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ENVIRONMENTAL SCOPING STATEMENT: ENHANCING CAPACITY FOR LOW EMISSION DEVELOPMENT STRATEGIES/EC-LEDS

CLEAN ENERGY PROGRAM

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ENHANCING CAPACITY FOR LOW EMISSION DEVELOPMENT STRATEGIES/EC-LEDS

CLEAN ENERGY PROGRAM

ENVIRONMENTAL SCOPING STATEMENT REPORT

MARCH, 2014

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This Scoping Statement report for EC-LEDS Clean Energy Program has been developed to define the scope and the significance of the issues to be addressed under the PEA. The EC-LEDS Clean Energy Program is funded by USAID/Caucasus, and implemented by Winrock International Georgia. The partners for above Scoping Statement report included the national consultants from REMISSIA, SDAP, GGBC and Winrock International – Georgia, respectively. The team of scoping statement experts developed this report during the period 01/2013-03/2014.

Scoping Statement team comprised with multidisciplinary team of experts: Mariam Bakhtadze was the environmental specialist and coordinator of the team of Georgian experts; Marina Shvangiradze was the climate change issues and mitigation projects expert; Anna sikharulidze was municipality assessment survey expert; Giorgi Giorgobiani was the climate change mitigation project evaluation expert; and finally, the EC-LEDS Clean Energy Program COP, Dana Kenney provided valuable comments to the municipality survey concept and made important contribution for SS report quality assurance and control.

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Scoping Statement Study Team
March, 2014

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Acronyms and Abbreviations

USAID	United States Agency for International Development
EC-LEDS	Enhancing Capacity for Low Emission Development Strategies
GoG	Government of Georgia
BEO	USAID Europe and Eurasia Bureau Environmental Officer
CFR	U.S. Code of Federal Regulations
MEO	USAID Caucasus Regional Mission Environmental Officer
SS	Scoping Statement
US CFR	United States Code of Federal Regulations
M&M	Mitigation and Monitoring
PEA	Programmatic Environmental Assessment
M&E	Monitoring and Evaluation
EA	Environmental Assessment
SEA	Supplemental Environmental Assessment
CO ₂	Carbone dioxide
EIA	Environmental Impact Assessment
EU	European Union
GHG	Green House Gases
MENRP	Ministry of Environment and Natural Resources Protection
MoE	Ministry of Energy
NGO	Non-governmental Organization
COM	Covenant of Mayors
IEE	Initial Environmental Examination
WI	Winrock International, US-based NGO
USG	United States Government
GWh	Gigawatt hour
MDF	Municipal Development Fund
MW	Megawatt energy
REMISSIA	NGO Sustainable Development Center REMISSIA
SDAP	NGO Sustainable Development and Policy Center
GBCG	Green Building Council of Georgia
EIA	Environmental Impact Assessment
CC	Climate Change
UNFCCC	United Nations Framework Convention on Climate Change
SEAP	Sustainable Energy Action Plan
SNC	Georgia's Second National Communication
ASE	Alliance to Save Energy
DWG	DecisionWare Group
EE	Energy Efficiency
RE	Renewable Energy
GB	Green Building

1. BACKGROUND AND PURPOSE

1.1. Brief Description of Program

Program Purpose

The purpose of the Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program, funded by USAID/Caucasus, is to support Georgia's efforts to increase climate change mitigation through energy efficiency and clean energy. The broader goal is to enable more responsible management and development of Georgia's natural endowments. To achieve this goal, the required outcomes of the program are captured in following program objectives:

- (1) Support Georgian municipalities in institutionalizing and implementing climate change mitigation measures,
- (2) promote and facilitate private- sector investments in energy efficiency and green buildings and
- (3) build the capacity of the Government of Georgia (GOG) to develop and implement a national Low Emissions Development Strategy in support of the USG EC-LEDS initiative.

During the five years of the program, the EC-LEDS Clean Energy Program is expected to reduce GHG emissions in Georgia by at least 236,372.9 metric tons of CO₂ equivalent, facilitate up to \$14 million in private sector investments in clean energy, and lead to energy savings of up to 315 GWh equivalent (the equivalent of approximately \$22 million).

The EC-LEDS Clean Energy Program is comprised of three components:

- 1) Georgian Municipal Energy Efficiency, which will support at least 10 municipalities in quantifying and reducing GHG emissions, and institutionalizing climate change mitigation;
- 2) Green Building Rating and Certifying System, which will introduce a voluntary system for rating and certifying green buildings in Georgia and build market demand for certified buildings; and
- 3) National EC-LEDS Working Group and Advisory Assistance, which would provide advisory assistance to the GOG to articulate concrete actions, policies, programs and implementation plans under the bilateral EC-LEDS initiative.

Components 1 and 2 will be implemented throughout the five years, with Winrock maintaining overall program responsibility in the first three years, and continuation by local organizations in the last two years of the program. However, Component 3 will be completed by the end of the second year.

Program Need

Georgia's Second National Communication (SNC) to the UN Framework Convention on Climate Change (UNFCCC) forecasts that emission from Georgia's energy sector will increase by 27% between 2006 and 2025 to meet growing energy demands of the expanding industry, transport and residential sectors. The projected accelerated growth of greenhouse gas (GHG) emissions in parallel with Georgia's economic growth, the lack of an energy conservation culture, and the absence of institutional capacity and policies that promote energy efficiency and conservation, all are factors contributing the expecting increase in emissions. Inefficient energy use on one hand leads to greater GHG emissions and air pollution, affecting both human and the environment, and on the other hand, hinders Georgia's ability to compete in regional and global markets.

To address the aforementioned issues, and support Georgia's effort to pursue long-term, transformative development and accelerate sustainable economic growth while slowing the growth of GHG emissions, USAID-Caucasus launched a five-year EC-LEDS¹ Clean Energy Program, implemented by Winrock International in partnership with the Alliance to Save Energy (ASE), DecisionWare Group (DWG), Sustainable Development Center - Remissia, the Green Building Council – Georgia (GBCG), and Sustainable Development and Policy Center (SDAP- Center).

Program Components and outputs

The three components of the EC-LEDS Program and their associated activities are outlined briefly below.

Component 1: Georgian Municipal Energy Efficiency (GeMunee)

Where appropriate, the EC-LEDS Program will provide technical assistance to municipalities of Georgia to meet the requirements of their commitments to the Covenant of Mayors (COM)², including those that are already signatories. Based on technical and financial feasibility analyses, cities/municipalities interested in joining or becoming signatories to the Covenant will receive organizational assistance to create a GHG emissions inventory, develop a Sustainable Energy Action Plan (SEAP) including a Monitoring, Reporting and Verification (MRV) plan, identify and fund mitigation projects, and establish a Sustainable Energy Office or regional Sustainable Energy Resource Center, in accordance with procedures and methodologies acceptable to the COM³. Program funds will provide technical assistance to at least 10 municipalities (including Tbilisi).

The EC-LEDS program will actively work with municipalities to help them identify potential demonstration projects on the basis of energy audit results; technical prefeasibility studies indicating the cost, energy savings, and greenhouse gas reductions of potential projects; and

¹ EC-LEDS is key component of US President's Global Climate Change Initiative and is focus of State and USAID's joint OMB High Priority Performance Goal (HPPG) on Climate Change. On December 17, 2012 USAID and the Ministry of Environment and Natural Resources Protection of Georgia signed a memorandum of understanding that supports LEDES and provides the framework for bilateral cooperation in Georgia.

² Covenant of Mayors (COM) is EU launched initiative aiming at supporting local governments in implementing sustainable energy policies. For more details please refer to following website: www.eumayors.eu

³ Since April 2010 the City of Tbilisi became party to the Covenant of Mayors and with the assistance of the USAID (Winrock NATELI Program) and the EU (GIZ) work is being conducted on developing a GHGs reference scenario for Tbilisi City and the establishment of a Sustainable Energy Action Plan (SEAP). Several other cities have expressed interest in participating in this initiative thereby taking measures to mitigate the impact on climate change on the municipal level. These cities include: Rustavi, Kataisi, Zugdidi, Gori, Poti and Batumi.

business plans indicating cost effectiveness, financial benefits and cash flows of potential projects. At least one project should be implemented in each participating municipality.

The EC-LEDS program may support implementation of demonstration projects by providing partial grants, covering up to 20% (not to exceed \$50,000 per project) of total project implementation costs. The grant funds will be used strategically, either to test new technology/project types that have no precedent in the country or to leverage commercial financing so that the proposed investments can reach greater scale and serve more intended beneficiaries. When designed with commercial investment in mind, grant funding can cover critical gaps between what a lender is willing to fund and the total project costs. In some cases the EC-LEDS program will assist municipalities to request and apply for financing and where feasible, in developing public-private partnerships (PPPs) to implement projects.

In addition, the EC-LEDS Program will help to (a) identify possible credit opportunities for energy efficiency improvements in participating municipalities; (b) provide the lender(s) with training on appraisal of energy efficiency loans, including the effect on the borrower's cash flows (i.e., representative projects' effects on lowering monthly energy costs compared to debt service requirements) and financial structures for ESCOs under Energy Performance Contracting, as needed and (c) work with the financial institutions and other donors to ensure prudent lending practices and regulations are in place to encourage commercial investment in this sector, with the goal of long-term sustainability and scale up.

The EC-LEDS program will also develop public awareness plans that can be tailored for use by participating municipalities to increase public awareness of energy efficiency and renewable energy.

Component 2: Green Building Rating and Certification System

The EC-LEDS program will introduce a voluntary, market-driven system for rating and certifying green buildings (addressing following issues: sustainable sites, water efficiency, energy and atmosphere; materials and resources and indoor air quality), taking into account the different climate zones throughout Georgia where there is substantial construction and major rehabilitation activity (e.g. Tbilisi, the Black Sea coast, mountain resort areas, etc.). The voluntary system should include energy efficiency standards for residential buildings, hotels, and other building categories as appropriate, based on significant construction activity and potential energy savings (e.g., kindergartens/schools, commercial buildings). Following the selection of a rating and certification system, in coordination with municipalities, Ministries, and private sector stakeholders, the EC-LEDS Program will propose steps for institutionalizing the system in Georgia.

In addition, the EC-LEDS program will develop strategies to increase public awareness of green building standards and their benefits (i.e., energy cost savings and increased comfort levels), promote the use of green building standards among building owners and developers, and build market demand for qualifying buildings.

Component 3: National EC-LEDS Working Group and Advisory Assistance

The bilateral Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) initiative provides a strategic framework for the GOG to articulate concrete actions, policies, and programs that slow the growth of emissions, while advancing economic growth and meeting Georgia's development objectives. This framework will provide a foundation for achieving long-term, measurable GHG emission reductions, as compared to a business-as-usual development pathway, and improving environmental management in Georgia. Representatives of the U.S. Government, including USAID, and representatives of the GOG (from various Ministries) will form a working group to achieve the goals and actions agreed upon by both countries in the Memorandum of Understanding signed on December 17, 2012. The recipient will also participate in the working group and will play a critical role in making sure that assistance activities link with national priorities, and that data, findings, and results at the municipal level are used to inform national actions, policies, and programs. Under this component, the recipient may also provide advisory assistance to the GOG, as needed. Areas for bilateral cooperation and assistance may include activities that increase and encourage the use of clean and energy efficient resources; support the development of a national GHG inventory system; improve the policy environment in low emission economic growth; expand economy wide and technical modeling efforts; and improve governance of Georgia's natural resources.

Program Objectives and Expected Outputs

The activities briefly described above are expected to result in a number of important outputs, or results, from the Program. These outputs and their associated objectives are summarized in the table below.

Table 1: Summary of Program Objectives and Expected Outputs

Objective	Output
Georgian Municipal Energy Efficiency (GeMunee)	<ul style="list-style-type: none"> - SEAPs developed (10) - On-job trainings for the municipalities - Sustainable energy offices established - Monitoring/reporting/verification plans developed; - Credit mechanism - Project financing (at least 10) - EE/RE project developed (at least 10) - Bankers trained in RE/EE financing - Sustainable energy public awareness plan developed
Green Building Rating and Certification System	<ul style="list-style-type: none"> - Certification credit system for Georgia established; - Certification procedures outlined; - Enhanced awareness on GB standards, rating, certification and accreditation systems (GoG, private institutions) - Regulatory incentive mechanism to facilitate zoning/permitting process for GB established
National EC-LEDS Working Group and Advisory Assistance	<ul style="list-style-type: none"> - MARKAL⁴ Georgia model developed; - Increase analytical capacity of decision makers - Advisory assistance to GoG

⁴ **MARKAL** is a numerical model used to carry out economic analysis of different energy related systems at the country level to represent its evolution over a period of usually of 40 – 50 years.

1.2. 22 CFR 216 Background

22 CFR 216 (often referred to as “Reg. 216”)⁵ is the US federal regulation defining USAID’s conditions and procedures for the environmental review⁶. These procedures apply to all new projects, programs or activities authorized or approved by USAID as well as to significant revisions of ongoing projects, programs, or approaches. The process is intended to prevent activities that are likely to cause significant environmental harm and to ensure that projects monitor and mitigate any negative effects on the environment. The CFR 216 regulation defines classes of actions that have been generally determined to have a significant adverse effect on the environment and therefore is subject to Environmental Assessment (EA) [216.2 (d)]. In certain cases where numerous actions are to be carried out under suggested USAID interventions, which might have significant cumulative effects or are common/generic to the classes of USAID typical activities, a single Programmatic Environmental Assessment (PEA) is applied as per 22 CFR 216.6(d). Pursuant to the Reg. 216, the PEA may be appropriate *“in order to assess the environmental effects of a number of similar actions and their cumulative environmental impact in a given country or geographic area, or the environmental impacts are generic or common to a class of agency actions or other activities that are not country specific”*. Subsequent Environmental Review and Mitigation and Monitoring reports on major individual actions will be necessary if foreseeable significant impacts of these actions have not been adequately evaluated in the PEA.

The environmental threshold finding for the EC-LEDS program (the Initial Environmental Examination [IEE]⁷, DCN: 2012-GEO-076) states that the proposed interventions of the EC-LEDS program, in particular those related to component 1 of EC-LEDS Program: Municipal Energy Efficiency (including preparation activities to enable financing of projects implemented under SEAPs (sub-activity: 1.6) and providing partial grant support and project financing (sub-activity: 1.7) may have significant adverse environmental and social impacts. Furthermore, possible environmental impacts are expected to be common/generic to the classes of USAID/Caucasus actions. According to the USAID Initial Environmental Examination (IEE), the EC-LEDS Program received a positive determination requiring further environmental studies. Per the USAID approved IEE, *“the studies for the projects/sites that involve major refurbishment, rehabilitation or construction works will include an environmental assessment (EA) or Programmatic Environmental Assessment (PEA) per 22 CFR 216.6, to be approved by the Bureau Environmental Officer (BEO), to ensure environmental consequences are known and mitigation measures clearly identified prior to releasing of the studies as bankable documents”*.

Prior to the environmental assessment (per 22 CFR 216.3 (4) and approved IEE for EC-LEDS, it is necessary to develop a scope for the assessment to identify the significance and scale of

⁵ 22 CFR 216 Agency Environmental Procedures: http://www.usaid.gov/our_work/environment/compliance/22cfr216.htm

⁶ These requirements stipulate from sections 118(b) and 621 of the Foreign Assistance Act (the FAA) of 1961, as amended and are consistent with Executive Order 12114, issued January 4, 1979, entitled Environmental Effects Abroad of Major Federal Actions, and the purposes of the National Environmental Policy Act of 1970, as amended (42 U.S.C. 4371 et seq.) (NEPA).

⁷ The Initial Environmental Examination (IEE) is the document prepared by USAID and represents the initial screening of EC-LEDS program activities. IEEs establish mandatory environmental “conditions” [mitigation actions] that must be fulfilled during project or activity implementation to protect the environment and human health and welfare. The Initial Environmental Examination (IEE) for the EC-LEDS program was drafted and approved by the Europe and Eurasia Bureau Environmental Officer (BEO) on June 22, 2012 (DCN: 2012-GEO-076).

the issues, including direct and indirect impacts to be addressed in the environmental assessment. The process should include a written statement ('Scoping Statement') on the scope and significant issues to be addressed. It should include a description, timing, outline, methodology and approach to be applied in the environmental assessment. The scoping statement shall be approved by the Bureau Environmental Officer (BEO). Individual (site specific) environmental assessments may be applied only to those actions for which foreseeable environmental impacts are not adequately evaluated during the environmental assessment.

