

ISWA Technical Note – Executive Summary

Guidance on support mechanisms for the implementation of effective municipal waste management systems tailored to national and local conditions, ensuring high collection and mechanical recycling rates, while minimizing plastics being littered, landfilled, or incinerated.

The waste management hierarchy states the following three priorities:

- Priority 1** is given to **prevention**, i.e. approaches that avoid the generation of waste and reduce the quantity of waste introduced into the waste stream.
- Priority 2** is to enable **waste to be recovered** for secondary use, recycling, or energy recovery as much as possible and where it is safe to do so.
- Priority 3** is **disposal**, which is reserved for the residual waste that cannot be recovered. It must be disposed of in a way that reduces its impact on health and the environment.

This **guidance document focuses on the support mechanisms for the implementation of effective municipal waste management systems tailored to national and local conditions**. Local authorities are often mandated to care for the items that become waste because they were not prevented, nor re-used or recycled. These items reach the municipal waste management system, which has the responsibility to reduce as much as possible their impacts on human health and the environment. Municipal authorities can only take limited actions on prevention, as they usually do not have the mandate to require manufacturers to enable the re-use of items, nor adequate capacity for the educational and communication campaigns to prevent waste generation effectively. Local authorities in charge of waste management mostly rely on national regulations for priorities 1 and 2 of the waste management hierarchy. They also support local recyclers to collect valuable waste when a market exists (e.g. PET bottle) but will in any case still have to deal with all the less valuable mixed waste.

In places where the waste management system is underdeveloped, the treatment hierarchy needs to be tackled not only top down, but also bottom up. Indeed, the immediate step is to identify how best to collect and dispose of the waste where its impact on human health or the environment is controlled. Once this minimal system is well in place, the data and skills acquired can be used to gradually shift the focus on treatment to recover the materials and energy contained in the waste, as well as enhanced prevention interventions. It is then also necessary to increase financing and staff capacity to meet increasingly high investment costs and skill levels required for industrial facilities for sorting, recycling and energy recovery.

Keys to the success of municipal waste management lies in the following support mechanisms:

A. Public policies

Public policies set a national strategy and the associated regulatory framework to

1. assign roles and responsibilities for the prevention, recycling, and elimination of waste (i.e. governance), and frame public/private partnerships to avoid a collectivisation of costs and the privatization of profits;
2. define financial incentives and the administrative and financial resources in line with each of the assigned responsibilities, and
3. establish minimum environmental and health protection standards along with technical guidelines for implementation, rigorous monitoring and reporting, as well as an independent regulator to enforce the set standards.

On the latter point, enforcement requires a robust legal framework and effective mechanisms to address the cause of the violations. For example, sanctions for illegal dumping or open burning should differ if the violations result of a lack of infrastructure to properly dispose of waste, or a lack of acceptance of the service fee. Improving the regulatory framework is complex as it requires coordination between executive bodies, as well as engaging citizens and industrial stakeholders to ensure its adoption.

B. Funding mechanisms

Funding mechanisms enable to finance, on a long-term basis, the whole of the service, which includes human capacity, infrastructure requirements, operation costs, and the organisational system needed for stakeholders to play their respective roles. These funding mechanisms (i.e.: sources and instruments) are supported by the public policies mentioned above. They can rely on public, private, or blended finance. Furthermore:

1. Funding mechanisms for waste management shall be based on a **cost recovery approach** to be viable in the long term. This approach can be based on a combination of rarely sustainable business models around materials or energy recovery, which can motivate private investment, and service fees or a tax system to cover at the operational costs that cannot be profitable to ensure the sustainable operation of a waste management system that meets the public policies requirements. These funding schemes should be implemented where the local context prevents a shift towards uncontrolled waste dumping or open burning.
2. Funding mechanisms can be used **as incentives to trigger changes** along the whole industry chain (e.g. EPR) or consumers (e.g. incentive-based service fees) towards enhanced prevention, reduction, collection, recycling, recovery and safe final disposal. For instance, the Extended Producer Responsibility (EPR) schemes can be used to involve industries and incentivise the prevention of waste generation, increase the recyclability, as well as fund the return/collection, sorting, recycling and final disposal of the waste that remains. When building the EPR scheme, each specific goal needs to be considered and the scheme assessed against each goal.
3. Funding mechanisms based on the polluter pays principle (e.g. EPR) are a means to **make the environmental threats caused by improper waste management economically visible** to producers and to consumers, by reflecting the magnitude of the impacts on the price of a product, ultimately enabling to differentiate products based on cost of ensuring the reduction of their impact (e.g. fee modulation). This mechanism can only be set at state, national or supra-national level and collected funds need to be earmarked to fund actions that reduce environmental impacts and their actual usage controlled by an independent body.
4. International investments, solidarity and cooperation can contribute to fill the investment gap, however local capability to cover operational costs must be developed in parallel to ensure the sustainability of investments.

