

# Inclusive and Sustainable Solid Waste Management in Lebanon: Guidelines for an Integrated Framework\*

## Executive Summary

Following Lebanon's adoption of the Integrated Solid Waste Management (ISWM) framework law in 2018, this report discusses the good governance drivers of ISWM at the local level, with a focus on the concepts of user inclusivity and financial sustainability.

Public participation is a vital part of democratic governance and decision-making. It is further strengthened by applying the concept of user inclusivity, which allows stakeholders to contribute and benefit as service users, service providers and decision-makers. In Lebanon, the governance of SWM is mostly the responsibility of local authorities, but cooperation with citizens remains weak. According to a 2018 DRI survey, most municipalities in Lebanon perceive this cooperation as "not easy", which has led to confrontations with environmental activists. Although some local authorities have involved citizens, most are unable to mainstream citizen participation in their governance of solid waste. Central government officials have also expressed a negative view of the prospects for cooperation with citizens in the field of SWM. To implement an ISWM framework effectively, guided by a national strategy, decentralised regional and local authorities should use participatory policies to gain citizen buy-in and create tangible SWM targets and plans.

To gain an insight into how the participatory process can be implemented at the municipal level in Lebanon, this report uses a case study of the Union Municipalities of Jurd El-Kaitee's (UoMJK) which, in 2018–2019, used participatory methods to develop a Strategic Master Plan for Solid Waste Management in Lebanon's northern governorate of Akkar.

Participatory processes should be centred on the concepts of inclusivity and pluralism. Involving stakeholders that have opposing views can act as a resource to generate innovation, create equal understanding in a local community and ensure equal access to information and knowledge. Breaking with decades of top-down decisions in Lebanon, the implementation of participatory processes requires political and social consensus, as institutions need to be committed to transparency and dedicate appropriate time and resources. In waste management, when participatory processes are used, it has the power to strongly reduce the "Not In My Backyard" (NIMBY) syndrome, and can result in the development of SWM facilities and infrastructure that are environmentally sound and socially accepted.

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Strongly linked with user inclusivity and its institutional set-up, financial sustainability and cost recovery is a core factor of SWM sustainability. Developing an integrated and sustainable governance framework for SWM that includes cost-recovery schemes offers untapped opportunities to cover the heavy costs of SWM incurred by Lebanese local authorities. A sustainable SWM system requires the identification of a fair and equal tariff (for example, “pay-as-you-throw”, or PAYT). The calculation of the tariff should consider the environmental and social costs of waste generation rather than just the direct costs of the service. Users and institutions should not view waste fees as a tax but as a tariff that covers a public service, like electricity or water.

If citizens are willing to pay for the full costs of a service, or a part of it, this means that the service is valued and maintained. It also means that the tariff can be equitably distributed among users. Between these concepts lies the crucial link between user inclusivity, the institutional framework, cost recovery and financial sustainability. A transparent, well-planned SWM system that is shared, monitored and influenced by well-informed communities – through sound participatory processes and user inclusivity – has higher chances of being repaid and sustained by citizens.

## Introduction

Conventional approaches to waste management planning are often limited to the technical and material elements of the waste system, like equipment, facilities and cost analysis. Focusing on the physical infrastructure of solid waste management (SWM) results in a lack of buy-in and ownership among beneficiaries and the local community. In many cases, recommendations produced during the planning process do not consider local knowledge and context. This results in decision-makers losing confidence and local beneficiaries feeling less responsible for the planning outcomes.

Overlooking the role of informal community groups (informal recyclers, marginalised or vulnerable groups) in the planning process also limits the effectiveness of SWM. In the early 1990s a group of practitioners led by the World Bank began working on a framework to describe, theorise and address these common problems with waste management assessment and planning. This framework was formalised as Integrated Sustainable Waste Management (ISWM). Based on both technical/engineering and governance aspects, this framework is divided in two “triangles” or dimensions: the physical components<sup>1</sup> and the governance components, in which the stakeholders and beneficiaries are included (see Figure 1). The first “triangle” (physical components or “hardware”) focuses on three key drivers:

1. Protection of public health, which depends on a good waste collection service;
2. Environmental protection, particularly during waste treatment and disposal; and
3. Resource value, namely the “4Rs” – reduce, reuse, repair and recycle.

The second “triangle” focuses on the “software”, i.e. the governance strategies to deliver a well-functioning system. These have been identified as:

1. Inclusivity, allowing stakeholders to contribute and benefit, both as service users and service providers;
2. Financial sustainability, ensuring that SWM services and activities are cost-effective and affordable; and
3. Sound institutions and pro-active policies.

<sup>1</sup> Technological aspects, such as waste collection, transportation, treatment and disposal.

The drivers of governance and physical components are closely inter-connected, so the malfunctioning of one can lead to the malfunctioning of the other. In Lebanon, weak governance structures in the field of SWM are the main reason for the failure or the low efficiency of SWM infrastructure and facilities.<sup>2</sup> While Lebanese local authorities advocate decentralised solutions for SWM, they still lack a strategic vision for it. This is especially true of municipalities, 50% of which have no plan for SWM (compared to 12% of municipal unions).<sup>3</sup>

Weak SWM governance is further reinforced by the limited options to finance decentralised SWM solutions. Three-quarters of Lebanese municipalities do not have a funding source of their own for this sector, but hope for central government funding or international donor assistance.<sup>4</sup> Modernising SWM systems through technological improvements are therefore likely to fail without any element of financial sustainability.<sup>5</sup> This report proposes two drivers of good governance in SWM based on user inclusivity and financial sustainability.