In accordance with 22 CFR 216.3 (a)(4) procedure objectives of scoping statement is as follows:

- a) A determination of the scope and significance of issues to be analyzed in the Programmatic Environmental Assessment, including direct and indirect effects of the project on the environment;
- b) Identification and elimination of issues from the detailed study that are not significant or have been covered by earlier environmental review; or approved design considerations, narrowing the decision of these issues to a brief presentation of why they will not have a significant effect on the environment;
- c) A description of : a) the timing of preparation of environmental analysis, including the phasing; b) variations required in the format of Environmental Assessment, and c) the tentative planning and decision-making schedule; and
- d) A description of how the analyses will be conducted and the disciplines that will participate in the analyses.

Note: Procedures for development of environmental impact assessment are defined by the Georgian law on Environmental Impact Assessment. Georgian environmental legislation does not provide for preparation of the SS as part of EA process, and thus, does not contain any specific requirements for the preparation of SS (Annex C provides schematic for EIA process in Georgia).

1.3. Purpose, Methodology and Environmental findings of the Scoping Process

1.3.1. Purpose of Scoping Statement

The purpose of the scoping statement is to identify the potential impacts associated with the various project activities that may be implemented as part of the EC-LEDS program. More specifically, the SS defines the scope (including geographic scope of program) and the significance of the issues and/or likely effects to be addressed under the PEA as well as suggesting the outline, timing, organization, methodology and approach of the PEA. As indicated under 22 CFR §216.6 (d), a PEA is appropriate under certain circumstances. These circumstances include cases where it is necessary to look at cumulative environmental impacts or where there are environmental impacts that are common to a class of USAID/Caucasus/Georgia actions or where activities go beyond national boundaries. In the case of the EC-LEDS Program, it is the possibility of the first two circumstances that motivated the decision to conduct a PEA. It is anticipated that the proposed PEA will be able to simplify environmental due diligence for the larger set of activities expected under the EC-LEDS Program.

The general objectives of the EC-LEDS PEA are as follows:

- Advance an understanding of the EC-LEDS Program supported projects by developing a document that will be useful to USAID/Caucasus/Georgia mission, the Government of Georgia, implementing partner personnel and others interested in working with these types of development investments;
- Analyze the institutional, legal, and regulatory aspects related to the sector, and make comprehensive and realistic recommendations regarding environmental standards, guidelines, law enforcement, and training, thus reducing the need for similar analysis in later EA work;
- Provide opportunities to consider alternative policies, plans, strategies or project types, taking into account their costs and benefits (particularly the environmental and social costs);
- Help to alter or eliminate environmentally unsound investment alternatives at an early stage, thus reducing overall negative environmental impacts, while also eliminating the need for project specific EAs for all these alternatives.
- Consider cumulative impacts of multiple ongoing and planned investments within building rehabilitation and water and sanitation upgrades sectors;
- Allow for comprehensive planning of general sector-wide mitigation, management, and monitoring measures, and for identifying broad institutional, resource, and technological needs at an early stage.
- Facilitate the ability of the USAID/Caucasus/Georgia Mission and its government partners and implementing agents to comply with the requirements of Reg. 216 as they apply to building rehabilitation and water and sanitation upgrade projects;

During the PEA exercise, a team of experts established to carry out the PEA will: a) identify environmental baseline issues of concern for structural measures to be planned and implemented under the EC-LEDS program; b) identify issues associated with rehabilitation, construction and operation that may generate potentially adverse environmental and social impacts; c) develop appropriate Monitoring and Mitigation Plans for the potential EC-LEDS program interventions and d) develop procedures for applying relevant PEA identified mitigation and monitoring requirements in the future to site-specific issues during implementation to refine Mitigation and Monitoring Plans as needed, and e) develop a standardized format for actual mitigation and monitoring reports.

1.3.2. Public Scoping Process and Findings

Winrock International Georgia has conducted a scoping process in close consultation with EC-LEDS Program partners, including Sustainable Development Center Remissia (Remissia), Sustainable Development and Policy Center (SDAP-Center) and the Green Building Council of Georgia (GBC Georgia). To carry out the scoping process, environmental issues were identified, reviewed and prioritized. This was accomplished through following tasks:

- a) Identifying and reviewing existing reference materials and studies related to EC-LEDS Program Component 1;
- b) Conducting interviews with national stakeholders and surveys of municipalities for assistance under Component 1;

- c) Obtaining stakeholder input and feedback in organized meetings to ensure that significant environmental issues are identified.

This section describes the process of municipality surveys for assistance under component 1 and the public meetings used in the scoping process.

Desk Studies

The baseline studies were initiated at project inception phase and encompassed stakeholder analysis and project needs assessment. The main projects, programs and other activities related to the assessment of GHG's, evaluation of mitigation potential and projects aimed at abatement of GHG's have been considered in this desk review process.⁸ In addition, the socio-economic survey questionnaires were used as the quantitative method to determine public attitudes and awareness of climate change and GHGs emissions and to identify sources of emissions, energy consumption practices, energy efficiency programs as well as locally available renewable sources.

Interviews with national stakeholders and Surveys of Municipalities

During the period of December-February, the EC-LEDS team visited 15 local municipalities⁹ in order to select those to provide technical assistance and support for developing and implementing SEAPs. Individual meetings were conducted with representatives of respective municipalities' top management and city halls. Based on these municipality baseline studies, interviews and the selection criteria, the EC-LEDS team identified the needs for each municipality and prioritized municipalities to support in developing and implementing SEAPs.

Scoping Statement Stakeholder Meeting

Two public stakeholder meetings were held on February 7, 2014 in Tbilisi and on February 12, 2014 in Batumi with the purpose of providing information to the EC-LEDS program stakeholders on the goals of the program and ensure their involvement at the early planning stage. In total thirty people attended the meetings.

More specifically, the aim of the Stakeholder Meetings was:

- To inform EC LEDS project stakeholders about the goals of the program and ensure their involvement at the early planning stage;
- To discuss the potential types of projects supported by the EC-LEDS program;
- To provide an opportunity for the proponents, relevant authorities, interested parties and other stakeholders to exchange information and express their views and concerns regarding the program and gain their feedback; and
- Ensure a positive attitude towards the program and increase cooperation between the EC-LEDS Program and program stakeholders

Public Notice:

The stakeholder meeting was advertised using CENN's mailing list (see www.cenn.org and Attachment C: advertisement). The date, place and the scope of the meeting were agreed upon with stakeholders (local government/municipalities, ministries, NGO's, private sector

⁸ For more details please refer to EC-LEDS Technical report on '**Baseline Study of Gaps and Barriers to the Preparation of Low emission Development Strategy (LEDS)**'

⁹ EC-LEDS interviewed representatives of following 15 municipalities: Tbilisi, Kutaisi, Rustavi, Batumi, Gori, Ozurgeti, Polti, Zugdidi, Zestaponi, Khashuri, Sagaredjo, Telavi, Mtskheta, Kazbegi, Akhaltsikhe

and donor organizations). Individual invitation letters were sent out to target organizations requesting their participation. A detailed report on the Scoping Statement Stakeholder Meeting is presented in Annex A.

Summary findings of the scoping exercise are as follows:

- Geographic and thematic scope to be scrutinized in further detail through the PEA have been defined by examining various municipalities against set of criteria (including social, environmental and economic parameters) and individual interviews with high level management representatives of municipalities.
- The EC-LEDS program visited and assessed 15 Municipalities for assistance under Component 1. Based on the multi criteria assessment analysis and individual meeting findings, four cities (Tbilisi, Batumi, Kutaisi and Zugdidi) were selected as the first priority cities to receive technical assistance for SEAPs under the EC-LEDS Clean Energy Program during Y1 implementation (***please refer the Annex B: the final ranking of the municipalities according to the selection criteria***)
- Further consultations have been conducted with these municipalities to identify priority issues to be discussed in the SEAPs and potential types of projects to be supported under the EC-LEDS program. Four municipalities to be assisted in FY 2014 prior to September 30, 2014 were defined during the assessment (these cities are: Batumi, Kutaisi and Zugdidi for submission of their first SEAPs, and Tbilisi for submission of their Monitoring report).
- It was decided that EC-LEDS team will reassess all municipalities again after the Local Government elections (to be conducted in June 2014), using the same criteria and will verify the additional 6 municipalities for support. In total, 10 municipalities will be targeted for EC-LEDS assistance through the SEAP development and grants program. Selected cities for SEAP development will be locations where at least 10 of 20 climate change mitigation projects will be implemented. Therefore, the PEA will focus on these areas.
- Measures to be included in the SEAP might have significant environment and social impacts, both negative and positive affects, on the environment. The majority of selected municipalities consider three main sectors as their top contributors to CO₂ emissions in cities and therefore to be discussed and analyzed in their respective SEAP documents. Those sectors are: ***transport¹⁰, buildings and infrastructure (municipal waste and waste water treatment management, street lighting, electricity and gas distribution networks, and green spaces)***.
- Priority demonstration projects to be implemented via the EC-LEDS grant fund will include projects identified through the SEAP process, aiming to mitigate emissions in each sector. Mitigation projects, even those of a small scale, may have a significant cumulative impact on the surrounding environment.
- In Year 1, the EC-LEDS team will work with participating municipalities to develop selection criteria for demonstration projects and identify priority projects and resources available within the municipalities to finance such projects. Projects

¹⁰ The 2nd National Communications of Georgia to the UNFCCC submitted in 2009 has identified transport as the key source of GHG emissions in Georgia and has identified the urban sector as a major source of GHG emissions. If Georgia is to reduce its greenhouse gas emissions in a cost-effective manner then it is clear that the transport sector has to be targeted and that sustainable transport has to be promoted. For more information please refer to following webpage: <http://unfccc.int/resource/docs/natc/geonc2.pdf>

- identified will meet several criteria to be established together with the municipalities, including their potential contribution to the energy savings and GHG emissions reductions targets, as well as potential environmental and social impacts.
- After receiving the project proposals from the municipalities for implementation under the EC-LEDS Program, a robust process of screening will be conducted. The Environmental review Form (ERF) or Environmental Review (ER) will be used in order to screen proposals and ensure that funded proposals will result in no adverse environmental impact, to develop mitigation measures, as necessary, and to specify monitoring and reporting. The documentation, with justification for not conducting a full EA, will be provided to the USAID/Caucasus/Georgia Mission Environmental Officer.
 - Since the demonstration project activities will not be initiated until later in Year 1, continuing in the subsequent years, it is not possible to develop a scoping statement with specific information about the individual projects. Instead, we have identified a variety of potential types of projects and conducted a generic scoping activity for these projects. Note that some individual projects might require an EA, while others were identified as requiring monitoring or even meeting the categorical exclusion requirements. When specific demonstration projects are identified, a review of the project scope will be performed to determine if it meets the criteria from the generic project scoping activity. If it does, the proposed approach for that project type will be initiated; if not, the project will be subject to a separate scoping statement prior to its initiation.

2. SCOPE AND SIGNIFICANCE OF ISSUES TO BE ANALYZED IN THE ENVIRONMENTAL ASSESSMENT

This section provides a description of applicable environmental and natural resources legal requirements, policies, laws and regulations, the 'Affected Environment' in the project areas, and alternatives and significant environmental effects that will be analyzed in the PEA.

2.1. Existing National Legal Framework

2005 Law on Licenses and Permits regulates and legally organizes activities posing certain threats to human life and health, and addresses specific state or public interests, including usage of state resources. It also regulates activities requiring licenses or permits, determines types of licenses and permits, and defines the procedures for issuing, revising and cancelling of licenses and permits.

2008 Law on Environmental Impacts Permit (issued by the Ministry of Environment and Natural resources Protection of Georgia) determines the list of activities and projects subject to ecological examination, requires an environmental assessment, and provides the legal basis for public participation in the process of environmental assessment, ecological examination and decision making on issuance of an environmental impact permit. The **2007 Law on Ecological Expertise** regulates the procedures for ecological expertise on the activities listed by the Law on Environmental Impacts Permit.

The EIA law of Georgia provides a list of activities requiring mandatory EIA and ecological expertise¹¹. The following activities fall under the categories requiring an environmental impact assessment permit: 1) processing of mineral resources other than inert materials, any industrial processes using asbestos, production of construction materials, glass production, processing of municipal solid wastes, and building municipal landfills; 2) disposal, storage and processing/elimination of toxic wastes; 3) gasification, coal liquefaction and production of briquettes; 4) construction of main oil and gas pipelines; 5) construction of gas and oil terminals with a capacity in excess of 1,000 m³ each or in total, and construction of highways and bridges; 6) construction of high voltage transmission lines (more than 35 KV) and sub-stations (more than 110 KV); 7) construction of hydropower plants (2MW or more in capacity) and thermo power plants (10MW or more in capacity); 8) construction of metro (subway) stations; 9) construction of water reservoirs (10,000 m³ or more in volume); 10) construction of wastewater treatment plants (1,000 m³ or more in capacity), and pressure pipes of sewage systems; 11) construction of airport runways, railway stations and ports; 12) construction of dams and harbors; 12) chemical production (chemical processing of semi-fabricated/by-products and production of chemical substances); 13) production and processing of pesticides, mineral fertilizers, solvents, dyes, and plastics; 14) production of explosives, batteries, and graphite electrodes; 15) establishment of petroleum and gas industries (500 tonnes and more in capacity); 16) construction and operation of ferro-alloy plants; and 17) establishment of storage facilities for toxic and other hazardous chemicals. For other activities not listed in the law, technical requirements are established based on the Minister of Environment's order. Permits are issued on a permanent basis, and transfer of ownership is allowed. Several activities subjected to environmental impact authorization are also subjected to construction permitting.

2.2. Affected Environment

The Scoping Team conducted field visits in December and January 2013. Desk studies were conducted to gather baseline information and available information was collected from the information provided by municipalities and published sources including books, periodic publications, scientific journals, etc. This section is a brief description of the affected environment. The PEA Team will provide more detail in the PEA (see PEA outline in Section 5).

City of Tbilisi

In 2010, by signing the Covenant of Mayors, Tbilisi City Hall joined an initiative under which Tbilisi should become a "low carbon city" by 2020. In order to achieve this goal, the Tbilisi City Hall elaborated a Sustainable Energy Action Plan for Tbilisi. When the actions proposed in the SEAP are implemented, the overall CO₂ emissions in Tbilisi will be reduced 25% by 2020.

¹¹Georgian legislation does not envisage screening and scoping procedures. Screening is the first key decision of the EIA process. Even though Georgian law provides the list of activities requiring mandatory EIA, above list is hard to be perfect. The purpose of screening is to determine need of an EIA. Aarhus observer report states that since project developments differ by scale and impact intensity, often rises issue whether given development proposal requires a permit or not. In such cases the Department of Licenses and Permits in agreement with other departments of the Ministry decides on a case-by-case basis (http://www.aarhus.ge/uploaded_files/616abe0f9cfda0c95fee49e060bdb156.pdf).

Tbilisi, the capital of Georgia, represents a significant industrial, social and cultural center in Georgia. The city stretches 33 km along the Mtkvari River and covers an area of 372 square km. The river divides the city into two parts, with the left side of the city exceeding the right in both territory and population. The southeast part of the city is 350 meters above sea level, while the populated areas of the Mtatsminda slope are located at 550-600 meters above sea level.

In January 2010, there were an estimated 1,152,500 people living in Tbilisi, which is almost 30% of Georgia's total population. The growth rate of the population in the past ten years has been 1.1%. According to 2005 calculations, the population density in Tbilisi is 2,937 persons per square km. The densest region is the Didube- Chugureti district with 7,855 persons per square km, and the lowest density is in the Isani-Samgori district with 2,323 persons per square km.

In 2005, annual per-capita GDP in Tbilisi was 2,732 GEL, which is about 170 GEL, or 6.5%, more than Georgia as a whole. A significant portion of this economic growth can be explained by the ongoing economic activity of Tbilisi. Industrial output in the capital in 2005 increased by 501.5 million GEL and reached a total of 2,731.8 million GEL, which represented 53.8% of Georgia's total industrial output. The production of goods and provision of services in Tbilisi differs in legal forms from the overall tendency existing in the rest of Georgia. The share of the non-governmental sector in the capital is about 10% higher than in the rest of the country and accounts for 84% of Georgia's total output. Tbilisi's economy is based on the fields of industry, transport and communications, which in aggregate represents more than a half of the output of the capital city.

