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ENHANCING CAPACITY FOR LOW EMISSION DEVELOPMENT STRATEGIES (EC-LEDS) CLEAN ENERGY PROGRAM

QUARTERLY PROGRESS REPORT

JANUARY 1, 2015 – MARCH 31, 2015

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ENHANCING CAPACITY FOR LOW EMISSION DEVELOPMENT STRATEGIES (EC-LEDS) CLEAN ENERGY PROGRAM

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Cover Photos: Left: Tbilisi school student receives her certificate, March 2015
Right: Gia Arabidze, Dean of Energy and Telecommunications Faculty at GTU,
presents a student award, March 2015

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ACRONYMS

AD	Analytic Department
AOR	Agreement Officer's Representative
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BAU	Business as Usual
BP	British Petroleum
BREEAM	Building Research Establishment Environmental Assessment Method
CBSM	Community Based Social Marketing
CC	Climate Change
COM	Covenant of Mayors
COP	Chief of Party
DCA	Development Credit Authority
DCOP	Deputy Chief of Party
DWG	Decision Ware Group
EBRD	European Bank for Reconstruction and Development
EC-LEDS	Enhancing Capacity for Low Emission Development Strategies
E5P	Eastern European Energy Efficiency and Environment Partnership
EE	Energy Efficiency
EPBD	Energy Performance of Buildings Directive
EU	European Union
EWG	Expert Working Group
FFC	Fast Forward Communications
G4G	Governance for Growth
GALA	Georgian Association of Landscape Architects
GB	Green building
GBCG	Green Building Council Georgia
GDP	Gross Domestic Product
GE	Georgia
GEC	Grants Evaluation Committee
GeMunee	Georgian Municipal Energy Efficiency
GHG	Greenhouse gases
GIZ	Intended Nationally Determined Contribution
GOG	Government of Georgia
GTU	Georgian Technical University
ICC	International Code Council
IECC	International Energy Conservation Code
INDC	Intended Nationally Determined Contribution
JRC	Joint Research Center
LED	Low emission development
LEED	Leadership for Energy and Environment Design
LEDS	Low Emission Development Strategy (ies)
MOE	Ministry of Energy
MoENRP	Ministry of Environment and Natural Resources Protection
MoESD	Ministry of Economy and Sustainable Development
MOU	Memorandum of Understanding
MRV	Monitoring, Reporting and Verification
Muni-EIPMP	Municipal Inventory, Projection and Mitigation Planning
NAMA	Nationally Appropriate Mitigation Actions
NGO(s)	Non-Governmental Organization(s)
PEA	Programmatic Environmental Assessment
PR	Public Relations
PSA	Public Service Announcement

PWD	People with Disabilities
RFP	Request for Proposals
SC	Steering Committee
SCM	Steering Committee Meeting
SDAP-Center	Sustainable Development and Policy Center
SEAP	Sustainable Energy Action Plan
SEO	Sustainable Energy Office
SIDA	Swedish International Development Cooperation
SWG	Sub-Working Group
TOT	Train-the-Trainer
USA	United States of America
USAID	United States Agency for International Development
USG	United States Government