<sup>2</sup> DRI (2019). Solid Waste Management in Lebanon: Lessons for Decentralisation. Beirut: DRI.

<sup>3</sup> DRI (2019). Are municipalities in Lebanon delivering? Beirut: DRI. P. 20.

<sup>4</sup> DRI (2017). Public Service Provision in Municipal Unions in Lebanon. Beirut: DRI.

<sup>5</sup> A. Scheinberg, D. C. Wilson and L. Rodic, “Solid Waste Management in the World’s Cities: Water and Sanitation in the World’s Cities 2010”, UNHABITAT, London, 2010.

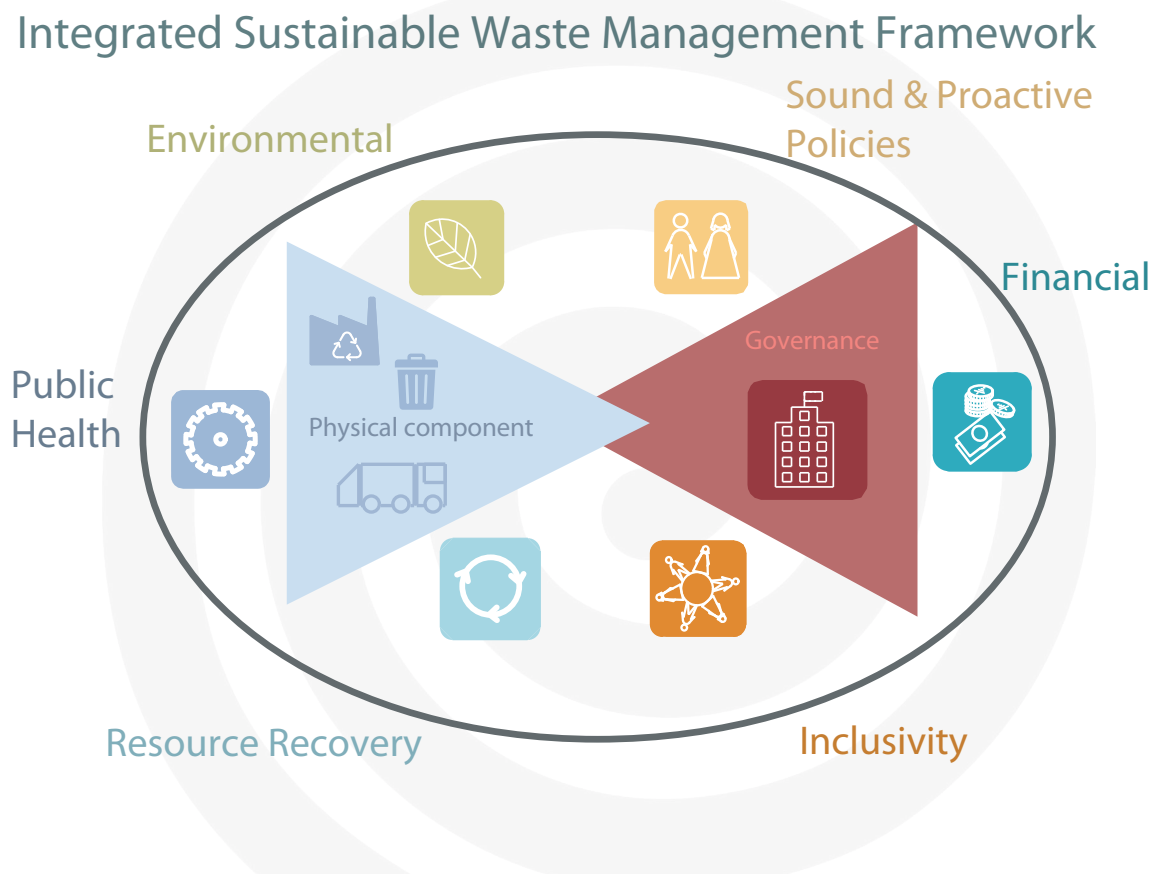


Figure 1. Physical components and governance components in the Integrated Sustainable Waste Management framework.

## 2. “Nothing About Us, Without Us”<sup>6</sup>: User Inclusivity and Participation in SWM Systems

The effectiveness of local governance is determined by its capacity to engage citizens in decision-making. According to DRI’s survey of 209 municipalities in 2018, only 7% of mayors said that residents were engaged in decision-making, while 47% said their citizens were “engaged when needed”.<sup>7</sup> This demonstrates, that despite some legal leverage to involve citizens in municipal committees and sharing public information (Articles 45, 53 and 55 of the Municipal Act), Lebanon lacks a political culture of participation at the local level. Most municipalities perceive cooperation with citizens in the field of SWM as “not easy” and assess prospects for cooperation with citizens negatively. While this view was expressed by 39% of the municipalities surveyed, it is even more prevalent among larger municipalities (71%). This has sometimes led to confrontations with environmental activists.<sup>8</sup> Although some local authorities have involved citizens in SWM sensitisation campaigns, most of them are unable to mainstream and institutionalise citizen participation.<sup>9</sup>

Inclusivity involves the involvement, interest and influence of key groups of stakeholders in the policy process, for solid waste services (households, businesses and other waste generators) it entails the participation of stakeholders in the planning, policy formation, implementation and evaluation of those services.<sup>10</sup> To influence and participate in decision-making, the stakeholders should be provided with guidance, the full context and baseline data. Without this, the process would be limited to a mere consultative process aiming to test the reaction of users to a policy or a decision after it is taken. Below, this report introduces a few basic principles that should guide the participatory process in the SWM sector.

