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National Conference

WILL RESOURCE EFFICIENCY BE ONE OF THE MAIN ELEMENTS OF ECONOMIC SUCCESS IN AZERBAIJAN?

Using industrial waste mapping for SMEs in Azerbaijan: results of UNIDO's pilot projects



Dr. Tofiq Hasanov *Expert on RECP*

ACE Group Consultants, UNIDO's National
Executive Partner for RECP in Azerbaijan

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Resource efficiency, circular economy and waste maps

- ❖ Potential regions in the country to conduct a waste mapping study, major waste generators, sources and types of waste, estimated volumes, current waste management practices, legal status, transportation cost, disposal cost, potential recycling or reuse, successful business models, etc.
- ❖ Based on pre-selected criteria, two pilot districts were selected with more developed manufacturing industries (respectively, solid industrial waste).
- ❖ Development of an implementation work plan and support for waste mapping by identifying options for existing waste stream sources/by-product streams and technical and feasible opportunities for their recycling in the two selected regions for waste mapping.
- ❖ **Preparation of waste maps for the two selected project districts with the technical support and guidance of UNIDO's international expert.** Clarifying and consulting with relevant organizations about possible options to promote the application of those maps.

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Resource efficiency, circular economy and waste maps

The main criteria for the selection of pilot districts

- Ability to accurately identify the main types of waste;
- Availability of information on industrial waste;
- Availability of waste information sources;
- Availability of information on key players in waste management.

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Main industrial zones in Azerbaijan





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Resource efficiency, circular economy and waste maps

Selection of pilot districts

Economic areas of the country, especially industrial enterprises, are located in various industrial nodes formed under the influence of natural and socio-economic factors. **Baku, Sumgayit, Absheron region, Ganja-Mingachevir-Yevlakh, Shirvan-Salyan, Nakhchivan, Lankaran-Sheki and Khachmaz** are the main industrial zones.

As a result of the initial evaluation, three pilot districts were selected:

1. Baku economic region (includes Baku city)
2. Absheron-Khizi economic district (includes Sumgait city and Absheron district)
3. Ganja-Dashkasan and Central Aran economic regions (including Ganja and Mingachevir cities)

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Number of pre-selected production areas and enterprises in pilot regions

Manufacturing Area	Number of initial selected enterprises (<u>unit</u>)	
	Baku	Absheron-Khizi
Metal smelting, metal processing	8	1
Construction materials	8	3
Paint and other building materials	8	2
Production or use of chemicals	2	6
Furniture	11	
Production of glass and porcelain-ceramics	2	3
Machine building	2	
Textile	2	2

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Economic regions	Project area	Area (sq. km)	Population (thousand people)	Operating industrial enterprises	Production of industrial waste, tons	
					2019	2020
Baku	Baku city	2140.0	2293.1	1671	278606.0	275697.4
Absheron-Khizi	Sumgait city	94,17	345,3	180	2912.3	2186.4
	Absheron district	1966.1	214.1	142	2916.0	2190.1

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Waste mapping. Results



The city of Sumgait, one of the main production clusters of Azerbaijan, occupies a dominant position in the Absheron-Khizi Economic Region (AKER). In 2020, there were 322 active industrial enterprises that generated a total of 4376 tons of waste. The most common manufacturing enterprises in the area are metal smelting and processing, plastic and chemical materials for construction, glass and porcelain production, and textiles.

In the Baku Economic Region (BER), the city of Baku, which is the scientific, cultural and industrial center of Azerbaijan, has a dominant position. In total, BER has 1,671 active industries that together generated 275,697 tons of waste in 2020. The most common production areas in the area are construction materials production, furniture production and similar to those in AKER.

Due to the fact that AKER and BER have similar characteristics in terms of geography and industry, they are contiguous, overlap each other and have relatively small geographical distances, the two pilot districts were analyzed together in terms of waste reduction, collection and processing.