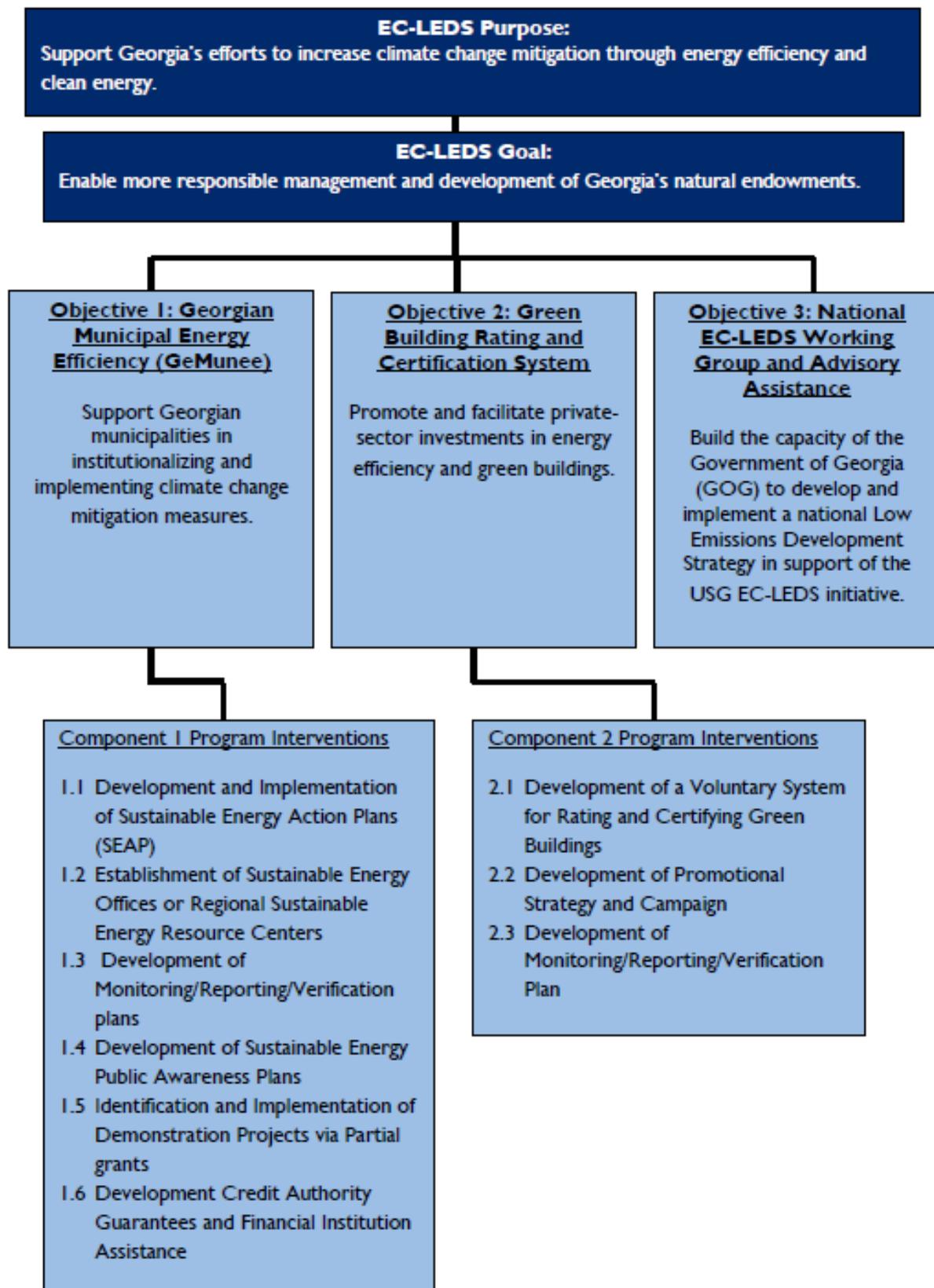
I. EXECUTIVE SUMMARY

Georgia's Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program, funded by the United States Agency for International Development (USAID), is a five-year (October 2013 – September 2018) effort focusing on three activities: 1) Georgian Municipal Energy Efficiency (GeMunee); 2) Green Building Rating and Certification System; and 3) National EC-LEDS Working Group and Advisory Assistance. Winrock International has been awarded a cooperative agreement to implement Georgia's EC-LEDS Clean Energy Program to support climate change mitigation by building municipal capacity in climate change mitigation measures and raising public awareness; increasing private sector investment in energy efficiency (EE) and green buildings (GB); and strengthening Government of Georgia (GOG) capacity to develop and implement a national Low Emission Development Strategy (LEDS). This report describes Year 2, Quarter 1 activities of the EC-LEDS Clean Energy Program covering the period October 1, 2014 through December 31, 2014.