### Basic Principles of Citizen Participation in SWM

An ISWM strategy and the role of municipalities in SWM should be based on the view that citizens are partners in formulating and implementing SWM systems, because they are the key stakeholders in waste reduction and sorting. Central and local authorities should not only inform citizens and engage them in policy debates (through public consultations or townhall meetings), but lead awareness-raising campaigns advocating waste reduction, reuse, recycling and sorting-at-source. This will foster long-term behavioural change and nurture a sense of civic responsibility at the level of individuals and households. Only then can cost recovery fees yield the desired sustainability at the community level.

“Participation” is an ambiguous term. In SWM, it refers to treating the users of the system as active actors who can influence public decisions. Participation is more than the random inclusion of community representatives; it is a highly organised and multi-level process guided by facilitators specialised in participatory processes or user inclusivity. Participation guides stakeholders to have the same level of knowledge and understanding of SWM problems and solutions. Only in that case can the process move to the next stage; like the Slinky, which can pass to the following step only when all the rings are at the same level (Figure 2).

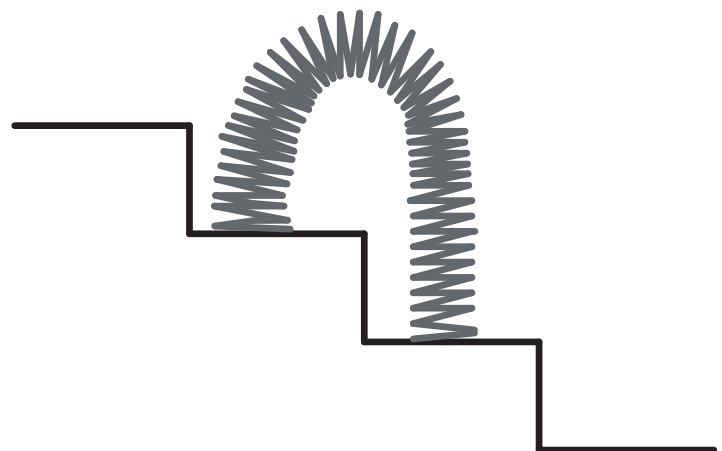


Figure 2. The Slinky as metaphor for citizen participation in the SWM policy process.

6 Banner carried by the Indian Association of Disabled Persons at the first UN Social Forum, likely a paraphrase of Gandhi: “Whatever you do for me, without me, you are doing against me”.

7, 9 DRI (2019). Are municipalities in Lebanon delivering? Pp. 2, 21.

8 DRI (2019). Solid Waste Management in Lebanon: Lessons for Decentralisation. Pp. 13, 17, 22–23.

10 D. C. Wilson (2014) “WasteAware” benchmark indicators for integrated sustainable waste management in cities”, Waste Management, Vol. 35, No. Elsevier.

The participatory policy process must respect three fundamental principles:

1. **Pluralism and diversity of opinions:** Public officials often view diversity of opinions as problematic rather than a positive and necessary resource.<sup>11</sup> There is a tendency to avoid conflict and debates about controversial issues of public interest. However, involving those holding opposing views is essential (“hunting for the NO”).<sup>12</sup> Divergent ideas can generate innovation if they are properly framed and channelled towards common solutions.<sup>13</sup>
2. **Equality:** The political equality of citizens is inherent in the very notion of democracy.<sup>14</sup> In participatory processes, all stakeholders should share and agree on the information, notions and data guiding the process. When information and data are shared, agreed and validated by the community, the gap between professionals and laypersons, experts and non-experts is bridged, reducing the risk of the “Not In My Backyard” (NIMBY) or “Build Absolutely Nothing Anywhere Near Anything” (BANANA) syndromes. The most significant result of sharing and validating information and data collection is a shift in the approach towards stakeholders. They are no longer passive recipients of information but are actively involved in political decision-making.<sup>15</sup>
3. **Neutrality:** A participatory process serves the community rather than a group or faction. It is not enough that the process is impartial; it must also be perceived as credible, fair and neutral by the whole community.<sup>16</sup>

Participation and consultation do not mean the same thing. Consultative tools collect feedback from users and can be ignored by decision-makers.<sup>17</sup> A simplified version of Sherry Arnstein’s “Ladder of Citizen Participation” illustrates the difference of degree between the different methods of citizen inclusion (Figure 3).<sup>18</sup>

Effective participation starts at the level of “co-deciding”. The participatory process is an “open experiment” that requires a structure that is clear, flexible and adaptable to accommodate the evolving needs of the participants. Whoever manages them (leaders,<sup>19</sup> facilitators, specialists and committee chairpersons) must continuously adapt to new and complex situations.

To provide insights into participatory processes and unpack their key elements, this reports uses a case study of the Union of Municipalities of Jurd El-Kaitee (UoMJK) in Lebanon’s Akkar governorate in 2018–2019, where a 15-year strategic master plan for SWM was developed with the support of an EU-funded development cooperation project. The master plan was implemented using an adapted version of the ISWM and using the methodology of the World Bank’s Strategic Planning Guide for Municipal SWM.<sup>20</sup> The team included urban planners, waste management experts, a participatory methodologist, a moderator and several field officers to coordinate with the stakeholders.

11 Z. Chappell (2007) “Are We Ready? Assessing the Preconditions of Deliberative Democracy”, in APSA Annual Meeting.

12 M. Lewis (2008) “Inside the NO”. Deep Democracy. South Africa.

13 E. Pariser (2011) *The Filter Bubble*. London. Penguin.

14 M. Behrouzi (2008) “The idea of Democracy and its Distortions: From Socrates to Cornel West”, *Journal of Public Deliberation*, Vol. 4, No. 1.