Kutaisi is the second self-governing city in Georgia, based on population, following the Country's capital Tbilisi. Kutaisi city is located along both banks of the Rioni river. The city lies at an elevation of 125–300 meters above sea level. To the east and northeast, Kutaisi is bounded by the Northern Imereti Foothills, to the north by the Samgurali Range, and to the west and the south by the Colchics Plain.

The city is surrounded by densely populated municipalities and is the center of western region of Georgia. Kutaisi signed the CoM together with Batumi on 15 July 2011. In the past, Kutaisi was an industrial center of western Georgia, having a large automobile factory. Currently, small and medium size enterprises are developing. The city has serious problems with their water supply, sewage system, landfills and an obsolete car park.

Population growth in Kutaisi in 2002-2012 was 5.8%. If the Parliament of Georgia stays in Kutaisi, a significant increase in population and infrastructure should be anticipated, which will thus increase energy demand.

City of Batumi:

Batumi is a seaside city on the Black Sea coast and it is also the capital of Ajara, the Autonomous Republic of Georgia, located in southwest Georgia. Batumi has signed the EU Covenant of Mayors and is now working on development of a Sustainable Energy Action Plan (SEAP), to be submitted by mid-July. Batumi, with a population of approximately 180,000 and urban territory of 19.5km², serves as an important port and a commercial center. Since 2011

the administrative area of Batumi has been increased to 65 km². The city is situated in a subtropical zone, rich in agricultural produce such as citrus fruit and tea. While industries of the city include shipbuilding, food processing, and light manufacturing, most of its economy revolves around tourism. Both energy consumption and GHG emissions from the city of Batumi predominantly come from residential buildings and the transport sector.

Preliminary results of Batumi's energy demand by sector and GHG emissions inventory are shown in table 1 and table 2 below:

Table 1: Energy Consumption for the City of Batumi by Sectors (2011)

Sector Energy Consumption	GWh	Share, %
Residential buildings	436.0	39.3
Municipal buildings	21.0	1.9
Transport	490.0	44.1
Public Lighting	10.7	1.0
Other (Commercial, Industry etc.)	152.3	13.7
Total	1110.0	100

Source: preliminary data from 3rd Georgian National Communications to UNFCCC, not yet published

Table 2: GHG Footprint for the City of Batumi (2011)

Sector Emission reduction	1000 Tones CO _{2e}	Share, %
Residential buildings	49.5	24.7
Municipal buildings	3.4	1.7
Transport	126.6	63.0
Public Lighting	1.0	0.5
Other (Commercial, Industry etc.)	20.3	10.1
Total	200.8	100

Source: preliminary data from 3rd Georgian National Communications to UNFCCC, not yet published

With an estimated 126,600 tonnes of CO_{2e} emitted per year representing some 63% of all emissions, the transport sector is the main source of GHG emissions.

Zugdidi is a city in western Georgia, located 318 kilometers west of Tbilisi. The city is the capital of the Samegrelo-Zemo Svaneti region. The city lies at an elevation of 100–110 meters above sea level. **Zugdidi** municipality has the largest population (176.6 thousand people) of all municipalities and is third by population after the two self-governing cities of Tbilisi and Kutaisi. The municipality is on the border with the conflict zone of Abkhazia, having the largest amount of IDPs after Tbilisi city.

2.3. Alternatives including Proposed Actions

This section describes the alternative actions that meet the project's purpose and need. All three alternatives are fully described below.

2.3.1. Alternative 1: No Action Alternative

This proposed Alternative is defined as maintaining the *Status Quo*, with no USAID and/or GoG funding and technical assistance for ensuring support of municipalities in implementing their respective SEAPs. This alternative provides the benchmark against which the action alternatives may be evaluated.

If the project were not implemented, there would be extensive impacts ranging from national to the local scale, including:

- Continued low management capacity of the cities and municipalities to plan and manage their energy resources in a sustainable way; potentially leading to no opportunity for environmentally sound practices for saving money, including savings from reduced energy costs;
- Continued negative impacts associated with ‘un-managed’ expansion of energy and city infrastructure sector;
- No opportunity for increasing local understanding about the importance of energy conservation; potentially leading to increased energy use;
- Increasing negative effects of climate change due to poor local preparedness and response, climate adaptation capacities and lack of finance;
- Poor health and environmental status of local citizens due to obsolescence/absence of sound planning and management of municipal infrastructure and green spaces¹²

It is assumed that the no action alternative would result in adverse socioeconomic, health and safety impacts.

2.3.2. Alternative 2: Proposed Action Alternative

This proposed action implies operating the project as it is proposed. Overall it is planned to implement up to 20 climate change mitigation projects within 10 selected cities/municipalities. Currently the EC-LEDS program is assisting four targeted cities (Tbilisi, Batumi, Kutaisi and Zugdidi) Currently SEAP’s are being developed for Batumi, Kutaisi and Zugdidi and an MRV¹³ plan is planned for Tbilisi, with climate change mitigation project support being an integral part of these plans.

The four municipalities will be assisted in FY 2014 prior to September 30, 2014 and demonstration project activities will not be initiated until later in Year 1. Though a list of 6

¹² Green urban development is a crucial issue for Georgia. Over sixty percent of Georgia’s population lives in cities and transport related problems are growing. Most of the traffic is concentrated in urban areas. Urban transport is a rapidly growing energy consumer, driven by the rapid increase in the number of private vehicles, at the expense of less carbon intensive public transport.

¹³ In 2010, Tbilisi municipality signed the Covenant of Mayors and took commitment to reduce CO₂ emissions by 20% by 2020. As COM signatory Tbilisi municipality elaborated the SEAP which envisages the implementation of EE measures in building and infrastructure sectors. Per COM regulations, Tbilisi City needs to submit its Monitoring, Reporting and Verification (MRV) plans. The EC-LEDS program will assist Tbilisi in developing methodologies for monitoring and verifying energy and GHG emissions associated with activities implemented under SEAP. The plans will address baseline energy consumption; measured savings in energy consumption and energy bills; GHG reductions; and how municipalities are using money saved on energy bills

additional municipalities was identified for assistance, final selection of remaining 6 cities will commence in the second half of 2014 after local elections, expected to take place in June.

Based on baseline studies and consultations with stakeholders, the EC-LEDS team has developed an indicative list of structural measures (climate change mitigation projects) that might be recommended and/or implemented under the EC-LEDS Program. Selection of these measures was determined by their high potential of energy savings, the lower cost required for measures to be taken, as well as time constraints¹⁴.

Table 3: Indicative list of typical structural measures that might be recommended and/or implemented under the EC-LEDS Program

#	Sector Area: Building Sector (existing and new buildings)	Location	Eligible for grant financing (Y/N)
Municipal Buildings			
1	Installation of space heating systems in municipal buildings	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
	a) Heating systems with local boilers operating on natural gas	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
	b) Use of bio waste briquettes for local space heating in municipal buildings (pilot project); production of wood waste pellets/briquettes (construction of pellet/briquette mill or installation of pellet/briquette production line)	Kutaisi, Batumi, Zugdidi	Y
2	Installation of efficient lightening in municipal buildings	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
	a) Refurbishment of municipal buildings	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
	b) Thermal insulation of building envelope	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
	c) Implementation of low-cost energy efficient measures; Low energy building (pilot project)	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
3	Use of solar water heating panels in municipal buildings (e.g. sports school, hospitals)	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
4	Establishment of energy management and monitoring program in municipal buildings	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
	a) Controlling energy consumption, specifying behavior patterns	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
	b) Development of municipal buildings	Tbilisi, Kutaisi, Batumi, Zugdidi	Y

¹⁴ It is envisaged that development of the EC-LEDS supported climate change mitigation projects will facilitate successful implementation of SEAPs. Moreover, it is understood that implementation of EC-LEDS structural measures will generate achievable energy saving and CO₂ emission reductions for targeted municipalities; thus will support municipality commitment to reduce CO₂ emission by 2020 under the COM.

	energy database	Batumi, Zugdidi	
	c) Specifying energy efficiency indicators for state procurement	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
Sector Area: Residential Buildings			
5	Use of geothermal water for heating and hot water supply (pilot project)	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
6	Use of bio-waste briquettes for central heating (pilot project)	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
7	Installation of fluorescent bulbs in common property areas of residential buildings	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
8	Weatherization of common property areas (minimization of infiltration)	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
9	Insulation of roofs	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
10	Thermal insulation of residential buildings envelope	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
11	Low energy house (new building; pilot project)	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
12	Installation of solar thermal water heating panels for hot water supply purposes (pilot project)	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
13	Education/information / public awareness campaign	Tbilisi, Kutaisi, Batumi, Zugdidi	
Sector Area: Transport sector			
14	<i>Improvement of Public Transport (PT) service</i>	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
	a) Electronic display boards on bus stops	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
15	<i>Popularization campaign for public transport (PT)</i>	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
	a) Public outreach /information campaigns	Tbilisi, Kutaisi, Batumi, Zugdidi	
	b) PT web page and transport guide development	Kutaisi, Zugdidi	Y
16	Private cars discouraging actions	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
Sector Area: Municipal Infrastructure			
17	Intelligent street lighting	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
18	EE improvements to water and wastewater systems such as pumps, meters, local metering, leak detection and repair	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
19	Landfill methane recovery for use in CHP, public buildings or for selling to the gas network	Tbilisi, Kutaisi, Batumi, Zugdidi	Y
Sector Area: Green areas/spaces			
20	Establishment of nurseries	Tbilisi, Kutaisi,	Y

		Batumi, Zugdidi	
21	Reforestation activities	Tbilisi, Kutaisi, Batumi, Zugdidi	Y

2.3.3. Alternative 3: Discussion and Analyses of the Program Alternative

As it was discussed above (see chapter 2.3.2:Proposed Action Alternative), EC-LEDS Program already identified four cities (Tbilisi, Batumi, Kutaisi and Zugdidi) to be assisted for receiving technical assistance for SEAPs in FY2014.

The rationale behind selecting targeted cities is as follows: Based on the multi-criteria analyses, Batumi received the highest score, followed by Kutaisi, Gori, Tbilisi, Poti, Rustavi and Zugdidi. All seven of these cities are signatories to the Covenant of Mayors, having signed in different years beginning in 2010. Batumi and Kutaisi have postponed their deadlines for submission of the SEAPs to the COM secretariat. They both must submit their Sustainable Energy Action Plans by the 15th of April 2014 or they will be eliminated from the list of signatory cities and will automatically lose the opportunity to receive benefits related to grant financing of potential projects announced by the COM.

Gori, Tbilisi, Poti, Rustavi and Zugdidi were considered for the third Municipality to be assisted during Year 1. Tbilisi, Gori and Rustavi have already submitted SEAPs to the EU. Zugdidi was chosen over Poti since their SEAP submission deadline to the COM secretariat is earlier than Poti's SEAP submission date. Based on the assessment, and meetings with municipalities, the four municipalities to be assisted in FY 2014 prior to September 30, 2014 thus include Batumi, Kutaisi and Zugdidi for submission of their first SEAPs, and Tbilisi for submission of their Monitoring report.

The map illustrating EC-LEDS program targeted municipality locations is provided below (see Picture 1).

The selected cities for SEAP development will be locations where climate change mitigation projects will be implemented. The EC-LEDS team evaluated feasible alternatives for potential measures to be included in SEAP plans and for climate change mitigation projects. Given that site specific information on planned interventions is unavailable, only an indicative list of potential interventions and their feasible alternatives have been considered. The list of potential interventions may be corrected during the PEA process, when ample information is collected, issues identified and prioritized, and potential climate change mitigation actions recommended by the EC-LEDS team. In addition, the evaluation does not give a strong recommendation to any single measure, given that the feasibility of each action and its alternatives may vary depending on site-specific conditions.

Picture 1: Map of Targeted Municipalities Location

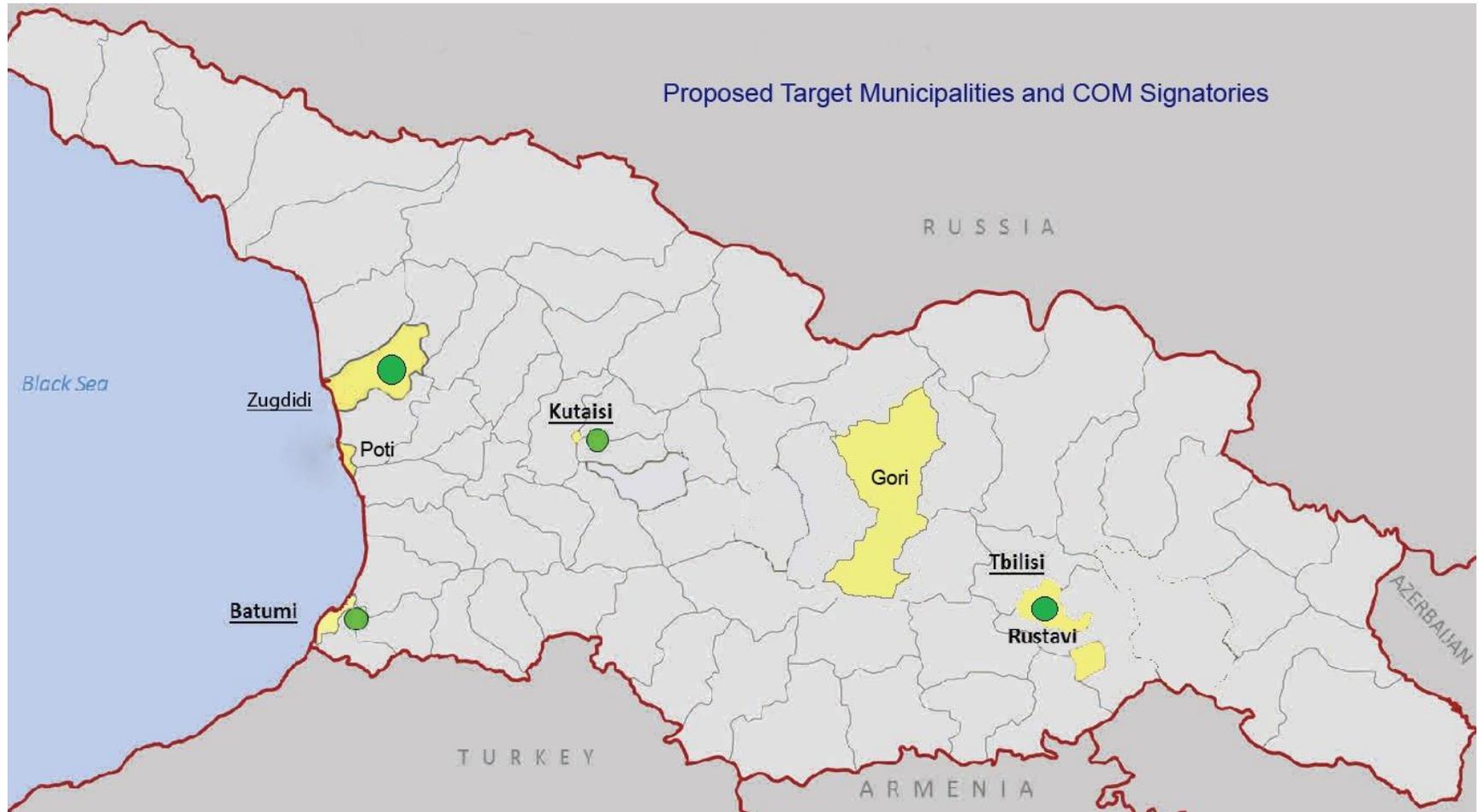


Table 4: EC-LEDS Actions and Alternatives

#	Activity	Feasible Alternative(s)	Comments
<i>Municipal Buildings</i>			
1	Installation of space heating systems in municipal buildings	1. No space heating systems installed (no action alternative)	No capital cost is associated with this alternative. However, under this scenario, high heat consumption and loss in municipal buildings will continue to occur and no energy cost savings will be generated. Moreover, GHG emissions won't be avoided.
		2. Installing boilers with furnaces operating on solid fuel	This alternative will provide an opportunity for the use of various fuels like natural gas with the possibility to switch over to bio-waste pallets. It should be noted that replacing individual heaters with central heating systems using efficient boilers will improve the indoor conditions as well as contribute to the reduction of CO ₂ emissions, since it is known that the system's efficiency with a boiler is higher than the "Karma"-style individual heaters ¹⁵ .
		3. Arrangement of space heating with local boilers operating on natural gas	It should be noted here that implementation of this measure (autonomous heating systems operating on natural gas) separately might not result in substantial energy savings. However, when combined with refurbishment of the building, including insulation of the building envelope, the expected energy savings and emissions reductions are achievable. In addition, it is important to note that by implementing this measure, safety standards in buildings (especially in kindergartens) will be improved.
		4. Use of bio-waste	Bio-waste briquettes could be considered

¹⁵ According to the Tbilisi SEAP report, the efficiency of "Karma" heater is reported to be 85-87% by producers. Tbilisi SEAP report uses an efficiency of 85%, assuming that the energy efficiency of a heater is affected by fluctuations of gas pressure in the gas distribution network. In addition, it should be noted that modern gas boilers have a higher energy efficiency rating. Therefore, the Tbilisi SEAP calculates 90% efficiency based on the same assumption regarding fluctuations in gas pressure during peak hours (Source: Tbilisi Sustainable Action Plan for 2011-2020, page 85).

		briquettes for local space heating	for heating purposes as a fuel instead of natural gas in municipal buildings. Bio-waste briquettes are a carbon-free fuel that provides the opportunity for meeting the targeted 20% reduction of CO ₂ by 2020. However, it should be mentioned that above alternative might be expensive, due to absence of bio-waste market domestically. Though it is environmentally more friendly than application of fuel wood etc.
2	Implementing low-cost energy efficient measures (heat and power saving)	1. None of EE measures implemented (no action alternative)	Does not require additional capital investment. Under this scenario, high heat consumption and loss in buildings will continue, no energy cost savings will be generated, and GHG emissions won't be avoided
		2. Installation of efficient lightening in municipal buildings	The replacement of incandescent light bulbs with compact fluorescent bulbs has the largest energy efficiency increase and consumption reduction potential.
		3. Refurbishment of municipal buildings ¹⁶	This is a relatively high cost alternative. It is known that the building and its heating system present one single unit. By upgrading the structure of the building, the load of the heating system will be reduced. Activities under this alternative include the following: replacement of existing doors with PVC doors, installation of double glazed metal-plastic windows, and roofing repair.
		4. Thermal insulation of building	The projects that incorporate insulation of the exterior building have a greater energy saving potential but are characterized by relatively high investment costs.