The objectives of the EC-LEDS program are to (1) support Georgian municipalities in institutionalizing and implementing climate change mitigation measures, (2) promote and facilitate private sector investment in energy efficiency and green buildings, and (3) build the capacity of the GOG to develop and implement a national Low Emission Development Strategy in support of the United States Government (USG) EC-LEDS initiative. During the five years, the EC-LEDS Clean Energy Program is expected to reduce greenhouse gas (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 (the equivalent of approximately \$22 million).

Figure I, EC-LEDS Activities Map, illustrates the project purpose, goal, the objectives, and the program initiatives associated with each objective.

Figure I. EC-LEDS Activities Map



II. KEY ACHIEVEMENTS (QUANTITATIVE IMPACT)

A. PROGRESS TO DATE

A summary of progress to date by selected indicators is provided below. If total cumulative actual to date is zero, the indicator is not included in the table below.

Table I. Summary of Total Cumulative Actuals vs. LOP Target by Output Indicator

Output Indicator (OP#)	Indicator	Total Cumulative Actual (Y1+Y2)	LOP Target
1	Number of low emission development plans developed and/or implemented as a result of USG assistance (LEDS, SEAP, other)	4	10
3	Number of institutions with improved capacity to address climate change as a result of USG assistance	14	14
4	Number of stakeholders using climate information in their decision-making as a result of USG assistance.	20	14
5	Number of laws, policies, strategies, plans, agreements or regulations addressing climate change mitigation officially adopted or implemented/proposed with USG assistance	1	3
6	Number of climate change mitigation tools, technologies or methodologies developed, tested and/or adopted as a result of USG assistance	3	5
10	Number of individuals reached through outreach campaigns	1,673,708	1,000,000
11	Number of USG-supported training or activities that contribute to building the EE knowledge and skills in the GOG, Municipalities, industry and other stakeholders	16	50
12	Number of individuals receiving USG-supported training in technical energy fields	166	100
14	Number of promotional plans and campaigns implemented to increase awareness of citizens about energy efficiency	2	2
16	Number of individuals receiving USG supported training in energy related policy and regulatory practices	406	90
17	Number of MRV plans developed to track the impact of SEAP implementation	5	10
18	Number of individuals at national and local level trained in climate change as a result of USG assistance	121	70
19	Number of developers, investors/building owners/buyers aware of the green building rating and certification system	19	30
22	Number of decisions made by LEDS steering committee or involved agencies using analysis based on MARKAL or other appropriate tools	2	2
23	Number of individuals trained on green building rating systems	40	10

B. SUMMARY OF IMPACT BY COMPONENT

I. COMPONENT I: GEORGIAN MUNICIPAL ENERGY EFFICIENCY (GEMUNEE)

I.1 DEVELOP AND IMPLEMENT SUSTAINABLE ENERGY ACTION PLANS (SEAPS)

By March 2015, ten Georgian Cities and one municipality have become signatories to the Covenant of Mayors (COM) and are thus given priority for receiving technical assistance. The cities are Batumi, Gori, Kutaisi, Poti, Rustavi, Tbilisi, Zugdidi, Telavi, Akhaltsikhe, Bolnisi (joined in March 2015), and Telavi Municipality (joined in January 2015). Due to delays in the development and submission of a SEAP document, Poti City Hall is temporarily removed from the list of COM signatories.

In 2014, three cities received technical support from EC-LEDS Clean Energy Program; Batumi, Kutaisi, and Zugdidi. In 2014 (beginning of Year 2), EC-LEDS initiated assistance to Poti City Hall upon their request. However, due to decreased collaboration from the City Hall, assistance to Poti is temporarily halted. Instead, the project is providing technical assistance to the City of Akhaltsikhe. The project is ready to continue collaboration with Poti City Hall once it renews the COM signature and officially reconfirms interest in developing the SEAP document and receiving technical assistance from the project. Although a considerable amount of time was spent in providing technical assistance to Poti and gathering data on a local level, the project still managed to start work with three other municipalities in parallel, Gori, Telavi and Tbilisi, and made significant progress by the end of the second quarter.