15 A. Scheinberg (2003) *Putting ISWM into Practice*. Gouda. WASTE.

16 M. Grimes, “The Civic Benefits of Imperfect Deliberation”, *Journal of Public Deliberation*, Vol. 4, No. 1, 2008.

17 OECD, “Better Life Index”, [Online]. Available: <https://bit.ly/2M77vEk>.

18 S. Arnstein, “A Ladder of Citizen Participation”, *Journal of American Institute of Planning Association*, 35:4, 216–224.

19 “We normally apply the term leader to people like parliamentarians; corporate managers and CEOs; committee chairpersons; the heads of scientific, medical, or sports teams; school principals and teachers; or parents. These are our traditional leaders: those who are charged with crafting the direction of anything from a nuclear family to an entire country. We also expect leadership from workshop facilitators, consultants, and other experts.” M. Lewis (2008) “Inside the NO”. South Africa. Deep Democracy.

20 D. Wilson (2006) *Strategic Planning Guide*. New York. World Bank.

## Process Feasibility, Objectives and Stakeholders

An effective participatory process starts with a “feasibility assessment” to verify and assess the feasibility and benefits of a participatory process. The following resources need to be assessed:

- Political and community support: A stakeholder mapping and analysis should determine eligible and reliable partners to develop and implement the master plan.<sup>21</sup>
- Time: Beneficiaries often seek “quick fixes” and complain that participatory processes take “too long”.<sup>22</sup> However, traditional decision-making processes or “superficial” participatory processes are not only deficient; they also take a long time. Genuine participation is therefore valuable because it produces better results, legitimacy and effectiveness.<sup>23</sup> In UoMJK, the SWM master plan was carried out in 12 months (from September 2018 until September 2019).
- Material resources: For personnel, expertise, logistics, equipment, information material etc.

After the selection of the stakeholders, the process is structured in consecutive phases. The output of the first stage is an essential input for the next stage (“recursive process”). The UoMJK master plan process was structured in six steps; at the end of each a validation workshop was scheduled. Figure 4 shows the schematic structure of the UoMJK Master plan process.

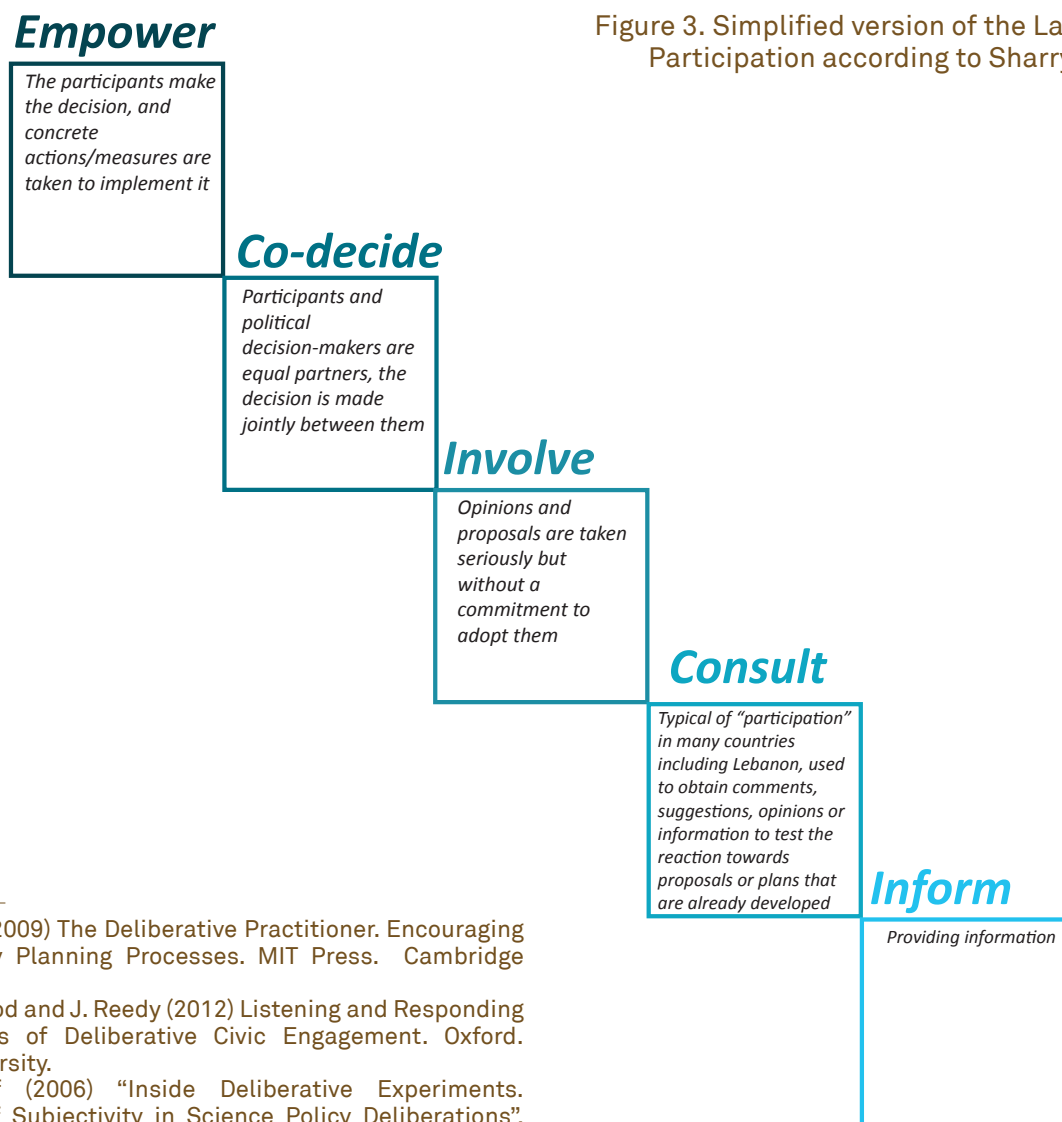


Figure 3. Simplified version of the Ladder of Citizen Participation according to Sherry Arnstein.

