

# Solid Waste Management in Azerbaijan

## Completing the Integrated Waste Management System

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Population growth, economic development, and urbanization are leading to an increasing amount of municipal solid waste (MSW) and overall waste worldwide, including in Azerbaijan. The improper management of MSW poses significant public health and environmental risks. The accumulation of waste negatively impacts the soil and adjacent water bodies; it also contributes to water-borne diseases while degrading water quality. Moreover, MSW releases methane gases, which have a warming power more than 25 times greater than carbon dioxide. Unfortunately, uncontrolled waste burning practices are often perceived as a solution by the general public to cope with the growing trash problem. However, this approach creates persistent organic pollution, which is a hazardous practice. Inefficient waste management leads to air pollution, the degradation of land and water quality, greenhouse gas emissions, toxic releases, and substantial harm to biodiversity and natural resources.

An integrated waste management approach plays a pivotal role in both international and national sustainable development strategies. Adopting a life-cycle perspective, the primary focus should be on waste reduction, followed by the promotion of reuse, recycling, and recovery of solid and hazardous wastes. For the remaining solid and hazardous wastes, it is essential to implement effective and efficient measures that involve improved reuse, recycling, and recovery of valuable materials and energy.

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## State of Play

Azerbaijan has been investing in the development of waste management infrastructure, including the establishment of sanitary landfills, waste transfer stations, and waste treatment facilities. These infrastructure developments aim to improve waste collection, disposal, and treatment processes. Efforts have been made to rehabilitate and close old, uncontrolled dumpsites and transform them into sanitary landfills. Implementing proper engineering measures to mitigate environmental risks associated with landfills and improve waste disposal practices in one of the main components of the National Strategy on Advancement of Solid Waste Management for 2018-2022, which is the first phase of the government's 20-year strategy.

The generation of MSW in Azerbaijan is steadily increasing each year, and it constitutes approximately 70 percent of the country's total waste generation. MSW management in Azerbaijan is divided into three parts: (1) Greater Baku, (2) urban areas, and (3) rural areas, with solid waste generation proportions of 50 percent, 30 percent, and 20 percent, respectively. The establishment of Tamiz Shahar JSC has led to the transformation of the Balakhani landfill into a sanitary landfill, where waste management practices such as waste sorting and waste-to-energy are implemented.

However, illegal dumping of waste is a prevalent issue in Azerbaijan. According to a World Bank report, Greater Baku alone generates around 2.06 million tonnes of MSW, accounting for roughly half of the household waste generated nationwide. Despite the establishment of sanitary landfills, a considerable amount of municipal solid waste is still dumped illegally, including in the Greater Baku area. In urban areas, household waste is managed partially, but in rural areas, it remains largely uncontrolled, lacking proper arrangements, practices, and infrastructure. Improper disposal practices, including burning waste or disposing of it in unauthorized areas, further exacerbate environmental and health risks.

While recycling infrastructure is still developing, some districts within Greater Baku have initiated recycling programs for specific waste streams such as glass, plastic, paper. These programs promote waste separation at the source and encourage recycling practices to reduce the volume of waste sent to landfills. Despite these efforts, recycling infrastructure in Azerbaijan is relatively underdeveloped. Limited recycling facilities, lack of public awareness and participation, and gaps in the legislation hinder the country's recycling efforts. Recycling initiatives have been executed sporadically and the corresponding awareness-raising campaigns has not been conducted properly amongst the population. Most of the population is either unaware of the purpose of the different colored garbage bins or they do not know the importance and value of waste sorting. As a result, valuable resources that could be recovered from municipal solid waste are often lost.

Despite the above-mentioned improvement, the main challenge related to solid waste management is the country's vague and unclear legislation. The lack of clarity in defining the various categories of waste raises concerns regarding what should be categorized as Municipal Solid Waste in accordance with the Law on Industrial and Household Waste. Additional impediments include the absence of clear rules and defined responsibilities concerning waste management practices. These are the main gaps that hinder the effective implementation of sustainable waste management practices in the country.