More precisely, the project provided technical assistance to Gori City Hall by elaborating its SEAP document, developing a MRV plan, and producing one project proposal. Both of those documents are finalized from the project side. The project submitted these documents to Gori City Hall for final revisions and approval by the Gori City Council. Once City Council approves the document, it will be submitted to the COM secretariat for approval.

The project is already in an important data collection phase in Telavi and is assisting the municipality in identifying GHG emissions sources from local transport, buildings, waste, public lighting and greening sectors.

The project team also started working intensively with the Tbilisi City Hall to assist them in elaborating the Tbilisi SEAP Monitoring Report and drafting a new SEAP document. The project team decided to start the process as early as possible because this activity will mark the first time it assists the municipality in monitoring an already existing SEAP. Therefore, it might take longer than usual for experts and municipality representatives to become acquainted with the methodology and to collect all necessary data for the monitoring report. So far, a significant quantity of data on buildings, waste, public lighting, greening and transport has been collected. Consultations on methodology, data validation and accuracy take place on a regular basis.

In the second quarter of Year 2, EC-LEDS continued developing a simple, bilingual inventory and projection tool for municipalities, the Muni-EIPMP tool, which draws information from the national MARKAL-Georgia model. Two new sectors, waste and greening, were added to the tool and presented at the second Muni-EIPMP workshop attended by representatives from 12 different municipalities.

1.2 ESTABLISH SUSTAINABLE ENERGY OFFICES OR REGIONAL SUSTAINABLE ENERGY RESOURCE CENTERS

During quarter 1, EC-LEDS developed recommendations on a proposed legal structure of Sustainable Energy Offices for municipalities. However, in quarter 2, EC-LEDS had to revise the report and update it with recommendations on recently enacted normative acts that affect the number of employees that local governments are allowed to hire. EC-LEDS continues to work with municipalities on establishing their SEOs.

1.3 DEVELOP MONITORING/REPORTING/VERIFICATION PLANS

In the second quarter, the MRV plan was developed for Gori SEAP. Technical elaboration works of the Tbilisi SEAP monitoring report are in progress. More precisely, significant quantity of data on buildings, waste, public lighting, greening, and transport has been collected. The consultations on methodology and data validation and accuracy are taking place on a regular basis.

1.4 DEVELOP SUSTAINABLE ENERGY PUBLIC AWARENESS PLANS

The EC-LEDS team met with municipalities in west Georgia to plan local public awareness activities and events for Year 2. The project gathered information through focus groups in Zugdidi and Kutaisi, followed by statistically based surveys to design community based social marketing (CBSM) campaigns. The purpose of the CBSM campaign is to influence specific energy efficiency and climate change mitigation behaviors in targeted groups through community-based research, with the aim to change behavior and achieve energy savings and/or emissions reductions. The targeted communities and behaviors of CBSM campaign are:

- 1) SEAP-supported Zugdidi – Promotion of energy efficient bulbs, and
- 2) SEAP-supported Kutaisi – Greening activities.

1.5 IDENTIFY AND IMPLEMENT DEMONSTRATION PROJECTS THROUGH PARTIAL GRANTS

At the end of quarter 1, EC-LEDS issued RFPs for six municipalities: Tbilisi, Rustavi, Gori, Kutaisi, Batumi, and Zugdidi. There were a total of ten applications received for five cities. However, there was no application received from Rustavi. The Grants Evaluation Committee (GEC) evaluated the proposals and developed a shortlist. GEC will issue final recommendations for awards in April.

1.6 DEVELOPMENT CREDIT AUTHORITY GUARANTEES AND FINANCIAL INSTITUTION ASSISTANCE

During this quarter, the EC-LEDS team assisted USAID DCA representatives in arranging several meetings with key stakeholders. EC-LEDs team also participated in an EBRD-hosted ESP seminar and disseminated information learned at the seminar to partner municipalities.

