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WASTE MANAGEMENT TECHNOLOGIES IN REGIONS, GEORGIA

Annual Report

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Prepared for:
Mission Environmental Officer
Economic Growth Office
USAID | Caucasus

Prepared by:
International City/County Management Association
777 North Capitol Street NE, Suite 500
Washington, DC 20002-4201

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ABBREVIATIONS

ADC	Austrian Development Cooperation
AOR	Agreement Officer`s Representative
APA	Agency of Protected Areas
CENN	Caucasus Environmental NGO Network
EHS	environmental health and safety
EIA	environmental impact assessment
EIEC	Environmental Information and Education Centre
EU	European Union
FB	Facebook
GHG	greenhouse gas
GoG	Government of Georgia
ICMA	International City/County Management Association
ISWM	integrated solid waste management
LFG	landfill gas
MOENRP	Ministry of Environment and Natural Resources Protection
NGO	non-governmental organization
PEST	political, economic, social and technological
PSA	public service announcement
PMP	performance monitoring plan
4Rs	reduce, reuse, recover, recycle
SCG	Stakeholder Consultative Group
SFG	Sustainable Forest Governance in Georgia program
SW	Solid Waste
ISWM	Integrated Solid Waste Management
SWM	Solid Waste Management
SWMCG	Solid Waste Management Company of Georgia
SWOT	strengths, weaknesses, opportunities, threats
USAID	United States Agency for International Development
WMTR	Waste Management Technologies in Regions
WMA	Waste Management Association

Program Background

The USAID awarded the Waste Management Technologies in Regions Program (WMTR) to International City/County Management Association (ICMA) on March 18, 2014, under Cooperative Agreement AID 114-LA-14-00001. ICMA is implementing WMTR in partnership with a local sub-recipient, the Caucasus Environmental NGO Network (CENN). WMTR contributes to the following USAID monitoring and evaluation framework objectives and results:

- Strategy Development Objective 2: Inclusive and sustainable growth.
- Intermediate Result 2.3 More responsible management and development of Georgia's natural endowments.
- Intermediate Result 2.3.3 Waste management improved.

The goal of WMTR is to provide professional waste management technical assistance to support waste management system development and recycling in two regions of Georgia — Kakheti and the Autonomous Republic of Adjara. Project activities will promote greenhouse gas (GHG) mitigation and sequestration by developing the waste management sector, including waste collection, recycling, and public awareness. Specifically, this project will enable GHG mitigation and sequestration within the waste sector by enabling the recycling business environment in targeted regions and municipalities to:

- Improve waste collection systems
- Minimize pollution of natural resources from landfills by closing down old, illegal landfills and dumpsites
- Enhance public awareness of waste management issues and promote public participation in the decision-making and design processes of new waste management systems.

ICMA will also work closely with its local partner, CENN, to build the capacity of its staff with the ultimate goal of WMTR handover in 2017.

WMTR activities combine various components into a comprehensive structure that focuses on technical assistance and capacity/institution building of integrated waste management systems and recycling/composting in two regions of Georgia — Kakheti and Adjara AR. WMTR has four main components:

- Component 1: Waste Collection and Recycling Systems
- Component 2: Private Sector-Led Recycling
- Component 3: Waste Management Strategy and Tariff Policy
- Component 4: Communication and Outreach

WMTR also implements crosscutting activities that support the four components above and promote local governance. The crosscutting activities include, among others, empowerment of youth and women, ethnic minorities and people with disabilities, and gender mainstreaming.

This Annual Report covers the period from October 1, 2015 until September 30, 2016, within the USAID Fiscal Year 2016.

Assumptions, Problems and Barriers

WMTR contended with the following assumptions, problems, and barriers during the reporting period:

1. Miscommunication and lack of coordination among donor agencies working in the waste management sector;
2. Lack of communication among state institutions responsible for waste management in Georgia;
3. Lack of capacity at the municipal level for addressing waste management issues;
4. Lack of financial resources allocated in municipal budgets for waste management;
5. Municipalities lack of technique and equipment (trucks, bins, etc.) required for waste collection and recycling;
6. Lack of accurate data on GHG emissions from the waste management sector to create a baseline and develop short-term and long term goals for the reduction of emissions;
7. Lack of local expertise in waste management;
8. A very limited number of recycling companies with both the capacity and willingness to be potential grant recipients;
9. The context of the broader socio-economic situation in the country;
10. The public's lack of awareness when it comes to integrated waste management issues like waste separation, recycling, tariff issues, etc.

To address and mitigate the effects these problems and barriers have on the program, WMTR works closely with all tiers of government and stakeholders on capacity building and has been using an intensive communication, outreach and awareness campaign to promote best practices in waste management and recycling systems. In Particular:

- (1&2) Twice a year the WMTR team organizes stakeholder consultation meetings with the involvement of donor organizations, governmental structures, and other stakeholders. Such meetings present a good opportunity for all parties involved in the waste management sector to coordinate their work and improve communication with one another.

The WMTR team hosted the fourth Stakeholder Consultative Group Meeting in May 2016 and has scheduled the next for November 2016.

WMTR meets regularly with different projects' teams working on waste management issues in order to coordinate and supplement activities while avoiding duplication.

- (3) The WMTR team organized a series of tailored trainings for representatives of local government to improve their capacity for addressing waste management issues. The program is supporting the municipalities to develop municipal waste management plans, which will help them to improve their waste management system and comply with the requirements of national legislation.
- (4, 5) The WMTR team conducted capacity analyses of municipalities in project target regions and provided this information to the different state and financial intuitions working on waste management issues. This analysis helped donor institutions to identify the needs of local governments and allocate funds to meet their requirements. The best example is the EBRD funded EUR 15 million project to support municipalities with waste bins and trucks. Since the situation is similar in all municipalities of Georgia, these results could prove useful for other regions.

Under the WMTR project's city-to-city program, in November 2016, the Self-Governing City of Telavi will receive a modern 2010 Kenworth Rear Loader trash truck, with an estimated market value of USD 90,000. This will help the city optimize its waste management system. The WMTR team also provided the Self-Governing City of Telavi and Telavi Municipality with bins for separated waste collection (plastic and paper) supporting them with the technique and equipment required for waste collection and recycling.

- (6) The WMTR team transferred the TDL-500 Portable Gas Analyzer to the Solid Waste Management Company of Georgia (SWMCG) and provided practical training to the staff of the company on the usage of this equipment. This will enable the SWMCG to measure GHG emissions in the air around landfills. The WMTR team provided SWMCG with special software for calculation of GHG emissions and provided training on calculation methodology.
- (7) The WMTR team is using international expertise to conduct analyses, develop documents, and solve different issues that Georgia faces in terms of waste management while at the same time building local capacity.
- (8) The WMTR team has provided technical support (tailored trainings, workshops, seminars, development of business and marketing plans, conducting energy audits, etc.) to recycling companies in order to increase their capacity, as well as created a platform for dialogue between the private sector and the government to create a business friendly environment for the waste recycling sector in Georgia

The WMTR team is also supporting waste collection and recycling companies to upgrade their technologies through grants to purchase new, modern equipment.

- (10) The WMTR team issued small grants to two schools in Kakheti Region to support establishing an integrated approach to waste management. The team is also conducting a very intensive awareness raising campaign through competitions, celebrations of environmental days, roundtable meetings, TV programs, Facebook campaigns, etc. to increase the public's awareness of integrated waste management issues.

Significant Events and Achievements during the Reporting Period

- **By-law - Rules of Collection and Treatment of Municipal Waste**

The WMTR team, in collaboration with the MoENRP, developed technical regulations, *Rules of Collection and Treatment of Municipal Waste*, in accordance with the requirements of article 16, part 5 of the Georgian Waste Management Code. On April 1, 2016, the Prime Minister of Georgia, Giorgi Kvirikashvili, approved the technical regulation with Government of Georgia Resolution № 159.

- **General methodology for waste tariff calculation and a cost recovery system**

The WMTR team developed a general methodology for establishing a waste management tariff and a cost recovery system in Georgia. The report provides general methodology for determining waste tariffs in accordance with modern requirements and proposes a cost recovery system that will ensure the sustainability of solid waste management systems at the municipal level.

The development of such a methodology is a requirement of the Waste Management Strategy and Action Plan, approved by Prime Minister of Georgia Giorgi Kvirikashvili on April 1, 2016.

- **Cost-Benefit Analysis of Waste Management Strategies for the Adjara Autonomous Republic and Kakheti Region of Georgia**

The WMTR team conducted a cost-benefit analysis for waste management investments in the country to guide the establishment of a proper waste management system in Georgia. The goal was to inform policymakers about the economic potential of alternative waste management strategies, to highlight issues about system integration and stakeholder impacts, and to suggest a strategy for mobilizing international support for financing recycling and composting alternatives that reduce methane and CO₂ emissions, providing global benefits.

Based on the findings of the analysis, the WMTR team developed the Cost-Benefit Analysis of Waste Management Strategies for the Adjara Autonomous Republic and Kakheti Region of Georgia. The document will help the government of Georgia to make informed decisions in terms of investments in the waste management sector.

- **The Waste Management Guideline for Agency of Protected Areas (APA)**

The *Waste Management Strategy and Action Plan* approved by the government in March 2016, requires the development of the *Protected Areas Waste Management Guidelines*. Therefore, the WMTR team, in close cooperation with the MoENRP's APA, developed this guideline.

The guideline applies to all categories of protected areas in Georgia and provides information on the principles of waste management in protected areas in accordance with international standards. It defines sound practices and standards that will help assure the Agency of Protected Areas, together with the local government of the municipality where the protected area is located will manage waste originating from protected areas properly.

- **Development of Municipal Waste Management Plans for Municipalities in Kakheti Region and the Autonomous Republic of Adjara**

The WMTR team in cooperation with local governments of seven municipalities — the municipalities of Khulo, Khelvachauri, Telavi, Akhmeta, Lagodekhi and the self-governing Cities of Batumi and Telavi — developed draft municipal waste management plans (MWMP). The development of such plans is required by Georgian legislation — the Waste Management

Code. According to article 13 (1) of this law, each municipality shall adopt a plan for the management of the municipal waste produced within its territory for a period of five years.

- ***Seasonal Study of the Composition of Solid Municipal Waste in Adjara AR and Kakheti Region***

In order to determine the technical and economic efficiency of waste recovery and recycling programs, WMTR has carried out an assessment of the amount of recyclables present in municipal waste streams. As waste types and volumes vary depending on the season of a year, the WMTR team carried out a seasonal morphological study of waste composition in the Batumi and Telavi landfills. The seasonal study covered all 4 seasons from July 2015 until April 2016.

- ***Closure of Gurjaani Landfill***

The WMTR team developed the Gurjaani Landfill closure plan for the NSWMCG in accordance with the requirements of national legislation, international best practices and EU directives. The NSWMCG communicated this plan to the MoENRP who gave their consent for the closure of the landfill according to the plan.

The NSWMCG allocated money in the 2016 budget, and in July this year closed the Gurjaani landfill in accordance with the WMTR's closure plan.

- ***Closure of illegal dumpsite in Beshumi, Khulo municipality***

The WMTR team developed a closure plan for the Beshumi illegal dumpsite (around 780 m²; it was not fenced off and was surrounded by a unique forest) and is currently closing it together with the local government.

- ***Cleaning and repurposing illegal dumpsites in Adjara AR and Kakheti region***

During this fiscal year, the WMTR team in cooperation with the local government cleared illegal dumpsites and repurposed cleaned areas by planting trees on them together with local people, and installed signs with a slogan that discourages dumping. WMTR cleared six illegal dumpsites during this fiscal year and planted about 500 trees in the cleaned areas together with local people;

- ***Introducing waste separation system in 5 villages of Telavi municipality – Tsinandali, Kvemo Khodasheni, Akura, Vanta and Busheti***

The WMTR team launched a pilot project in five villages of Telavi municipality in order to demonstrate the benefits of integrated solid waste management (ISWM) practices via the provision of technical assistance, co-financing support, and the establishment of an ISWM system, as well as to raise the awareness of local governmental structures and the public at large.

The WMTR team, in cooperation with the local government, placed 87 bins over all 5 villages to establish waste separation practices and expand the coverage area of waste collection. Forty-two of the 87 bins are for separated collection of plastic and paper. The bins for separated collection are located in public places i.e. close to shops, markets, schools, kindergartens etc.

The separated waste is kept in a storage space allocated by the local government, and is taken by a private company to be exported or recycled.

- ***Introducing Waste Separation Scheme at Goodwill Hypermarket and Tbilisi Marriot hotel***

The WMTR program introduced the country's first public waste separation scheme in Goodwill Hypermarket and Tbilisi Marriot Hotel. Customers of Goodwill Hypermarket are able to separate paper, plastic (bottles and bags), and aluminium cans. Tbilisi Marriot Hotel provides

the opportunity to separate paper and glass. The private waste collection company Supta Samkaro Ltd. is collecting separately collected waste from both institution for further recycling.

- ***Demo Composting Scheme in Kachreti College***

The WMTR team supported the AISI Collage in Kachreti to introduce a composting scheme and install a composting bin and conducted relevant training for the staff of the collage.

- ***A waste separation and recycling electronic game for children***

The WMTR team developed a separation and recycling e-game. The game aims to raise awareness among children aged six and above on waste separation and recycling issues. It consists of several stages where the game asks the child to clean a room, park, or picnic area and place waste in pre-determined waste bins.

Status of Activities by Components

Component 1: Waste Collection and Recycling Systems

Facilitate the Stakeholder Consultative Group (SCG) advisory role

Fourth Stakeholder Consultative Group Meeting

On May 19, 2016, the WMTR team held the fourth Stakeholder Consultative Group Meeting (SCG) in Betsy's Hotel, Tbilisi, in order to update SCG members on project results, ongoing activities, and future plans. At the same time, the WMTR team used this opportunity to coordinate WMTR activities with the work of other institutions and projects operating in the waste management sector.

During the meeting, the WMTR team highlighted the waste separation programs initiated in Telavi Municipality and the City of Telavi as successful programs other municipalities and self-governing cities could replicate.

The WMTR team also took the opportunity to garner members' support for the national government's formal adoption of policy documents developed by the WMTR team between October 2015 and April of this year, and have since been approved:

Cost-Benefit Analysis of Waste Management Strategies

WMTR based this report on data gathered in the Adjara Autonomous Republic and Kakheti Region. The document analyzes a number of waste management strategies and evaluates their comparative costs and benefits. Some of the strategies analyzed include waste disposal at landfills, operating landfill-based material recovery facilities, source separation and recycling programs, and composting systems. Municipalities can now use this document to inform decision makers during the identification and development of appropriate waste management strategies.

General Methodology for Establishing Tariffs and Cost Recovery System in Georgia.

This document provides a modern methodology for waste tariff calculation along with an Excel-based calculation tool. The introduction of this tool will help municipalities to properly calculate waste fees and therefore improve the sustainability of their solid waste management systems by informing the design of a maintainable funding source.



During the meeting, participants discussed both documents at length and received positive preliminary feedback. After the meeting, the SCG members discussed the tools with their respective institutions. The WMTR team also provided the documents to different institutions with official letters and received written comments to clarify certain issues. The team incorporated all comments received by stakeholders and finalized the documents.

Conduct a preliminary environmental assessment and an assessment of current GHG emissions in Kakheti and Adjara

The WMTR team assessed current GHG emissions from waste disposal areas in Adjara AR and Kakheti region. The evaluated disposal areas in both target regions include the following:

- Kakheti Region Disposal Sites** – Telavi, Signagi, Kvareli, Gurjaani, Iagodekhi, Sagarejo, Dedoplistskaro
- Adjara AR Disposal Sites** – Batumi, Kobuleti

Generally, the random conditions at municipal waste disposal sites make it difficult to determine the exact amount of GHG generated and emitted at any site. Waste accumulation conditions will vary significantly leading to GHG generation that can vary from site to site and within each site. Factors that can vary gas generation rates may include the type and depth of solid waste accumulated at the site and the prevailing climactic conditions at the disposal site.

As a result, the team utilized a two-stage approach to evaluate each of the nine disposal sites listed above. Initially, the team screened the sites to determine whether the landfill was emitting methane emissions at a level sufficient to develop measurable concentrations of emitted methane in the ambient air at the surface of the waste accumulation within the landfills. This field assessment and screening process was then followed by application of a GHG model to estimate the approximate quantity of emissions derived from the disposal sites based on the physical characteristics of the individual sites.

Supporting the SWMCG to measure GHG emissions in ambient air around the landfills via portable equipment - TDL-500 Portable Gas Analyzer

On March 10 2016, USAID Mission Director, Douglas H. Ball, acting director of the Office of Economic Growth, Veronica Lee, AOR of the WMTR project, and the WMTR team, visited Rustavi landfill to transfer the GHG portable equipment to the Solid Waste Management Company of Georgia.

For the first time in Georgia, the TDL-500 Portable Gas Analyzer will enable the SWMCG to measure greenhouse gas (GHG) emissions in the ambient air around landfills and assess the negative impacts of landfills on the environment. This equipment will also help the company to better plan their short-term and long-term objectives to reduce GHG emissions from existing landfills and continuously monitor these emissions in ambient air around existing and new landfills built in accordance with EU requirements.





At the event, WMTR and the SWMCG signed a memorandum of understanding pledging to cooperate to evaluate GHG emissions in ambient air around landfills across Georgia, and develop mitigation measures to reduce their negative impacts on the environment. The parties agreed to exchange information on GHG emission measurement results and together plan further steps for the reduction of GHG emissions from landfills located in the WMTR project target regions — Kakheti Region and Adjara AR.

Following the signing of the MoU, the Mission Director personally participated in demonstrating a GHG measurement at the Rustavi landfill, along with SWMCG Director, Giorgi Shukhoshvili, and the WMTR team.