¹⁶ The analysis of Tbilisi SEAP shows that the payback period for implementation of measures for building exterior refurbishments which are high cost measures is up to 8 years which is relatively short payback period.

		5. low energy pilot building ¹⁷	Under this alternative, a building will be fully upgraded including insulation of its exterior as well as the application of efficient bulbs and the installation of a new heating system combined with a solar domestic hot water supply system. This is a relatively costly alternative, however, it has high energy savings potential
3	Use of solar water heating panels in municipal buildings (e.g. sports school, hospitals)	1. None of the solar panels installed (no action alternative)	No additional investment is required. Under this scenario, no energy savings will occur, and supply of hot water will continue to stay at very limited scale
		2. Proposed action	This measure foresees the application of solar vacuum collectors for hot water supply in municipal buildings like sports schools, kindergartens, and hospitals. This alternative could be an economically profitable measure. The energy saving potential of this alternative is high compared to using natural gas for water heating.
4	<i>Establishment of energy management and monitoring program in municipal buildings</i>	1. Controlling energy consumption, specifying behavior patterns	This alternative comprises technical assistance (TA) and per US CFR section §216.2 (c) (2) does not require an environmental assessment
		2. Development of municipal buildings energy database	This alternative comprises TA and per US CFR section §216.2 (c) (2) does not require environmental assessment process
		3. Specifying energy efficiency indicators for state procurement	Above alternative comprises TA and per US CFR section §216.2 (c) (2) does not require environmental assessment process
Sector Area: Residential Buildings			

¹⁷ The term “low energy building” is generally used to indicate buildings that have a higher energy performance than standard buildings, and thus will have a low energy consumption compared to a standard one

5	Installation of central heating system in residential buildings	1. The use of geothermal water for heating and hot water supply and pilot project	This alternative is environmentally friendly and can be applied only in areas rich in geothermal resources. Furthermore, households using conventional fuel will need to pay a high price for fuel, while for the geothermal resource, there is no price for fuel. For better utilization of geothermal water potential, modern technologies should be applied (e.g. introducing heat pumps, geothermal water re-injection). ¹⁸
		2. Use of bio-waste briquettes for central heating (pilot project)	Bio-waste briquettes could be considered as a feasible fuel for heating purposes as an alternative to natural gas in municipal buildings. Bio-waste briquettes are a carbon-free fuel that provide the opportunity for meeting the targeted 20% reduction of CO ₂ by 2020. However, it should be mentioned that the above alternative might be expensive, due to the absence of a domestic bio-waste market. Though it is environmentally more friendly than fuel wood for central heating.
6	Implementation of low-cost energy efficient measures (heat and power saving)	1. Installation of solar thermal water heating panels for hot water supply purposes (pilot project)	This alternative is assumed to be an economically profitable measure. The energy saving potential of this alternative is much higher than using natural gas for water heating.
		2. Installation of fluorescent bulbs in common property areas of residential buildings	This alternative assumes the replacement of incandescent lighting bulbs with fluorescent bulbs in the common property areas and has the largest energy efficiency increase and consumption reduction potential. In addition, this alternative will create the interest and show the advantages of energy efficient bulbs versus traditional incandescent bulbs

¹⁸ According different studies, nowadays geothermal water supply system exists only in Tbilisi city; the distribution network pipelines aren't insulated and geothermal water received from the production well isn't returning back through a reinjection well (see following source: Report on Georgia National Case Study for Promoting Energy Efficiency Investment, EEC Georgia, Tbilisi, 2013 http://www.unece.org/fileadmin/DAM/energy/se/pdfs/gee21/projects/cs/CS_Georgia.pdf)

		3. Weatherization of common property areas (minimization of infiltration)	This alternative implies replacement of windows and weatherization of common spaces. This alternative will result in a natural gas savings, as well as a reduction in emissions.
		4. Insulation of roofs ¹⁹	This alternative has a relatively low investment cost, does not require a long construction period and will result in high energy savings ²⁰ .
		5. Education/information / public awareness campaign	According US CFR section §216.2 (c) (2) this alternative does not require an environmental assessment process
7	Thermal insulation of residential buildings envelope	1. None of EE measures implemented	This alternative does not require additional capital investment. However, under this scenario, high heat consumption and loss in buildings will continue, no energy cost savings will be generated, and GHG emissions will not be avoided
		2. Complete gasification of buildings	This is an expensive alternative in terms of both capital cost and operational costs. It is a less environmentally friendly option in terms of GHG emission and is not feasible for EC-LEDS purposes
		3. Installation of thermal insulation on the exterior of buildings	Projects that incorporate insulation of the exterior building have a high energy saving potential
Sector Area: Transport sector			
8	<i>Improvement of Public Transport (PT) service</i>	1. Introduction of new minibuses	This alternative has high capital costs. Its aim is introducing minibus service in a city which will increase the attractiveness, and popularity, of public transport. This alternative is less feasible than other alternatives for inclusion in

¹⁹ The houses built during the Soviet era mostly use common construction practices that were used at that time. Roofs in buildings were typically mostly flat, insulation and waterproof layers were considered initially in the design and implemented in the construction phase, but with time these materials deteriorated due to the shorter lifetime (maximum of 30 years) for insulation construction materials that were produced in the USSR.

²⁰ Upgrading roofs of residential buildings from a thermal resistance value $R=0.83 \text{ m}^2\text{C/W}$ to $R=3.3 \text{ m}^2\text{C/W}$ the energy savings will result in 24.031 MWh of savings (Source: Tbilisi SEAP for 2011-2020, Tbilisi, Georgia) - QUESTION – Is 24,031 ACTUAL electricity savings or is it Mwh equivalent, no matter what the fuel or energy source? See me if you need an explanation (delete this comment after you answer the question – thanks).

			the EC-LEDS grant program portfolio.
		2. Electronic display boards on bus stops	This is low cost, highly feasible, alternative envisages installment of electronic display boards at bus stops. It will increase the convenience of travelling by public transport modes.
9	<i>Popularization campaign for public transport (PT)</i>	1. Public outreach /information campaigns	This alternative comprises TA and per US CFR section §216.2 (c) (2) does not require an environmental assessment
		2. PT web page and transport guide development	This alternative comprises TA component and per US CFR section §216.2 (c) (2) does not require an environmental assessment
10	Private cars discouraging actions	1. Municipal Fleet Renovation	This alternative has high capital costs. Its aim is substitution of municipal service cars with motor capacity cars. It is not as feasible as other options for inclusion in the EC-LEDS grant program portfolio.
Sector Area: Municipal Infrastructure			
11	Improving street lighting	Installing an intelligent street lighting management center ²¹	This is a relatively costly alternative. It is estimated that the development and integration of an intelligent street lighting system will reduce electricity use by 40%-60%.
		Installing light-emitting diode (LED) Light for Street Lamps	LED lamps are more environmentally friendly than CFL bulbs as they do not contain lead or mercury. In addition, LED bulbs have greater energy efficiency potential than CFLs ²² . These low-energy bulbs also open the possibility of using solar panels instead of running an electrical line, which could be particularly effective in remote areas.
12	Improving waste water treatment systems	EE improvements to water and wastewater systems such as pumps, meters, local metering, and leak detection	This proposed alternative is more environmental friendly, and includes the introduction of modern energy efficient techniques. It has significant energy saving potential.

²¹ The core element of intelligent street lighting system is stepless (what does “stepless” mean?) dimming of the lamp depending on the situation. For example, lights will dim according to the time of the day and/or intensity of car traffic on the highways when motion detectors are installed. The system will allow for the reduction of the intensity of the light output at night in the case of empty streets and roads, and will increase the voltage as cars approach the area.

²² According to Tbilisi City Energy Efficiency Concept Paper of 2008, the installation of LED (light-emitting diode) traffic lights has the potential to bring significant energy savings.

		Rehabilitation of existing infrastructure	This proposed option envisages renovation of wastewater treatment plants to meet modern standards, purchasing new parts and devices and substituting the obsolete ones. It requires significant construction/rehabilitation work. It is not a feasible alternative as it requires high investment.
13	Landfill methane recovery for use in CHP, public buildings or for selling to the gas network	Landfill methane recovery	This proposed alternative envisages methane recovery in the Norio ²³ landfill since the equipment considered for this measure is already available, and thus the costs would be lower. This proposed alternative requires high capital costs, although it is an environmentally friendly alternative. However, some time is required before the gas will begin to generate (6 months is the anticipated time frame) . Other conditions (depth, management details, composition, possibility of selection/recycling) should be considered to calculate the amount of gas to be recovered, but it will be a constantly increasing quantity, exceeding 10 thousand tons CH ₄ by 2020, according to the baseline estimations (source: Tbilisi SEAP)
		LFGcollection and flare method	This proposed alternative envisages the construction and operation of LFG collection and flare system for closed landfills. The LFG collection system is composed of vertical collection holes, gas collection pipes, an airtight sheet, gasholders, measuring instruments, and blowers. This alternative requires high capital costs and some time before gas will begin to generateHowever, this alternative will generate significant GHG emissions reductions.
Sector Area: Green areas/spaces			

²³ Norio is the new municipal landfill for the city of Tbilisi that began operations in January 2011. Norio landfill has equipment already installed for the recovery of methane that will be generated by the large volume of anticipated waste over several years (Is this what this means?). Nowadays all other landfills except Norio have been closed. However, methane continues to be generated from these sites.

14	Establishment of tree nurseries	1. No single plant nurseries established (no action alternative)	This alternative does not incur any capital costs. Under this scenario, seedlings/saplings from local nurseries will not be available due to absence of such nurseries. With the absence of tree nurseries, there will be a missed opportunity to obtain additional revenues from selling seedlings.
15	Reforestation activities	1. No measures of tree/planting activities are implemented in city parks (no action alternative)	This alternative does not need any capital investment. Under this scenario, poorly managed city parks will continue to exist, causing negative health and social impacts on the city population

2.4. Direct Effects of the Project on the Environment

Direct environmental and social effects of the EC-LEDS Program interventions likely to occur during implementation of on the ground activities, or after their completion, are associated with implementation of climate change mitigation projects.

Based on preliminary assessments and consultations on priority issues with selected stakeholders, we can assume that the majority of climate change mitigation projects will address implementation of low cost energy efficient measures for the building sector (e.g. projects related to use of geothermal waters and bio-waste briquettes for heating, weatherization, building refurbishment and thermal insulation, provision of solar panels, insulation of roofs, development of 'low energy' pilot building project etc.), followed by street lighting, wastewater treatment and green space management issues.

During rehabilitation/installation and construction of the relevant infrastructure, the following adverse impacts may occur on environment and human health: a) noise and vibration; b) odor; c) pollution of surrounding environment (including air, water, soil); d) community disturbance due to the works of heavy machineries and e) other impacts. Some energy efficient devices might contain materials dangerous for health (e.g. energy efficient light bulbs contain certain amount of mercury); improper handling of these materials could have serious impacts on health. Issues like mercury recovery plans will be addressed in details in PEA report.

It should be mentioned that the potential direct negative effects related to the operation/maintenance phase of projects are mostly associated with improper Operation and Maintenance (O/M) of the systems and/or absence of appropriate environmental controls. These may include, but are not limited to: increased municipal wastewater discharge to surface waters; increased pollution of soil, water and air pollution due to uncontrolled waste (including hazardous) management; increased indoor and outdoor air pollution due to change of fuel from natural gas to biomass; and thermal pollution and release of offensive chemicals due to geothermal water utilization.

In addition, there will be a number of direct positive environmental and social impacts related to the project operation/maintenance phase. Specifically, most measures will mitigate or eliminate climate change related impacts on the environment, i.e. GHG emissions reductions, improved energy efficiency and enhanced utilization of RE, improved indoor and outdoor air quality and improved public health and social conditions.

In case building refurbishment activities are taking place, the building design will be reviewed under existing local and international Building Guidelines, which ensures that energy and water conservation issues are considered and environmental friendly materials are used (e.g. natural, recycled, and durable products or materials made from biodegradable sources) for building retrofitting. In selecting materials for rehabilitation, historic features, toxicity, and disposal considerations will be taken into account.

It is assumed that the EC-LEDS program will provide direct project assistance, and will assist landfill owners and operators, with modeling LFG extracting possibilities, assessing the feasibility of possible projects, and preparing cost analyses of projects. For development of landfill gas recovery projects, the EC-LEDS program will need to evaluate siting criteria based on engineering, environmental and socioeconomic factors such as perceptions of the neighboring residents, the magnitude of the environmental impacts, costs, existing land-uses and engineering feasibility. If the decision is made to implement such a project, it is likely that a Supplemental Environmental Assessment will be required.

It is also anticipated that small-scale RE and EE projects anticipated under the EC-LEDS Program will have impacts that can be mitigated by compliance with a specific set of measures identified for each anticipated activity. The mitigation measures to be adopted for a specific project would be determined through an environmental screening to be conducted for each proposed project by the program. In cases where the typical mitigation measures for such an activity are not sufficient to mitigate negative impacts, a more in-depth environmental review will be required in order to determine next steps, such as whether other mitigation and monitoring measures can be readily identified or a full environmental assessment is warranted.

The PEA will examine these issues in further depth to formalize the environmental due diligence process for the EC-LEDS program.

2.5. Indirect Effects/Cumulative Impacts

Some *indirect Impacts* (secondary or chain impacts), such as management and disposal of hazardous wastes (mercury containing) from the energy efficiency lighting projects, might occur throughout the operation of the lighting. Most impacts are associated with the construction/rehabilitation/installation phase of proposed interventions and are expected to be temporary²⁴. It is assumed that the construction/installation period for each intervention will be very short (approximately 3-4 month). In addition, climate change mitigation projects will be implemented in residential areas (cities and/or rural settlements) where there are no especially

²⁴ The impact duration (temporary, permanent) is the length of time an impact will occur on certain receptor; it depends on the construction period and will be discussed in more details in PEA.

sensitive features (e.g. protected areas and/or other sensitive landscape) nearby. Moreover, the indirect environmental and social impacts of the EC-LEDS program interventions will be relatively similar to the direct environmental impacts as described above.