C. Integrated spatial and strategic planning

An integrated spatial¹ and strategic planning that progressively integrates cross-sectoral multi-scale planning enables to prevent and manage waste locally as much as possible: reducing usage of what becomes waste (e.g. bottles), sorting at source of as many streams as possible, repair and reuse enterprises consolidated at a scale that make them economically viable, waste sorting facilities, recycling companies for each sorted waste stream, energy recovery facilities when relevant, and safe final disposal facilities for what cannot be recovered.

- Sound waste management systems rely on **integrated planning, driven at the local and/or provincial government level**, coordinating the following components in a step-wise approach:
 - Spatial planning for local waste management facilities, integrated with city and provincial spatial planning,
 - Planning of waste and resources access and transportation
 - Human resources planning, including the integration of existing informal sector or market-oriented recycling activities.
 - Strategic planning of all economic activities and of the budget associated to waste prevention and management acknowledging the synergies between waste management and economic sectors (e.g.: tourism, industrial production),
 - Planning connections with energy systems, while anticipating a long term waste volume reduction.

¹ Spatial planning systems refer to the methods and approaches used by the public and private sector to influence the distribution of people and activities in spaces of various scales.

- Sound waste management systems rely on evidence-based and data driven planning. Waste characterisation data is needed to drive targeted prevention actions, as well as plan and design industrial investments such as sorting, recycling, or waste to energy plants. Therefore, places where the waste management system is underdeveloped, once the basic waste management system is set, the next step is to professionalise waste collection and treatment in order to establish data acquisition on volumes and quality of the waste. Data can then drive future investments, capacity building, and prevention interventions.
- In some cases, resource recovery (e.g. plastic polymers, e-waste) or hazardous waste treatment facilities cannot be planned locally but have to be planned and integrated at a larger territorial scale, because it requires to consolidate larger volumes for an industrial facility to be economically viable. This may require partnerships between cities or countries, or between public and private stakeholders. Integrated planning accounts for transport infrastructure and costs.

D. Enhanced participation of training institutions, research and professional associations

The enhanced participation of training institutions and professional associations supports a just transition for informal workers and improve the capacity of the national or local staff in charge of the various aspects of the waste management systems (strategic planning, monitoring, data collection, waste management operation, budgeting, etc.). Private stakeholders may contribute to the implementation of innovative solutions adapted the local context, and to the associated capacity building of local staff. Research institutions related to waste prevention, reduction, and management contribute to science-based innovative integrated solutions instigating changes throughout the whole chain of stakeholders involved.

E. Education and communication means to raise public awareness

Education from the smallest age contribute to improve consumers behaviours to stop illegal dumping or open burning, reduce waste volumes and improve source separation. **Large scale communication** strategies and implementation means are needed **to raise public awareness and improve behaviours for a transition** to reduce, reuse, repair, and sort what remains as waste, so that it can be recycled optimally and that the fraction recovered as energy and/or sent to final disposal are minimized. Effective communication cannot rely only on the local authorities in charge of waste, nor on the education system, but need to be driven by national and international communication campaigns (TV adds, social media influencers, ect.) that support local interventions. Evidence-based information needs to be shared with citizens and industries through trusted channels.