Two weeks after the transfer ceremony, WMTR continued to build the capacity of the SWMCG through theoretical and practical training on usage of the equipment, and processing the collected GHG data. Information about the training is provided below.

Calculation of GHG emissions at the landfills

The varying physical conditions at most disposal sites make it difficult to measure the amount of methane emitted from specific disposal sites accurately. Because of this, various organizations have developed different model applications that allow the input of conditions at specific disposal areas to estimate the level of GHG emissions. Initially, the project undertook an evaluation of available GHG models to determine which would best serve the project's needs. The GHG models evaluated included the following:

- NV Afvalzorg Multiphase Landfill Gas Model (Netherlands) — 2015
- GasSim (UK Environmental Agency and Golder Associates) — 2003
- EPER model (Umwelt Bundesamt and State Institute for Envir. Pro.) (Germany) — 2003
- Central-Eastern Europe LFG LANDGEM Model (SCS Engineers - Global Methane Initiative) (United States) — 2014

After assessing each of the above models, WMTR selected the Central Eastern European LFG model (CEE-LFG) developed through the United States Environmental Protection Agency Landfill Methane Outreach Program (LMOP) based on the following:

1. The CEE-LFG model was developed specifically for a region with climatic conditions consistent with the prevailing conditions in Georgia and specifically in the target regions.
2. The CEE-LFG model provides the ability to enter site-specific data (such as municipal waste composition, disposal area characteristics, annual tonnage level, etc.) that are important to evaluating specific conditions in each of the subject disposal sites.
3. The selected model incorporates key foundational elements such as the recognition of varying decomposition rates for various organic components of the municipal waste stream, which

ties in directly to the model's ability to utilize site-specific waste composition data that the project generated in each region.

SWMCG utilized the selected model to assess conditions at the target disposal sites in each region. The table below presents the output from the application of the CEE-LFG model for each of the disposal sites in the project target regions.

LANDGEM Model GHG Generation Baseline								
Region	Disposal area	Current Disposal Area Status	Closure	Year Gas Treatment to be Installed	Selected Baseline Year	LFG Baseline Year	Baseline GHG Generation	
		Active/Closed	Year	Year	Year	M ³ /hour	Tonnes ² CH ₄ / year	Tonnes ² CO ₂ / year
Kakheti	Telavi	Active	2023	2023	2015	138	396	8,317
	Kvareli	Closed	2016	NA	2015	17	49	1,025
	Lagodekhi	Active	2023	NA	2015	7	20	422
	Sagarejo	Active	2023	NA	2015	11	32	663
	Signagi	Active	2023	NA	2015	28	80	1,688
	Dedoplistskaro	Active	2023	NA	2015	20	57	1,205
	Gurjaani	Closed	2014	NA	2015	9	26	542
Adjara	Batumi	Active	2018	2018	2015	453	1,300	27,302
	Kobuleti	Active	2018	NA	2015	36	103	2,170

Notes

Conversion LFG generation level to <ethane tonens per year based on 1 m³/hour CH₄=5.74 tonnes CH₄/year where CH₄ content is LFG is 50% and CH₄ density is 0.6557 kg/m³ (25⁰C and I ATM)

Conversion based on 1 tonne CH₄/year = 21 CO₂eq./year

LANDGEM Model GHG Mitigation Criteria and Results								
Region	Disposal area	Current Disposal Area Status	Closure ¹	Projected Gas Collection and Treatment	Year Gas Treatment to be Installed	Treatment GHG Mitigation 1 year ²	Treatment GHG Mitigation 5 years ³	Final Cover Soil Oxidation Potential at Closure ⁴
		Active/Closed	Year	Year	Year	M ³ /hour	Tonnes ² CH ₄ / year	Tonnes ² CO ₂ / year
Kakheti	Telavi	Active	2023	Yes	2023	4,230	19,072	11.2
	Kvareli	Closed	2016	No	NA	NA	NA	20
	Lagodekhi	Active	2023	No	NA	NA	NA	20
	Sagarejo	Active	2023	No	NA	NA	NA	20

¹ Closure year assumes that formal construction procedures will occur in year along the cessation of waste receipt

² Gas treatment mitigation 1 year based on year of installation of gas collection and treatment system

³ Gas treatment mitigation 5 years based on cumulative total gas treated in first five years after installation of gas collection and treatment system

⁴ Soil cover oxidation potential assume installation of low permeability solid cover in year of project closure. Soil cover oxidation for closed disposal sites only realized upon installation of low permeability final cover

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	Signagi	Active	2023	No	NA	NA	NA	20
	Dedoplistskaro	Active	2023	No	NA	NA	NA	20
	Gurjaani	Closed	2014	No	NA	NA	NA	20
Adjara	Batumi	Active	2018	Yes	2018	27,016	126,229	3.8
	Kobuleti	Active	2018	No	NA	NA	NA	20

Conclusions:

Based on the near surface ambient air methane concentration field measurements and the application of the CEE-LFG model, the following observations and conclusions have been reached:

- All of the active disposal areas in the Kakheti region (except for the Telavi landfill) were operated as open dumps with little active operation of the sites to mitigate their environmental effects.
- Two of the Kakheti disposal areas (Kvareli and Gurjaani) are inactive and no longer receive waste for disposal purposes. However, these inactive sites have not been subject to formal closure construction procedures (consolidation and cover) to mitigate potential environmental effects associated with the sites. These potential environmental effects likely do not include climate impacts based on the negligible field measurements of methane observed in the ambient air at the surface of the waste accumulation in both inactive sites.
- The application of the CEE-LFG model for each of the disposal areas demonstrated that methane generation will continue well beyond the projected closure dates for the existing disposal sites upon the availability of new regional landfills. Once waste ceases to be delivered to the existing sites, the level of methane generation will gradually decrease over time.
- For baseline purposes, the LANDGEM Model GHG Generation Baseline table presents the approximate annual landfill gas generation for a baseline year. For purposes of the baseline assessment, 2015 was utilized as a baseline year for comparative purposes. Logically, it was determined that the hourly rate for LFG generation was proportional to the amount of waste placed in the disposal site each day.
- The landfill gas generation determined through the CEE-LFG model for the baseline year was converted to tonnes of methane generated each year and its CO₂ equivalency for baseline assessment purposes based on the conversion criteria presented as notes for the table
- The GHG generation baseline determined through the application of the CEE-LFG model indicates that only two landfills (**Telavi and Batumi**) within the target regions are apt to be candidates for the installation of active gas collection and treatment systems.
- The GHG mitigation that would result from the Telavi and Batumi landfills is presented in the LANDGEM Model GHG Mitigation Criteria and Results Table based on an assumed implementation of an active gas collection and treatment system in 2023 for the Telavi site and 2018 for the Batumi landfill. (The projected date for closure of the existing Batumi landfill and implementation of an active gas collection and treatment system was provided by landfill operators responsible for that site. However, given the current state of development for a new regional landfill in the Adjara region, it is expected that closure of the Batumi site could occur significantly later than the projected 2018 closure time.) While this would affect the model results, the extent of mitigation demonstrated in the above referenced table can illustrate the benefits that could be realized through the application of active gas collection and treatment at each of the landfills where sufficient gas is generated to warrant installation of a gas management system. The GHG Mitigation Criteria Results table presents information on the level of GHG mitigation that could

occur because of an active gas management system for one year or a five-year period immediately after the installation of the active gas management system.

- In the sites where an active gas management system is not technically or economically feasible due to low levels of LFG emissions, mitigation can still occur because of the installation of low permeability soil as a final cover. By application of a low permeability cover, a reduction in methane emission would result because of oxidation of the methane as it flows through the final cover. Based on the CEE–LFG model results, an oxidation rate of up to 20% could be achieved through the application of a proper low permeability final cover.

Design region-specific ISWM strategies and action plans

Development of Municipal Waste Management Plans for Municipalities in Kakheti Region and the Autonomous Republic of Adjara

The development of *Municipal Waste Management Plans* (MWMP) is required by Georgian legislation — the Waste Management Code.⁵ According to article 13 (1) of this law, each municipality shall adopt a plan for the management of the municipal waste produced within its territory for a period of five years. All municipalities in Georgia should have these plans by December 31 2017. These plans intend to help the municipalities define the manner by which they will fulfill their waste management responsibilities.

Consequently, in April 2016, the WMTR team began working with the municipalities in both project target regions to develop MWMPs in accordance with the Municipal Waste Management Plan Development Guideline, created by the WMTR team. In the 2016 fiscal year, the WMTR team supported seven municipalities in developing MWMP, while the remaining eight municipalities will receive support in the 2017.

The municipalities of Khulo and Khelvachauri and the Self-Governing City of Batumi in Adjara AR, as well as the municipalities of Telavi, Akhmeta, Lagodekhi and the Self-Governing City of Telavi in Kakheti each appointed a contact person to work with the WMTR team on the development of these plans.

In September 2016, the WMTR team, in cooperation with representatives from the regions, drafted the MWMPs using information collected on all aspects of waste management, ranging from policy-making and institutional development, to the technical design and implementation of new or upgraded processes and facilities.

The drafted MWMPs include the following information:

Introduction and Background

- Regulatory and Legal Basis for the Municipal Waste Management Plan; Municipal Profile and Demographics; Planning Objectives and Target Outcomes; Description of the Planning Process

Municipal Waste Stream Characteristics

- Introduction; Types of Waste Covered by the Plan; Waste Quantities; Waste Projections; Waste Composition Analysis

Summary of the Existing Municipal Waste System

⁵ Enacted on January 15 2015.

- Introduction; Description of Current Municipal Services; Collection and Transport Services; Street Sweeping; Current Disposal Facilities; Recovery (Recycling and Composting); Legal and Institutional Framework; Cost and Cost Recovery; Budgeting and Financial Processes

Waste Industry Sound Practices and Trends

- Collection and Transport; Recovery Processes; Public Education and Outreach

Analysis of Future Waste Management Options

- Collection and Transport; Disposal; Recovery; Institutional Considerations; Funding of System improvements

Findings and Recommendations

- Infrastructure and Equipment Needs; Institutional Capacity Building; Procedures for implementation of recovery programs; Public Education Program

Implementation Action Plan and Schedule

The WMTR team communicated draft plans with the local governments in the target municipalities in order to receive their feedback. In November 2016, the WMTR team in cooperation with the Ministry of Environment and Natural Resources Protection of Georgia will organize workshops on site to finalize these plans together with the representatives of the local governments. Following the finalization, local governments will hold public hearings in all seven municipalities to communicate these plans with a broader group of stakeholders and beneficiaries.

The MWMPs developed by municipalities with the support of the WMTR team will provide an important contribution in assuring the overall success of the Waste Management Code in establishing an environmentally sound and cost effective waste management system throughout Georgia.

Development of Waste Management Road Map for the Adjara AR

The WMTR team supported the regional government of Adjara AR in developing the waste management road map/strategy for the Autonomous Republic of Adjara. The aim of the document is to harmonize the waste management process in Adjara AR with the requirements of the *Waste Management Strategy 2016–2020* and *National Waste Management Action Plan 2016–2020*.

The document was prepared in accordance with:

- The sectoral strategic model recommended by the 2015–2017 strategy of reform of policy planning system, approved by the government of Georgia on April 18, 2016 with Resolution № 186.
- The national environmental protection action plan 2012–2016
- The document of social-economic development of Georgia “Georgia 2020”
- The development strategy of Adjara AR.

The waste management strategy and corresponding action plan for the Adjara autonomous republic covers seven years period (2016–2020). This is a living document, which can be updated in case of new circumstances will arise.

The WMTR team used modern SWOT and PEST analysis methodologies to develop the vision and objectives of the document. Each objective of the strategy has corresponding tasks, a timeline for implementation, and list of activities that comprises the foundation of the action plan.

In particular, the waste management strategy for Adjara AR includes the following information:

- Introduction

- Analysis of existing situation:
 - Existing system of waste management
 - Challenges related to waste management
 - Factor analysis
- Strategic directions in waste management
 - Vision, objectives and activities
 - Indicators (outputs/outcomes)
- Estimated budget
- Mechanisms for implementation and management of the road map
- Risks assessment
- Monitoring and evaluation
- Action plan for implementation

WMTR has developed a final draft of the document and communicated it with all stakeholders in Adjara AR. After receiving feedback and considering all comments, the regional government of Adjara AR will approve the document. The WMTR team intends to finalize and receive approval of the document by the end of November 2016.

Development of technical regulations, Rules of Collection and Treatment of Municipal Waste, in accordance with the requirements of the Waste Management Code of Georgia

The WMTR team, in collaboration with MoENRP, developed the technical regulations, *Rules of Collection and Treatment of Municipal Waste*, in accordance with the requirements of article 16, part 5 of the Georgian Waste Management Code. On April 1, 2016, the Prime Minister of Georgia, Giorgi Kvirikashvili, approved the technical regulation with Government of Georgia Resolution № 159.

The Prime Minister's approval of this technical regulation is in accordance with the Product Safety and Free Movement Code, article 58, part 2; the Waste Management Code, article 49, part 2, subparagraph b; and the Georgian Law on Normative Acts, article 12.

Clause 2 of the approval indicates that the Minister of Environment and Natural Resources Protection of Georgia should approve the guideline on the development of municipal waste management plans before December 1, 2016. As was mentioned above, the WMTR team has already developed this guideline in cooperation with MoENRP. MoENRP is planning to adopt the guideline by order of the minister in December 2016.

The technical regulation, *Rules of Collection and Treatment of Municipal Waste*, establishes the following procedures, measures, and criteria:

- Procedures and requirements for providing obligatory effective collection services to all municipal waste generators in a municipality, to minimize the impact on the environment of effects on local surface water, groundwater, soil, and air (including global environmental effects through mitigation of climate change related emissions) and on risks to human health;
- Measures aimed at minimizing litter throughout a municipality as well as eliminating possible nuisance conditions such as noise, odor, and other adverse effects;
- Measures aimed at reducing the overall impacts of resource use and improving the efficiency of such use through recovery and recycling initiatives;
- Measures, procedures, and requirements for treating all municipal waste prior to landfill disposal in accordance with article 21, part 6 of the Waste Management Code;

- Minimum technical criteria for waste treatment facilities during provision of services.

This technical regulation shall apply to all collection and treatment processes associated with the management of municipal waste.

Please follow the link to see the regulation: <https://matsne.gov.ge/ka/document/view/3242555>

Seasonal Study of the Morphological Composition of Solid Municipal Waste in Adjara AR and Kakheti Region

The WMTR team carried out a seasonal morphological study of waste composition in project target regions, in the Batumi and Telavi landfills. The study covered all four seasons from July 2015 until April 2016. The implementation of this study is important for determining the technical and economic efficiency of waste recovery and recycling programs in Georgia. Therefore, the WMTR has designed and carried out an assessment of the amount of recyclables present in municipal waste streams. As waste types and volumes vary depending on season, the implementation of a seasonal study was crucial to obtain accurate data.

The project studied morphological waste composition over a seven-day period each season. Each day, the team collected, manually sorted, and analyzed 100 kg samples of waste. The teams placed each type of waste into a specifically designed container and weighed it. The process was photographed and information obtained during the study was entered into the waste composition study summary forms. At the end of each season, the team prepared reports reflecting the results of the study based on the relevant data.

Please see below photos showing the process of the composition studies in each target region.

Adjara AR





Kakheti Region



The results of the study will serve as the basis for planning appropriate waste separation and recycling processes in the regions. The study concluded that organic matter makes up the biggest component of waste. Therefore, the establishment of composting systems or use of organic waste in biogas digesters to create fuel would have a significant impact on reducing the amount of waste that ends up in landfills.

Annex 1. Municipal waste composition study in Adjara AR and Kakheti Region

The Waste Management Guideline for Agency of Protected Areas (APA)

The WMTR team supported the APA of the Ministry of Environment and Natural Resources Protection of Georgia in developing the *Protected Areas Waste Management Guideline*. The development of this

document is a requirement of the *Waste Management Strategy and Action Plan* approved by the government in March 2016.

The WMTR team worked in close cooperation with the APA, incorporating all of the comments and visions of the governmental structure responsible for management of protected areas. The guideline applies to all categories of protected areas in Georgia and provides information on the principles of waste management in protected areas in accordance with international standards. The guideline defines sound practices and standards that will help the Agency and local governments manage waste originating from protected areas properly.

The document includes the following information:

Basis for the protected area waste management guideline

- Protected Areas that are the Subject of the Guideline; Visitor Waste Generation Characteristics; Existing Baseline Practices and Problems; Conflicts with or Impact of Adjoining or Nearby Land Uses

Evaluating protected area waste management alternatives

- Zero Waste Principle — Carry in-Carry out; Source Reduction; Recycling; Composting; Collection; Coordinating with Municipal Waste Collection and Disposal Programs

Making waste management design and operational decisions for individual protected areas

- Who and Where: Waste Generator Analysis; What: Waste Composition Analysis; How: Making Waste Management System Design and Operational Decisions; Monitoring and Enforcement

Implementing effective public communication, education and outreach

- Designing and Deploying Protected Area Signage; Utilizing Printed and Other (Television, etc.) Media Educational and Outreach Materials; Developing and Implementing Waste Management Related Educational Programs; Developing and Supporting Special Events including Periodic Clean-up Initiatives

Implementing effective waste management programs at all protected areas

Annex 2. The waste management guideline for Agency of Protected Areas (APA).

Provide tailored assistance and trainings to municipalities and SW companies

Capacity building training of the SWMCG staff on the usage of the Portable Gas Analyzer TDL-500

On March 24–25, 2016, the WMTR team conducted a two-day practical training for the staff of the Solid Waste Management Company of Georgia (SWMCG) of the Ministry of Regional Development and Infrastructure on the usage of GHG equipment. SWMCG received this equipment from the WMTR program (for more information, please see the corresponding sub-chapter above).