The EC-LEDS Program will cause a number of spin-off effects. More precisely, it will lead to an increase in knowledge and capacity of municipalities on sustainable energy and natural resources management issues. Also, a successfully planned EC-LEDS campaign will influence energy consumption in the long term, encourage the market for energy efficient products and services, and influence changes in consumption pattern. In addition, the EC-LEDS program will create the necessary conditions for implementation of the SEAPs and also provide a basis for commitment to, and continuation of, a long-term policy of energy efficient improvements and greenhouse gas reductions.

Cumulative impacts represent environmental impacts of a proposed action in combination with the impacts of other past, existing and proposed actions. Cumulative impacts occur when all impacts are taking place together in terms of location and time. During construction and/or operational phases, there might be a possibility that different impacts will be experienced over the same period of time. Most noticeably, this might happen during the construction period, when traffic, noise and air quality impacts will be disruptive to those living and working nearby the proposed projects.

2.6. Significant Environmental Issues and Effects of Planned Interventions to be Analyzed in the Environmental Assessment

The EC-LEDS program team has developed an indicative list (checklist) of structural measures to be implemented under the EC-LEDS program, with likely effects grouped in accordance with individual sectors and activity categories. The level/extent of “significance” was evaluated based on the criteria and methodology developed by USAID²⁵. The scoping team acknowledges that the detailed characteristics of each project proposal and site will determine the potential impacts; thus significant environmental and social analyses will be further discussed in greater details in the PEA document.

Table 5 below provides a summary table of probable significant negative impacts of EC-LEDS structural measures identified during this scoping exercise.

²⁵ As reference documents for classifying activities with likely significant impacts, the EC-LEDS program team has used 216 CFR, Environmental Assessment of Construction and Development Proposed Effluent Guidelines (source: http://water.epa.gov/scitech/wastetech/guide/construction/upload/2002_07_03_guide_construction_envir_EA_sections1-5.pdf), Georgian Law on Environmental Permitting (how has the law been used to classify impacts; isn't it too general?), Rapid Environment Assessment Check-lists (what are these), and ADB Environmental Assessment Guidelines, 2003 (you need citations for each of these)

Table 5: Summary of Potential Significant Negative Impacts of EC-LEDS Structural Measures

Type of Structural Measure	Possible Impact	Significance Determination Filter				Significance of the effect
		Subject of USAID or GoG Requirements	Subject of Community Concern	Pollution Prevention Potential ²⁶	High Environmental Risk ²⁷	
1. Installing boilers with furnaces operating on solid fuel ²⁸	Land resources: change in land form, waste generation, soil erosion and contamination	X ²⁹				X
	Social impacts: workers' and consumers'/operators' safety, nuisance, damage to cultural sites	X	X			X
	Air quality: increased air emissions	X				X
	Biodiversity: destruction of habitats/ecosystems, impact on wildlife due to emissions and dry and wet deposition of pollutants	X				X
2. Arrangement of space heating with local boilers						
	Social impacts: Workers' and	X	X			X

²⁶ Based on technical and business conditions, such as cost-effectiveness, has a high-potential for pollution prevention or resource-use reduction

²⁷ Associated with potential impact to the environment from high environmental loading due to one or more of the following: scale, magnitude, probability, duration (see attached worksheet - definitions used in determining environmental risk).

²⁸ This measure foresees the installation of central heating systems in municipal buildings (boilers with furnaces operating on solid fuel). This will provide an opportunity for the use of various fuels like natural gas with the possibility to switch over to biowaste pallets.

²⁹ Above criterion will be met by new construction or major modification projects as per USAID requirements

operating on natural gas ³⁰	consumers'/operators' safety (risk to fire, exposures etc.), damage to cultural sites					
	Land resources: soil erosion and contamination	X				X
3. Use of bio-waste briquettes for local space heating ³¹	Land resources: change in land form, soil erosion and contamination	X ³²				X
	Water resources: stream/river sedimentation and pollution	X				X
	Air quality: increased air emissions	X				X
	Biodiversity: destruction of habitats/ecosystems, impact on wildlife due to emissions and dry and wet deposition of pollutants	X				X
	Social impacts: workers' safety, nuisance, land-use change, damage to cultural sites, deterioration of population's health, increased cost related to air-borne diseases	X	X			X

³⁰ This group of activities includes arranging the central heating hydronic systems with local boilers for municipal and residential buildings operating on natural gas.

³¹ This group of activities includes arrangement of boiler operating on bio-waste. The magnitude/level of the impact will depend on the size and/or the type of construction activities. All likely impacts will be considered significant against legal- regulatory criterion, since construction of bio-waste plant regardless of its size will require full EIA in accordance with US CFR 216. As for environmental risk or community concern, the level/magnitude of the impact will vary depending on the scale of construction works and the sensitivity of affected environment

³² This criterion will be met by new construction or major modification projects as per USAID requirements

4. Installation of efficient lightening ³³	Workers' and consumers'/operators' safety					
	Hazardous waste generation ³⁴	X				X
Refurbishment of municipal buildings ³⁵	Social impacts: workers' safety, nuisance, land-use change, damage to cultural sites, deterioration of population's health					
	Land resources: visual disturbance, change in topography, soil contamination					
	Air quality: vehicle exhausts and dust from land works		X			X
low energy pilot building ³⁶	Social impacts: workers' safety, nuisance, land-use change, damage to cultural sites, deterioration of population's health	X				X
	Air quality: vehicle exhausts and dust from land works		X			X

³³ This group of activities includes: i) installation of CFLs in municipal buildings; ii) installation of CFL's in common property areas of residential building

³⁴ Improper handling of CFL's may generate hazardous waste (mercury); impact scale will depend on the size of the project. Note: there is no national legislation on hazardous waste management in Georgia. Hazardous waste management issues are regulated under the Basel Convention (Annex I). Activity will require development of sound waste management plan

³⁵ This group of activities involves the insulation of building's (municipal/residential) exterior structure

³⁶ This group of activities includes construction of new building with three main energy efficiency dimensions identified for efficient buildings: a) high insulation of building exterior properties; b) efficient modern central heating and domestic water supply system and c) efficient lighting system. All likely impacts will be considered significant against legal- regulatory criterion, since construction of building regardless of its size will require construction permit in accordance with GoG and EIA in accordance with USCFR 216

	Water resources: surface and ground water pollution, change in ground water table	X				X
	Land disturbance, change in topography, soil contamination and erosion	X				X
Installation of solar water heating panels in buildings (municipal/residential) ³⁷	Workers and consumers'/operation's safety and aesthetic impact ³⁸	X ³⁹	X			X
The use of geothermal water for heating and hot water supply and pilot project ⁴⁰	Water resources: decrease in water flow, increase in groundwater table, source water contaminations, potential impact of cooling the walls ⁴¹	X ⁴²				X
	Land resources: soil contamination, land	X	X			X

³⁷ This group of activities includes the following: i) installation of hot water solar panels in municipal buildings (e.g. schools, hospitals, kindergartens, government buildings, etc.); ii) installation of hot water solar panels in residential buildings; iii) installation of photovoltaic systems in residential buildings; iv) installation of photovoltaic systems in public buildings (e.g. schools, hospitals, kindergartens, government buildings, etc.)

³⁸ The magnitude/level of aesthetic impact (e.g. the incompatibility of solar home heating with the existence of evergreen trees) will depend on the project size, methods used and local environmental conditions.

³⁹ Activity will include procurement of electric/electronic equipment and materials (such as thermal solar panels, radiators, heat pipes). In this case the documentation confirming that materials/equipment's are procured from certified retailers should be available.

⁴⁰ This group of activities may include following: i) direct use of geothermal energy for heating applications and ii) development of geothermal circulation system (apply re-injection techniques)

⁴¹ One of the obstacles of geothermal reinjection is the danger of production well cooling. The possible cooling of production wells often occurs because of short-circuiting and scaling in surface equipment and injection wells because of the precipitation of chemicals in the water. The short circuiting often occurs when the spacing between injection and production wells is small. In case of green-field project all necessary technical feasibility study of project area should be conducted (including geological, hydrogeological studies and chemical composition of geothermal waters), in order to identify, forecast and prevent possible cooling of wells.

⁴² This impact is only relevant to a project that uses thermal geothermal water as a source and envisages increase in designed capacities through adding new intake facilities. In such a case, a special water use/abstraction license should be acquired for the use of thermal-water source. Furthermore, regardless the source of water or the size of water abstractions, all water users are obliged to report on water abstractions and wastewater discharges (water use accounting report) to the MENRP of Georgia, on an annual basis.

	subsidence (caused by fluid withdrawal), thermal pollution and release of offensive chemicals ⁴³					
	Social impacts: workers' safety, nuisance, damage to cultural sites, deterioration of population's health, accident risks (e.g. occupational hazards and accidents, risk of explosions)	X	X			X
Weatherization of common property areas (minimization of infiltration)	Worker's safety	X	X			X
Insulation of roofs	Workers' safety	X	X			X
Electronic display boards on bus stops ⁴⁴	Workers' safety	X				X
improving street lighting ⁴⁵	Social impacts: workers' safety	X				X
Improving waste water treatment system ⁴⁶	Land resources: visual disturbance, change in topography, soil contamination, soil	X	X			X

⁴³ The magnitude/level of environmental risk will depend on the project site and technology (open system or closed system) as geothermal reservoirs have a wide range of geothermal and chemical properties.

⁴⁴ This activity will include installing the electronic display boards on bus stops and will require procurement of electric/electronic equipment/materials. In this case the documentation confirming that materials/equipment's are procured from certified retailers should be available

⁴⁵ This group of activities includes replacing street lamps by the LED light bulbs. Note: Lighting products that use light-emitting diodes (LEDs) are energy-efficient and mercury-free.

⁴⁶ This group of activities may include the following: i) EE improvements to water and wastewater systems such as pumps, meters, local metering, leak detection and ii) rehabilitation of existing infrastructure. Magnitude/level of an impact against legal-regulatory criterion will depend on the class and the size of the project. US 22 CFR 216 classifies water management projects, including building of impoundments as well as new land development projects as those having significant impacts. These types of projects, therefore, are subject to EIAs. In accordance with Georgian legislation, wastewater treatment plants with a treatment capacity of 1,000 m³ or more and construction of impoundments with a total volume of 10,000 m³ or more are subject to environmental impact assessment and environmental impact permitting.

	erosion and land fooling (in case of system overload)					
	Water resources: decrease in source water flow, surface and ground water pollution	X				X
	Biodiversity: ecosystem/habitat degradation	X				
	Social impacts: traffic, nuisance, damage to cultural sites, workers and population H&S, increase number of contagious diseases	X	X			X
Landfill methane recovery for use in CHP, public buildings or for selling to the gas network	Land resources: change in land form, soil erosion and contamination	X				X
	Water resources: stream/river sedimentation and pollution, groundwater contamination	X				X
	Air quality: fugitive emissions	X				X
	Social impacts: labor, population and livestock H&S, nuisance, land-use change, damage to cultural sites, health impacts on population (waterborne and water-related diseases, spreading of contagious diseases via rodents, reptiles, birds, etc.)	X	X			X

Afforestation/Reforestation activities ⁴⁷	Land resources: soil erosion, landscape modification, land compaction	X				X ⁴⁸
	Water resources: stream/river/lake sedimentation/ silting	X				X ⁴⁹
	Biodiversity: wildlife disturbance, destruction of habitats, invasive species, modification of natural forests, e.g. distribution	X				X ⁵⁰
	Social impacts: workers' safety, land use change, increase in risks of forest fires, increase in costs related to forest fires, loss of access to forests by locals, increase in conflicts between local farmers and the owner/operator of the forest plantation over various land uses, Introduction of pests and diseases in the area	X	X			X
Establishment of tree nurseries	Land resources: soil erosion and compaction, land space modification				X	X

⁴⁷ This group of activities may include the following: i) afforestation/reforestation of forests of state importance; ii) afforestation/reforestation of local importance (municipal) forests; iii) development of energy-tree forest plantations. According to Georgian legislation, afforestation/reforestation projects in state-importance forests require developing afforestation/reforestation plans and its approval by the Ministry of Energy and Natural Resources. Therefore, all likely impacts of such projects will be considered significant against legal-regulatory criterion

⁴⁸ The magnitude/level of environmental risk will depend on the project size, methods used and local environmental conditions

⁴⁹ The magnitude/level of environmental risk will depend on the project size, methods used and local environmental conditions

⁵⁰ The magnitude/level of environmental risk will depend on the project size, methods used and local environmental conditions

	Water resources: pollution of stream/lake located nearby tree nursery ⁵¹ , increase in water usage for irrigation of nursery				X	X ⁵²
	Biodiversity: wildlife disturbance, habitat destruction, including aquatic biota habitat destruction				X	X
	Social impacts: workers' safety, damage to cultural sites	X	X			X

Definitions Used in Determining Environmental Risk

Parameter	Rating Categories				
	1	2	3	4	5
Scale	Insignificant volume/ quantity	Low volume/quantity	Medium volume/quantity	Medium volume/quantity	High volume/quantity
Severity	Minimal impact	Moderate impact but localized and readily containable	Moderate impact over multiple locations	Significant impact and/or regional	Extreme impact and/or potential for global impact
Probability	Very unlikely under any operating condition	Occurs during abnormal/emerge ncy conditions. Probability anticipated and managed	Occurs during routine maintenance activities	Occurs during major maintenance activities	Occurring during normal operating conditions
Duration	Spike situation extremely short-term duration within one day	Less than one month	One to six months	Less than one year	Long-term duration greater than one year or continuous

⁵¹ The magnitude/level of environmental risk will depend on the project type and scale, methods used, and local environmental conditions

⁵² The mMagnitude/level of environmental risk will depend on the project scale

5. Methodology and Schedule for Preparation of Environmental Analyses

5.1. Methodology for Conducting Environmental Analyses

5.1.1. Impact Identification/Screening

The scoping process sets the platform for the PEA during the scoping process. PEA activities will address issues identified during the scoping process, but examine them in greater depth through literature reviews, stakeholder interviews, and multiple field visits. Impact screening will comprise three phases: **a) identification** – specifying the probable major impacts associated with each phase of the project; **b) prediction** – forecasting the nature, magnitude, extent and duration of the major impacts; and **c) evaluation** – determining the residual impacts that cannot be mitigated. Impact identification and prediction will be based on baseline municipality survey studies to be conducted under the EC-LEDS Program prior to the start of the program, as well as on findings of the ongoing detailed studies. In addition, the PEA team will use a combination of checklists, matrices and experts' opinions for impact identification, prediction and evaluation. The EMMPs for the EC-LEDS Program activities are presented in annex D.

5.1.2. Impact Identification/Screening

Central to the assessment of environmental impacts is the identification of significance criteria. The PEA technical specialists (in close consultation with EC-LEDS program stakeholders) will identify significance criteria for all technical disciplines (e.g. land, water, socioeconomics, etc.) addressed in the PEA. A significance determination will be based on the nature, likelihood, duration and magnitude/intensity of the impact on the environmental receptors due to pressure(s) imposed by the stressors. Special matrices and a scoring scale will be used to measure and grade the "significance of the effect". Attention will be given to direct, indirect and cumulative impacts within the project influence area. The mitigation measures for each significant impact will be defined and further incorporated into the Mitigation and Monitoring Plan.

It is important to note that all phases of the project's life, from design and construction / rehabilitation to operation and maintenance will be considered in the PEA.

5.1.3. Data Sources

The study will use all available information collected from published sources, such as the National Statistics Office of Georgia, various relevant Ministries, regional governance and self-governance authorities, as well as published sources from academia and other available sources. Data sources will include all available EAs for similar types of projects in the country. In addition, the USAID environmental compliance website: http://www.usaid.gov/our_work/environment/compliance/database will be searched to identify useful information for other countries.

5.1.4. Public Consultation Process

During the PEA development process, the EC-LEDS Program team will conduct a series of consultations with stakeholders, such as the primary counterpart ministries, regional and local bodies of governance, academia, non-governmental organizations, and concerned citizens.

This will include presentations and consultations on the following issues:

- likely negative and positive impacts of the project activities,
- magnitude and significance of impacts,
- measures to mitigate negative effects and enhance benefits, and
- monitoring of implementation of mitigation measures.

The consultations will be conducted through bi-lateral and multilateral meetings. Comments and recommendations received during the consultations will be recorded and incorporated into the environmental assessments and mitigation and monitoring plans.

5.2 Timing and Phasing of the PEA

The analysis completed in this SS provides the framework that will guide the work of the PEA team pursuant to the process described in USAID's environmental procedures. The team has determined which potential environmental impacts will be subject to further analysis after consideration of alternative mitigation measures, while insignificant impacts will not be considered further.