21 J. Forester (2009) *The Deliberative Practitioner. Encouraging Participatory Planning Processes*. MIT Press. Cambridge (Mass.).

22 L. Collingwood and J. Reedy (2012) *Listening and Responding to Criticisms of Deliberative Civic Engagement*. Oxford. Oxford University.

23 A. Görssdorf (2006) “Inside Deliberative Experiments. Dynamics of Subjectivity in Science Policy Deliberations”, *Policy and Society*, Vol. 34, No. 2, 2006.

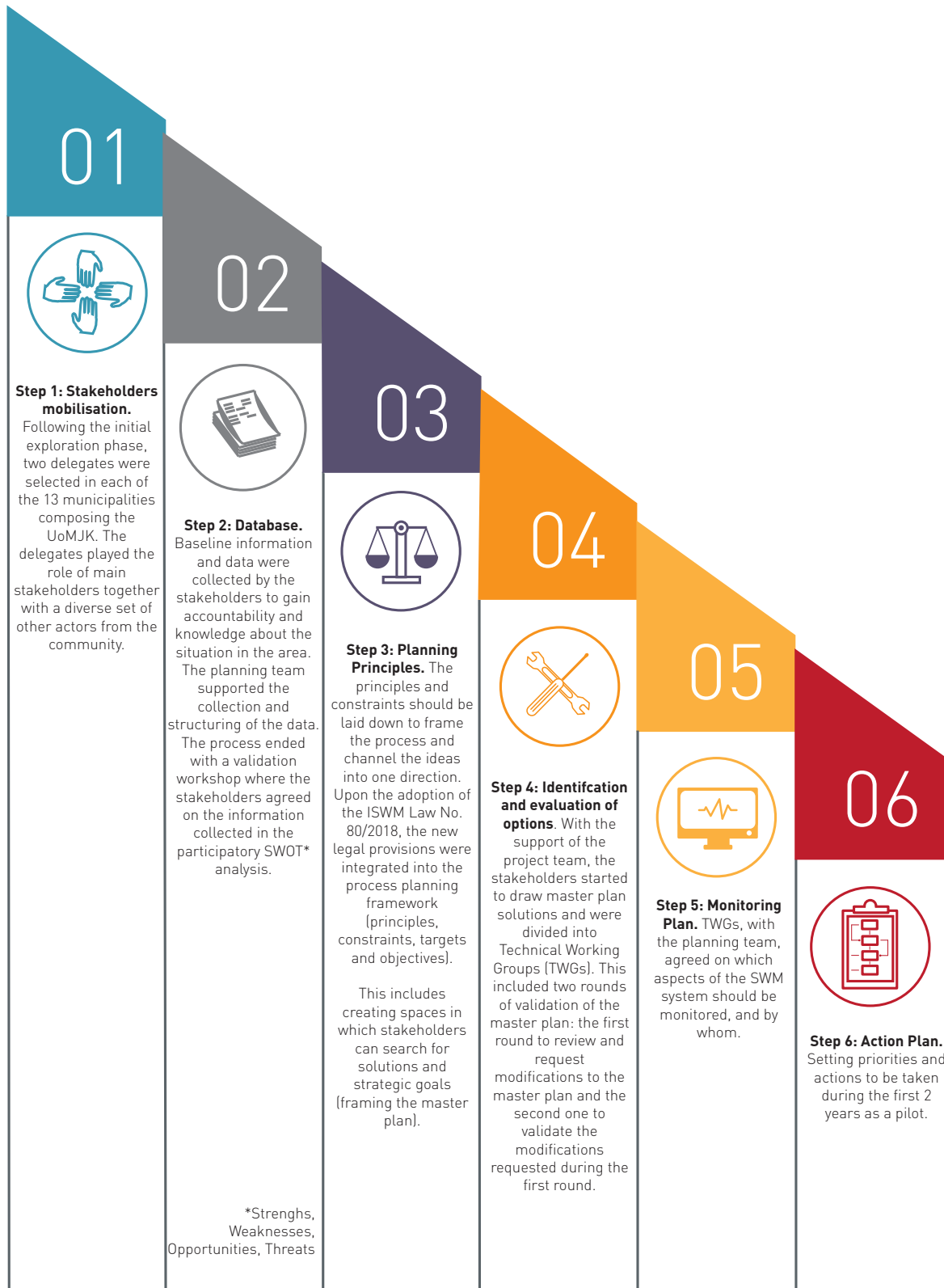


Figure 4. Step by step structure of SWM master plan for the UoMJK.



## Validation, Approval, Implementation Monitoring and Communication

Upon validation by the stakeholders, the master plan was submitted to the UoMJK council and then to the Ministry of Environment (MoE) for endorsement and approval. While validation involves a process of confirmation and authentication, approval is an official acknowledgement and authorisation that the master plan meets the legal and regulatory requirements. Participating means taking part in public decisions, but also in the implementation of a plan and its evaluation, otherwise the process loses credibility.

