METHODOLOGY FOR DUMPSITE CLEANUP AND PREVENTION IN NORTH MACEDONIA

Background

Waste management is a widespread and persistence challenge in North Macedonia. The system is completely reliant on collection and disposal, and the waste management practices are outdated and barely meet the needs of the population. There are numerous dumpsites, including both legal and illegal ones, posing environmental and health risks. While the Drisla landfill near Skopje and the temporary landfill in Gevgelija are the only ones that meets national and EU standards, the majority of the country's 57 municipal landfills do not. Additionally, there are over a 1,000 illegal dumpsites across the country, with some municipalities reporting dozens or even hundreds within their borders. It is estimated that additional 30% of generated waste in the country ends up in these illegal dumpsites. This highlights a significant challenge in waste management practices across the country.

These sites are often located near settlements, rivers, and agricultural zones, resulting in serious contamination and long-term land degradation. Communities living near dumpsites—and particularly informal waste pickers operating on them—face continuous exposure to harmful substances through inhalation and ingestion. Additionally, inadequate sanitation and the presence of disease-carrying insects and rodents heighten the risk of disease outbreaks, as noted by many organisations active in the field.

There are ongoing efforts, supported by the donor community and international organizations like the EU Delegation, EBRD, UNDP and SALAR International to modernize waste management systems and establish regional integrated waste management structures, with the goal of introducing EU-compliant disposal practices and closing down non-engineered dumpsites. A multi-faceted approach is essential to address the causes and mitigate the impacts.

There are multiple, often compounding reasons for the existence of the illegal dumpsites throughout the country. Here are some of them resulting from the general literature and the research done on the “Sustainable municipal waste management services” project:

- Inadequate waste collection infrastructure and lack of sufficient waste collection services
- Irregular, unaffordable or not widely communicated pickup of construction or bulky waste leads residents and businesses to dump waste in informal locations
- Long distance to compliant landfills or waste collection centres makes it impractical for individuals or contractors handling construction waste
- Lack of formal collection points for specific waste streams (this should be eliminated in some municipalities once the waste collection centres are being constructed and become operational)
- Weak governance and poor enforcement of environmental regulations and penalties for illegal dumping (underfunded services, lack of staff, resources, or legal authority to monitor and fine violators effectively)

- Low public awareness of proper waste disposal methods or the environmental and health impacts of illegal dumping practices and poor citizens' engagement
- Longstanding cultural norms and historic practices that reinforce illegal dumping in specific areas
- Expansion of informal settlements and rapid urbanisation that lack basic services, including waste collection

It is evident that mere clean-up of illegal dumpsites is insufficient and rarely leads to needed changes in behaviour. In worst case, it will just create more space for new waste. That is why organizations like United Nations Environmental Programme (UNEP) and the International Solid Waste Association (ISWA) advocate for a comprehensive and integrated waste management approach to closure of landfills and dumpsites.

Methodology

The methodology proposed here includes several steps that support the integrated waste management approach in engaging diverse stakeholders in improving waste collection systems, promoting awareness of sustainable waste practices, enforcing relevant policies and regulations, developing the full waste management chain (including recycling and safe disposal), establishing monitoring systems, and enhancing both administrative and institutional capacities. Ultimately, the closure of illegal dumpsites plays a vital role in reducing soil and air pollution and improving the environment.

1. **Identification and assessment of dumpsites**
    - *Mapping*: Conduct a simple, geo-referenced inventory of all illegal dumpsites in your municipality using municipal data, local reporting or even satellite imaging (DumpMapper is one such service – https://www.periopsis.com/research/dumpmapper/)
    - *Classification*: Once mapping is done, decide on classification criteria and categorize identified sites based on size, type of waste (municipal, construction, bulky waste, hazardous), proximity to settlements, water bodies, or arable land.
    - *Environmental impact assessment*: Do a simple but informed assessment of contamination risks (soil, air, groundwater), threats to biodiversity, and public health impacts.
2. **Root cause analysis**
    - *Field surveys and stakeholder interviews*: Engage with local communities, utility companies, and municipal staff to understand why illegal dumping occurs. It is important to understand the underlying causes in order to provide suitable and sustainable solutions. Draft questionnaires and conduct surveys and/or interviews.
    - *Common factors to identify***:** Look for factors like lack of accessible or affordable waste collection services, gaps in municipal infrastructure and enforcement, absence of legal waste disposal points, inadequate public awareness and illegal dumping by individuals or commercial entities to avoid disposal fees. More comprehensive description is available in the background section.

3. **Community engagement and awareness**

   - *Targeted education campaigns*: Once the root causes have been identified, community engagement must be one of the recommendations for curbing the occurrence of illegal dumpsites. Work with the local communities and target specific education campaigns to raise awareness on the dangers of illegal dumping and proper disposal methods.
   - *Local Champions*: Word of mouth is a powerful tool for communication, especially in the rural areas. Partner with schools, NGOs, and local leaders to identify people and organisations that enjoy good reputation in the community to promote behavioural change.
   - *Community reporting mechanisms*: Enable open channels of communication between the municipality/waste utility company and local communities. That can include mobile/web-based tools or good old-fashioned hotline for reporting illegal dumpsites or other waste-related issues.

4. **Providing alternatives**

   - *Expand waste collection services*: Based on the results from the research and the capacities of the utility company it is reasonable to expect improvement in frequency and coverage, especially in rural and peri-urban areas.
   - *Introduce waste collection points*: Accelerate the construction and operationalisation of the waste collection centres (mandatory by the Law on waste management, 2021) or environmental rooms that can serve as a small-scale, regulated drop-off points for waste in underserved areas. This should cater for separate streams and services for bulky or biodegradable waste.

5. **Cleanup operations**

   - *Planning and budgeting*: Prioritize sites for cleanup based on health and environmental risk and allocate municipal and donor resources accordingly. Properly plan and mobilise municipal/utility staff and equipment or private contractors for the clean-up operations.
   - *Waste sorting and disposal*: If possible, separate recoverable materials during cleanup and dispose of the rest in authorized facilities.
   - *Site rehabilitation*: It's important to apply soil restoration, planting, or fencing to discourage re-use as a dumpsite. The research done At the beginning should give you a good idea of what is needed or preferred by the local communities.

6. **Monitoring and Prevention**

   - *Governance and enforcement*: To prevent re-use of the location as a dumpsite it is important to strengthen local inspection and enforcement capacity. Use contacts with the local community and inter-municipal cooperation mechanisms to improve waste management monitoring and community compliance.
   - *Data management system*: Develop and maintain a centralized registry of identified and cleaned sites with ongoing status updates. This should work in conjunction with

mapping and classification of dumpsites from the first step – Identification and assessment of dumpsites.

- *Policy integration*: In order to achieve sustainability of efforts it is important that all these actions are integrated in and aligned with Local waste management action plans (LAPs) and compliant to Chapter 27 of the EU accession obligations through the Regional Waste Management Plans (RWMP).