In order to carry out the PEA, the scoping team envisions the following additional arrangements, methods, timing and phasing:

Approval of the SS: This SS will be reviewed and approved by the USAID/Georgia Mission Environmental Officer (MEO) and the Europe and Eurasia Bureau Environmental Officer (BEO).

Interim Period: While this SS is being reviewed and approved, the PEA implementation team will begin development of the PEA. This will be done to allow work to begin, but will be accomplished in a manner that is flexible to incorporate comments that may be received during the SS review process. Initial work will include development of scopes of work for PEA team members including technical activities; levels of effort and the schedule of PEA activities, and filling gaps identified in the scoping process. The PEA team will begin analysis of significant environmental and socioeconomic issues, paying attention to both direct and indirect impacts within the project scope. It is important that all phases of the project life be considered, from design and construction to operation and maintenance.

PEA Development Period: The proposed period of conducting the PEA will be approximately five weeks in March and June 2014, broken down as follows:

- Week 1: Establish PEA team and develop PEA detailed SOW
- Week 2: Complete data analyses and collection of additional baseline information including required elements under the PEA's affected environment,
- Week 3: Final field evaluations, stakeholder discussion sessions, assessment of significant environmental impacts and development of project alternatives,
- Week 4: Begin writing PEA; additional meetings to fill critical information gaps as needed;
- Week 5: Finalize PEA

5.3 Environmental Assessment Format and PEA Team composition

5.3.1. Environmental Assessment Format

1. SUMMARY

(Summary of findings: The summary shall focus the major conclusions, areas of controversy, if any, and issues to be resolved. Specifically, project alternatives and recommended option, impacts and environmental consequences of project alternatives, and Environmental Mitigation and Monitoring Plans)

2 PURPOSE

(Underlying purpose and need to which the project is responding in proposing the alternatives including the proposed action. Also, brief description of EC-LEDS Program and description of the two subcomponents, what they do, objectives and rationale for what they do.)

3 ALTERNATIVES, INCLUDING THE PROPOSED ACTION

(Present, compare & contrast the environmental impacts of the proposal and its alternatives. Principal technology section, descriptions of the project alternatives considered, pros and cons for each. Rationale for the recommended alternative and its impact on the project.)

4 AFFECTED ENVIRONMENT

(Section that covers the required elements under the PEA's affected environment. Describes the environment around the cottage housing areas and buildings rehabilitated. Site locations and details about the foot-print of the project. Data and analyses in the PEA shall be commensurate with the significance of the impact with less important material analyzed, summarized, consolidated or simply referenced, as appropriate.)

5 ENVIRONMENTAL CONSEQUENCES

(Environmental impacts of alternatives and proposed action, and adverse impacts that cannot be avoided. This section of PEA should include discussions of direct effects and their significance; indirect effects and their significance; possible conflicts between the recommended actions, policies and controls for the areas concerned; energy requirements; and the design of the built environment, including the recommended alternatives and mitigation measures; and means to mitigate adverse environmental impacts for design/construction and operation/maintenance. In addition, it covers the results of meetings with stakeholders.)

6 ENVIRONMENTAL MITIGATION AND MONITORING PLANS

(Overall description of interventions associated with the recommended alternative, and recommended measures available; Environmental Mitigation Plan and Environmental Monitoring Plan)

7. LIST OF PREPARERS

8. ANNEXES

5.3.2. PEA Team Make-Up

Data collection, field studies, analyses and PEA preparation will be conducted by a specialized team of scientists and engineers from Winrock International Georgia, its partner organizations and invited experts. The PEA multi-disciplinary team (below see

PEA team composition) will follow an inter-disciplinary approach in its work, including: a) joint preparation for field visits (identification of key issues); b) conducting interviews with local municipality members (a lead person and reporter designated for each site); c) developing screening guidelines (to be prepared by the PEA Team Leader) to ensure that all issues are covered and team responsibilities are clearly understood; d) arranging post-visit review sessions, to discuss preliminary findings and identify possible mitigation and monitoring actions; and, e) assigning the responsibilities for preparation of report pieces.

Environmental assessment team composition:

Dana Kenney – EC-LEDS Program COP; Quality assurance and control

Mamuka Gvilava, Environmental Specialist, PEA Team leader. He will provide overall monitoring and supervision of activities, will lead the team of experts, assign responsibilities

Mariam Bakhtadze, EC LEDS Environmental Specialist, overall monitoring of activities, environmental compliance and permit related issues

Giorgi Giorgobiani, EC LEDS Financial Specialist, project identification and financing issues

Nino Lazashvili, EC- LEDS EE/RE Manager/Engineer - energy related issues

Avtandil Lomiashvili, EC-LEDS Consultant, RE Specialist, RE project related issues

Marina Shvangiradze, NGO REMISSIA, Climate change mitigation issues

Anna Sikharulidze, NGO REMISSIA, Climate change mitigation issues

Levan Natadze – NGO GBC Georgia, Green building, building retrofitting, energy efficiency issues

Karina Melikidze – NGO SDAP-Center, Building Energy Audit issues

Alec Sumbadze, EC LEDS Community Mobilization Specialist, arranging public hearings and stakeholder meetings

ANNEX A: SCOPING STATEMENT STAKEHOLDER MEETING

Stakeholder Meeting Report

Background:

As part of this process the EC-LEDS team organized a program scoping statement stakeholder meeting with the aim of informing project stakeholders about the goal of the program.

The scoping statement stakeholder meeting for EC-LEDS was held in Tbilisi, at hotel 'TORI' on February 7th, 2014 and in Batumi at the Civic Engagement Center office on February 12th, 2014. The goal of the meeting was to inform EC LEDS project stakeholders about the goal of the program and ensure their involvement in the early planning stage.

This report presents a description of the meeting, lists of participants, and an overview of the training materials.

The general aim of the scoping meeting was to cover a wide range of stakeholders from national to local level government agencies, donor organizations, private sector, NGO's as well as individual residents in potential intervention zones.

The specific objectives of the scoping statement stakeholder meeting were:

- To inform EC LEDS project stakeholders about the goal of the program and ensure their involvement at the early planning stage;
- To discuss the potential types of projects to be supported by the EC-LEDS program;
- To provide an opportunity for the proponents, relevant authorities, interested parties and other stakeholders to exchange information and express their views and concerns regarding the program and gain their feedback; and
- Ensure the positive attitude towards the program and increase cooperation between EC-LEDS Program and program stakeholders

The working language of the workshop was Georgian (consecutive translation from Georgian to English was provided). In total, 30 participants attended the scoping statement stakeholder meetings. Meeting agendas, the meeting notifications, lists of participants and photos are attached to this document as illustrative materials.

Timing and Logistics

Two stakeholder meetings were held in Tbilisi and in Batumi, respectively. The following dates and locations were selected for the stakeholder meetings:

1. Tbilisi: The meeting was held at Hotel 'TORI' conference room; Meeting date: 7 February. The Tbilisi meeting covered a wide range of stakeholders (representatives of various targeted Ministries, donor organizations, Tbilisi's Mayor and local municipalities of Eastern Georgia were invited to participate);
2. Batumi City (Western Georgia): The meeting was held at the Center for Civic Engagement Conference Room⁵⁴. Meeting date: 12 February. The EC-LEDS program targeted municipality representatives of Western Georgia to participate on meeting.

The stakeholder meetings were delivered in Georgian and English with all meeting materials provided in Georgian and distributed among the participants. The training was free for all participants.

The full agenda for the meeting is provided in **Attachment B**.

Public notice

The stakeholder meeting announcement was disseminated using CENN's mailing list (see Attachment C: Notification). The date, place and the scope of the meeting were agreed upon with stakeholders (local government/municipalities, ministries, NGO's, private sector and donor organizations).

Individual invitation letters were sent out to target organizations requesting their participation.

A total of 30 persons attended the stakeholder meetings. A full list of participants is provided in Attachment A.

Presenters

The Scoping Statement Stakeholder meetings were opened by Ms. Mariam Bakhtadze (EC-LEDS Environmental Specialist), who introduced the key speakers and provided information on the purpose of the meeting to the attendees.

Ms. Dana Kenney introduced meeting participants to the scope and goal of the EC-LEDS program and provided a brief overview of LEDS process.

The second presentation was provided by EC LEDS Program Environmental Specialist Mariam Bakhtadze; the presentation covered the following topics:

- a) USAID environmental regulation (REG 216): A presenter reviewed the US Federal Regulation defining the USAID pre-implementation environmental impact assessment (EIA) process. Information on USAID's mandatory environmental conditions that must be fulfilled during program

⁵⁴ The Batumi Center for Civic Engagement was established with support of the USAID funded G3 Program. The Center provides a large meeting hall, conference room, and computer lab and library/resource center for public use. The center is equipped with audio-visual equipment (see: <http://cce.ge/DesktopDefault.aspx?alias=CCE&lang=en&tabid=4638>).

implementation to protect environment, health and welfare were introduced.

b) EC-LEDS Program goals and objectives: A presenter provided detailed information on Component I of the EC-LEDS program. A presenter outlined the types of potential demonstration projects, discussed the ways to define criteria for selecting municipalities/cities for further cooperation.

c) Discussion of proposed projects and their possible impacts; Participants discussed the potential demonstration projects as well as associated environmental and social impacts.

The EC-LEDS team stressed the importance of public participation in the early project design phase. Mr. Giorgi Giorgobiani (EC-LEDS Financial Expert) provided detailed information about development of credit guarantees and financial assistance for energy efficiency improvements in the EC-LEDS program participating municipalities.

Mr. Giorgobiani highlighted the below mentioned concepts to be applied while designing and implementing the EC-LEDS demonstration project activities:

- Climate change mitigation projects should be prioritized by the SEAP/municipal economic development strategy;
- Technical, economic, environmental sustainability of the projects;
- Private business should be involved with bringing their value into the process;
- The program should look at all possible ways of identifying collaboration opportunities with other donor programs as well as potential for leveraging funds from private sector, local and international financial institutions;

Ms. Marina Shvangiradze (NGO REMISSIA, EC-LEDS Program partner organization) discussed the municipality selection process and selection criteria. After presenting the slideshow presentation of the EC-LEDS Program to the stakeholders, an interactive discussion was held. Stakeholders were asked to raise questions and make comments.

Below are the questions and comments highlighted during the meeting:

Questions & Remarks:

Questions	Remarks
Will program work on development of the energy efficiency finance models to address the particular needs of private end users (e.g. commercial and industrial businesses, residential customers)?	WI will work with the GOG, municipalities, and investors to overcome policy and regulatory barriers to facilitate formation of viable PPPs, such as ESCOs and identify mechanisms for financing PPP projects; WI team will do a sector-wide assessment of available financial mechanisms and establish a working relationship with all active IFIs and local commercial banks. Training for bankers will be designed and conducted to introduce bankers to the essentials of appraisal and valuation of EE projects, loans for ESCOs to engage in energy performance contracts, EE-specific risk assessment techniques, and monitoring plans.

<p>Batumi mayor expressed interest in EC-LEDS green building component and asked question about potential future cooperation with EC-LEDS program on GB issues</p>	<p>EC-LEDS team discussed the possibility of supporting Batumi municipality in working with the private sector on green buildings. WI team provided detail information on potential market driven approaches for promoting EE in buildings, including developing GB rating and certification system for Georgia. WI team expressed importance of close stakeholder cooperation for identifying appropriate GB policy approach for Georgia.</p>
<p>Zugdidi municipality raised importance of energy efficiency public awareness issues. The Zugdidi Sakrebulo representative mentioned that people are aware they need to save energy because prices have risen (unlike in Abkhazia where they are still highly subsidized and people waste energy), but they do not know the technologies or methods to apply them, or how much they can save by applying them. They mentioned that Zugdidi municipality is rich with geothermal energy potential. Importance in investing in geothermal to reduce energy bill for the municipal building was discussed by Zugdidi municipality. Question was asked about possibility of funding such project under EC-LEDS program.</p>	<p>The EC-LEDS team provided information on public awareness promotional strategy for EC-LEDS program. It was mentioned that EC-LEDS Awareness Team will develop a National Communications Plan to define target audiences, key messages and slogans, provide templates for media materials, identify country-wide dissemination channels and timelines, develop, and provide plans for training activities. The EC-LEDS representatives also mentioned that EC-LEDS Awareness Team will work with municipal officials, including PR/Press units, to tailor and implement the plan at the municipal level. They will conduct baseline municipal assessments of the barriers to and benefits of adopting specific energy-saving behaviors. Issue of involving various target groups (youth, women, people with disabilities etc) in EE promotional campaign was discussed.</p> <p>G. Giorgobiani mentioned that EC-LEDS program is working on development of framework for encouraging various focus group involvements in EE project demonstration activities, which could facilitate their innovative thinking.</p>
<p>Kazbegi municipality representative emphasized importance of EE/RE/SEAP related trainings for municipality energy managers and other dedicated persons from participating municipalities.</p>	<p>Ms. Shvangiradze explained that at first stage, the needs of all selected municipalities will be evaluated. Those that have priority need (i.e. SEAP submission deadline before September 2014) and have not secured assistance from other sources will be supported first in completing their SEAPS. In addition, specific on-job training will be given to those municipalities that have SEAPS and have identified priority mitigation measures in development of mitigation project proposals.</p>

ATTACHMENT A: LIST OF PARTICIPANTS

	First Name	Last Name	Organization	Mobile	E-mail
1	Tamar	Abuladze	Akhaltsikhe Municipality Sakrebulo	599 40 25 50	
2	Zurab	Enukidze	Telavi Municipality Gamgeoba	551 50 30 00	
3	Katerina	Poberezhna	CENN	599 11 10 73	
4	Medea	Inashvili	Ministry of Environment and Natural Resources Protection of Georgia	599 24 81 92	
5	Vakhtang	Zarkua	Fund of Energy Efficiency	599 48 48 62	eef.georgia@gmail.com
6	Neli	Verulava	Energy Efficiency and Natural Resources Protection	599 96 11 57	neli.verulava@mymail.ge
7	Merab	Chirakadze	GTU - Institute "Talgha"	599 98 98 32	
8	Tinatin	Kikacheishvili	Self-Governing Rustavi City Hall	599 15 80 84	redd.tinatinkikacheishvili@gmail.com

9	Valerian	Melikidze	SDAP	0322 99 08 02	vmelikidze@sdap.ge
10	Vladimer	Malovichko	UNESLO	568 71 43 10	
11	Aleksandre	Tsivtsivadze	MKR	597 23 88 44	
12	Ani	Papelishvili	Gori Municipality	599 85 18 06	
13	Levan	Tskhakaia	Fund "Caucasian Ecology"	577 15 70 65	l.cxakaia@gmail.com
14	Imeda	Vardiashvili	Self-Governing Rustavi City Hall	599 85 78 23	redd.imesa.vardiashvili@gmail.com
15	Murad	Kharaishvili	Caucasus Energy Efficiency Program	595 61 11 10	murad.kharaishvili@energocredit.com
16	Ivane	Tsiklauri	UNDP	558 12 72 27	
17	Manana	Marsagishvili	Kazbegi Municipality	599 67 68 87	marsagishvili.m@gmail.com

18	Nino	Chologauri	TBILISI CITY HALL - Municipal Department of Economical Policy	577 15 78 52	n.chologauri@tbilisi.gov.ge
19	Irina	Tchitanava (deda Serafima)	Patriarchy Department	592 14 04 01	
20	Tamar	Antidze	Heinrich Boell Foundation	577 77 40 35	tako.antidze@ge.boell.org
21	Zurab	Tabaghua	Self-Governing Rustavi City Hall	551 90 78 98	z.tabaghua@gmail.com
22	George	Abulashvili	Energy Efficiency Centre Georgia; Covenant of Mayors	599 97 40 03	g_abul@eecgeo.org
23	Levan	Natadze	GBC Georgia	599 48 16 87	gbcgeorgia@gmail.com
24	Nino	Shanidze	Business area KfW Development Bank	599 54 70 50	nino.shanidze@kfw.de
25	Enrico	Spiller	kfw BANKENGRUPPE	577 55 56 04	enrico.spiller@kfw.de
	First Name	Last Name	Position	Mobile	E-mail
26	Manana	Jorjikia	Poti Municipality; Expert of Georgia's Third National Communication on Climate Change	593 64 85 52	mananajorjikia555@gmail.com