Because the implementation of a master plan takes time, a monitoring mechanism for its implementation status is necessary. In the case of UoMJK, an “Environmental Permanent Committee” (EPC) was established. Throughout the process, the master plan calls for a two-way communication strategy.

- From institutions/service providers to users/community: it serves to legitimise, maintain and consolidate the participatory process, allowing the community to access information and engage in collective discussions. It will be used to communicate, for example, about waste reduction, source separation, waste treatment and disposal.
- From users to service providers/institutions: monitoring and evaluation about the status of the process or the implementation. Including the perception of efficiency and effectiveness of the service, and the level of information of the actors or users to ensure transparency. A formal Public Feedback Mechanism should be established to enable the service providers/institutions to enable the Waste Technical Unit to monitor the waste management and the perception of the users.

In UoMJK, a Public Feedback Mechanism system was developed through a smartphone application and a communication strategy aiming to increase the awareness of users, and to inform and publish the data about the waste management system (Figure 5).

## Mobile Application functions

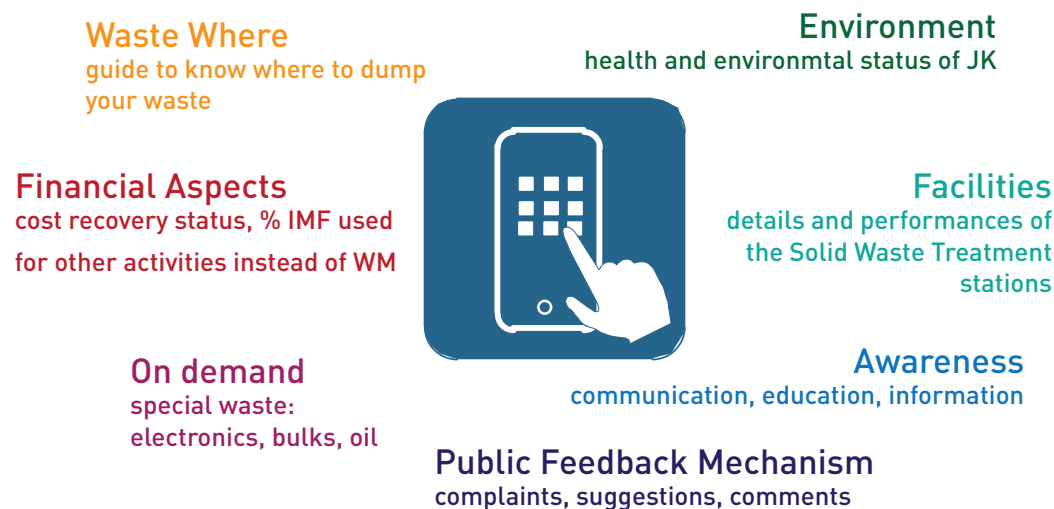


Figure 5. Functions of the smartphone application designed for the SWM master plan of UoMJK.

### 3. Ensuring the Financial Sustainability of SWM Systems

Financing SWM is another major stumbling block for Lebanese local authorities to reach a sustainable and integrated SWM system. According to DRI surveys conducted in 2017 and 2018, 81% of municipal unions said their financial resources should be enhanced, particularly to fund the SWM sector, while 40% of mayors did not know how to fund SWM projects.<sup>24</sup> This is particularly important considering the financial burden of waste management, which includes, among others, the following types of services:

- Collection and transport of waste (from users to infrastructure/facilities), pre-treatment<sup>25</sup> and treatment<sup>26</sup> of the various types of collected waste and recyclables;
- Operation of special programmes for 4Rs, such as campaigns for reduction of plastic bags in supermarkets or activating a Green Collection Centre where items can be repaired, upcycled or reused;
- Consultative processes and sensitisation campaigns;
- Costs of administrative services, management by specialised technical units overseeing SWM in local authorities.

SWM costs also include environmental (for planning, risk analysis, landscape protection) and social (health and inclusivity) costs (Table 1). In Lebanon, final disposal mostly consists of uncontrolled dumps and, to a much lesser extent, sanitary landfills. The actual cost of SWM on Lebanese local authorities does not reflect the cost of environmental degradation or health risks on the community. These expenses are eventually shouldered by the community (buying clean water, health insurance, medication etc.).

Table 1. Cost of SWM considering social and environmental costs.

Item	Cost (USD/tonne)	MIN	MAX
Direct costs		41,17	41,17
Environmental costs		11,40	24,50
Health costs		15,06	21,51
Total		67,63	87,88

Developing an integrated and sustainable governance framework for SWM that includes cost-recovery schemes, resource recovery, sorting and transportation of waste - therefore offers untapped opportunities to cover the heavy costs for SWM incurred by Lebanese local authorities. It also offers an opportunity to create jobs and a value chain for waste by-products.

Financial sustainability therefore ensures the cost-effectiveness and affordability of SWM for local authorities. Solid waste cost-recovery schemes represent a sub-indicator of the “Financial Sustainability” driver (see Figure 1) and constitutes one element of financial sustainability.<sup>27</sup>

24 DRI. (2017). Public Service Provision in Municipal Unions in Lebanon. P. 18.

DRI (2019). Are municipalities in Lebanon delivering? P. 18.

25 Pre-treatment refers to second raw material (recyclable material) which need to be compacted, shredded to increase the value or reduce transportation costs to the recycling infrastructure.

26 Treatment includes: decontamination, processing, incineration, anaerobic digestion, biogas production, pyrolysis, composting, labour-based or mechanical methods to reduce the risk of exposure or to reduce the impacts upon the environment of toxic or hazardous materials associated with the waste stream.

