



Limited case-study on financial assessment of development scenarios for municipal solid waste in two districts of Armenia

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Joint Meeting of the EAP Task Force's Group of Senior Officials on the Reforms of the Water Supply and Sanitation Sector in EECCA, the EAP Task Force's Environmental Finance Network, and the EU Water Initiative's EECCA Working Group

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Structure of the presentation

- Project background
- Scope of work and project organization
- The objectives of the project
- Some challenges facing the municipal waste management sector in Armenia
- Assumptions made in the case-study, data collection
- Baseline scenario
- Development scenarios
- Major findings from the development scenarios analysis



Project Background

- Elaboration of the Municipal Waste Management Plan in the Republic of Armenia
- Ministry of Urban Development and EU Adviser have arrived to the conclusion that it would be desirable to identify financially viable objectives and scenarios for the sector development
- The Ministry has requested the EAP Task Force to support the project in implementation



Scope of work and project organization

- A small project
 - a training in the FEASIBLE Waste module was held in Nov 2004
 - a small case-study, limited in terms of geography and scope
- Organisation
 - a Steering Group, with officials from the Armenian government
 - a Working Group
 - an international consultant
 - local experts



Objectives of the project

- To pilot test the methodology of financing strategies for municipal waste in Armenia; the project explores scenarios which were simulated using the FEASIBLE computer tool
- To transfer know-how on this methodology to Armenian authorities working in this sector
- To explore a scenario of inter-municipal cooperation for domestic solid waste management, and to see how inter-municipal cooperation is likely to impact the total costs of the service



Challenges facing municipal waste management in Armenia

- Informal relationship between municipalities and private operators (verbal agreements only), apparently without any tender
- Problem of transparency and of supervising implementation of the agreements, by both public authorities and the general public
- In most settlements, lack of stated agreement on tariffs, tariff regulation and tariff policy
 - Risk of abuse of monopoly power



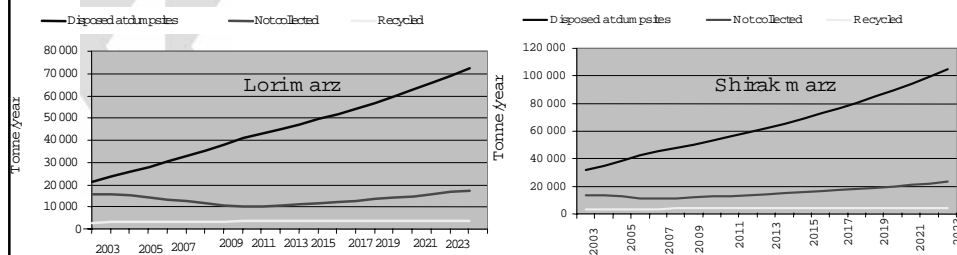
Baseline scenario Waste generation

Marz	2003	2008	2013	2018	2023	Total(2003-23) (forecast)
Lori	38,413	47,037	57,651	72,432	92,202	1,272,523
Shiak	47,069	61,384	78,575	100,809	130,559	1,728,830

Source: calculations with the FEASIBLE tool



Baseline scenario Waste flow distribution



- decrease of non-collected waste which is mainly related to the population decrease assumed until 2011
- linear growth of landfilled/dumped waste, due to GDP growth which compensates for the population decrease

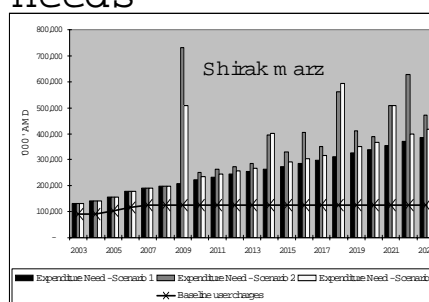
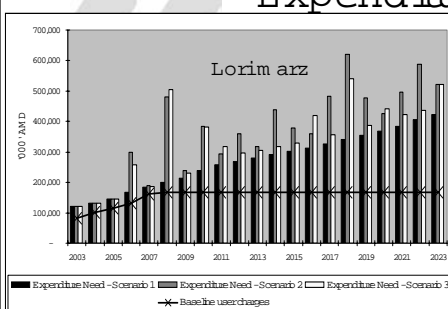
Development scenarios

- Scenario 1
 - increased coverage of households with domestic waste collection and removal service (which will be delivered to existing waste disposal facilities)
 - Scenario 1 is not acceptable in the long-term, taking into account unfavorable impact of the existing dump sites on environment and human health
- Scenario 2
 - Scenario 1 + establishment of new landfills in each and every municipality
- Scenario 3
 - Scenario 1 + inter-municipal cooperation to facilitate construction of inter-municipal landfills - less in number but bigger in size

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Major findings Expenditure needs



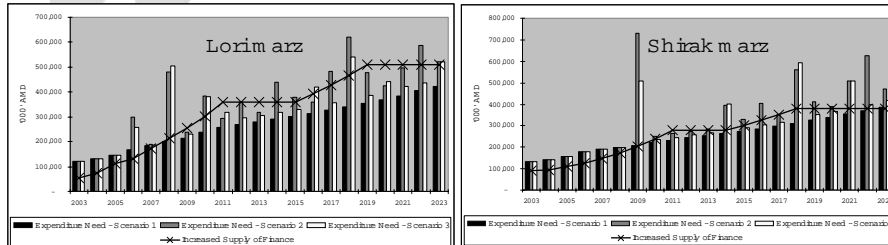
- In the short run (2007), the baseline funding might be almost sufficient to start implementation of the scenarios in marz Lori (but not in marz Shirak)
- Implementation of all scenarios in the mid- and long term will require a notable increase of funding

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Major findings

Results of tariffs increase



- Households allocate 0.37% of their expenditures to domestic solid waste collection and disposal
- Tariff increase by 20% per year until 2011, 10% per year from 2016 to 2019
- Level of charges and affordability: In 2011, 0.95% of total household expenses, in 2018/19, 0.90%
- Slight increase for industries and other consumers to achieve financial sustainability
- The cash flow will be negative in a number of years, but in most cases it can be covered from the positive balance of the previous period
- Special measures to attract additional finance will be required only to cover deficit in these years.

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Conclusions

- Scenarios 2 and 3 are feasible if the following package of measures is implemented to attract additional funding
 - tariffs for households in Lori and Shirak are increased to affordability threshold by 2011 (0.95% of total household expenditures)
 - collection rate of household user charges is increased up to 95% in 2008
 - user charges for industries and other institutions are increased by 10% per year until 2011
- Scenario 3 is more economic and would save capital and current expenditures (0.9 and 1.3M USD for Lori and Shirak marz respectively)
- Intermunicipal cooperation would help achieve the financial sustainability of the sector and thus make it attractive for private operators and investors that comply with current standards and norms.

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Future National Financing strategy

- explore the prospect of waste reduction incentives
- explore alternative technologies to collect and to process domestic waste
- assess the proceeds from recyclables, and their impact on revenues of utilities
- address the specific issue of rural areas
- identify incentives for utilities to comply with norms and standards
- take into account the willingness-to-pay of clients of the waste management system