The first day of the training took place in the office of SWMCG. The staff of the company received information about the functioning, usage and maintenance of the equipment and software and collection and storage of the data.



On the second day, the WMTR team, together with the staff of SWMCG, visited Kaspi landfill to take measurements using the new equipment.



Based on the knowledge received at the training, SWMCG staff conducted measurements at all landfills in the project target regions, evaluating GHG emission in ambient air around the landfills for the first time in Georgia. Evaluation showed that low methane ambient air content was observed at all disposal sites that did not have localized high concentration zones commonly associated with the locations within each disposal site where there was active waste placement.

This information will help the company better plan their short and long-term activities and reduce the negative impact of landfills on the environment.

Training for municipalities of Kakheti and Adjara on integrated waste management and collection service optimisation

Municipalities in Georgia have limited capacity and knowledge when it comes to managing their own waste in an effective way that both reduces the cost and increases the quality of services. In order to

develop an integrated waste management system in compliance with international standards, existing waste collection systems should be optimized and modern approaches incorporated, including waste separation and recycling, composting, etc.

In order to increase the capacity of municipalities in project target regions, on the 16–18 and 23–25 of December 2015 the WMTR team held trainings on effective waste management and waste collection service optimization for municipalities in Kakheti Region and the Autonomous Republic of Adjara; the trainings were organized in the cities of Telavi and Batumi, respectively.

Staff responsible for waste management in municipal governments and collection companies in those municipalities attended trainings in both regions, 26 participants attended the trainings. The goal was to provide participants with information on optimizing waste management systems and help them develop municipal waste management plans. Technical staff from the municipalities gained knowledge on how to improve waste collection systems and gather data on waste collection while reviewing examples of existing systems in Tbilisi on collecting waste and recording data.

The trained staff of the municipalities have already applied the knowledge that they gained at the trainings in the process of developing five-year waste management plans required by the Waste Management Code of Georgia.

Kakheti Region, City of Telavi



Autonomous Republic of Adjara, City of Batumi



Conduct pilot cost-benefit analysis of waste management investments

The WMTR team conducted a cost-benefit analysis for waste management investments in the country to ensure the effectiveness of establishing a proper waste management system in Georgia. The aim of the analysis was to inform policymakers about the economic potential of alternative waste management strategies, to highlight issues about system integration and stakeholder impacts, and to

suggest a strategy for mobilizing international support for financing recycling and composting alternatives that reduce methane and CO₂ emissions, providing global benefits.

Based on the findings of the analysis, the WMTR team developed the Cost-Benefit Analysis of Waste Management Strategies for the Adjara Autonomous Republic and Kakheti Region of Georgia. The document will help the government of Georgia to make informed decisions in terms of investments in the waste management sector.

The report includes an economic evaluation of alternative waste management options for the Autonomous Republic of Adjara and Kakheti Region in light of the evolving waste management system. It considers a number of waste management options, evaluates the cost of waste disposal at landfills, the benefits and costs of operating landfill-based materials recovery facilities, the net-benefits of source separation and recycling programs, and the benefits and costs of composting systems. The analysis is unique in its monetization of the economic value of reducing methane emissions through local composting programs.

A summary of the Cost-Benefit Analysis of Waste Management Strategies for the Adjara Autonomous Republic and Kakheti Region of Georgia

Region	Total social cost of collection, transportation, and disposal of municipal solid waste, 2015 USD, using nominal exchange rate	Incremental cost per tonne from using MRF (USD, 5% discount rate)	Value recovered at MRFs per tonne of waste throughput (20% recovery efficiency, USD)		Social value (benefit) of averted CO ₂ emissions and recyclables value per tonne of mixed-waste processed (20% recovery efficiency, USD)		Benefits generated per tonne of compost, 2015 USD, using nominal exchange rate*	
			Low Price	High Price	Low Price	High Price		
Adjara AR								
Batumi	82.9	3.5	4.32	31.4	5.72	32.89	Adjara AR	
Kobuleti	75.3						60.8	
Khulo	67.9						64.5	
Khelvachauri	88.5						110.4	
Shuakhevi	111.7						63.1	
Kakheti Region								
Akhmeta	49.1		3.85	27.86	5.00	29.25	Kakheti Region	
Gurjaani	47.1						67.9	
Dedoplistskaro	46.7						63.4	
City of Telavi	37.6						60.8	
Telavi	50.5	56.5						
Lagodekhi	60.5	66.9						
Sagarejo	52.8	60.6						
Sighnaghi	55.7	56.5						
Kvareli	44.5	67.9						

* Assuming 10% mass compaction from composting; Assuming 10% compaction; for year 2020; discounted at 5% to 2015

WMTR distributed the study to the Minister and Deputy Ministers of Environment and Natural Resources protection of Georgia as well as to all other stakeholders, including financial institutions involved in the waste management sector, for use in properly planning waste management investments.

Annex 3. Cost-Benefit Analysis report of Waste Management Strategies for the Adjara Autonomous Republic and Kakheti Region of Georgia.

Design and implement a city-to-city exchange program

The city-to-city exchange program is an important component of the WMTR program. This exchange program helps local governments participating in the WMTR program enhance their capacity, get practical knowledge about modern approaches and technologies in the waste management sector, and apply it via professional cooperation with their colleagues in US.

Under this exchange, the WMTR team established cooperation between two cities each in the US and Georgia. Catawba County, North Carolina was twinned with Telavi in Georgia while Golden, Colorado, became a sister city to Batumi. Delegations and the exchange of information, experience, and best practices established professional cooperation between local governments in these cities. The cooperation focuses on capacity building and technical assistance activities to improve waste management and recycling system practices and to support the development of integrated waste management systems in the selected cities of Georgia.

Golden’s second visit to Batumi

On 18–24 October 2015, the Golden delegation visited Batumi for the second time; the delegation held meetings with different stakeholders working on waste management issues in the Self-Governing City of Batumi. The aim of the visit was to inform Batumi’s officials about the waste separation and recycling programs in Golden and provide recommendations on how to launch this process in Batumi.



During the meetings with the representatives of governmental structures and private companies, the Golden delegation presented a review of the recycling program in Golden, and provided recommendations for Batumi based on the situation that they assessed in the city. The delegation suggested starting from a small pilot program, which will include only one district and enlarge it after a certain period.

The local governments of both cities continue email communication where requested from Batumi officials, Golden representatives are ready to provide their technical support. For further information on the visit, please refer to WMTR's quarterly report for the period of October-December, 2015.

Implement pilots via partial grant to assist recycling companies and target municipalities

Implementation of Telavi pilot project to demonstrate benefits of integrated waste management approaches in target villages of Telavi Municipality

According to the National Waste Management Strategy approved by the government of Georgia in 2016, all municipalities in the country should start waste separation by 2019. Introducing this modern approach takes time and requires specific knowledge and experience from central and local governments, as well as behavioral changes in the local population. Therefore, it is important to start the preparation process right now by implementing small-scale pilot projects. Such pilot projects will help test different models of waste separations to identify the type of separation which will be the best suitable for local conditions.

For this purpose, the WMTR team started a pilot project — *Piloting of Integrated Waste Management Systems in Target Areas of Telavi Municipality*. The project is being implemented in five villages of Telavi Municipality — Tsinandali, Kvemo Khodasheni, Akura, Vanta and Busheti. The aim of the pilot project is to demonstrate the benefits of ISWM practices via the provision of technical assistance, co-financing support, and the establishment of an ISWM system, as well as to raise awareness in local governmental structures and the wider public.

In fiscal year 2016, the WMTR team placed 87 waste bins in the pilot villages, including 42 bins for separated collection of plastic and paper waste. The bins are located in the center of the villages, at shops, and near public schools.



The waste is collected separately (plastic and paper waste) and then stored in a warehouse allocated by the local government. The recycling company is in charge of taking separately collected plastic and paper from the storage and then recycling it.

The WMTR team is working on this issue hand in hand with the local government. This collaboration encourages the sustainability of the pilot project and promotes local capacity building. In addition, WMTR is communicating with local public, and school students from the five pilot villages on a daily basis to foster introduction of waste separation behavior. WMTR has already conducted a number of trainings and awareness raising campaigns in these villages, reported under Component 4. All this efforts stipulated successful implementation of the pilot project and enthusiasm from the public to be involved in waste separation process.

Visit of Deputy Minister of Environment and Natural Resources Protection, Teimuraz Murgulia to the Pilot villages

On February 26 2016, Teimuraz Murghulia, Deputy Minister of Environment and Natural Resources Protection of Georgia, visited the five pilot villages of Telavi Municipality to meet the local government — the Gamgebeli and Deputy Gamgebeli — as well as trustees and the local population of the villages.



During the meetings, the deputy minister discussed the progress and challenges of the pilot project with all stakeholders. He mentioned the importance of active public participation in this process and assured government support in the implementation of this project. Mr. Murghulia mentioned that this is the first time formal introduction of waste separation in Georgia and the success of the project is crucial to ensure it is replicable.

Some months after Mr. Murghulia's visit, the local government of the Self-Governing City of Telavi expressed readiness to launch a waste separation scheme in their city. Please see the corresponding information below.

Introduction of Waste Separation Scheme in the Self-Governing City of Telavi

At the beginning of 2016, the local government of the Self-Governing City of Telavi expressed their willingness to introduce a waste separation scheme in their city. This is a very good example of replicating the separation model introduced in five villages of Telavi Municipality.

The WMTR team supported the local government of the Self-Governing City of Telavi in this process. The joint team selected Alazani Avenue to serve as a pilot district; approximately 25% of Telavi's 154,100 residents live in the area.

The local city government allocated a separate truck to service these bins and a space to store all separated waste before removal by the recycling company.

In July 2016, the WMTR project supported the local government with 36 waste separation bins (18 for paper and 18 for plastic) produced by a local entrepreneur from Akhmeta Municipality.



In November 2016, the WMTR team together with the local government will place waste separation bins along Alazani Avenue.

In-Kind Activity Agreement on Optimization of Waste Management System in Telavi City

As explained above, the WMTR project's city-to-city exchange program paired the Self-Governing city of Telavi with Catawba County in North Carolina, USA. After assessment of the waste collection system in the Self-Governing city of Telavi, representatives of Catawba County decided in addition to technical support, to provide the city with equipment for waste collection. In particular, *Republic Services* — the company responsible for collecting waste in the county — donated a 2010 Kenworth Rear Loader trash truck to Telavi City. The estimated market value of the truck is 90,000 USD.

Catawba County also helped Telavi Municipality develop a waste collection route optimization plan using the donated truck. Under the plan, the waste collection truck will enable improved services to city residents.

In order to ship the truck from its current location in the US, the WMTR team developed an In-Kind Activity Agreement (IKAA). Within this IKAA, the WMTR program is supporting the Self-Governing City of Telavi in shipping the waste collection truck from Charleston, US, to Poti, Georgia. The agreement also supports Telavi's implementation of a separated waste collection scheme. After relevant staff in Telavi are trained by *Republic Services* in the maintenance and operation of the donated truck, the scheme will utilize Telavi's two small trucks (currently used for waste collection) to collect separated waste.

The Total estimated cost of this IKAA is GEL 137,157. From this amount, GEL 64,662.00 will be provided by the project and GEL 72,495.00 by the City Hall of the Self-Governing City of Telavi.

The program expects the truck to arrive in Georgia by the end of November 2016.

Support the implementation of small-scale composting activities

The waste composition study in Kakheti region and Adjara AR showed that around 40% of total waste in the regions' landfills is organic waste. In order to minimize the amount of waste that goes to landfill, and reduce GHG emissions, it is important to introduce and support composting initiatives in the regions. To this end, the WMTR team has conducted intensive work within local communities to raise awareness and encourage composting. This activity will not only help communities care for the environment but will also save them money on fertilizers.

Over the reporting period, WMTR team conducted a number of trainings in both regions to provide the local populations with technical knowledge and to encourage them to start composting.

Demonstration Composting Scheme in Girogeti Village, Lagodekhi Municipality, and Kakheti Region

On June 10, the WMTR team conducted a seminar on composting for four families in Girogeti Village, Kakheti Region. The farmers had expressed an interest in installing composting boxes in their yards as they accumulate a significant amount of organic waste. The WMTR team provided them with the technical knowledge required to construct and maintain a composting box and informed them about the benefits of having organic fertilizer for both the environment and their families. The WMTR team also helped the four families identify the exact placement for the boxes and advised them on which materials to use.

One week later, because of this training, one family installed a demonstration box in their yard in Girogeti Village. The WMTR team supervised the construction process and will continue to provide technical knowledge to the families as needed. The WMTR team is encouraging and supporting other families to install composting boxes as well, thus reducing waste and expenses on fertilizers.





Training on Composting at College AISI in Kachreti and Keda and Shuakhevi Municipalities in Adjara A.R.

On February 25–26, 2016, the WMTR team held a training on composting and the development of a waste separation and recycling system at Aisi College in Kachreti Village of Kakheti Region.

Aisi Vocational College covers over 12 hectares of land, where students are able to stay and learn in one place. Equipped with modern technologies, the college offers various programs, such as in veterinary science, culinary arts, joining, electrical engineering, tourism, plastering, and bee-keeping, etc. Aisi College already has great infrastructure to start composting and implementing a waste separation scheme.

The training covered basic information on soil, its structure, ingredients and problems, composting and its processes, and which is the best organic fertilizer for soil.



The WMTR team explained to the attendees of the trainings the importance and impact of composting and the composting process. The participants were shown how to design a composting bin, what should be put in, what should not, what ingredients are harmful, and how to take care of it. Relevant staff at the college received instructions on how to construct the composting bin, taking into consideration the amount of waste generated at the college. The college used second-hand woodpiles to create the composting bin.

On March 11 2016, based on information received at the training, Aisi College constructed a composting box and WMTR provided separated waste collection bins to the college to introduce a separated waste collection system.

On September 13 and 14, 2016, the WMTR team held similar trainings to assist Adjara AR in developing composting practices in Keda and Shuakhevi municipalities. Municipality and Gangebeli staff together with trustees, farmers, and various organizations operating in the municipalities attended the trainings. Both trainings hosted approximately 70 interested people.



The audience expressed an interest in the topic and even showed readiness to install a demonstration box in their yards.

Develop landfill remediation/closure plans

One of the main waste management issues in Georgia is the existence of unsanitary landfills that do not comply with international standards. The design of all landfills in the WMTR program target regions is rather simple, with no bottom isolation, layering or drainage, and no gas collection systems. This poses a serious threat to the environment and to human health. Therefore, one of the objectives of the WMTR program is to support the Government of Georgia in the development of closure/remediation plans for existing landfills.

The operation, management and monitoring of existing landfills (excluding in Tbilisi and Adjara Region), construction and planning of new regional landfills in compliance with EU regulations, and closure of the existing landfills that do not meet international requirements is the responsibility of the Solid Waste Management Company of Georgia (SWMCG). In Tbilisi and Adjara AR the management of landfills is the responsibility of local governments.

Cooperating with the Ministry of Regional Development and Infrastructure (MRDI)/ Solid Waste Management Company

Closure of Gurjaani Landfill

Gurjaani landfill was located in the Municipality of Gurjaani along the Gurjaani-Jabukiani-Lagodekhi road. The soviet era landfill did not comply with modern standards. The exact date when disposal operations began in the landfill are unknown and there is little information on the total quantity of solid waste delivered to the site during its operation, waste delivered here was regularly burned. The landfill operated until 2000 and was located on a swamp surrounded by agricultural land, presenting a threat to public health and the environment.



In May 2015, the WMTR project signed a Memorandum of Understanding (MoU) with the Solid Waste Management Company in Georgia (SWMCG) to develop the Gurjaani landfill closure plan in accordance with international requirements and later on closing the landfill according to the developed plan.

The WMTR team developed the Gurjaani Landfill closure plan for SWMCG in accordance with the requirements of national legislation, international best practices, and EU directives. The SWMCG communicated this plan to MoENRP who gave their consent for the closure of the landfill.

The NSWMCG allocated money in the 2016 budget and closed the landfill. In accordance with international standards, the landfill's surface was graded, while the remaining waste was covered by clay soil. On September 21, the WMTR team together with the Solid Waste Management Company visited the former landfill in Gurjaani to assess the situation on site and approve the closure works.



Waste from Gurjaani now goes to the Telavi and Dedoplistskaro landfills.

Closure of an illegal dumpsite in Beshumi, Khulo Municipality

Since 2002, in Beshumi, Khulo Municipality an illegal dumpsite has been in operation covering an area of 780 m². The dumpsite was not fenced off and was surrounded by a unique forest. The term "unique forest" is used as a generic term for areas with unique qualities within the forest landscape. They typically need special attention and treatment. Depending on their features and significance, these forests can be identified at different scales (e.g., global, regional, local scale). According to

information provided by the local government, there was approximately 6,000 m³ of waste at the Beshumi dumpsite.



The dumpsite presented a threat to public health and the environment. Therefore, by the end of October 2015, the WMTR team, in cooperation with the regional and local governments of the Autonomous Republic of Adjara developed a closure plan, including budget, for this illegal dumpsite. According to the closure plan, the waste collected at the dumpsite would be transported to an official landfill located in the town of Akhaltsikhe, 67 km away.

The local government allocated some of the funds for the closure of the dumpsite with the remaining coming from the ADC funded SFG program implemented by CENN, and the WMTR program.

The closure works are currently underway and will be finished by the end of October 2016.

Clearing and repurposing of spontaneous dumpsites in project target regions

Spontaneous dumpsites exist in almost all villages of project target regions. On such dumpsites, waste is dumped uncontrolled without maintaining any sanitary conditions and therefore presenting a threat to public health and the environment.