27 D. C. Wilson, L. Rodic, M. J. Cowing, C. A. Velis, A. D. Whiteman, A. Scheinberg, R. Vilches, D. Masterson, J. Stretz and B. Oelz (2014). User Manual for the Wasteaware ISWM Benchmark Indicators. Waste Management.

## Cost-Recovery Systems

Solid waste services managed by local authorities are highly visible and directly influence residents' perceptions of a municipality's functionality. However, they depend on the availability of reliable, regularised and adequate cash flow. It is possible to arrange for private sector involvement that would invest in new equipment and facilities. A cash flow that reflects the needs and recovers costs is a system where users are equally paid by users, following the principle of "polluter pays", and estimates based on transparent and efficient management.

At the level of the local authority, cost recovery needs to distinguish between the financing of the services from the citizens to collect and treat their waste, and the financing of municipal investments into improved waste management solutions.<sup>28</sup> A principle of waste management should involve the contribution of all those who benefit from the SWM system in order to recover the cost. Key elements in such approaches are the "willingness-to-pay" and cost affordability.<sup>29</sup> If people are willing to pay for the full costs of a service or a portion of it, this means that the service is valued and therefore will most likely be used and maintained. It also means that the tariff can be equitably distributed among users. Between these concepts lies the crucial link between user inclusivity, the institutional framework, cost recovery and financial sustainability. A transparent, well-planned SWM system that is shared, monitored and influenced by well-informed users – through sound participatory processes and user inclusivity – has higher chances of being repaid by users.

In this light, designing a cost-recovery scheme to finance SWM-related operations at the municipal level should consider two main conditions. Firstly, the fee should cover the whole cost, including fixed costs (running costs that do not depend on the amount of waste produced, such as space rental, insurance, staffing, awareness and feedback mechanisms, data collection) and variable costs (operational costs that depend on the amount of waste collected, such as number and size of equipment and facilities, logistics, maintenance). Secondly, the fee should ensure fair allocation (affordability to pay).

The cost-recovery fee could consist either of a single component (all-inclusive, flat rate scheme) or of multiple components that include fixed fees and variable fees. Variable fees are charged based on different criteria to ensure fairness (Figure 6). The EU concept of "pay-as-you-throw" (PAYT), according to which the users should pay for the exact amount of waste they generate,<sup>30</sup> has many advantages: it provides incentives for recycling, upcycling and repairing, and leads to waste reduction and the decrease of residual waste.

## Structure of a Complex Cost-Recovery Fee

Based on an analysis of the affordability of fees and the users' willingness to pay, the structure of the cost-recovery system should follow the "polluter pays" principle, which is stipulated in the Lebanese Environment Protection Law (No. 444/2002) and the ISWM Law (No. 80/2018). Households are not the only users and not those generating most of the waste; the tariff should therefore be applied to commercial and industrial units and all waste producers. Figure 7 shows an example of how the tariff is divided. Figure 8 shows how the projected cost-share for the UoMJK is distributed.

28 J.-J. Dohogne (2014) *Waste Management Costs & Financing and Options for Cost Recovery*, in Horizon 2020 CB/MEP training: Costs & cost recovery of municipal waste management. Athens.

29 See *Waste Aware Indicators*, 5F.3 and 5F.4

30 Since 1991, the European Waste Policy has required that "part of the costs not covered by revenues from material reuse must be recovered on the polluter-pays principle". Versions of PAYT are present in municipalities all over Europe. Reichenbach, Jan. "Status and prospects of pay-as-you-throw in Europe – A review of pilot research and implementation studies". *Waste Management* 28 (2008): 2809–2814.

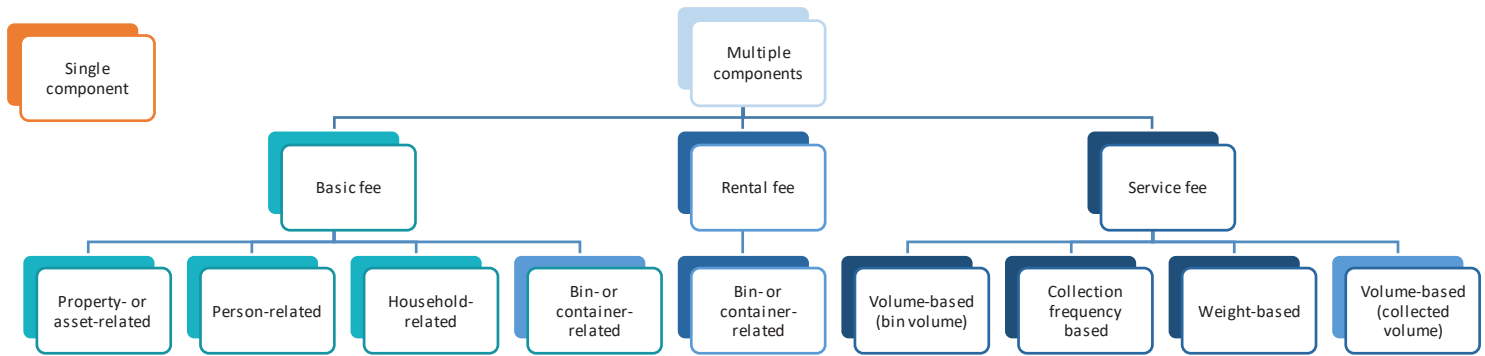


Figure 6. Estimation criteria for cost-recovery charges.