### *The Private Sector: Perspectives and Challenges*

Private sector involvement in waste management began to be encouraged in 2017, with the establishment of the Balakhani Industrial Park. Balakhani Industrial Park occupants have been incentivized through various stimulating measures such as tax and custom duty exemptions for a period of 10 years, predicated on the adoption of efficient and environmentally friendly technologies and become competitive market players by private waste management companies in waste collection, transportation, and recycling activities. These exemptions and incentives are aimed at attracting investment, promoting economic growth, and supporting the development of industrial sectors in Azerbaijan. They provide a favorable environment for businesses to operate, expand, and adopt efficient and sustainable technologies within the industrial park.

However, they face significant challenges due to the fragmented nature of the waste management process as well as institutional conflicts of interest due to unclear roles and infrastructural shortcomings. Insufficient waste management infrastructure, including collection systems, treatment facilities, and recycling centers, also poses a significant challenge. Many regions, especially rural areas, lack proper waste management infrastructure, resulting in inadequate waste collection and disposal practices. Additionally, waste collection and transportation systems contribute to the improper management of municipal solid waste. Limited coverage, irregular collection schedules, and outdated collection methods hinder effective waste collection and transportation, leading to the accumulation of waste in public spaces. These in turn become challenges for the Balakhani Industrial Park occupants to get their raw materials.

### *Institutional and Legislative Improvements*

Institutional and legislative rearrangement is needed to address the fragmented nature of solid waste management in Azerbaijan, to overcome gaps and overlaps, and to establish a more streamlined and holistic approach to waste management in the country.

The following steps can be taken to achieve effective institutional rearrangement. By implementing these institutional rearrangement measures, it is possible to address the fragmented nature of solid waste management whilst minimizing gaps and overlaps:

- i. *Develop a comprehensive waste management law* that provides a clear legal framework for all aspects of waste management, including waste prevention, collection, treatment, recycling, and disposal. Such a law would help streamline waste management practices and provide guidance for all stakeholders involved.
- ii. *Establish a centralized authority* responsible for overseeing and coordinating solid waste management at the national level. This authority should have the necessary power, resources, and expertise to develop and enforce waste management policies, regulations, and guidelines.
- iii. *Clearly define the roles and responsibilities* of different stakeholders involved in waste management, such as government agencies, local municipalities, private waste management companies, and community organizations. This will help eliminate overlaps and ensure accountability for each entity.
- iv. *Develop a network of regional sanitary landfills and transfer points* for the implementation of unified management in the field of household waste.
- v. *Foster better collaboration and communication* among relevant institutions and stakeholders involved in waste management. Encourage regular meetings, information sharing, and coordination mechanisms to address challenges, share best practices, and streamline efforts.
- vi. *Promote waste reduction, resource efficiency, and the transition towards a circular economy* to address the root causes of waste generation. Encouraging sustainable consumption and production patterns through legislative measures can contribute to minimizing waste generation and maximizing resource recovery.
- vii. *Adopt specific regulations and guidelines* for waste segregation at the source and mandatory recycling requirements to promote recycling practices. Implementing clear rules on waste separation and recycling would enhance waste management efficiency and increase the recycling rates in Azerbaijan.
- viii. *Strengthen enforcement mechanisms and penalties* for non-compliance with waste management regulations to ensure greater adherence to proper waste management practices. Clear consequences for illegal dumping, unauthorized waste burning, and other violations would deter such activities and promote responsible waste management.

## *Raising Awareness*

In parallel, it is essential to conduct nationwide awareness-raising activities to engage various segments of the population and ensure progress in implementing the above recommended steps.

By implementing comprehensive awareness-raising activities we can foster a culture of responsible waste management and ensure widespread participation in achieving sustainable waste management practices with the focus on waste reduction and promotion of waste sorting at the source nationwide at different levels, including the public, schools, businesses, and local communities.

Due to a lack of awareness, a significant portion of the population is skeptical about such matters and initiatives and does not recognize the importance of reducing plastic pollution and supporting the waste sorting mechanisms that have been recently introduced.

Such activities can be categorized in the following manner:

*General Public Awareness:* Launch public campaigns through media channels, including television, radio, print, and online platforms, to raise awareness about the importance of waste management, the impacts of improper waste disposal, and the benefits of adopting sustainable practices. Utilize catchy slogans, engaging visuals, and relatable examples to capture popular attention and encourage behavioral changes. These discussions need to be part of daily life, so that people build trust in the process and start participating actively.