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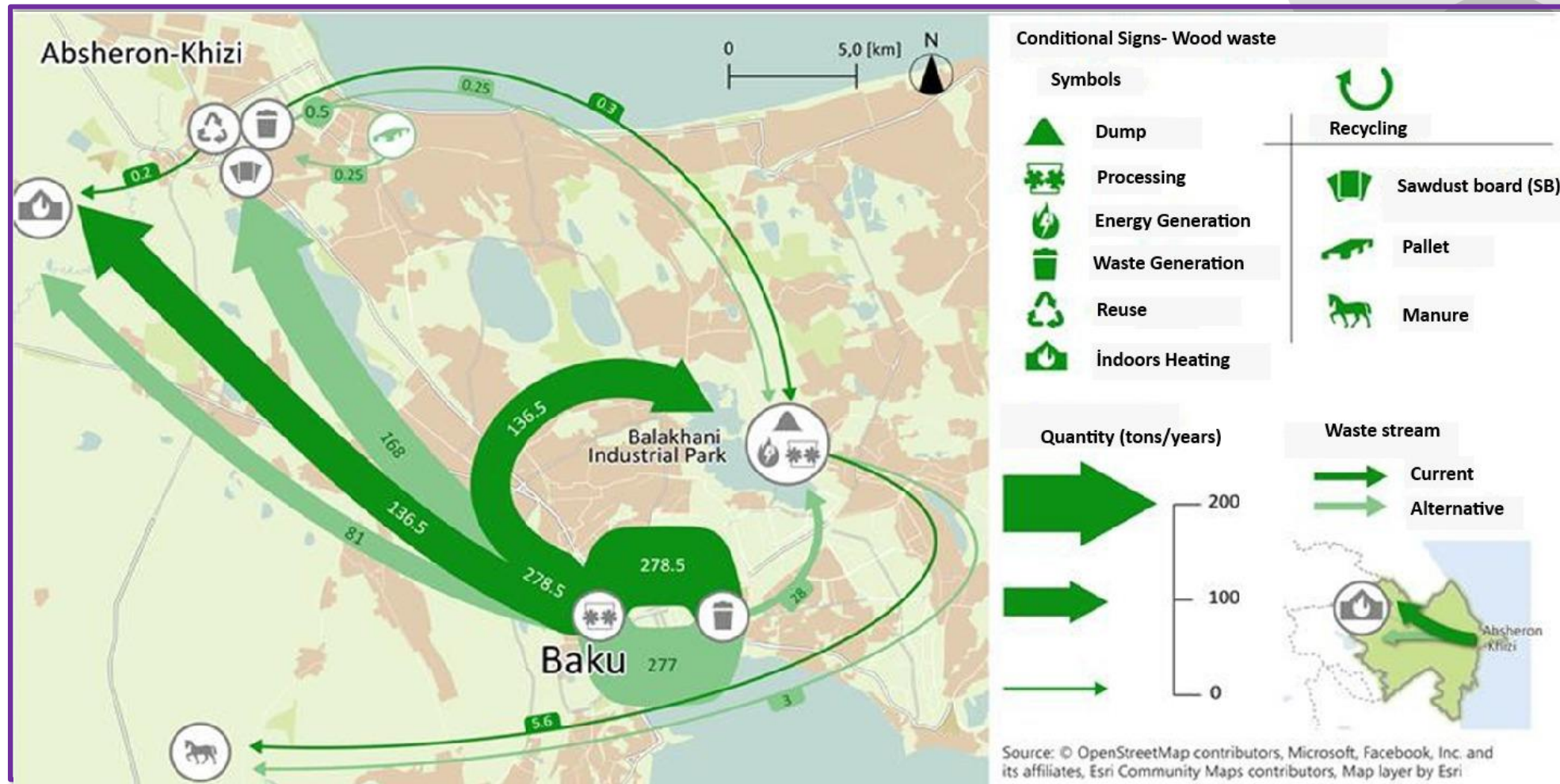




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Example: LUMBER (WOOD) WASTE





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Waste mapping. Conclusions and Recommendations

- ❖ In both pilot regions, there are established reuse or recycling routes for many industrial wastes. However, only 13% of the total waste generated is reused or recycled. For most types of waste, *strengthening sorting at the source in production facilities* will allow for increased circularity.
- ❖ The total financial results of the implementation of **alternative measures for the purpose** of increasing circularity are estimated at the level of approximately 1,875,000 AZN (≈1,057,000 Euros) per year for the selected production enterprises. In general, the proposed measures to increase circularity in a broad extrapolation to the four focus sectors can provide cost savings for the producer in the amount of 52,000-63,000 AZN (≈29,000-35,000 EUR) per year in terms of waste collection costs, as well as 10.0-12.0 million AZN per year in terms of post-processing material cost (≈5, 6-6.8 million euros).
- ❖ An emerging regulatory framework such as **Extended Producer Responsibility** will create the necessary regulatory and financial framework to improve resource efficiency and help develop circular solutions for a range of wastes.
- ❖ Improved waste data and greater transparency are essential for both accurate mapping and improved solutions. The main aspects of the mapping are based on benchmarks and estimates due to the lack of publicly available empirical data in Azerbaijan. **Commercial and strategic decisions cannot be made without reliable information.**



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Conclusions and Recommendations

- ❖ Enhancing the perspective of hierarchical implementation of **waste management in waste strategy and legislation**.
- ❖ **There is an urgent need to improve waste data.** Without good waste data, waste management systems are difficult to design, implement and evaluate. **Business decisions such as investments in circular reuse models, recycling facilities and expansion of existing services cannot be made without information.** Quantitative information is needed to reduce the risk of such investment decisions.
- ❖ Protocols for reporting waste generation in manufacturing **facilities and waste receipt in waste treatment facilities, including statistical protocols** to avoid double counting.
- ❖ The application of **taxes, tariffs and appropriate fiscal instruments** should be accelerated. In addition, **low entry fees reduce the incentive to invest in waste reuse and recycling systems.** EU experience shows that the landfill tax has reduced the interest in landfilling and increased the interest in recycling. By increasing access fees, ensuring strict enforcement of fees and thereby ensuring long-term predictability in the waste management sector, investors may be more interested in **investing heavily in recycling facilities and other relevant infrastructure.**

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Conclusions and Recommendations

- ❖ **Market stimulation and support.** Measures that support recycling may include implementing procurement protocols that favor the use of reused or recycled product.
- ❖ **Actions against waste management violators.** Illegal dumping of waste can become a by-product of mandatory waste collection systems. **An obvious strategy to prevent dumping and illegal dumping is to develop services and infrastructure that enable recycling.**
- ❖ Nevertheless, greater institutional and regulatory requirements for business entities may lead to an increase in illegal dumping, and therefore countermeasures, **including control mechanisms and penalties**, should be put in place to prevent such practices.
- ❖ Public registers of waste enterprises. Details on businesses involved in waste management such as transporters and processing/treatment facilities are sometimes difficult to find. **A searchable database of all registered businesses** would be useful in mapping services and infrastructure.
- ❖ Incentives for behavior change. Current efforts to change behavior through public advocacy initiatives are insufficient. Financial incentives are usually effective in changing behavior. Currently, there are no tools to promote environmentally positive behavior in Azerbaijan, such as interest rate subsidies for certain types of investments. It is recommended to apply such positive incentives to complement current fiscal instruments.



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