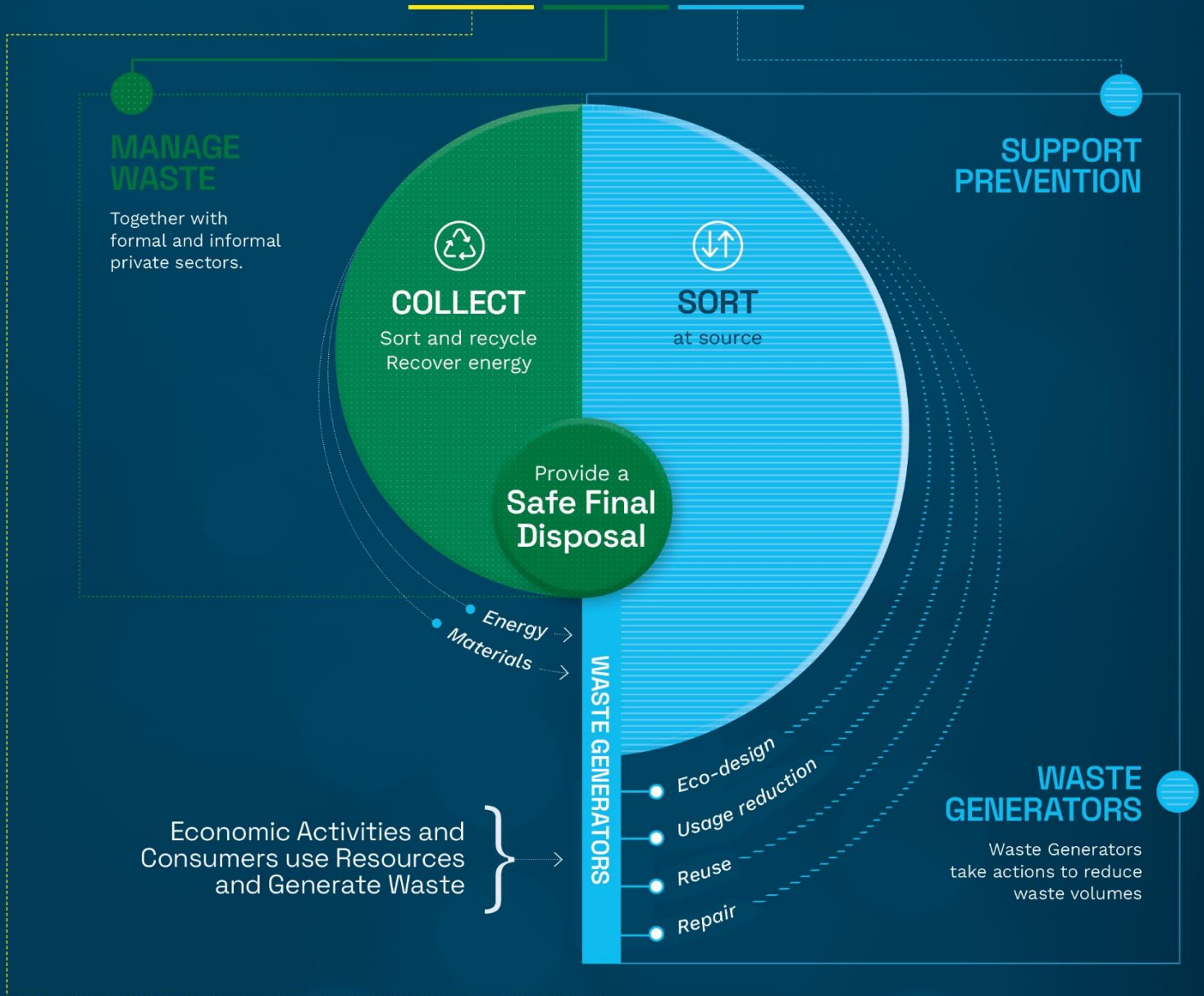
Conclusion:

The local authorities in charge of waste management are the best positioned to tailor the waste management solutions to their local context. **Adequate support mechanisms need to be provided to them along with the necessary leeway to experiment with local solutions, in order for them to best implement this task.** Their implementation of waste management relies on the combination of a strong local political vision, together with the above-mentioned public policies, funding mechanisms, integrated spatial and strategic planning, organisations that provide human resources/capacity building, and large-scale communication campaigns. These support mechanisms are needed to 1/facilitate the robust planning of waste management systems, 2/ support capacity building and training for decision makers, local staff performing the services, and all stakeholders in general , 3/ provide the framework to recover operational costs and initiate the infrastructure investment, 4/ensure the control of the services provided locally, in terms of environmental performance, health protection, and transparency of the local funding schemes, 5/ adapt solutions observed in other places to the local context.



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LOCAL GOVERNMENTS



LOCAL GOVERNMENTS ARE SUPPORTED BY 5 MECHANISMS

1. Public policies and enforcement	2. Funding mechanisms	3. Integrated spatial strategic planning	4. Training and research	5. Education and communication to raise awareness
<ul style="list-style-type: none"> Set national strategies; Assign roles and responsibilities; Establish organisational, financial, and regulatory frameworks; Define standards and minimum requirements. 	<ul style="list-style-type: none"> Enable cost recovery; Incentivise waste prevention and environmentally sound management; Make environmental impacts visible to producers and consumers; Leverage international cooperation and investments. 	<ul style="list-style-type: none"> Coordinates action across scales and sectors; Requires sound data and plans data acquisition improvements; Defines future investments, capacity building, and prevention interventions. 	<ul style="list-style-type: none"> Support the just transition for informal workers; Raise skills and capacity levels; Boost innovation. 	<ul style="list-style-type: none"> Local communication supported by national and international campaigns Contribute to behaviour changes; Evidence-based information