The WMTR team is supporting local governments to identify spontaneous dumpsites, and developed a manual on how to properly close them depending on their size and location. In many cases, the program has helped local governments to close spontaneous dumpsites by organizing community driven cleanup activities, which builds a sense of ownership of the results amongst the population. In addition, the WMTR team has provided local governments with waste containers, and made agreements with them to ensure regular collection of waste. To make this process sustainable and avoid further littering, the program repurposed cleaned areas by planting trees together with the local government and local people, and installed signs with slogans encouraging people not to pollute the environment. With these approaches, the program ensured that all closed spontaneous dumpsites remained clear until now.

Below are concrete examples of cleaning and repurposing of six spontaneous dumpsites in Adjara AR and Kakheti Region

Clean-up activities in Jokolo, Pankisi Gorge and Busheti, Telavi Municipality

In April 2016, the WMTR team, with the assistance of local students, cleared a small-scale illegal dumpsite (1.5 ha) of waste in the village of Jokolo in Pankisi Gorge. Following the removal of the waste,

the Austrian Development Cooperation (ADC) funded program, *Sustainable Forest Governance in Georgia* (SFG), planted around 200 trees on the area.



On June 23, the WMTR team with the support of the local government and local people, cleared around 0.7 ha of land in Busheti, Kakheti Region. This location had served as an illegal dumpsite for 40 years. The WMTR team removed 18 m³ of waste from the site and the local government took it to Telavi landfill.

Before



After



Cleaning of illegal dumpsite in Akura Village of Telavi municipality, Kakheti region

On January 5–7, 2016, the WMTR team, in cooperation with the local government of Telavi Municipality, cleaned a dumpsite covering 1 ha of land in Akura Village. About 50 m³ of waste was removed from this dumpsite and transported to the Telavi landfill. Prior to clearing, the land served as a dumpsite for about 350 households in the village. However, after the local government installed bins in this village last year, the population has stopped disposing of waste at this area.



Clearing and repurposing of spontaneous dumpsites in Kakheti and planting of 300 walnut trees

In November 2015, the WMTR team, in cooperation with the local government and the SFG program — cleared illegal dumpsites covering an area of around 2 hectares in Duisi Village, Akhmeta Municipality. As a result, up to 60 m³ of waste was collected, and eight 700 litre waste bins and an information board were installed on the cleared area to prevent future pollution. Akhmeta Municipality is currently organizing the waste collection from these bins.



SFG, with the help of WMTR staff and representatives of Akhmeta Municipality planted 300 walnut trees on the cleared area. Afforestation of the area is important to avoid future pollution and to interest local residents in repurposing the location for their benefit in the long-term.

Clearing and repurposing of spontaneous dumpsites in Tsetskhlauri Village of Adjara AR and planting of decorative and forest trees

In August 2015, the WMTR team cleared an illegal dumpsite in Tsetskhlauri Village, Adjara. On 13 November 2015, WMTR installed two 700 litre waste containers along with an informational banner to prevent future littering at this site. WMTR arranged waste collection from the area with Kobuleti Municipality and SanDasuptaveba Ltd.





On the same day, the WMTR team, with the support of the Austrian Development Cooperation (ADC) funded SFG program (also implemented by CENN) and the local government planted 80 cryptomeria and alder trees in the former dumpsite. Fast growing and adaptive species were chosen so that the area would be covered as quickly as possible, preventing it from retuning to its former condition.

Component 2: Private Sector-led Recycling

Facilitating the creation of a network of recycling companies and consolidators

And

Sharing experiences and leading practices through yearly national workshops and seminars

Meeting on EPR system with the recycling and companies generating waste

On July 26 2016, the WMTR team together with the Embassy of United States in Georgia organized a consultation meeting with large beverage and meat products producers and the Waste Management Association to discuss opportunities to introduce an extended producer responsibility (EPR) scheme in Georgia. Development of such scheme in the country is a requirement of the waste management code, and the national waste management strategy and action plan. Therefore, all entrepreneurs in Georgia are obliged to introduce this scheme in their companies by 2019.

Representatives from ten different companies — five recycling and five waste generating companies —attended the meeting.

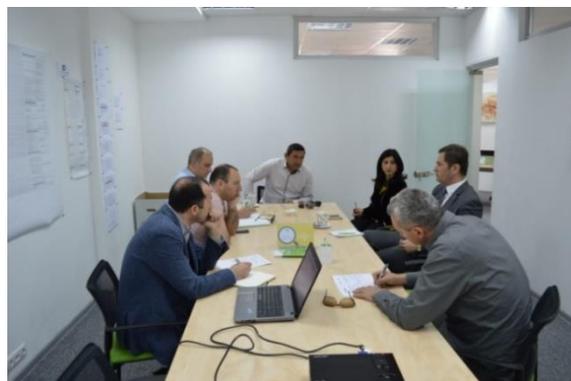


Waste management specialist, Larry Black, introduced the participants to modern approaches in waste management and EPR models used worldwide. During the discussion, participants of the meeting discussed the models and approaches applicable in Georgia taking into account local conditions. Mr. Black believes the deposit system to be the most suitable for Georgia.

In the next fiscal year, the WMTR team will continue working with entrepreneurs and the Ministry of Environment and Natural Resources Protection of Georgia on the development of an EPR scheme in the country.

Meeting between WMA and the Head of the Association of Microfinance Organizations in Georgia

On May 25, 2016, WMTR organized a meeting between WMA board members and Archil Bakuradze, head of the Georgia Microfinance Association (GMA). The meeting provided the opportunity for the WMA to share lessons learned from its own institutional strengthening experience. Mr. Bakuradze informed the WMA board members of the challenges the WMA faced during the development process and ways in which they overcame these challenges. Members of both associations discussed the WMA's objectives and the importance of protecting the interests of each individual member during the process.



Mr. Bakuradze provided several recommendations to the WMA, including creating web and Facebook pages to increase the visibility of the association; developing a code of conduct to increase the efficiency of operation; and decreasing the term of the head of the association to two years. The WMA members found the recommendations very useful and are currently planning implementation.

Assessment of the waste recycling sector in Georgia

Throughout May and June 2016, The WMTR team conducted assessments and updated information on the recycling sector in Georgia.

The following data was collected and/or updated:

- List of top 25 commercial waste generators and their locations;
- List of top 25 governmental and educational waste generators and their locations;
- List of companies engaged in recycling of paper, cardboard, plastic, glass, aluminum, scrap metal, and electronics with their locations and quantity of material processed annually;
- Amount and type of recycled material exported from Georgia;
- Information about recycling programs that have been tried and failed.

The WMTR team obtained this information from relevant governmental structures: the Ministry of Environment and Natural Resources Protection, Revenue Service of the Ministry of Finance, and local

self-governing institutions. The team is now working on creating a scheme to develop the recycling sector in Georgia based on this data.

The WMA and Other Stakeholders Meeting With Larry Black, International Waste Management Expert

On April 12 2016, the WMTR team, with the support of the US Embassy in Tbilisi, organized a meeting between Larry Black and members of the Waste Management Association (WMA), and other stakeholders. The subject of the meeting was *Promoting Recycling for a Greening Economy in Georgia*. Around 40 representatives from government, NGOs, and the business sector attended the meeting.



Mr. Black introduced the participants to modern approaches in waste management practiced worldwide, focusing on how to make recycling profitable and sustainable. Mr. Black presented existing opportunities in the recycling sector and provided concrete examples of how systems that work in different developed countries could be replicated in Georgia.

Legal analysis report to identify deficiencies in the waste management sector

In March 2016, the WMTR team developed a legal analysis report to identify deficiencies and corresponding potential legal amendments in the waste management sector to support the development of recycling businesses.

The report provides information on the following issues:

- Waste ownership and legal aspects for selling waste
- Waste as a product
 - Municipal waste ownership issues

- Separated collection of waste and storage
- Privatization of municipal waste
- Waste as a municipal property
- Conditional auction
- How to include a waste in the asset list
- Waste transportation
- Contractual issues

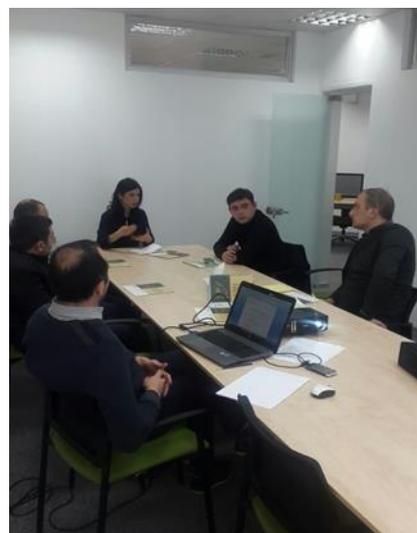
The report provides very concrete information to entrepreneurs on how to deal with these issues. This provides invaluable guidance for entrepreneurs dealing with waste separation and recycling to improve their performance and comply with the requirements of national legislation.

WMA board meeting

Institutional strengthening and capacity building of the Waste Management Association is very important for developing a business friendly recycling environment in Georgia.

On December 16 2015, the WMA held its regular board meeting at the offices of the WMTR program. The president and board members of the association, as well as the WMTR team discussed further development of the association, including changes to the following components of the association's charter:

- Criteria for approving new members and their rights and responsibilities
- A membership fee and payment system
- Creation of a new body in the association with executive functions
- Development of its structure and responsibilities



WMA has since successfully adopted these changes. These changes have helped the association to improve the management system through distributing responsibilities among the members and the board, as well as increase the effectiveness of functioning and supported institutional strengthening via creating a new executive body.

Presentation of the Georgian Waste Management Association, the WMA, on green business development

On 4 December 2015, the WMTR team supported the WMA in organising a presentation of the association. Donor organisations, NGOs, government representatives, and the media attended the meeting.



The importance of developing the recycling sector in the country from both environmental protection and economic perspectives was highlighted during the opening speeches made by Veronica Lee, Deputy Director of USAID Economic Growth Office; Alverd Chankseliani, Head of the Waste and Chemical Substances Management Department of the MoENRP; and Giorgi Shukhoshvili, Director of the NSWMCG. Participants also called for the association to become a strong intermediary between recycling companies and governmental entities.

Provide tailored assistance, and training to recycling companies

Introducing Waste Separation Scheme at Goodwill Hypermarket

In May 2016, the WMTR team began collaborating with the management of *Goodwill* to provide waste separation to their customers. The hypermarket located in the Dighomi district of Tbilisi is now capable of collecting plastic bottles and bags, paper, and aluminium cans. The WMTR team connected *Goodwill's* management with the waste collection company *Supta Samkaro Ltd*. *Goodwill* is paying *Supta* to collect separated waste from the location on a regular basis.

Supta Samkaro Ltd. installed a press in the Hypermarket and constructed a recycling corner, which allows customers to deposit separated waste that they bring from home. The WMTR program printed project-branded stickers to be displayed on the collection unit.

The WMTR team and *Goodwill* staff developed a communication strategy to advertise this activity to the broader public.



Waste Management Technologies in Regions, Georgia

An important part of the communication strategy was a social commercial that the WMTR team and Goodwill prepared to advertise the initiative. Please follow the link to see the commercial: [link](#).

Another important component of the communication strategy was the opening ceremony, which involved the participation of key stakeholders from governmental structures and international institutions.

On August 4 2016, the WMTR team, in cooperation with Goodwill and a local waste collection company, opened the first public recycling center, in Goodwill's Didi Digomi branch.

DCM Nicholas Berliner, USAID Acting Deputy Mission Director Mark Mitchell, and the Minister of Environment and Natural Resources Protection of Georgia participated in the event.

Goodwill is the first hypermarket chain in Georgia to introduce such a green initiative. Since then, customers of Goodwill have had the opportunity to recycle their separated paper, PET bottles, plastic bags, and aluminium cans. Separately collected waste no longer ends up in landfills, instead, it is transported by the private company, Supta Samkaro, for further recycling.



Main television channels broadcasted the event. The WMTR team continues working with Goodwill to better promote the waste separation corner and attract as many consumers as possible to support the recycling business in Tbilisi.

Launch of a Waste Separation Scheme at Tbilisi Marriott

Another successful example of supporting the private sector in introducing a waste separation scheme is cooperating with the Tbilisi Marriott Hotel.

In August 2016, with WMTR support, Tbilisi Marriott Hotel installed recycling bins to promote waste separation. Before the deployment of waste separation bins, the WMTR team conducted a short training for the staff of the hotel on proper operation of the waste separation system. In addition, the WMTR team provided the hotel staff with advice on how to operate the system. The hotel currently separates plastic and glass, the hotel generates these recyclables in the largest quantities through its daily operation. WMTR connected the hotel with *Supta Samkaro Ltd.* to collect the waste from the hotel for further recycling.

Training on Changes to Tax Legislation and Taxation Issues for waste recycling companies

On July 13 2016, in Betsy's Hotel, the WMTR team organized a training for recycling companies on changes in tax laws and taxation related issues. Representatives of about 10 waste management companies recycling and collecting paper, plastic and tires, including members of the Waste Management Association attended the training.



The training covered the latest changes in tax laws, including distributed income taxes. Amendments to the Tax Code of Georgia come into effect as of January 1, 2017, and aim to transform the taxation system based on the Estonian model. This will result in changing the taxation system for all legal entities other than individual entrepreneurs, non-governmental organizations and financial institutions.

Participants in the meeting discussed practical cases related to tax legislation, the impact of changes in the revenue service situational manuals, other legislative acts covering taxation legislation, and the operation of the companies in terms of their tax liability.

Meeting of international expert Larry Black and the paper recycling company, Georgian Paper Production Ltd.

On April 13, the WMTR team organized a visit by Mr. Black to the paper recycling company, *Georgian Paper Production Ltd.* *Georgian Paper Production Ltd.* produces toilet paper from waste paper. It is one of the largest recycling companies in the Georgian market, processing 7,270 tonnes of paper per year.

During the visit, the general manager of the company, Giorgi Khachaturov, introduced Mr. Black to the operational challenges that company faces. According to Mr. Khachaturov, the main issue for the company is a lack of raw materials caused by the lack of a proper waste collection system in the country.



According to Mr. Khachaturov, in order to increase profitability, the company needs to increase energy efficiency in its facilities and the technological process used during production.

Supporting Neoprint Ltd. in developing an Environmental Impact Assessment (EIA) report, to receive an environmental permit

Neoprint is located in the Village of Tserovani, Mtskheta Municipality. The scope of Neoprint's activities includes production of cardboard from waste paper. The company recycles around 3,168 tonnes per year (the full capacity of the company is 9,600 tonnes per year). Therefore, it is important for the WMTR project to cooperate with Neoprint and support their development in order to meet the project's goals and PMP indicators.

According to the *Georgian Law on Permit for Impact on the Environment*, operation of Neoprint is subject to mandatory EIA. Consequently, the company requires a permit from the MoENRP based on an environmental impact assessment.

The WMTR team supported Neoprint in developing an EIA report to comply with national legislation and operate legally. The EIA report for Neoprint considers possible impacts on, and risks to different components of the physical, biological, and human environment. Neoprint submitted the report in December 2015 to the Permit Department of the MoENRP for comment, and a public hearing of the document was held on January 11 2016.

In January 2016, based on the EIA report, the MoENRP made a positive decision that will allow the company to continue operation. The decision however, stipulates certain additional requirements and a timeframe for their implementation. It is mandatory for Neoprint to implement those requirements to mitigate environmental and social risks.

Annex 4. EIA report for Neoprint LTD

Supporting Georgian Paper Production Ltd. in developing a waste inventory and waste management documents

According to article 14 of the Waste Management Code of Georgia: Legal and natural persons that produce more than 200 tonnes of non-hazardous waste or 1,000 tonnes of inert waste or any amount of hazardous waste annually, shall prepare a company waste management plan. In addition, Resolution № 426 of the Government of Georgia requires companies to prepare a waste inventory document.

As during operation, Georgian Paper Production Ltd. produces a certain amount of hazardous waste, it is obliged to prepare these documents.

In September 2016, the WMTR team supported Georgian Paper Production Ltd. in developing waste inventory and waste management documents. The waste inventory document specified the type of waste produced at the company, identified the hazard level, and disposal and recovery operations. Based on the waste inventory document the company developed, the company’s waste management plan then lays out how the company will manage each type of waste stream. The waste management plan also distributes responsibility among the staff of the company on implementation of this plan and identifies contractor companies responsible for waste collection/recovery/disposal, etc.

In October 2016, the company submitted both documents to the Ministry of Environment and Natural Resources Protection of Georgia for approval. The documents are currently being considered.

Implement energy audits of recycling companies to reduce energy consumption, thus mitigate GHG emissions and increase company revenues

The WMTR program implements detailed energy, material & EHS audits for recycling companies operating in the country to develop recommendations for improving their efficiency and performance. During the 2016 fiscal year, WMTR conducted energy, material, and EHS audits for two recycling companies. Both reports also provide a list of recommendations to the company on how they can mitigate environmental and health risks and increase efficiency by implementing certain activities.

Energy and Environmental Health and Safety (EHS) audit for Georgian Paper Production Ltd.

In September 2016, the WMTR team conducted an Energy and Environmental Health and Safety (EHS) audit for Georgian Paper Production Ltd. The company, located in Tbilisi, recycles paper to produce toilet paper. During the energy audit, the WMTR team assessed the technical conditions of the building constructed in 2008. WMTR also assessed the energy efficiency of a production line. The report provides information on energy saving activities and investments needed for implementing these activities, as well as potential energy savings.

In order to improve energy efficiency, the report recommends improving insulation of the building’s exterior walls and windows and insulation of the boiler and main gate to eliminate infiltration. The table below provides information on the energy saving potential and the resulting monetary savings.