*Educational Institutions:* Integrate waste management and sustainability topics into school curricula at various educational levels. Conduct workshops, seminars, and interactive sessions to educate students about waste reduction, recycling, and responsible waste disposal. Encourage the establishment of eco-clubs or environmental groups within schools to promote waste management initiatives.

*Business Engagement:* Collaborate with businesses, industries, and organizations to promote responsible waste management practices. Provide information and resources on waste reduction techniques, recycling programs, and sustainable procurement strategies. Encourage businesses to adopt eco-friendly practices such as reducing packaging waste, implementing recycling initiatives, and exploring circular economy principles.

*Community Participation:* Organize community events, workshops, and clean-up campaigns to actively involve residents in waste management efforts. Establish more waste collection centers and recycling points in easily accessible locations. Encourage community members to participate in waste sorting and recycling programs, emphasizing the environmental and economic benefits.

*Government Support:* Raise the level of political will in prioritizing waste management on the national agenda. Advocate for the development and enforcement of waste management policies and regulations that promote waste reduction, recycling,

and proper disposal practices. Allocate resources and funding for waste management infrastructure, awareness campaigns, and training programs.

## *Reducing Waste in Production and Consumption*

Along with institutional and legislative rearrangements and a nationwide awareness program, Azerbaijan will also need to promote waste reduction at the production and consumption level. Through this, the country can minimize the overall volume of waste that is generated.

This can be achieved through various strategies, such as promoting sustainable consumption patterns, encouraging product design for longevity and recyclability, and implementing effective waste prevention measures. A recent initiative has been implemented where plastic bags are sold instead of being freely provided in supermarkets. Even this soft approach has led to a noticeable reduction in plastic bag consumption.

Next, emphasis should be placed on reuse, where products or materials are utilized multiple times before disposal. This approach reduces the need for new production and decreases the environmental impact associated with extracting and processing virgin resources. Recycling plays a crucial role in diverting waste from landfills and conserving resources. Through recycling, materials are processed and transformed into new products, reducing the demand for raw materials and minimizing energy consumption as well as greenhouse gas emissions.

In cases where recycling is not feasible or efficient, recovery methods should be employed to extract energy or other valuable resources from waste. Technologies such as waste-to-energy systems or anaerobic digestion can convert waste into useful energy sources, reducing reliance on fossil fuels.

The country should also plan for the step-by-step introduction of what are called Extended Producer Responsibility (EPR) regulations into its waste management approach. The aim of EPR is to hold producers responsible for at least some part of the life cycle of their products and/or waste management. Implementing EPR regulations can incentivize producers to design products that are easier to recycle or dispose of and create a sustainable financing mechanism for waste management.

The introduction of EPR regulations in Azerbaijan would help shift the responsibility for waste management from local authorities to producers and encourage sustainable product design. However, before introducing this type of sophisticated practice, the government would first need to ensure that the general population, including the business community, understands and supports the country's waste management approach, which is predicated on the adoption and enforcement of proper legislation as well as putting the right infrastructure in place.

## Conclusion

Economic development, an increasing population, and higher consumption levels result in increasing waste generation in Azerbaijan. Due to gaps in legislation, institutional shortcomings, and inadequate infrastructure, the country is confronted with improper waste management practices. These practices pose significant risks to the environment, public health, and overall quality of life. Moreover, they have a negative impact on tourism development within the country.

Addressing these issues and implementing effective waste management measures are crucial for mitigating the aforementioned risks and, more broadly, promoting sustainable development in line with the UN 2030 Agenda for Sustainable Development. Azerbaijan is also interested in the improving its waste management practices; however, a holistic approach has not been implemented yet.

To overcome these challenges, the country will need to adopt an integrated solid waste management approach that focuses on waste reduction as a primary goal, followed by the promotion of reuse, recycling, and recovery methods for both solid and hazardous wastes. For that, work will be needed on legislative, institutional, and infrastructural improvements, as well as the instauration of a parallel nationwide awareness-raising campaign.

By implementing these measures effectively, Azerbaijan can achieve sustainable waste management practices that contribute to environmental preservation and resource conservation.