Based Solid Waste Management

Muguro David Ngige from (Dajopen Waste Management) and Dr Mansoor Ali (independent solid waste management specialist), together with other Affiliates, discussed the role of community-based solid waste management (CBWM).

Overall, it was highlighted that CBWM can provide waste services at an affordable cost for vulnerable communities, reducing the inequalities in the provision of waste services. It was further pointed out that CBSWM needs to be recognized at various levels, with cities and municipalities supporting the work to achieve a zero-waste future. Such support may come in different shapes including contracting community-based organizations (CBOs) for waste collection, providing official recognition for the smooth delivery of services and improved social protection.

This is illustrated below:



Roundtable #2: Smart Waste Management – how tech can support solid waste operations

The thematic focus of the second virtual roundtable was “Smart Waste Management – how tech can support solid waste operations”. Three keynote sessions covered:

- The role of technology to support solid waste operations
- What opportunities/benefits can technology and innovation bring to improve solid waste management systems
- Stakeholders’ concerns and reservations towards technological solutions in the waste sector
- Case studies of successful adaptation of smart waste management

It was emphasized that the lack of technology use results in poor route planning, causing delays in the collection of waste and overspending of resources (e.g., fuel). Hence, a strong case to digitalize databases and waste system-

related inventories to improve the system efficiencies was established. The use of tech-smart solutions e.g. ‘blockchain’ for traceability of recovered material, can also increase the potential value of recovered material.

During the following discussion Affiliates and City representatives emphasized that establishing smart waste management systems is context-specific and therefore requires paying attention to the needs of the locality and stakeholders. Much of the discussion revolved around the financial sustainability of smart waste management systems and that smart-tech based SWM systems provide a competitive advantage in creating new standards and best practises for the rapidly growing industry/sectors.

Call to Action

- Apply the WaCT, establish frameworks for sustainable MSWM and prevent marine litter generation!
- Pick up a piece of litter a day or a week – who knows, it might end up in a water body!
- Become a Waste Wise Cities member or affiliate and share your good practices with us!