27	Lasha	Nakashidze	Batumi City Hall - Economic Policy Service; Strategic Planning, Investment and Economic Development Department - Head of Department	577 11 51 39	lasha.nakashidze@gmail.com
28	Tite	Aroshidze	Batumi City Hall - Economic Policy Service; Deputy Chief	577 30 26 68	titemeister@gmail.com
29	Lali	Kharebava	Zugdidi Municipality Sakrebulo; Head of Legal Department	599 85 24 09	lalixarebava@gmail.com
30	Giorgi	Gasashvili	Zugdidi Municipality Sakrebulo; Public Outreach Department- Main Specialist	599 85 24 47	sabediano@gmail.com

ATTACHMENT B: MEETING AGENDA



**Enhancing Capacity for Low Emission Development Strategies
EC-LEDS Clean Energy Program**

Scoping Statement Stakeholder Meeting for EC-LEDS Program

February, 2014

AGENDA

Time	Introductions	Speakers	Durati on
11:00– 11:15	Registration		Durati on
11.15– 11.20	Opening Remarks; presentation of agenda	USAID, EC-LEDS Program	5 min
11:20– 11:50	EC-LEDS Program brief overview	<i>Key Speaker:</i> Dana Kelley	30 min
11:50 12:35	– USAID Env. Reg 216 Requirements and Purpose of Scoping Statement; Presentation of Identified Environmental/Social Issues; EC-LEDS Component 1: Municipal Energy Efficiency	Speaker: M. Bakhtadze; (<i>co-speakers:</i> G.Giorgobiani; M.Shvangiradze)	45 min
12:35	Break		10 min
12:45– 13.45	Questions and Discussion Session	<i>Facilitated by</i> M. Bakhtadze	1 hour
Concluding Remarks			

ATTACHEMENT C: STAKEHOLDER MEETING ANNOUNCEMENT



Enhancing Capacity for Low Emission Development Strategies
Clean Energy Program
EC-LEDS

დაბალემისიებიანი განვითარების სტრატეგიების შესაძლებლობათა გაძლიერება
სუფთა ენერჯის პროგრამა

Announcement:

Subject: Scoping Statement Stakeholder Workshop Meeting

Project: EC-LEDS Clean Energy Program

Dear Sir/Madam,

The U.S. Agency for International Development (USAID) is supporting the project Enhancing Capacity for Low Emission Development Strategies/EC-LEDS Clean Energy Program. The EC-LEDS Clean Energy Program is implemented by Winrock International Georgia. The EC-LEDS Clean Energy Program assists Georgian municipalities in institutionalizing and implementing climate change mitigation measures, promotes and facilitates private-sector investments in energy efficiency and green buildings and builds the capacity of the Government of Georgia to develop and implement a national Low Emission Development Strategy (LEDS).

Through this project, USAID supports Georgia's efforts to increase climate change mitigation through energy efficiency and clean energy activities, and enable more responsible management and development of Georgia's natural endowments.

The EC-LEDS Clean Energy program is preparing a Scoping Statement for an Environmental Assessment. As part of this process the EC-LEDS is organizing a stakeholder meetings. The purpose of the meetings are to ensure program stakeholders' involvement at early the planning stage and receive feedback and reach a common understanding on program planned activities.

The EC-LEDS is organizing two stakeholder meetings, which will be held a) in Tbilisi, on February 7, 2014 at the hotel TORI at a time of 13:00 and b) in Batumi city on February 12, at Civic Engagement Center office; at a time of 11:00. For additional information, please contact Ms. Mariam Bakhtadze by e-mail: mbakhtadze@field.winrock.org; or mob: 599193091

განცხადება 'დაბალემისიებიანი განვითარების სტრატეგიების შესაძლებლობათა გაძლიერება/სუფთა ენერჯის პროგრამის' დაინტერესებულ პირთა შეხვედრის შესახებ

გაცნობებთ, რომ აშშ-ის საერთაშორისო განვითარების სააგენტოს/USAID მხარდაჭერით, საქართველოში ხორციელდება პროექტი - 'დაბალემისიებიანი განვითარების სტრატეგიების შესაძლებლობათა გაძლიერება/სუფთა ენერჯის პროგრამა', რომელსაც ახორციელებს 'ვინროკ ინტერნეიშენალ' ჯორჯია. 'დაბალემისიებიანი განვითარების სტრატეგიების შესაძლებლობათა გაძლიერება/სუფთა ენერჯის პროგრამა' სამი კომპონენტისგან შედგება. მისი მიზანია, ა) დახმაროს საქართველოს მუნიციპალიტეტებს კლიმატური ცვლილებების შერბილების ინსტიტუციონალური ღონისძიებების განხორციელებაში, ბ) კერძო სექტორის ინვესტიციების მოზიდვის წახალისება/მხარდაჭერა ენერგოეფექტურობასა და მწვანე შენობებში, და გ) უზრუნველყოს საქართველოს მთავრობის შესაძლებლობების გაძლიერება ეროვნული დაბალემისიებიანი განვითარების სტრატეგიის შემუშავება/განხორციელების საკითხში.

პროექტის ფარგლებში დაგეგმილია სამუშაო შეხვედრა დაინტერესებული მხარეების თანამონაწილეობით, რათა გათვალისწინებულ იქნეს თქვენს მიერ გამოთქმული მოსაზრებები და გამოცდილებები, რაც მნიშვნელოვნად გაზრდის პროექტის მიზნდევით დაგეგმილ ღონისძიებების ეფექტურობას.

პროექტის დაინტერესებულ პირებთან შეხვედრები გაიმართება 2014 წლის 7 თებერვალს, თბილისში სასტუმრო თორის საკონფერენციო დარბაზში 13:00 საათზე (მის: თბილისი, ჭანტურიას ქ. #10) და 12 თებერვალს ბათუმის დემოკრატიული ჩართულობის ცენტრის საკონფერენციო დარბაზის შენობაში 11:00 საათზე (მის: ფარნაგავ მეფის ქ. #62-64). დამატებითი ინფორმაციისათვის დაუკავშირდით მარიამ ბახტაძეს ტელეფონზე: ტელ: 599193091 ელ. ფოსტა: mbakhtadze@field.winrock.org

ATTACHMENT D: PHOTOS





ANNEX B: MUNICIPALITY RANKING CRITERIA AND SELECTION PROCESS

Summary Ranking of Municipalities

Municipality	Rank	COM Signatory	SEAP Status
Batumi	1	x	Due 4-15-14
Kutaisi	2	x	Due 4-15-14
Gori	3	x	Submitted in 2013
Tbilisi	4	x	Submitted in 2011; Monitoring report overdue
Poti	5	x	
Rustavi	6	x	Submitted in 2012
Zugdidi	7	x	Due 6-30-14
Zestafoni	8		
Khashuri	9		
Sagarejo	10		
Telavi	11		
Mtskheta	12		
Kazbegi	13		
Akhaltsikhe	14		
Ozurgeti	15		
	To be assisted in FY 2014		

EC-LEDS will produce three SEAPs in year one for Batumi, Kutaisi and Zugdidi. In addition the EC-LEDS program will produce the Monitoring, Reporting and Verification report (MRV) for the city of Tbilisi which missed their deadline for the MRV report submission. Rustavi must submit its MRV report to the COM by the end of calendar year 2014.

Local Government elections will be conducted in June 2014 and certain changes in the senior as well as middle management of the municipalities will take place. EC-LEDS will reassess all municipalities again after the elections, using the same criteria. It is expected that there may be changes in Tbilisi and Zugdidi, but no changes will be made to our plans to assist Batumi and Kutaisi, as the deadline for the submission of SEAPs for both cities is April 15th 2014. Below please find tables summarizing the scores and ranking of all 15 municipalities according to the eight criteria agreed with USAID:

1. Criterion 1: CoM Signatory municipality or strong intention to join COM

Municipality	Scores
Akhaltzikhe	0
Batumi	150
Gori	150
Kazbegi	50
Khashuri	100
Kutaisi	150
Ozurgeti	0
Mtskheta	50
Poti	150
Rustavi	150
Sagarejo	50
Tbilisi	150
Telavi	50
Zestafoni	100

2. Criterion 2: Population and per capita CO₂ by municipalities in the last three years.

Municipality	Population (Thousand)			CO ₂			Combination			Average Rate of change	Rank
	2009	2010	2011	2009	2010	2011	2009	2010	2011		
Akhaltzikhe	46.9	47.7	48.2	2.9	2.8	3.2	136.01	133.56	154.24	9.1	3
Batumi	122.5	140.4	170.8	2.9	2.8	3.2	355.25	393.12	546.56	95.7	14
Gori	135.8	144.1	145.3	2.9	2.8	3.2	393.82	403.48	464.96	35.6	12
Kazbegi	4.9	4.9	4.9	2.9	2.8	3.2	14.21	13.72	15.68	0.7	1
Khashuri	61.4	62.3	62.5	2.9	2.8	3.2	178.06	174.44	200.00	11.0	6
Kutaisi	188.6	192.5	194.7	2.9	2.8	3.2	546.94	539.00	623.04	38.0	13
Ozurgeti	77.2	77.9	78.4	2.9	2.8	3.2	223.88	218.12	250.88	13.5	9
Mtskheta	56.6	57.1	57.4	2.9	2.8	3.2	164.14	159.88	183.68	9.8	4
Poti	47.5	47.7	47.8	2.9	2.8	3.2	137.75	133.56	152.96	7.6	2
Rustavi	117.4	119.5	120.8	2.9	2.8	3.2	340.46	334.60	386.56	23.1	10
Sagarejo	59.0	59.4	59.8	2.9	2.8	3.2	171.10	166.32	191.36	10.1	5
Tbilisi	1136.6	1152.5	1162.4	2.9	2.8	3.2	3296.14	3227.00	3719.68	211.8	15
Telavi	69.8	70.5	71.0	2.9	2.8	3.2	202.42	197.40	227.20	12.4	8
Zestafoni	75.1	75.4	75.7	2.9	2.8	3.2	217.79	211.12	242.24	12.2	7
Zugdidi	171.6	175.0	176.6	2.9	2.8	3.2	497.64	490.00	565.12	33.7	11

Per capita emissions in Georgia for the last three years (2009, 2010, 2011)

Years	Population (person)	CO ₂ (tons)	CO ₂ tons Per capita/year
2009	4 385 400	12 567 000	2.9
2010	4 436 400	12 453 000	2.8
2011	4 469 200	14 270 00	3.2

3. Criterion 3: Willingness of a municipality to address emissions through facilitation and implementation of energy efficiency improvement and Criterion 5- Willingness of the municipality to contribute with human resources especially ensuring implementation and monitoring of SEAP

Municipality	Criteria 3 (8)	Criteria 5 (9)
Akhaltzikhe	40	45
Batumi	120	135
Gori	80	90
Kazbegi	40	45
Khashuri	40	45
Kutaisi	120	135
Ozurgeti	0	0
Mtskheta	40	45
Poti	80	90
Rustavi	80	90
Sagarejo	40	45
Tbilisi	120	135
Telavi	80	90
Zestafoni	80	90
Zugdidi	80	90

4. Criterion 6: Annual expenditures in municipalities for infrastructure improvements/construction.

Municipality	Budget share (%) used for infrastructure development	Criteria 6 (10)		Scores
		6.1	6.2	
Akhaltzikhe	70	1	13	130

Batumi	95	1	15	150
Gori	75	1	14	140
Kazbegi	23	1	3	30
Khashuri	35	1	7	70
Kutaisi	40	1	10	100
Ozurgeti	11	0	0	0
Mtskheta	36	1	8	80
Poti	55	1	12	120
Rustavi	27	1	5	50
Sagarejo	45	1	11	110
Tbilisi	37	1	9	90
Telavi	22	1	2	20
Zestafoni	33	1	6	60
Zugdidi	25	1	4	40

5. Criterion 7: Total population within the municipalities

Municipalities are ranked in the range of 1-15 using 2011 year population data

Municipalities	Population (Thous. Person) In 2011	Rank	Scores
Akhaltsikhe	48.2	3	15
Batumi	170.8	12	60

Gori	145.3	11	55
Kazbegi	4.9	1	5
Khashuri	62.5	6	30
Kutaisi	194.7	14	70
Ozurgeti	78.4	9	45
Mtskheta	57.4	4	20
Poti	47.8	2	10
Rustavi	120.8	10	50
Sagarejo	59.8	5	25
Tbilisi	1 162.4	15	75
Telavi	71.0	7	35
Zestafoni	75.7	8	40
Zugdidi	176.6	13	65

6. Criterion 8: Annual energy consumption in municipalities (if known)

This criterion by its nature is very similar to criteria 2 and 6. However, unlike criterion 2, these figures are measured (for criterion 2, CO₂ is estimated for whole country). The municipalities are ranked by the % increase in energy consumption for three years (2009, 2010, 2011). The latest year of available data is 2011 because emissions have not yet been estimated for 2012. This will be done at the end of 2014 or 2015.

This criterion is similar to Criteria 6 because it has the same mechanism of pre-filtering and the same approach of ranking starting from the maximum score of 15 and then decreasing

from there. The minimum score depends on the number of cities providing energy consumption data for the last three years.

Municipality	2010	2011	2012	Criteria 8 (4)		Rank	Scores
	Tj*	Tj*	Tj*	8.1	8.2 %		
Akhalsikhe	0	0	0	0	0	0	0
Batumi	2300.7	2801.8	3301.1	1	0.20	13	52
Gori	326.9	343.3	383.6	1	0.08	11	44
Kazbegi	0	0	0	0	0	0	0
Khashuri	0	0	0	0	0	0	0
Kutaisi	2126.7	2346.0	2233	1	0.03	10	40
Ozurgeti	0	0	0	0	0	0	0
Mtskheta	0	0	0	0	0	0	0
Poti	1725.2	2363.6	3002.0	1	0.37	14	56
Rustavi	1677.3	2230.3	4175.7	1	0.60	15	60
Sagarejo	326.5	319.6	347.5	1	0.03	9	36
Tbilisi	11649.8	11869.8	12069.8	1	0.02	8	32
Telavi	581.2	512.0	586.8	1	0.01	7	28
Zestafoni	0	0	0	0	0	0	0
Zugdidi	300.5	324.7	359.7	1	0.09	12	48

***Terrajoule**

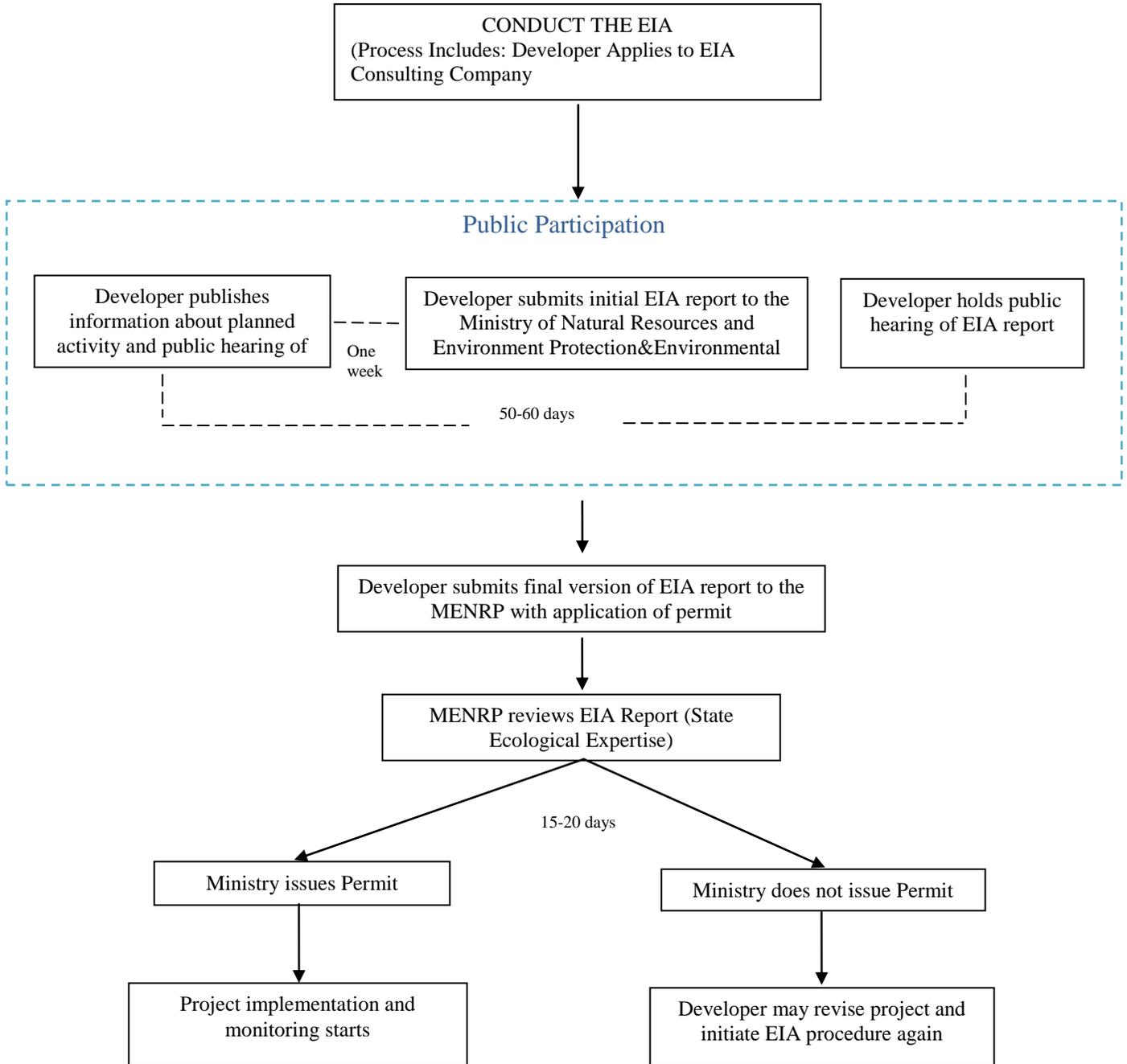
7. **Final table of multi-criteria analysis for selection of SEAP municipalities** : All criteria scores and ranking (those who expressed interest in cooperating with EC-LEDS at this time indicated as “yes” for Criteria 4