Energy saving potential — energy audit		
Georgian Paper Production Ltd	Area: 3,478 m ²	
Investment [GEL]	Saving	
	[kvt. hour/year]	[GEL/year]

70,940	1,290,182	195,955
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Annex 5. Energy and Environmental Health and Safety (EHS) audit for Georgian Paper Production LDT.

Energy and Environmental Health and Safety (EHS) audit for Zugo Ltd

In February 2016, the WMTR team conducted an Energy and Environmental Health and Safety (EHS) audit for Zugo Ltd, a plastic bag recycling company located in Batumi, Adjara AR. WMTR has developed a report based on the assessment's results.

The audit report analyzed the conditions of the building and the company's production line. The report provides two options for the company to save energy. These options require different investments and differ by the potential energy savings.

The energy audit showed that heat insulation of the building is necessary. The table below provides energy information and the resulting monetary savings for options 1 and 2.

Energy audit			
Zugo Ltd		Area: 350 m²	
EE activities	investment [GEL]	Saving	
		[kvt hour/year]	[GEL/year]
Option I	74,621	105,094	20,850
Option II	102,874	163,330	32,522

Annex 6. Energy and Environmental Health and Safety (EHS) audit for Zugo LDT.

Issuing Grants to Support GHG Mitigation, Energy Efficient Technologies, and Source Separation Programs

Second round of Grant Competition on Municipal Waste (plastic, paper, glass) Recycling

In August 2016, the WMTR team announced a second round of the grant competition, with the purpose of supporting plastic, paper, glass and aluminum waste collection and recycling throughout the country by strengthening grant-winning companies.

Four applicants provided their proposals within this grant announcement. At the first stage, the evaluation committee identified three potential candidates and held interviews with these companies. According to the evaluation committee, all three companies passed the first stage of evaluation. The next step was the pre-award assessment of these companies to check their financial stability and management systems.

Only two companies passed the second stage of evaluation and the corresponding pre-award assessment reports have been prepared. The evaluation committee has made a decision to continue cooperation with these two companies on the development of a grant package to submit for USAID approval. The grant packages for will be prepared in the next fiscal year.

Grant Competition on Municipal Waste (plastic, paper, glass) Recycling

In January, the WMTR team announced a grant competition for plastic, paper, and glass-recycling companies intended to increase their productivity and energy efficiency. The evaluation committee selected five companies out of seven applicants in accordance with the evaluation criteria set out in RFA. Before making the final decision and developing the grant applications, the WMTR team conducted pre-award assessments and site visits.

During the reporting period, the WMTR team finalized the pre-award assessments. According to the results, only two companies — Zugo Ltd. and Sanitari Ltd. — passed the pre-award assessment. The WMTR team has already developed a grant package for Zugo Ltd. and submitted it to USAID for approval (please see the relevant information below). The grant package for Sanitari Ltd. is in the development process. Business and marketing plans have already been prepared including financial calculations. The remaining documents will be finalized in the next fiscal year.

In-Kind Activity Agreement for Zugo Ltd

The WMTR team developed a grant package for Zugo Ltd. to provide a sub-award as an in-kind activity agreement (IKAA) and purchase the following equipment: JQ-FB1000 PC ABA Film Blowing Machine and JQ-ZD600 Single Line T-Shirt Bag Making Machine.

This sub-award has the following objective:

Plastic pollution is a major environmental problem both at a global and national level. WMTR will provide in-kind assistance that will increase the economic efficiency of Zugo Ltd., and contribute to the introduction of modern standards of waste management in compliance with national legislation and the EU-Georgia Association Agreement. In addition, after delivery of the equipment to Zugo Ltd., the provider company will train relevant Zugo staff on the operation of the specialty equipment.

Supporting and increasing the capacity of the plastic recycling company Zugo Ltd. will generate significant benefits to the public. This includes:

- Diverting 190 t of plastic bags from landfills over three years (degradation of plastic bags takes more than 100 years) therefore reducing GHG emissions, saving space at landfills, and increasing the capacity of landfills to serve for a longer period.
- Saving natural resources by reducing usage of raw materials.
- Supporting local production by substituting imported materials with cheaper local products, thus generating additional benefits for the public through reducing their costs.
- Creating new workplaces — the company will hire three new employees and generate more income for people involved in plastic bag collection process for further recycling.

The Total estimated cost of this IKKA is USD \$208,504. From this amount, USD 153,037 will be provided by the ICMA and USD \$55,467 by Zugo Ltd.

The WMTR team has signed the IKAA with Zugo Ltd. and the purchased in-kind equipment. The equipment is expected to be delivered early in the new year.

Component 3: Waste Management Strategy and Tariff Policy

Development of general methodology for tariff calculation and a cost recovery system

Ensuring the sustainability and self-sufficiency of the waste management sector is an integral part of developing a modern waste management system in the country. Introducing modern approaches in waste management and operating such a system will not be possible without establishing a proper waste tariff and cost-recovery systems.

Existing national legislation does not provide a methodology for waste tariff calculation, and does not set up a cost-recovery system that will ensure full recovery of waste service costs from the population and commercial and industrial facilities. The development of a tariff calculation methodology is also a requirement of the Waste Management Strategy and Action Plan, approved by Prime Minister of Georgia Giorgi Kvirikashvili on April 1, 2016.

Therefore, in March 2016, the WMTR team developed a general methodology for establishing a Waste Management Tariff and a Cost Recovery System in Georgia along with an Excel-based Waste Tariff Calculation tool. The report provides general methodology for determining waste tariffs in accordance with modern requirements and proposes a cost recovery system that will ensure the sustainability of solid waste management systems at the municipal level. The document provides a methodology for calculating waste tariffs for residents, as well as for commercial and industrial facilities.

According to the report, modern tariff-setting principles provide criteria for determining the tariff. These principles, when applied, affect the efficiency, equity, and sustainability of the waste management system. Each of these principles should be considered in the tariff setting process. At present, Georgian law requires the application of some, but not all of these principals.

Therefore, the report proposes the following principles that are consistent with international best practices, and should be considered in governing and shaping the determination of tariffs for solid waste services: legal requirements; cost recovery; financial viability; horizontal equity; vertical equity and poverty alleviation; administrative and technical feasibility; polluter pays; and transparency.

The document also provides basic information including: internationally accepted modern tariff setting principals; descriptions of modern waste management services; revenue and cost accounting standards for waste management; and current legal and regulatory requirements applying to establishing tariffs.

The document provides concrete recommendations on the changes required in current laws related to waste tariffs that should be made to make this sector self-sufficient through the recovery of maximum costs associated with the services provided.

Please see Annex 7. General methodology for establishing waste management tariff and cost recovery system in Georgia (a) and cost allocation table (b).

Lobbying the document at the governmental level

The WMTR team provided the document to all stakeholders, including governmental structures and financial institutions to get their feedback and consider the view and opinion of all parties involved in the waste management sector. WMTR incorporated all comments provided by stakeholders and distributed an updated version of the methodology to all these institutions. WMTR also presented the

document to the WMTR project stakeholder consultation group (SCG), the Minister of Environment and Natural Resources Protection of Georgia, and the deputy ministers and the staff responsible for waste management in the ministry. The WMTR team received positive feedback on the document from all these institutions.

In November 2016, the WMTR team is planning to present the document to the Economic Council, the advisory body to the Prime Minister of Georgia on economic issues.

Working meetings with municipalities in project target regions on calculation of waste tariff according to a new methodology developed by WMTR

In parallel, the WMTR team has begun testing the methodology in the municipalities of project target regions. The WMTR team organized working meetings in municipalities and self-governing cities of both project target regions. WMTR introduced local governments to the modern waste tariff calculation methodology and cost recovery system developed by the program, and encouraged them to apply this methodology in practice.

Kakheti Region

On July 6 and 8 2016, the WMTR team held two working group meetings in Kakheti Region. Meetings took place at the Civic Engagement Center in the Self-Governing City of Telavi. The relevant staff of the municipalities of Akhmeta, Gurjaani, Kvareli, Sagarejo and the Self-Governing City of Telavi, as well as Lagodekhi, Signaghi and Dedoplistskaro attended the meeting. A total of 17 participants attended the working meetings.



Adjara AR

On July 15 2016, the WMTR team organized a working group meeting in Adjara AR. The meeting took place at the Civic Engagement Center in the Self-Governing City of Batumi. The relevant staff of the municipalities of Khulo, Khelvachauri, Kobuleti, Keda, Shuakhevi and the Self-Governing City of Batumi attended the working meeting. A total of 12 people were present at the meeting.



In both regions, the WMTR team delivered a PowerPoint presentation on the General Methodology for Establishing Tariffs and Cost Recovery System in Georgia, developed by the program. Afterwards, the presentation floor was opened for a questions and answers session.

During the discussion, all parties agreed that a modern billing system is the best tool to collect waste tariff fees and agreed that municipality representatives would deliver the obtained information to their supervising authorities (Gamagebelies) as well as to the public. The WMTR team emphasized that tariff calculation is part of the municipal waste management plans, while the development of the later is a requirement of national legislation — the Waste Management Code of Georgia.

Each municipality appointed a contact person who will work together with the WMTR team on calculation of waste tariffs for their municipalities. The WMTR team is working with them to obtain background information for waste tariff calculation according to the modern methodology.

As a follow up of these working meetings, from September 28 to 30, 2016, the WMTR team held four workshops in the municipalities of Telavi, Lagodekhi, Akhmeta and the Self-Governing City of Telavi to assess background data provided by these institutions, explain how to use this information in the calculation tool, and help them to make a calculation. By the end of October 2016, the WMTR team is planning to organize similar meetings in Adjara AR.



The WMTR team, in cooperation with local governments, will finalize calculation of waste tariffs in all municipalities of the project target regions in the next fiscal year.

Component 4: Communication and Outreach

Promoting 4R approaches through celebrating International environmental days

Conducting Green Consumer Campaign

To celebrate Green Consumer Day on September 28, 2016 and to promote green behavior among Georgian citizens, the WMTR team launched an internet campaign, *Green Consumer Week*.

Starting from September 26 until September 30, every day at 17:00, the WMTR team published a question related to being a green consumer.



WMTR chose the fastest author of the correct answer as the winner, and in total, the WMTR team awarded four people with a green prize — electronic book gift cards — to promote electronic distribution of materials and reduce paper usage.

Celebration of Earth Day on April 22

On April 22, the WMTR team, together with the USAID mission to Georgia and CENN's *Sustainable Forest Governance* program, celebrated Earth Day in the village of Jokolo in Pankisi Valley, Kakheti Region. The event featured tree planting, as the goal of this year's Earth Day event was to plant 7.8 billion trees throughout the world. The WMTR team also organized a Do-It-Yourself stand, where kids used waste to create works of art and played the e-game, *Sort and Recycle*, developed by WMTR. Telavi Public School #1's eco-club introduced Jokolo students, facilitated the activities, and played educational games with the students using household waste.





USAID/Caucasus Mission Director, Douglas H. Ball, Deputy Minister of Environment and Natural Resources Protection of Georgia, Besarion Abashidze, and students of the local school in Jokolo Village planted trees on a 1.5 ha area, which was previously an illegal dumpsite. The WMTR team and Jokolo school students cleared this area beforehand (see Component 1 above). The activity aimed to repurpose the territory in order to prevent future littering.



Participants planted around 200 trees, including walnut, tilia, maple, ash, and plane trees.

Earth Day Celebration at QSI International School

The WMTR team supported Earth Day celebrations at QSI International School in Tbilisi, and on April 20th gave presentations on sustainable waste management and recycling to three groups of school students:

- Lower Elementary, age: 6–8 (54 students)
- Higher Elementary, age: 9–12 (62 students)
- Secondary (59 students)



Around 180 school students participated in the interactive seminars. The WMTR team provided information about recycling opportunities in Georgia and the importance of introducing a source separation scheme in the country. WMTR also stressed the importance of waste reduction to save natural resources and decrease the amount of waste at landfills.

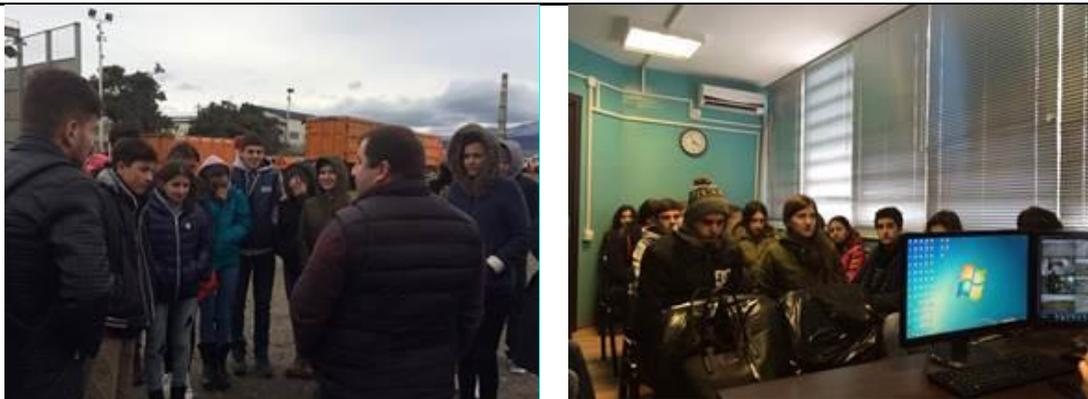
Celebration of Earth Hour 2016

On March 19, 2016, the WMTR team mobilized 25 students from the five pilot villages of Telavi Municipality to take part in Earth Hour celebrations in Telavi. Over one hour, from 20:30–21:30 the streetlights were shut off and lights went out in the main square and municipal buildings. During that hour, people gathered at the main square to celebrate Earth Hour by lighting candles and enjoying a concert by local bands and flash mobs staged by eco-club students.



On March 18–22, 2016, as part of the Earth Hour campaign, CENN Green Centre hosted a group of schoolchildren from climate change vulnerable regions across Georgia. On March 19, 2016, Minister of Environment and Natural Resources Protection of Georgia Gigla Agulashvili met with the schoolchildren to discuss the principles of the work of the ministry, its priorities, and Georgia’s obligations regarding climate change.

Students underwent a three-day program on waste management, climate change, sustainable management of forests, and sustainable use of mineral resources. Besides the theoretical parts of the seminars, students visited Lilo landfill, where they had the chance to learn about its functioning.



The above activities were part of an eco-camp that lasted until March 22, 2016, aimed at raising awareness of environmental issues among schoolchildren.

The campaign took place in the framework of CENN's projects, Waste Management Technologies in Regions (WMTR), Sustainable Forest Governance, and Promoting Environmental and Social Accountability in the Mining Sector in the Caucasus.

On March 21, 2016, the WMTR team presented its e-game to the public. The event was held by CENN's forestry project in the National Library of Georgia to celebrate International Day of Forests. The winners of the Photo Synthesis 2016 competition were also awarded at the event.



Awareness raising campaigns in five villages - Akura, Vanta, Busheti, Kvemo Khodasheni, Tsinandali - of the pilot project in Telavi municipality to promote waste separation and recycling

Kindergartens joined the Telavi Pilot Project to start waste separation

The WMTR team continues organizing various awareness raising campaigns in the five villages of the Telavi Pilot Project to encourage the public to separate waste at their homes and workplaces. At the same time it is very important to start the education process from very early ages and involve kids as ambassadors of future changes.

Therefore, in August 2016, the WMTR team started collaborating with the kindergartens in each of these five villages to encourage them to be involved in the waste separation system, and placed 12 additional bins for separated collection of plastic and paper waste near kindergartens.



In order to encourage the local population to continue separating waste in their homes, the WMTR team held short interviews in the streets, asked questions regarding recycling of separated waste, and awarded correct answers with WMTR program t-shirts and bags for waste separation.

Green School Competition

In May and June 2016, the WMTR team organized a green school competition in the schools of five villages of the Telavi pilot project. Prior to 2015, these villages did not even have waste bins.

School students participated in the competition with enthusiasm and actively participated in the collection of plastic and paper throughout their villages. The competition motivated students to participate in the campaign; Kvemo Khodasheni School even took the initiative to clear a dumpsite around the village.

The competition lasted for two months. During this period, WMTR representatives regularly weighed the collected waste and stored it in a specially designated storage area. The collected waste was then delivered to a recycling company. The competing schools collected a total of 1,942 kg of paper and 352 kg of plastic waste.



The WMTR team identified the winner of the competition by calculating the amount of correctly separated waste collected. Kvemo Khodasheni Public School (140 students) won the competition by collecting 579.7 kg of paper and 179.9 kg of plastic waste. The WMTR project will award the winner with an eco-park playground made from recycled materials. WMTR will assist in the development of the eco-park playground in November 2016, with the active participation of school students.

Green Cafe seminar-discussions in public schools of Vanta and Kvemo Khodasheni

On March 2 and 4 ,2016, in order to increase knowledge of the importance of waste separation and recycling, the WMTR team held 2 Green Cafés in public schools of the pilot villages of Vanta and Kvemo Khodasheni, together with a representative from the Environmental Information and Education Centre (EIEC) of the MoENRP. The Green Café concept provides the opportunity to hold discussions in an informal and comfortable atmosphere.

The WMTR team invited school students for juice and snacks, discussed waste separation and recycling, and presented modern approaches to waste management.



As a result of those meetings, an internet campaign was initiated which consists of separating plastic and collecting it in special green plastic bags provided by the WMTR team. Students took photos of the process over several weeks and published them on social media with the hashtag, #iseparatewaste. WMTR invited the most active participants of the campaign to the EIEC office in Tbilisi, for a meeting, Green Tea with the Minister.

Experience-sharing seminars for Telavi Pilot Project school students

On February 24, 2016, the WMTR team, together with four high school students and eco-club members from Telavi public schools #1 and #4, visited public schools in Telavi Pilot Project villages. The goal of the meetings was to increase knowledge of waste management among school students of the five pilot villages in Telavi Municipality and mobilize the community to support waste separation processes.