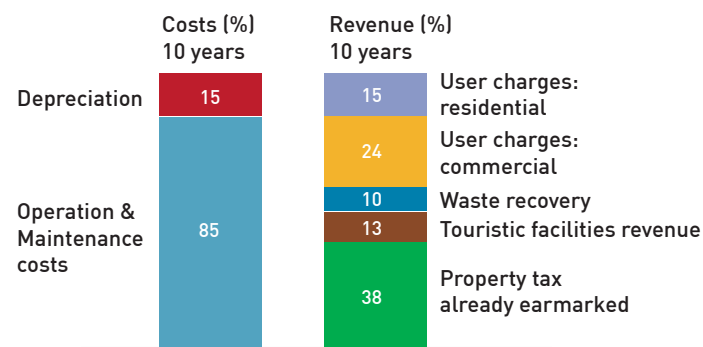


Figure 7. SWM tariff structure considering the different type of users.

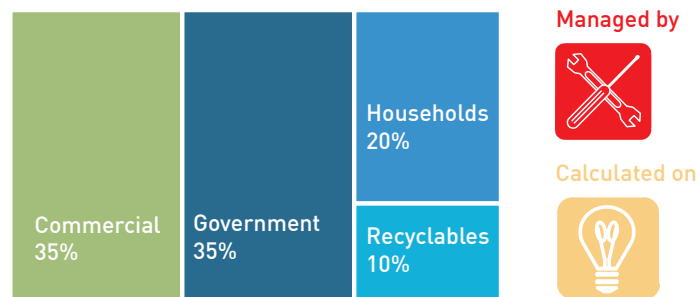


Figure 8. Projected SWM tariff structure in the master plan of the UoMJK.

## Bibliography

- Arnstein, S. (1969). A Ladder of Citizen Participation. *Journal of American Institute of Planning Association*, 35:4, 216–224.
- Behrouzi, M. (2008). The idea of Democracy and its Distortions: From Socrates to Cornel West. *Journal of Public Deliberation*, 4(1).
- Chappell, Z. (2007). Are we ready? Assessing the Preconditions of Deliberative Democracy. APISA Annual Meeting.
- Collingwood, L., & Reedy, J. (2012). *Listening and Responding to Criticisms of Deliberative Civic Engagement*. Oxford: Oxford University.
- D. Wilson. (2006). *Strategic Planning Guide*. New York: World Bank.
- Dohogne, J.-J. (2014). *Waste Management Costs & Financing and Options for Cost Recovery. Horizon 2020 CB/MEP training in Cost & Recovery of MSW*. Athens.
- Dohogne, J.-J. (2014). *Waste Management Costs & Financing and Options for Cost Recovery. Horizon 2020 CB/MEP Training: Costs and Cost Recovery of Municipal Waste management*. Athens.
- DRI. (2017). *Public Service Provision in Municipal Unions in Lebanon*. Beirut: DRI.
- DRI (2019). *Are Municipalities in Lebanon Delivering?* Beirut: DRI.
- DRI (2019). *Solid Waste Management in Lebanon: Lessons for Decentralisation*. Beirut: DRI.
- Forester, J. (2009). *The Deliberative Practitioner. Encouraging Participatory Planning Processes*. Cambridge (Mass.). MIT Press.
- Görsdorf, A. (2006). Inside Deliberative Experiments. *Dynamics of Subjectivity in Science Policy Deliberations. Policy and Society*, 34(2).
- Grimes, M. (2008). The Civic Benefits of Imperfect Deliberation. *Journal of Public Deliberation*, 4(1).
- Lewanski, R. (2016). *La prossima democrazia*. Bologna.
- Lewis, M. (2008). Inside the NO. South Africa. *Deep Democracy*.
- Local Government Resilience Programme for the Middle East and North Africa. (2017). Retrieved from <https://www.logorep.nl/wp-content/uploads/2018/06/Lebanon-Federation-of-Municipalities-Capacity-Mapping-Study.pdf>
- Mavropoulos, A. (2019). In Defense of Science – Global Warming is not an Opinion. Retrieved from <https://www.iswa.org/home/news/news-detail/browse/6/article/in-defense-of-science-global-warming-is-not-an-opinion/109/>
- OECD. (n.d.). Better Life Index. Retrieved from <http://www.oecdbetterlifeindex.org/#/111111111111>
- Pariser, E. (2011). *The filter bubble*. London: Penguin.
- Pateman, C. (1970). *Participation and Democratic Theory*. Cambridge: Cambridge University Press.
- Scheinberg, A. (2003). *Putting ISWM into practice*. Gouda: WASTE.
- Scheinberg, A., Wilson, D. C., & Rodic, L. (2010). *Solid Waste Management in the World's Cities: Water and Sanitation in the World's Cities 2010*. London: UN-Habitat.
- Wilson, D. C. (2014). “WasteAware” benchmark indicators for integrated sustainable waste management in cities. *Waste Management*, 35 (Elsevier).
- Wilson, D., Rodic, L., Cowing, M., Velis, C., Whiteman, A., Scheinberg, A., Oelz, B. (2014). User Manual for the Wasteaware ISWM Benchmark Indicators. *Waste Management*. (35):4, 329–342.

## ABOUT DEMOCRACY REPORTING INTERNATIONAL

Democracy Reporting International (DRI) is a non-partisan, independent, not-for-profit organisation registered in Berlin, Germany. DRI promotes political participation of citizens, accountability of state bodies and the development of democratic institutions world-wide. DRI helps find local ways of promoting the universal right of citizens to participate in the political life of their country, as enshrined in the Universal Declaration of Human Rights and the International Covenant on Civil and Political Rights.

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Since 2016, DRI Lebanon has worked with civil society and government at local and national levels to reinforce effective governance of public services and advocate for reforming the decentralisation framework in line with transparent and accountable governance principles.

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