Municipality	Criteria 4 a)	Criteria 1 (10)	Criteria 2 (7)	Criteria 3 (8)	Criteria 5 (9)	Criteria 6 (10)	Criteria 7 (5)	Criteria 8 (4)	Total scores	Rank
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						6.1	6.2		8.1	8.2		
Akhaltse	Yes	150	98	120	135	1	130	15	0	0	23.0	14
Batumi	Yes	150	84	80	90	1	150	60	1	52	171.7	1
Gori	Yes	50	7	40	45	1	140	55	1	44	160.9	3
Kazbegi		100	42	40	45	1	30	5	0	0	52.0	13
Khashuri		150	91	120	135	1	70	30	0	0	98.5	9
Kutaisi	Yes	0	63	0	0	1	100	70	1	40	166.5	2
Ozurgeti		50	28	40	45	0	0	45	0	0	4.5	15
Mtskheta	Yes	150	14	80	90	1	80	20	0	0	58.5	12
Poti	Yes	150	70	80	90	1	120	10	1	56	155.6	5
Rustavi	Yes	50	35	40	45	1	50	50	1	60	153.0	6
Sagarejo		150	105	120	135	1	110	25	1	36	65.6	10
Tbilisi	Yes	50	56	80	90	1	90	75	1	32	165.2	4
Telavi	Yes	100	49	80	90	1	20	35	1	28	65.3	11
Zestafoni	Yes	150	77	80	90	1	60	40	0	0	107.0	8
Zugdidi	Yes					1	40	65	1	48	152.3	7

Annex C: Flowchart of the EIA Process in Georgia

2.2. Flowchart of the EIA Process in Georgia



Annex D: Environmental Mitigation and Monitoring Plan

Project Impacts (from IEE): Project preparation activities that enables financing of projects implemented under the SEAP's and partial project grant financing activities may have the potential to create serious adverse impacts on land, water and biodiversity

IEE ⁵⁵ Condition	Potential Impact(s)	Specific Mitigation Measure	Responsible Party	Monitoring/Verification Method		Estimated Cost/ Budget Notes
				Indicator	Data Source/ Frequency	
Activity 1.6: Undertake project preparation activities to enable financing of projects implemented under the SEAP's						
Energy efficiency improvements (e.g. weatherization, new windows, indoor lighting, hot water etc) to public buildings	Activity may generate toxic waste materials that may contaminate land and surface/groundwater.	Identify partners/ establish partnerships (public/private) on proper handling of toxic wastes; For activities that involve medical facilities and operations develop and implement adequate procedures and capacities to properly handle, label, treat, store, transport and dispose of sharps, blood, and other infectious waste ⁵⁶	Environmental Manager	Periodic checks to ensure procedures are being followed	Unit Progress Reports	Incorporated in LEDS Program budget
		Identify areas of collaboration (i.e., mechanisms/ opportunities to provide transport/storage/ disposal services for toxic waste)	Environmental Manager	Type of collaboration	Unit Progress Reports	Incorporated in LEDS Program budget
		Secure participation of accredited transporters/recyclers/ handlers of toxic wastes in LEDS project areas	Environmental Manager	Number of partner accredited toxic waste handlers/	Unit Progress Reports	Incorporated in LEDS Program

⁵⁵ Initial Environmental Examination.

⁵⁶ "Healthcare Waste: Generation, Handling, Treatment and Disposal" Guidelines can be used as a source of information and best practices (http://www.usaid.gov/our_work/environment/compliance/ane/ane_guidelines.htm)

IEE ⁵⁵ Condition	Potential Impact(s)	Specific Mitigation Measure	Responsible Party	Monitoring/Verification Method		Estimated Cost/ Budget Notes
				Indicator	Data Source/ Frequency	
				transporters/ recyclers		budget
		Conduct a training on waste safe handling, storage and disposal	Environmental Manager	Number of events	Unit Progress Reports	Incorporated in LEDS program budget
	Human health impact	Ensure workers have access to, and utilize, appropriate safety gear. Workers' training incorporates safety measures; Restrict access to site to ensure public safety and site security	LEDS site manager	Visual inspection of construction and operation activities, and examine if there are signs of negative impacts as a result. Inclusion of safety procedures in training programs	Standard monitoring and reporting protocol Monitoring frequency: Weekly safety inspections. Training programs	
Energy efficiency street lightening	Activity may generate toxic waste that may impact soil and water resources	Development/ Updating and distribution of information materials on proper waste disposal	Environmental Manager, PA Specialist	Number of training materials, leaflets, brochures	Unit Progress Reports	Incorporated in LEDS program budget
Co-generation Heat and Power (CHP), including biomass fuel that feeds into and serves heating	Improper stockpiling of wastes and oil fuel may impact surface and ground water quality.	Where wastes and diesel and oil fuel are held onsite, adequate measures will be implemented to control runoff, including containing and covering on non-permeable grounds.	Powerhouse manager and LEDS site manager	Visual inspection of waste containment, any evidence of leakage, and examine if there are signs of negative impacts as a result.	Report on what measures are to be taken once the project design is complete. Standard monitoring and reporting protocol	Incorporated in LEDS program budget

IEE ⁵⁵ Condition	Potential Impact(s)	Specific Mitigation Measure	Responsible Party	Monitoring/Verification Method		Estimated Cost/ Budget Notes
				Indicator	Data Source/ Frequency	
networks for municipal buildings	Unsafe waste disposal may pose impact on land, water resources and human	Wastes will be disposed of appropriately. Appropriate waste disposal facilities will be provided, with preference given to contracting with a waste disposal company, if available.	Powerhouse manager and LEDES site manager.	Records kept of quantities of wastes collected, stored, and disposed, including any treatment actions taken, and location and method of disposal. These records will be available to the LEDES team upon request.	Report on what measures are to be taken once the project design is complete. On-going records of waste production and treatment. Standard monitoring and reporting protocol.	Incorporated in LEDES program budget
	Air and water pollution due to improper operation and/or maintenance of equipment	Machinery and equipment maintained in good working condition and regularly inspected for leaks that may runoff or be emitted into the air. Maintenance and operations procedures used which follow the manufacturers' guidelines for safety	Powerhouse manager and LEDES site manager	According to equipment manufacturer's specifications.	Maintain inspection and maintenance records. Report on the inspection and maintenance procedures according to the technology supplier once design is finalized and technology supplier selected.	Incorporated in LEDES program budget

IEE ⁵⁵ Condition	Potential Impact(s)	Specific Mitigation Measure	Responsible Party	Monitoring/Verification Method		Estimated Cost/ Budget Notes
				Indicator	Data Source/ Frequency	
	Human health and Safety risks	Ensure plant workers have access to, and utilize, appropriate safety gear. Workers' training incorporates safety measures; Restrict access to site to ensure public safety and site security Medium and small-scale enterprise guidelines will be consulted for input on necessary training and proper management ⁵⁷	Powerhouse manager and LEDS site manager.	Visual inspection for presence of safety equipment and discussion with staff on their familiarity with it. Inclusion of safety procedures in training programs.	Standard monitoring and reporting protocol Monitoring frequency: Weekly safety inspections. Training programs	Incorporated in LEDS program budget
	Human health issues from exposure/improper use	Fuel properly stored and fire safety equipment is on site and maintained	Powerhouse manager and LEDS site manager	Visual inspection for presence of safety equipment and discussion with staff on their familiarity with it. Inclusion of safety procedures in training programs	Standard monitoring and reporting protocol Monitoring frequency: Weekly safety inspections. Training programs	Incorporated in LEDS program budget
Energy efficiency improvements to water and wastewater systems such as pumps, meters, local metering,	Contamination of waterways/sources and/or soil from runoff due to leaking fuel or lubricants from construction equipment	Machinery and equipment maintained in good working condition and will be regularly inspected for leaks Any maintenance of equipment or machinery onsite will only occur over non-permeable areas with adequate containment measures to capture spills Fuel/oil storage will be provided with adequate containment measures to capture spills; excess will be disposed of properly	Implementing partner Sub-grantees report to WI, who in turn report to USAID	Visual inspection of equipment to ensure proper working condition; ensure adequate containment measures are in place Water quality tests for contamination (if necessary)	Monitoring weekly during construction Reporting in quarterly reports	Incorporated in LEDS program budget

⁵⁷ “Medium and small-scale enterprises guidelines” available at http://www.usaid.gov/our_work/environment/compliance/ane/ane_guidelines.htm

IEE ⁵⁵ Condition	Potential Impact(s)	Specific Mitigation Measure	Responsible Party	Monitoring/Verification Method		Estimated Cost/ Budget Notes
				Indicator	Data Source/ Frequency	
leak detection and repair	Sanitation risk from construction/demolition could include dust and debris, demolition waste such as lead paint and other toxic materials can contaminate soil, groundwater, waterways	Prior to demolition, determine whether toxics are present Maintain safeguards to contain toxics and dispose of properly Ensure construction crews wear protective gear	Implementing partner Sub-grantees report to WI, who in turn report to USAID	Site analysis complete to determine presence of toxics Periodic site visits to ensure workers are properly protected and materials contained	Analysis complete prior to construction Monitor weekly during construction Reporting in quarterly reports	Incorporated in LEDS program budget
Landfill methane recovery for use in CHP, public buildings or for selling to the gas network	Improper storage/disposal contaminates waterways/ water sources Human health issues from exposure/improper use	Properly store and dispose of all inventory When applicable, wear protective gear and use in a well-ventilated area	Training is conducted by LEDS team Monitoring conducted by LEDS team	Due diligence and training complete	Monitoring conducted as part of site visits by program staff Reporting in quarterly reports	Incorporated in LEDS program budget
Improvements to apartment buildings managed by condominium association or other housing maintenance organizations organized by municipality	Community concern over the benefit sharing	Put in place measures to register and deal with complaints and grievances from the community concerning the project. Ensure any damage to private property is adequately measured and compensated based on prior and informed consent	Municipality, Condominium association and LEDS site manager The LEDS Community Outreach Coordinator is responsible for working with the Condominium to establish this system.	Existence of plan and stakeholder discussions as evidence that community is aware of the measures; Stakeholder discussions	Standard monitoring and reporting protocol	Incorporated in LEDS program budget

IEE ⁵⁵ Condition	Potential Impact(s)	Specific Mitigation Measure	Responsible Party	Monitoring/Verification Method		Estimated Cost/ Budget Notes
				Indicator	Data Source/ Frequency	
Activity 1.7. Provide partial project grants and project financing						
Possible construction activities include: Minor rehabilitation/renovation of buildings for EE interventions; Installation of “green” improvements such as solar panels. The guiding principles for minimizing and mitigating potential environmental impacts can be applied across each of these	Siting of new physical facilities/structures disruptive of communities' needs/activities	Encourage joint participation of experts and community members in selecting sites for action	Implementing partner Sub-grantees report to WI, who in turn report to USAID	Community approval of technical plans Periodic community consultation	Monitoring complete prior to construction Reporting in quarterly reports	Incorporated in LEDS program budget
	Destruction of vegetation and wildlife habitat on and around construction site	Sites should be selected with as little existing vegetation and as little overlap with local wildlife habitat as possible Any trees that are damaged or destroyed inadvertently during construction in and around the project site should be replaced using native species If the area is habitat for any rare or endangered species, a trained expert in local flora/fauna should be consulted	Implementing partner Sub-grantees report to WI, who in turn report to USAID	Site selection process completed properly Visual inspection of vegetation and site surroundings to ensure damage is negligible Technical approval (if necessary) by local flora/fauna expert	Monitoring weekly during construction Reporting in quarterly reports	Incorporated in LEDS program budget
	Contamination of waterways/sources and/or soil from runoff due to leaking fuel or lubricants from construction equipment	Machinery and equipment maintained in good working condition and will be regularly inspected for leaks Any maintenance of equipment or machinery onsite will only occur over non-permeable areas with adequate containment measures to capture spills Fuel/oil storage will be provided with adequate containment measures to capture spills; excess will be disposed of properly	Implementing partner Sub-grantees report to WI, who in turn report to USAID	Visual inspection of equipment to ensure proper working condition; ensure adequate containment measures are in place Water quality tests for contamination (if necessary)	Monitoring weekly during construction Reporting in quarterly reports	Incorporated in LEDS program budget

IEE ⁵⁵ Condition	Potential Impact(s)	Specific Mitigation Measure	Responsible Party	Monitoring/Verification Method		Estimated Cost/ Budget Notes
				Indicator	Data Source/ Frequency	
small-scale sub-activities. More significant construction activities will require additional detailed analysis prior to initiation of work.	Construction waste and rubble create safety hazard and/or damage aesthetics	Remove all solid waste and rubble and dispose of in proper location	Implementing partner Sub-grantees report to WI, who in turn report to USAID	Visual site inspection to ensure site is clear	Completion of activity Reporting in quarterly reports	Incorporated in LEDS program budget
	Increased turbidity of runoff water due to soil erosion	Construction site will be graded as necessary such that water is not allowed to run off into adjacent drainages Where excavated soils are stored onsite, adequate measures will be implemented to control runoff, including covering exposed soils or erection of physical barriers	Implementing partner Sub-grantees report to WI, who in turn report to USAID	Visual site inspection to confirm runoff controls are in place; examine for signs of excessive runoff, particularly into waterways/ storm drains	Monitoring weekly during construction Ad hoc monitoring around periods of significant rainfall Reporting in quarterly reports	Incorporated in LEDS program budget
Any pilot projects involving community groups	Potential adverse social impacts if communities are not engaged in planning and implementation processes	Encourage joint participation of experts and community members in selecting sites for action	Implementing partner Sub-grantees report to WI, who in turn report to USAID	Community approval of technical plans Periodic community consultation	Monitoring complete prior to implementation Reporting in quarterly reports	Incorporated in LEDS program budget
grants to support enterprises that use chemicals such as dyes, acid, oil, other potential contaminants	Improper storage/disposal contaminates waterways/water sources Human health issues from exposure/improper use	Properly store and dispose of all inventory When applicable, wear protective gear and use in a well-ventilated area	Training is conducted by implementer Monitoring conducted by implementer Implementer responsible for reporting in quarterly reports	Due diligence and training complete Grant recipient completes management plan that addresses potential impacts	Monitoring as part of finalization of grant award process; statement of completion of due diligence in final grant award documents Monitoring	Incorporated in LEDS program budget

IEE ⁵⁵ Condition	Potential Impact(s)	Specific Mitigation Measure	Responsible Party	Monitoring/Verification Method		Estimated Cost/ Budget Notes
				Indicator	Data Source/ Frequency	
					conducted as part of site visits by program staff Reporting in quarterly reports	