Through these meetings, WMTR supported discussion and experience sharing between school students on the benefits of eco-clubs on both a personal and community level, established new partnerships, and demonstrated the positive effects of eco-club activities on the environment.



Students shared information about the following topics:

- Eco-club functioning — how to found an eco-club, how to plan and implement activities, what kind of activities to take part in, and how eco-clubs can generally support community development by promoting environmentally friendly behavior;
- Personal experiences — the success of Telavi Public School #1's eco-club and personal successes of its members.

School students received their peers from the City of Telavi very positively, which laid the groundwork for their close cooperation in implementing larger-scale joint activities.

Telavi Municipality Trustees Roundtable Meeting at the Ministry of Environment and Natural Resources Protection of Georgia

On January 21, 2016, the WMTR team organized a meeting between the Telavi Municipality trustees and the MoENRP's Waste and Chemicals Service. Trustees from 5 pilot villages — Akura, Vanta, Busheti, Kvemo Khodasheni, and Tsinandali — participated in the meeting, along with a representative of Telavi Municipality. WMTR aimed to facilitate discussion between the representatives of local and national governments on the roles and responsibilities of local governments in introducing effective waste management systems, including waste separation and recycling.

Topics covered during the meeting included:

- Waste separation and recycling in 5 pilot villages;
- The responsibilities of local government within the Waste Management Code;
- Integrated waste management — the country's obligation within the framework of the Georgia-EU Association Agreement;
- Waste management problems in the pilot villages — lack of infrastructure, illegal dumping, waste burning in the yards, and low public awareness;
- Tariff and cost recovery system in target villages of Telavi Municipality.



According to the trustees, the main problem in their villages was related to waste collection and tariffs. Despite the fact that the waste collection tariff in Telavi Municipality is relatively small (50 tetri per person, up to one Lari per household), a majority of citizens do not pay. The current manual recording system used to track payments is not effective. The municipality has since prioritized an overhaul of its tariff policy and plans to introduce modern tariff calculation and recovery system with the support of WMTR program.

Public awareness raising and the importance of behavioral change was one of the main topics of the discussion during the meeting. The participants agreed that everyday work with the local population

would be necessary for behavioral changes and introduction of separated waste collection and recycling systems in the villages.

Meetings with the local population and open classes at schools in five villages of Telavi Municipality

On 9–11 and 16–17 December 2015, the WMTR team held meetings with the local population, and conducted open classes for school students in five target villages of the Telavi pilot project. In order to introduce waste separation practices in pilot villages, it is important to work with the local population and motivate them to start separation of their household waste and put it into the separate bins provided by the WMTR program.



The aim of the meetings was to inform students and the public about modern approaches in waste management, with a focus on waste separation and recycling. WMTR also informed the attendees about the waste separation scheme that was introduced in their villages and the importance of their involvement in this process.



Around 200 people, including village governors, school principals, teachers and school students, attended the meetings. The WMTR team distributed the program's *Waste Free 2016* calendars and various literature on different environmental topics.

School Grants on promoting 4R principles

Second Round of School Grants

In September 2016, the WMTR team announced its second round of school grants. The grants competition is for secondary schools students in Kakheti Region and Adjara AR on an integrated approach to waste management.

The purpose of the grant program is to promote the concept of integrated waste management and the 4R principles (reduce, reuse, repurpose and recycle) among the local community. Three to seven teams of students from the 9th, 10th and 11th grades, as well as existing eco-clubs from secondary schools in Adjara AR and Kakheti Region are applicable for the grants competition.

The criteria of the evaluation of the applications are the following:

1. **Strategic Fit** (maximum 50 points)
2. **Organizational Capabilities** (maximum 10 points)
3. **Gender Considerations** (maximum 10 points)
4. **Inclusiveness** (maximum 10 points)
5. **Cost Realism and Allowability** (maximum 20 points)

The deadline for submitting the applications is November 2 2016.

1. მოიფიქრეთ საინტერესო პროექტი ნარჩენებზე მეგობრებთან ერთად

2. ითანამშრომლეთ სკოლასთან

3. დანერეთ პროექტის შესაბამისი გეგმა

4. შეავსეთ საგრანტო აპლიკაციის ფორმა

გამარჯვების შემთხვევაში, მიიღეთ 1,350 ლარამდე დაფინანსება თქვენი საკუთარი პროექტის განსახორციელებლად

დამატებითი ინფორმაციისათვის მოგვწერეთ FACEBOOK-ზე: WMTR PROGRAM

USAID CityLinks ICMA CBN

School Grants for Telavi and Zemo Alvani Public Schools

In March 2016, the WMTR team awarded two schools from the Kakheti Region with small grants to implement their own integrated approach to waste management:

Telavi Public School #1 — the eco-club of Telavi Public school #1 received a small grant of 600 USD to conduct their project, *Eco Agents Against Waste*, in Telavi Municipality. The project created a network of eco-clubs in Telavi Municipality and worked closely with them through different training sessions, including training of trainers, organized competitions, clean up, and tree-planting activities all designed to raise awareness of waste management issues and create a network of cooperation at a municipal level.



The project contributed to the following results:

- 18 eco-clubs became active members of the network;
- Cleared 10 small scale illegal dumpsites and planted local trees in 10 villages of Telavi Municipality;
- Trained around 500 school students in integrated waste management;
- Organized a youth summit for the most active members of the network
- Members of the *Eco Agents against Waste Network* conducted Interactive and fun competitions, as well as different awareness raising activities.



Zemo Alvani Public School in Akhmeta Municipality — eco-club members and school students received a small grant of 670 USD to organize an awareness raising campaign on waste separation and recycling. They collected around 2,500 plastic bottles during the campaign and built a greenhouse called the Green Greenhouse. Students installed a drip irrigation system in the structure to grow flowers in the greenhouse.



Summer eco-camps for target school students

WMTR Program held Summer Eco-Camps

From August 15 until September 2 2016, the WMTR Program held three eco-camps in Mtirala and Lagodekhi national parks. The eco-camps lasted for five days and gathered school students from project target regions — Kakheti Region and Adjara AR.

Along with having fun, the WMTR team provided 8–11 grade school students with the following information through interactive sessions:

- A seminar on protected areas and on Mtirala or Lagodekhi National Park;
- A day in a park rangers' life, and waste management issues in the park;
- Discussion around the campfire about ways to manage waste in protected areas;
- A seminar on ecosystem services and an educational game called Fishing — on how to benefit from and sustain the ecosystem at the same time.

One day of the five-day camps was dedicated to a hike. In Mtirala National Park, the participants followed the Tsabnari trail, while in Lagodekhi they visited Gurgeniani waterfall.



As a practical example of how to reduce waste, the participants used multiple-use utensils instead of single-use ones. During their hikes, the students cleaned the areas and conducted research on the waste dumped in the area.

Cooperation with waste management related initiatives

The WMTR team actively participates and supports local initiatives. On July 3, the WMTR team gave a seminar on integrated waste management and Georgia's current situation to participants of a Peace Corps organized Green Camp in Kutaisi aiming to educate and inspire the youth of Georgia to actively lead environmentally conscious lives for themselves and their communities.



The WMTR team also participated in an eco-camp organized by the Telavi public school #1 eco-club. During the eco-camp, which took place in Bakuriani on August 9, the WMTR team held a training on integrated waste management for the camp's participants from Kakheti Region and Tbilisi.

Trainings for School Teachers and Students in the project target regions and journalists

Training for school teachers from five villages of Telavi Municipality on non-formal education – an effective tool for professional development of teachers

On February 6–8, 2016, in order to increase awareness of waste management issues among teachers in Telavi Municipality's five pilot villages, the WMTR team organized a three-day training for school teachers on non-formal education. Such training is an effective tool for the professional development of teachers. A total of eight school teachers from pilot villages, Tsinandali, Kvemo Khodasheni, Busheti, Vanta, and Akura attended the training.

WMTR provided the teachers with information and techniques on how to work with students in an informal environment to increase their motivation, develop their capacity, and inspire the environmentally friendly attitude required to support the introduction of integrated waste management practices in their community.

The trainings covered the following topics:

- The environment and values — responsibility, cooperation, humbleness, respect;
- Values education — creation of a value-based environment in everyday school life;
- Methodology of values education;
- Planning lessons and activities to promote different values;
- School eco-clubs — an effective tool for non-formal education, and teachers' role in this process;
- Different forms of working in a non-formal environment — eco-clubs, discussion of different possible events, programs, community and school projects, presentations, role playing, group works, debates;
- Research-based teaching and learning methods for school eco-clubs' activities — IEARN (International Education and Resource Network) practices in environmental topics and waste management educational programs;
- Silhouette theatre — an effective tool for engaging and activating students, parents and communities.



WMTR and M-TAG Programs Joint Training Course for Journalists on Waste Management Issues

In June and July 2016 the WMTR team, in cooperation with the USAID M-TAG program, conducted a training course for journalists in *Integrated Waste Management Practice, Challenges and Development Perspectives*. The course consisted of 24 academic hours and was attended by 10 journalists from print and TV media. The training aimed to provide journalists with comprehensive information on waste management in Georgia and modern waste management practices.



To do this, the WMTR team provided interactive sessions on the following topics:

- The importance of integrated waste management, modern approaches to waste management and the resulting benefits for the population;
- The GoG's vision in terms of waste management: strategy and action plan, the country's obligations within the EU-Georgia association agreements, and actions required to meet these obligations;



- A general overview of the Administrative Violations Code of Georgia, challenges of implementation, and the effectiveness of fines to improve the situation in the waste management sector;
- Municipal and household waste management systems in Tbilisi — collection, transportation, and disposal based on the experience of *Tbiliservice Group Ltd.*;
- Waste collection and the recycling sector — the current situation and challenges, the importance of developing the sector to introduce integrated waste management in the country, and waste management tariff policy and cost recovery mechanisms;
- The importance of an integrated waste management tool for smooth operation of the waste management system in the country;
- The importance of public participation for successful introduction of integrated waste management;
- Interactive session/group work to identify priority issues in waste management that should be highlighted by the media;
- Field trip to the landfill located in Tbilisi.



The WMTR team expects that journalists acquainted with waste management issues and policy will provide better coverage of environmental issues. The media is an influential force in the community and accurate information that receives adequate coverage can have a big impact by informing the public and catalysing change.

Joint Training for School Teachers and Students on Waste Management Advocacy

On 16–17 and 23–24 June 2016, the WMTR team held joint training sessions for schoolteachers and students from Adjara AR and Kakheti Region. The trainings aimed to raise schoolteacher and student awareness of environmental issues. The training focused on waste management and increasing capacity to plan and implement waste management advocacy campaigns in their communities. The trainings were attended by 41 participants.

These two-day trainings provided participants with the knowledge necessary to advocate successfully for environmental issues. The participants worked in groups to select and highlight waste management problems in their villages, which they will be lobbying through an effective advocacy campaign.



From Kakheti Region, 21 participants attended the training, from the villages of Jokolo, Dedoplistskaro, Kachreti, Nukriani and Akhalsopeli. In Adjara AR, 20 participants took part from the City of Batumi and the villages of Mukhaestate and Korkhoti. The WMTR team awarded participants with certificates at the end of the training.

The Eighth Environment for Europe Ministerial Conference

The WMTR team participated in the *Eighth Environment for Europe Ministerial Conference*, and on June 9, presented the project's activities at a side-event — *Promoting Green Economy in the Caucasus*. The Minister of Environment and Natural Resources Protection of Georgia, Gigla Agulasvili, opened the side-event. Around 30 participants from different governmental structures, international organizations, and NGOs attended the event.



After the presentations, the panelists opened the floor for discussion. Representatives of the MoENRP and SWMCG emphasized their productive cooperation with the project and hoped to continue collaborating in the future. Questions from the audience mainly related to the necessity of introducing a proper tariff system and the importance of starting a discussion of this issue at all levels. Attendees mentioned that the composition study conducted by the project in two regions of Georgia (see

Component 1 above) provides important information for better planning of waste separation and recycling strategies and should be conducted in other regions.

WMTR hosted students from the French School of the Caucasus

On March 16 2016, the WMTR team conducted a seminar on modern waste management practices, with a focus on plastic bags, for 17 middle school students from the French School of the Caucasus.



During the interactive seminar, students learned about the problems related to plastic bags, their negative impact on the environment, possible solutions, and alternatives to plastic bags. The seminar motivated students to start a campaign against plastic bags at their school and at home.

Working with school students in Tbilisi is very important for replication of the project's activities. The WMTR team continues working with other schools in the capital to spread project activities and create precedents for proper waste management in Tbilisi.

Produce Booklets, Media Materials, Posters, Trainings and Other Activities to Introduce the Concept and Benefits of Recycling and Encourage People to Recycle

Documentary Film on Integrated Waste Management

The WMTR team closely cooperated with GDS TV, and together with their show, GD Pedia, produced a 42 minute documentary film on integrated waste management, highlighting the importance of waste recycling and the Goodwill Recycling Corner initiative.

The film covered all aspects of waste management starting from the negative effect of waste on the environment and the threat to human health, concluding with the importance of waste reduction and behavioral change.

The documentary film is the first in Georgia that thoroughly covers the whole chain of integrated waste management. The film aired on September 10 and is now available on YouTube ([Link](#)). The film will serve as very good educational material during different awareness raising seminars at schools.

E-Game: Sort and Recycle

In March 2016, the WMTR team created an educational e-game, *Sort and Recycle*, with the purpose of raising awareness of children aged 6 and above on waste separation and recycling.



The goal of the game is to help the younger generation to understand that not all waste is a garbage. The game shows how to produce useful items from waste by sorting it and further recycling it, saving natural resources and the environment.

The game consists of several stages:

- The player has to clean a room, a park or picnic area and sort waste by placing waste in pre-determined waste bins;
- After the area is cleaned, an animation starts showing a waste collection vehicle carrying the waste to a recycling facility;
- The player has to produce various products from waste in the recycling facility e.g. a plastic plate or metal spoon.

The game becomes more and more difficult with each stage. At the first stage, each item and bin has its corresponding description, which disappears after moving to the next stage. The quicker the player cleans the surroundings, and the fewer mistakes they make, the more they will score. Each time the player presses the wrong button they lose points.

The game is available on [iOS](#), [Android](#) and [Windows](#).

Presentation of e-game Sort and Recycle to 2nd grade students

On March 22 2016, the WMTR team held an interactive seminar for 15 second-grade school students at the Environmental Information and Education Centre (EIEC). The EIEC team introduced them to the

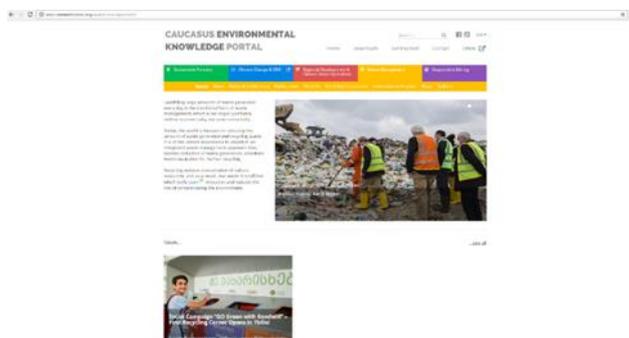
principles of sustainable waste management and the importance of recycling. At the end of the seminar, the WMTR team made a presentation and demonstrated the e-Game — Sort and Recycle. The children were very enthusiastic about the game and enjoyed it very much.



Development of Waste Web-Portal

The WMTR team concluded development of a waste web-portal that will be an integrated part of a global environmental portal — The Caucasus Environmental Portal.

The goal of the portal is to create a unified platform for disseminating information related to waste management capable of reaching interested stakeholders and the wider public. The portal addresses waste management topics including best practices, challenges, and opportunities. It also provides various online community services and access to educational resources to support collaboration, assistive learning, and the latest information.



The construction of the portal is finalized. At this stage, the WMTR team continues providing necessary information and is planning to officially launch the portal in October 2016.

Public service announcements (PSAs)

The reduction of waste is a significant component of the waste management hierarchy. Therefore, the WMTR team developed a public service announcement (PSA) to promote the importance of waste reduction, and raise the awareness of the public on this issue. In the PSA, a character from the popular Georgian painting, *Meezove* (yard keeper) by Pirosmani (the same character that was used in the previous PSA), delivers the key message — reduce the amount of waste we dispose of by avoiding single-use items and buying extra products — in a short and humorous manner.

Public television is broadcasting the PSA and it is available online on [YouTube](#).

Table calendar — Waste Free 2016

The WMTR program developed a table calendar — *Waste Free 2016: Choose Vintage – Be Unique and Have a Positive Environmental Effect!*

The calendar provides messages on how to use the 4R concept in everyday life and be a conscious citizen with an environmentally friendly attitude.



WMTR distributed the calendar among all stakeholders at the central level and in the project target regions.

Information Boards with the Slogan “Leave Only Footprints, Take Only Pictures!” in Lagodekhi Protected Areas to Prevent Littering in this Territory

In June, the WMTR project and APA placed 30 information boards along these tourist trails in locations with a high rate of littering.



The main character of the boards is an aurochs named Toni, a symbol of Lagodekhi Protected Areas. Toni encourages tourists to care for the environment and not pollute the territory. The slogan “Leave only footprints, take only pictures!” urges visitors to pack waste out of the territory of the protected area.

Protected areas in Georgia cover 8.6% of the country's territory, and yet do not currently have an effective waste management system. The WMTR team, in cooperation with the LEPL Agency of Protected Areas of Georgia⁶ (APA) selected Lagodekhi Protected Areas to implement a pilot project placing information boards to manage waste in this protected area by encouraging tourists to abide by the principle — take it in, take it out.

Lagodekhi Protected Areas are located in Lagodekhi Municipality, Kakheti Region, in the extreme northeastern part of the southern slopes of the Caucasus and range in altitude from 590–3500 m. These protected areas include Lagodekhi Nature Reserve (19,749 ha) and Lagodekhi Managed Reserve (4,702 ha). The area is one of the world's best-preserved primitive areas, with a diversity of natural landscapes. The managed reserve of Lagodekhi Protected Areas includes five informative tourist trails, namely: Grouse Waterfall, Ninoskhevi Waterfall, Machi Castle, Black Rock Lake and the Knowledge of Nature trail.

Program quarterly newsletters

The WMTR team developed four program newsletters in [English](#) and [Georgian](#) for the period of October 1 2015 – September 30 2016 and distributed them through the CENN Electronic Network, which has more than 24,000 subscribers worldwide. The newsletter provides information on the program's goals and activities during the fiscal year 2016 and aims to keep the public informed of, and involved in, the WMTR program.

Maintaining the eco-camp alumni Facebook page

WMTR continues to update its [Facebook page](#). Through this page, the public, including school students from the project target regions, receive updates on the implementation of the program — competitions, trainings, workshops, grant announcements, information about ongoing activities, and news on modern practices in waste management.



⁶ LEPL Agency of Protected Areas of Georgia of the Ministry of Environment and Natural Resources Protection is responsible for the management of protected areas throughout the country.

Newspaper Articles

The WMTR team continued cooperating with various online Georgian news outlets to ensure the outreach of WMTR program activities and make them available for a broad audience. In the period of October 2015–October 2016, the following articles were printed:

USAID	Georgian Youth Go Green: Aisi College Establishes New Composting and Recycling Program
Georgia Today	Fines for Littering on the Up
Georgia Today	Waste Separation Program Starts in Tbilisi
Georgia Today	What Do We Dump and What Could We Turn into a Resource?
Georgia Today	Waste – Trash or Resource?
Georgia Today	Changing Habits: Kakheti Region Begins to Separate Paper and Plastic Waste
Inter Press News	Georgia Started to Find New Investment Possibilities to Ensure a Solid Waste Management System
Knews.ge	Village Giorgeti gets a Composting Box
Georgia Today	Waste – Trash or Resource?
Inter Press News	Seasonal Study of Waste Composition in Kakheti and Adjara have been Finalized
Georgia Today	What Do We Dump and What Could We Turn into a Resource?
Georgia Today	USAID Donates Greenhouse Gas measuring Equipment to Georgia
Good News Agency	Georgia to Start Measuring Greenhouse Gas
Business Press News	For the First Time in Georgia the Negative Impact of Landfill's on the Environment will be Assessed
Inter Press News	Georgia to Start Measurement of Greenhouse Gas emissions on Landfills
Knews.ge	Household Waste Composition Study was Conducted in Kakheti Region
Georgia Today	WMTR Cleans Up and Repurposes Illegal Dumpsites
Inter Press News	Cleanup Campaign of Spontaneous Dumpsites has Launched
Investor.ge	WASTE NOT, WANT NOT
Georgia Today	USAID Donates Greenhouse Gas measuring Equipment to Georgia
Good News Agency	Georgia to Start Measuring Greenhouse Gas
Business Press News	For the First Time in Georgia the Negative Impact of Landfill's on the Environment will be Assessed
Inter Press News	Georgia to Start Measurement of Greenhouse Gas emissions on Landfills
Knews.ge	Household Waste Composition Study was Conducted in Kakheti Region
Georgia Today	WMTR Cleans Up and Repurposes Illegal Dumpsites
Inter Press News	Cleanup Campaign of Spontaneous Dumpsites has Launched
Investor.ge	WASTE NOT, WANT NOT
Georgia Today	Waste Management Association for Environmental and Economic Development
Georgia Today	Georgia Wastes Money with its Lack of Recycling Infrastructure

Table 1. Number of People Reached through Outreach Campaign

Channel of Communications	Type of Information	Size of Audience
GDპროგოო show, September 17, 2016 Link		9,365 Likes on Facebook
Georgiatoday.ge, August 25, 2016 Link	Article – Fines for Littering on the Up	6,099 Likes on Facebook
Social Media, USAID Facebook Page, August 23, 2016 Link	Post on Zura Babluanidze Enterprise	77 Likes, 27 Shares
Imedi TV, August 4, 2016 Link	Video Report on Goodwill Recycling Corner Opening	73 Likes, 2 Shares
Rustavi 2 TV. August 4, 2016	Video Report on Goodwill Recycling Corner Opening	
Social Media, Georgian Broadcaster YouTube, August 4, 2016 Link	Video Report on Goodwill Recycling Corner Opening	22 views
Social Media, Ministry of Environment Protection Facebook Page, August 4, 2016 Link	Video Report on Goodwill Recycling Corner Opening	87 Likes, 50 Shares, 7.815 views
Social Media, Ministry of Environment Protection Facebook Page, August 4, 2016 Link	Photo of Goodwill Recycling Corner Opening	83 Likes
Social Media, Iberia TV YouTube, August 4, 2016 Link	Video Report on Goodwill Recycling Corner Opening	15 Views
Infolab.ge, August 3, 2016 Link	Press release on Goodwill Recycling Corner Opening	3,226 Likes on Facebook
EduLab.ge, August 3, 2016 Link	Press release on Goodwill Recycling Corner Opening	30,887 Likes on Facebook
Ipress.ge, August 5, 2016 Link	News on Goodwill Recycling Corner Opening	24,754 Likes on Facebook
Bussinesscontact.ge, August 4, 2016 Link	Press release on Goodwill Recycling Corner Opening	112 views
YouTube Channel, August 4, 2016 Link		2 Views
Fortuna.ge, August 4, 2016 Link	News on Goodwill Recycling Corner Opening	2 Likes, 2 Shares
ICK.ge, August 3, 2016 Link	Press release on Goodwill Recycling Corner Opening	28,484 Likes on Facebook
IPN.ge August 4, 2016 Link	News on Goodwill Recycling Corner Opening	50,398 unique visitors per day
USAID Web page, August 3, 2016 Link	Press release on Goodwill Recycling Corner Opening	
Fortuna.ge, August 6, 2016 Link	News on Waste Separation Pilot Project in Telavi	28,327 Likes on Facebook
Social Media, USAID Facebook page, July 26	Post on Zemo Alvani Greenhouse case	94 Likes, 24 Shares
Social Media, Gurjaani TV YouTube, May 7, 2016 Link	Video Report on Waste Separation in Telavi Municipality	35 Views
Ministry of Environment and Natural Resources Protection of Georgia, Facebook page, April 24, 2016. Link	Video reportage on Earth Day Celebration in Jokolo village, Pankisi valley, Kakheti region	2,558 Views, 54 Likes, 16 Shares
Social Media, Rustavi 2 TV YouTube, News Program Kurieri, April 24, 2016. Link	Earth Day Celebration in Jokolo village, Pankisi valley, Kakheti region	24 Views
Good News Agency, May 04, 2016. Link	News on Zemo Alvani School students building a greenhouse out of used plastic bottles	480 Shares
Georgiatoday.ge, May 09, 2016. Link	Article “Changing Habits: Kakheti Region Starts to Separate Paper and Plastic Waste”	53 Likes
Social Media, Georgia Today Facebook Page, May 09, 2016		18 Shares
Iberia TV, Program “My Little City”, May 22, 2016. Link	Solid Waste Management	160 Views 19 Shares
Social Media, My Little City show Facebook Page, May 22, 2016		
Georgiatoday.ge, June 06, 2016. Link	Article - Make Your Office Green	5,560 Likes on Facebook Page

Waste Management Technologies in Regions, Georgia

Channel of Communications	Type of Information	Size of Audience
Interpressnews.ge, June 07, 2016. Link	Article “New Investments Needed in Georgia for Establishment of Integrated Waste Management System”	50,398 unique visitors per day
Georgiatoday.ge, June 17, 2016. Link	Article “Waste – Trash or Resource?”	313 Views
Telavi Municipality Facebook Page, June 17, 2016. Link	Info on Eco Agents – Project of WMTR Program’s Grantee – Eco Club of Telavi Public School #1.	14 Likes
Knews.ge, June 20, 2016. Link	Info on WMTR program’s Composting Initiative in village Giorgeti, Lagodekhi Municipality.	58 Likes on Facebook page
Interpressnews.ge, June 28, 2016. Link	Article on WMTR Program’s Waste Composition Study in Adjara AR and Kakheti region	50,398 unique visitors per day
Georgiatoday.ge, June 30, 2016. Link	Article “What Do We Dump and What could We Turn into a Resource?”	5,560 Likes on Facebook Page
Georgiatoday.ge, March 14, 2016. Link	Article on GHG Equipment transfer ceremony	4,967 Likes on Facebook Page
Good News Agency, March 17, 2016. Link	Article on GHG Equipment transfer ceremony	19,349 Likes on Facebook
BusinessPressNews (BPN.ge), March 14, 2016. Link	Article on GHG Equipment transfer ceremony	35,288 Likes on Facebook Page
Interpressnews.ge, March 14, 2016. Link	Article on GHG Equipment transfer ceremony	0 Likes
Social Media, Solid Waste Management Facebook Page, March 11, 2016 Link	Information on GHG Equipment transfer ceremony	38 Likes
Social Media, CENN Facebook Page, March 11, 2016. Link	Information on GHG Equipment transfer ceremony	13 Likes
Social media, USAID/Georgia Facebook Page, March 10, 2016 Link	Information on GHG Equipment transfer ceremony	71 Likes, 20 Shares
Social Media, Solid Waste Management Facebook Page, March 11, 2016. Link	Rustavi 2 TV reportage on GHG Equipment transfer ceremony	19 Likes, 5 shares
Social media, Solid Waste Management YouTube channel, March 11, 2016, Link	Various TV reportages on GHG Equipment transfer ceremony	102 views
Social media, College Aisi, March 14, 2016. Link	Information on building the composting box	21 Likes
Social Media, Ministry of Environment Protection Facebook Page, 7 March, 2016 Link	Information on Pilot Project of Telavi Municipality	41 Likes, 26 Shares
Social Media, Ministry of Environment Facebook Page, March 6, 2016. Link	Rustavi 2 TV reportage on Deputy Minister’s visit to pilot project villages	42 Likes, 2 Shares
Social Media, Ministry of Environment Protection Facebook Page, March 6, 2016. Link	Information on Deputy Minister’s visit to pilot project villages	57 Likes
Social Media, College Aisi Facebook Page, March 4, 2016 Link	Information on training about composting	7 Likes
Social Media, College Aisi, Facebook Page, February 10, 2016 Link	Information on meeting about starting separation and composting at the college	29 Likes
Knews.ge. February 19, 2016. Link	Article on composition study of Kakheti region	32 Likes
Social media, Ministry of Environment Protection Facebook Page, January 21, 2016	Information on trustees meeting at Ministry of Environment	14 Likes, 1 Share
Social Media, CENN Facebook page, January 18, 2016	Article on cleaning illegal dumpsites	9 Likes, 2 Shares
Interpressnews.ge January 16, 2016 Link	Article on cleaning illegal dumpsites	15 Likes
Georgiatoday.ge January 15, 2016. Link	Article on cleaning illegal dumpsites	18 Likes, 2 Shares

Waste Management Technologies in Regions, Georgia

Channel of Communications	Type of Information	Size of Audience
Social Media, Georgia Today Facebook Page, 15 January, 2016		
Investor.ge. Issue 1, February-March 2016. Link	Article about WMTR's activities	2,000 copies printed. 10,000 readers
Georgiatoday.ge, March 14, 2016. Link	Article on GHG Equipment transfer ceremony	4,967 Likes on Facebook Page
Good News Agency, March 17, 2016. Link	Article on GHG Equipment transfer ceremony	19,349 Likes on Facebook Page
40 E-Digests from WMTR disseminated via CENN's online network	WMTR activities and integrated waste management-related issues	24,000 subscribers
WMTR Facebook page Link		177 new likes Total 3,774
Summary	<p>40 E-Digests on WMTR program were developed and disseminated via CENN E-Network - 24,000 subscribers</p> <p>Rustavi 2 Television – No Statistical data</p> <p>Interpressnews.ge – on average 50,398 unique visitors per day</p> <p>Georgiatoday.ge – 6,099 subscribers</p> <p>BusinessPressNews (BPN.ge) - 35,288 Likes on Facebook</p> <p>GDპედიო Show - 9,365 Likes on Facebook</p> <p>Infolab.ge - 3,226 Likes on Facebook</p> <p>EduLab.ge - 30,887 Likes on Facebook</p> <p>lpress.ge - 24,754 Likes on Facebook</p> <p>Fortuna.ge - 28,327 Likes on Facebook</p> <p>Good News Agency - 19,349 Likes on Facebook Page</p> <p>Investor.ge - 2,000 copies printed. 10,000 readers</p> <p>Total number of people reached through WMTR Facebook page posts 117,475 (443,353 divided by total of 3,774 persons that Like WMTR Facebook page)</p> <p>Number of people reached through various posts in social media is 3204 (12,817 Views/Share/Likes divided by 4, considering that 1 person is using 4 different channels of information).</p> <p>Total number of people reached through outreach campaign – 362,372.</p>	

Major Activities Planned for Next Quarter

- Continue to support the Ministry of Environment and Natural Resources Protection of Georgia in developing policy and legal documents in accordance with the requirements of the Waste Management Code, The national Waste Management Strategy and Action plan
- Finalize municipal waste management plans for seven local self-government bodies in Kakheti Region and Adjara AR and develop draft plans for the remaining eight local self-government bodies in Kakheti Region and Adjara AR
- Implement City-to-City partnership activities — support the city of Telavi to implement a waste management system optimization program
- Introduce a waste separation scheme (paper and plastic) in the City of Telavi in close cooperation with the local government
- Continue support and monitoring of separated waste collection systems in Goodwill hypermarket and Tbilisi Marriot hotel and replicate such system in other institutions
- Finalize the closure plan of Telavi landfill and start developing a scoping statement and an environmental assessment for Telavi landfill
- Close the Beshumi illegal dumpsite in cooperation with the local government of Adjara AR
- Develop a grant package for *Sanitari Tissue Paper* and *Legi Ltds.*
- Support the institutional strengthening of the Waste Management Association
- Continue lobbying the implementation of a *General Methodology for Tariff Calculation and a Cost Recovery Scheme* at the governmental level
- Calculate waste tariffs for fifteen local self-governing bodies in Kakheti Region and Adjara AR according to the *General Methodology for Tariff Calculation and a Cost Recovery Scheme* and organize public hearings
- Working on public education and outreach about enhancing cost recovery, and implementing a public awareness campaign in Kakheti Region and Adjara AR;
- Implement wide-scale public education and outreach campaigns to promote the 4Rs and ISWM in Kakheti Region and Adjara AR
- Organize competitions for school students in Kakheti Region and Adjara AR and a national student summit
- Organizing roundtables and trainings in Kakheti Region and Adjara AR to promote the 4Rs and ISWM
- Develop and disseminate project promo materials

Progress on PMP Indicators⁷

Indicators and Target / Actual Values for Waste Management Technologies in Regions Program (2014-2016)

Indicator	Data Source	Unit	Frequency	Base Line	Target and Actual Values by Year (cumulative)									
					T1	A Apr 14	A Oct 14	T2	A Apr 15	A Oct 15	T3	A Apr 16	A Oct 16	A Mar 17
OUTCOME INDICATORS														
Desired Impact: Contribute to reduced GHG emissions and improved natural resource management practices														
1. Number of hectares of biological significance and/or natural resources under improved natural resource management as a result of USG assistance. This is a F-indicator 4.8.1-26.	Remediation plan, implementation progress reports	Ha	Bi-Annual (April and October)	TBD Y1	0			3K			113,661 ha	140 K	138,212 ha	139,012 ha
2. Greenhouse gas (GHG) emissions, estimated in metric tons of CO2 equivalent, reduced, sequestered and/or avoided as a result of USG assistance. This is a F-indicator 4.8.-7.	GHG emissions report	Metric tons CO2	Bi-Annual (April and October)	TBD Y1	0			Baseline data should be developed				Baseline - 43,334 metric tons of CO2 at nine landfills in Adjara AR and Kakheti regions		Please see the explanation in the table below
3. Projected greenhouse gas emissions reduced or avoided through	GHG emissions report	Metric tons CO2	Bi-Annual (April and October)		0			0			10,000 t CO2	550 K	527,010 t CO2	527,010 t CO2

⁷ Please note that all numbers are cumulative

<p>2030 from adopted laws, policies, regulations, or technologies related to sustainable landscapes as supported by USG assistance</p> <p>This is a F-indicator 4.8.2-35</p>														
<p>4. Number of institutions with improved capacity to address climate change issues as a result of USG assistance.</p> <p>This is a F-indicator 4.8.2-14</p>	WMTR annual reports	Count	Bi-Annual (April and October)	0	0			0		2	9	4	9	
<p>5. Total public and private funds leveraged by USG energy and environmental projects.</p> <p>This is a custom indicator</p>	Stakeholder interviews and progress report including commitment letters from the public and private sources	Dollar	Bi-Annual (April and October)	0	0			0			10M	16,724,936	16,724,936	
<p>6. Number of sub-national government entities that improved their performance to identify and apply appropriate solutions to the three target urban development challenges as a result of USG assistance.</p>	WMTR annual reports	Count	Bi-Annual (April and October)	0	0			3		3	10	10	10	

This is a custom indicator														
7. Number of replicable solutions developed and tested. This is a custom indicator	WMTR reports	annual Count	Bi-Annual (April and October)	0	0			1	2	5	4	5		
OUTPUT INDICATORS														
Outcome 1: Established waste management system and an improved implementing capacity of the public and private sector; Outcome 3: Developed waste management strategy and tariff policy with strong public participation														
8. Number of laws, policies, strategies, plans, or regulations addressing climate change (mitigation or adaptation) and/or biodiversity conversation officially proposed, or adopted as a result of USG assistance. This is an adaptation of the F- indicator 4.8.2-28	GoG reports	Count	Bi-Annual (April and October)	0	0			3	3	10	6	13		
9. Number of remediation plans for illegal landfills developed. This is a custom indicator	WMTR and GoG reports	Count	Bi-Annual (April and October)	0	0			1	1	3	2	3		

<p>10. Number of closed landfills/dumpsites undergoing remediation applying sound waste management practices.</p> <p>This is a custom indicator</p>	<p>WMTR and GoG reports</p>	<p>Count</p>	<p>Bi-Annual (April and October)</p>	<p>0</p>	<p>0</p>			<p>3</p>		<p>3</p>	<p>10</p>	<p>9</p>	<p>10</p>	
<p>11. Number of waste facilities applying sound waste management practices as a result of USG assistance.</p> <p>This is a custom indicator</p>	<p>WMTR and Facilities reports</p>	<p>Count</p>	<p>Bi-Annual (April and October)</p>	<p>0</p>	<p>0</p>			<p>1</p>		<p>1</p>	<p>2</p>	<p>2</p>	<p>2</p>	
<p>12. Number of person hours of training completed as a result of USG assistance.</p> <p>This is a F-indicator</p>	<p>WMTR progress reports</p>	<p>Count</p>	<p>Bi-Annual (April and October) Quarterly</p>	<p>0</p>	<p>500</p>	<p>2,400</p>	<p>2,900</p>	<p>5,155.5</p>	<p>12,447.5</p>	<p>14,000</p>	<p>13,220.5</p>	<p>13,665.5</p>		
Outcome 2: Strengthened capacity and efficiency of recycling companies and an improved enabling environment.														
<p>13. Percentage increase in sales of recycled products.</p> <p>This is a custom indicator</p>	<p>Recycling company reports and interviews</p>	<p>Percent</p>	<p>Bi-Annual (April and October)</p>	<p>0</p>	<p>0</p>			<p>10%</p>			<p>40%</p>		<p>Please see the explanation in the table below</p>	
<p>14. Percentage increase in recycling materials supplied to and utilized by</p>	<p>Recycling company reports and interviews</p>	<p>Percent</p>	<p>Bi-Annual (April and October)</p>	<p>0</p>	<p>0</p>			<p>40%</p>			<p>100%</p>		<p>“_____”</p>	

recycling companies. This is a custom indicator														
15. Number of recycling products meeting international standards. This is a custom indicator	Recycling company reports and interviews	Count	Bi-Annual (April and October)	TBD Y1	0			0			1			
16. Percentage increase in the volume of recycled paper, glass and plastic bottles. This is a custom indicator	Recycling company reports and interviews	Percent	Bi-Annual (April and October)	0	0			0			20%		"_____"	
17. Number of facilities applying sound waste management practices. This is a custom indicator	Progress/HICD report	Count	Bi-Annual (April and October)	TBD Y1	0			1		1	5	3	5	
Outcome 4: Engaged and informed community in waste management and the 4 R's.														
18. Number of people reporting changes in behavior practices at home or at work. This is a custom indicator	Stakeholder questionnaires focus groups and annual reports	Count	Bi-Annual (April and October)	0	0			2K		About 2,000	5K	2,800	5,012	

<p>19. Number of people reached through outreach campaigns.</p> <p>This is a custom indicator</p>	<p>Quarterly reports</p>	<p>Count</p>	<p>Bi-Annual (April and October) Quarterly</p>	<p>0</p>	<p>5K</p>		<p>71,677</p>	<p>150K</p>	<p>156,156</p>	<p>269,172</p>	<p>600 K</p>	<p>536,130</p>	<p>898,502</p>	
<p>20. Number of Youth educated and involved in sound waste management practices</p> <p>This is a custom indicator</p>					<p>0</p>			<p>0</p>		<p>1,720</p>	<p>2,500</p>	<p>2,932</p>	<p>4,652</p>	
<p>Outcome 5: Enhanced capacity of local non-profit partner to lead USAID SWM programs.</p>														
<p>21. Percentage of yearly HICD targets achieved by partners and beneficiaries.</p> <p>This is a custom indicator</p>	<p>Annual report</p>	<p>Percent (non-cumulative)</p>	<p>Bi-Annual (April and October)</p>	<p>0</p>	<p>0%</p>			<p>100%</p>		<p>100%</p>	<p>100%</p>			

The list of PMP indicators that have to be reached during the fiscal year 2016

Indicator	Target Values by T3	Actual Values by T3	Comment
<p>1. Number of hectares of biological significance and/or natural resources under improved natural resource management as a result of USG assistance</p> <p>This is a F-indicator 4.8.1-26</p>	<p>117,000 ha</p>	<p>139,012 ha</p>	<p>The WMTR team developed a closure plan for the Beshumi illegal dumpsite, which is surrounded by a unique forest and is currently closing it together with the local government.</p> <p>Note: Total area of the Beshumi illegal dumpsite is around 0.8 ha.</p> <p>In June, 2016 WMTR, in cooperation with the APA, placed 30 information boards in Lagodekhi Protected Areas to manage waste in this protected area by encouraging tourists to abide by the principle — take it in, take it out.</p> <p>Note: Total area of Lagodekhi Protected Areas is 24,551 ha.</p> <p>In 2015, the WMTR team created a waste collection system in Sviana recreational zone, situated in the Stori River Valley in Telavi Municipality. The only road leading to the historical geographic protected areas of Tusheti lies along this valley. Besides this, the Stori River Valley has a significant recreational function, since both local residents and tourists often visit it for recreational purposes. In addition, 4,000–5,000 people pass the valley during the summer period to get to Tusheti Protected Areas.</p> <p>Installation of waste bins has for the first time allowed collection of waste generated in the recreational zone, thus significantly improving the sanitary condition of the area. Visitors returning from Tusheti Protected Areas also use the bins, which contributes to significant improvement of the sanitary situation of the protected areas and creates favorable conditions for tourism. Collection of waste from the newly installed bins has already been arranged with the municipality.</p>

Indicator	Target Values by T3	Actual Values by T3	Comment
			<p>Note: Total area of Sviana recreational zone is 1.2 ha. Total area of Tusheti protected area is 113,661 ha.</p>
<p>2. Greenhouse gas (GHG) emissions, estimated in metric tons of CO2 equivalent, reduced, sequestered and/or avoided as a result of USG assistance</p> <p>This is a F-indicator 4.8.-7.</p>	<p>Baseline - 43,334 metric tons of CO2 at nine landfills in Adjara AR and Kakheti regions</p>	<p>Please see the explanation in the column comment</p>	<p>The project has contributed to disposal area GHG mitigation in several ways, including developing relevant by-laws and landfill closure plans, gathering baseline information about GHG emissions from landfills, etc. However, the actual mitigation effects of the project’s activities will only be realized at once the Government of Georgia takes the required actions to physically implement the processes and facilities that can provide GHG mitigation benefits. In particular, the benefits to be derived from an active landfill gas collection and treatment system can only be realized once a system is implemented and brought into service. For example, if the final closure design for the Telavi landfill stipulates the installation of an active gas management system, WMTR will have contributed to the mitigation process but the actual physical mitigation that will be derived from such a system will only be realized once it is fully implemented, which could be in 2023, when Telavi landfill is projected to be closed upon availability of the new regional landfill for Kakheti Region.</p> <p>Similarly, the mitigation of effects associated with closure of open dumps and the application of a low permeability final cover can only occur once the closure design components have been formally implemented. Accordingly, while the Project has significantly enhanced the prospects for these physical activities, it cannot, for the most part, control the schedule for their actual implementation.</p> <p>The GHG generation baseline determined through the application of the CEE-LFG model indicates that only two landfills (Telavi and Batumi) within the target</p>

Indicator	Target Values by T3	Actual Values by T3	Comment
			regions are apt to be candidates for the installation of active gas collection and treatment systems.
3. Projected greenhouse gas emissions reduced or avoided through 2030 from adopted laws, policies, regulations, or technologies related to sustainable landscapes as supported by USG assistance This is a F-indicator 4.8.2-35	18,000 t CO2	527,010 t CO2	Annex 8. Calculation of GHG emission reduction as a result of activities conducted within WMTR
4. Number of institutions with improved capacity to address climate change issues as a result of USG assistance. This is a F-indicator 4.8.2-14	9	9	<ul style="list-style-type: none"> • <i>Ministry of Environment and Natural Resources Projection of Georgia – Development of technical regulation on the Construction, Operation, Closure and After-Care of Landfills and technical regulation on Rules of Collection and Treatment of Municipal Waste</i> • <i>Solid Waste Management Company of Georgia – provision of portable equipment to measure GHG emissions and delivery of relevant training</i> • <i>Telavi Municipality – Establishment of Separated Waste Collection system in 5 villages</i> • <i>Telavi self-governing city – development of waste collection optimization scheme</i> • <i>Draft Municipal Waste Management Plans have been developed for seven local governing bodies (including Telavi city and municipality)</i>
5. Total public and private funds leveraged by USG energy and environmental projects. This is a custom indicator	10M	16 724 936	<p>310,000 GEL (contribution provided by Telavi Municipality into the pilot project)</p> <p>329,998 GEL (cost of closure of the Gurjaani landfill incurred by the SWMCG)</p>

Indicator	Target Values by T3	Actual Values by T3	Comment
			<p>246,844 GEL (purchase of software to include GHG measurement data and trainings provided by the Government of Netherlands to the SWMCG under the grant: Waste Management in Georgia)</p> <p>40,436 GEL (contribution that will be provided by Khulo Municipality and ADA/CENN Sustainable Forestry Project)</p> <p>75,000 GEL (The SWMCG allocated this amount to close the Manglisi landfill based on the Gurjaani landfill closure plan developed by WMTR)</p> <p>367,531 GEL (The SWMCG allocated this amount to close the Tsalka landfill based on the Gurjaani landfill closure plan developed by WMTR)</p> <p>79,627 GEL (The SWMCG allocated this amount to close the Martvili landfill based on the Gurjaani landfill closure plan developed by WMTR)</p> <p>275,500 GEL (The SWMCG allocated this amount to close the Bakuriani landfill based on the Gurjaani landfill closure plan developed by WMTR)</p> <p>15 mln EUR – EBRD project to purchase bins and vehicles for waste collection (WMTR conducted detailed analyses of the municipal waste management sector and identified key issues hampering the development of the waste management sector, including lack of relevant infrastructure (vehicles, bins, etc). The WMTR program lobbied the importance of this issue at the governmental level and with donor organizations via meetings and discussions. As a result, the EBRD, together with the Ministry of Regional Development and Infrastructure, allocated 15 million EUR to purchase vehicles and bins for different regions of Georgia.)</p>

Indicator	Target Values by T3	Actual Values by T3	Comment
<p>6. Number of sub-national government entities that improved their performance to identify and apply appropriate solutions to the three target urban development challenges as a result of USG assistance.</p> <p>This is a custom indicator.</p>	10	10	<p>The following sub-national government entities improved their performance with WMTR team support:</p> <ul style="list-style-type: none"> • <i>Telavi Self-governance City</i> — The waste collection system is being optimized within the city to city program and a waste separation system will be set up; • <i>Telavi Municipality</i> — A separated waste collection system has been set up within the pilot project; • SWMCG — received portable equipment to measure methane emissions at landfills; trained on the usage of this equipment; • Municipalities of Khulo, Khelvachauri and the Self-governing City of Batumi in Adjara AR; and the municipalities of Telavi, Akhmeta, Lagodekhi and Self-governing City of Telavi in Kakheti Region — the draft of the Municipal Waste Management Plans have been developed and will be finalized in the next fiscal year.
<p>7. Number of replicable solutions developed and tested.</p> <p>This is a custom indicator.</p>	5	5	<p>A waste fee calculation tool was developed and tested in four Municipalities of project target regions. This work could be replicated in all municipalities of Georgia;</p> <p>WMTR has conducted a waste composition study in the project target regions according to the methodology developed by the WMTR team. The study could be replicated based on the developed methodology in other regions;</p> <p>A waste separation scheme has been tested in 5 villages of Telavi municipality and could be replicated in other villages and self-governing cities of Georgia;</p> <p>A waste separation scheme has been established in <i>Goodwill</i> hypermarket and could be replicated in other commercial institutions in Georgia;</p>

Indicator	Target Values by T3	Actual Values by T3	Comment
			A waste separation scheme has been established in <i>Tbilisi Marriot</i> Hotel and could be replicated in other hotels in Georgia
8. Number of laws, policies, strategies, plans, or regulations addressing climate change (mitigation or adaptation) and/or biodiversity conservation officially proposed, or adopted as a result of USG assistance. This is an adaptation of the F- indicator 4.8.2-28	10	13	The WMTR team developed the following guidelines, by-laws and plans: <ul style="list-style-type: none"> • Draft municipal waste management plans for seven local governing bodies in Adjara AR and Kakheti Region • Protected Areas Waste Management Guideline (2016); • Beshumi illegal landfill closure plan (2016); • Gurjaani landfill closure plan (2016); • Technical regulation on Rules of Collection and Treatment of Municipal Waste (2016); • Technical regulation on the Construction, Operation, Closure and After-Care of Landfills (2015); • Integrated Solid Waste Management Plans Development Guideline (2015);
9. Number of remediation plans for illegal landfills developed. This is a custom indicator.	3	2	The WMTR team developed the following remediation plans: <ul style="list-style-type: none"> • Gurjaani landfill remediation plan • Beshumi illegal landfill closure and remediation plan <p>Telavi landfill closure and remediation plan is under development.</p>
10. Number of closed landfills/dumpsites undergoing remediation applying sound waste management practices. This is a custom indicator.	10	10	The WMTR team closed the following dumpsites: <ul style="list-style-type: none"> • Beshumi Illegal dumpsite (October, 2016) • Telavi Municipality – Busheti (June, 2016) • Pankisi Valley, Akhmeta Municipality – Jokolo (April, 2016) • Telavi Municipality – Akura (January, 2016) • Kobuleti Municipality – Tsetskhauri (August, 2015) • Khulo Municipality – Leghva (August, 2015) • Khulo Municipality – Dekanashvilebi (August, 2015)

Indicator	Target Values by T3	Actual Values by T3	Comment
			<ul style="list-style-type: none"> 3 dumpsites in Akhmeta Municipality – Duisi, Dimasturi, Khalatsani (November 2015)
11. Number of waste facilities applying sound waste management practices as a result of USG assistance. This is a custom indicator.	2	2	<ul style="list-style-type: none"> The waste collection company in Telavi Municipality applies the practice of separated waste collection in 5 pilot villages (Tsinandali, Kmemo Khodasheni, Akura, Vanta and Busheti). The waste collection company in Telavi City started waste separation in one of the biggest districts of the City.
12. Number of person hours of training completed as a result of USG assistance. This is a F-indicator	4,200	13,665.5	Trainings/seminars for recycling companies, local residents in target regions on composting, school teachers, etc.
13. Percentage increase in sales of recycled products. This is a custom indicator.	10%		The grant proposal for Zugo Ltd. has been approved, and there are three more proposals under development. Once beneficiary companies start operating the new equipment provided by us, it will be possible to report on this indicator.
14. Percentage increase in recycling materials supplied to and utilized by recycling companies. This is a custom indicator.	40%		“ _____ ”
15. Number of recycling products meeting international standards. This is a custom indicator.	1		

Indicator	Target Values by T3	Actual Values by T3	Comment
<p>16. Percentage increase in the volume of recycled paper, glass and plastic bottles.</p> <p>This is a custom indicator.</p>	20%		“ _____ ”
<p>17. Number of facilities applying sound waste management practices.</p> <p>This is a custom indicator.</p>	5	5	<ul style="list-style-type: none"> • Zugo Ltd. received an Environmental permit with the support of the WMTR team; • Based on the EIA report, Neoprint Ltd. received a positive decision from the MoENRP that allowed the company to continue operation; • Georgian Paper Production Ltd. has been supported in the development of a waste chapter for their EIA report and energy audit report; • Goodwill hypermarket started waste separation practice for further recycling • Tbilisi Marriot hotel hypermarket started waste separation practice for further recycling
<p>18. Number of people reporting changes in behavior practices at home or at work.</p> <p>This is a custom indicator.</p>	5,000	5,012	<p>About 5,012 people have changed their behavior due to the waste separation schemes introduced in different locations:</p> <ul style="list-style-type: none"> • 800 students of AISI Collage in Kachreti village, where a composting box and waste separation bins were placed (2016) • 2,197 residents — 28% of the total population of 5 villages of Telavi Municipality (Tsinandali, Kvemo Khodasheni, Busheti, Vanta, Akura) — where waste separation bins for plastic and paper waste were placed in the framework of the Telavi pilot project • 15 staff members of the Marriott Hotel, where a waste separation scheme has been introduced at the Hotel’s restaurant • The WMTR team conducted a survey to assess the effectiveness of the awareness-raising component of the WMTR program. Based on the

Indicator	Target Values by T3	Actual Values by T3	Comment
			results, about 2,000 people have changed their behavior due to the additionally provided waste management related information (2015).
19. Number of people reached through outreach campaigns. This is a custom indicator.	250,000	898,502	Table 1. Number of People Reached through Outreach Campaign
20. Number of Youth educated and involved in sound waste management practices. This is a custom indicator.	2,500	4,652	School competitions, trainings/seminars.
21. Percentage of yearly HICD targets achieved by partners and beneficiaries. This is a custom indicator.	100%	100%	