2. COMPONENT 2: GREEN BUILDING RATING AND CERTIFICATION SYSTEM

2.1 DEVELOP AND IMPLEMENT A VOLUNTARY SYSTEM FOR RATING AND CERTIFYING ENERGY EFFICIENT AND GREEN BUILDINGS

The program compared two software tools, GBC Georgia's Display® and "Energy Passport" , to provide recommendations and design an energy performance labeling tool. More exactly, two

labeling approaches have been compared: (1) *operational rating* generated by the Display[®] tool and (2) *calculated rating* developed by the Energy Passport tool.

To assist the GOG in selecting an approach to develop and carry out innovative energy performance building codes, the project prepared a report, “Comparison of EPBD and IECC”, that compares energy performance requirements in the EPBD and in the International Energy Conservation Code 2015 (IECC).

2.2 DEVELOP AND IMPLEMENT A PROMOTIONAL STRATEGY AND CAMPAIGN

During Year 1, EC-LEDS produced a Green Building Marketing Strategy for promoting GB certification. During Quarter 2 of Year 2, the project elaborated a Green Building Certification Marketing Action Plan for implementing the strategy and announced a competition to identify and certify existing green buildings. The Marketing Action Plan currently targets foreign and Georgian companies for certification using LEED and BREEAM.

During this reporting period, EC-LEDS announced a Green Building of the Year Award to further promote GB certification.

In January 2015 a TV youth program focused on Green Architecture began airing in collaboration with one of EC-LEDS local partners, and will continue for six weeks.

2.3 DEVELOP MONITORING/REPORTING/VERIFICATION (MRV) PLANS

The GB Assessment report in Year 1 proposed a framework approach to developing MRV plans for certified buildings. The framework will be fleshed out during Year 2 and incorporated into the Georgia-specific rating system to form the basis for developing MRV plans for certified buildings, including the winners of the Green Building of the Year Award and the Green Building Design Contest.

3. COMPONENT 3: NATIONAL EC-LEDS WORKING GROUP AND ADVISORY ASSISTANCE

In Quarter 2, EC-LEDS intensified capacity building activities by providing a series of trainings and consultancy services to the sectoral sub-working groups, the Climate Change Office of the MoENRP, and the GOG. The project organized a senior-level meeting and updated the high level managers on the LEDS development process. Additionally, during Quarter 2, the project improved coordination and cooperation with the CC office of MoENRP .

4. ENVIRONMENTAL PROTECTION ACTIVITIES

Activities continue that lead to finalizing a programmatic environmental assessment (PEA) document. Additionally, during the review of project grant applications, consideration and planning will be given to related site-specific environmental compliance activities.

5. CROSS-CUTTING ACTIVITIES

EC-LEDS continued cooperation with USAID’s “Momavlis Taoba” (Future Generation) Program implemented by PH International. In December 2014, 75 students from Kutaisi, Zudgidi, and Batumi

took part in a Youth Energy Efficiency Event organized in collaboration with “Momavlis Toaba”. The main objective was to involve youth in energy efficiency and climate change mitigation. The students were selected from Civics Clubs for students from the 9th to 12th grades. During the event, students watched a presentation on “How to Save Energy” the participated in a contest, “Energy Efficiency is a Smart Choice” to demonstrate their EE skills acquired at the seminar. The seminar was conducted by Professor Gia Arabidze, Dean of the Energy and Telecommunications Faculty at Georgian Technical University.



Picture 1. EC-LEDS, Acting COP, Inga Pkhaladze, interviewed by Youth environmental TV Program Ecovision, March 2015

In Zugdidi, the Youth Energy Efficiency event took place in the premises of the Atinati Association, the first NGO established in Zugdidi since 1995. Atinati’s mission is to promote an educated, tolerant, and free society. Projects include non-formal education for young people and children (including establishing youth clubs), as well as for teachers, and parents; strengthening women’s leadership and entrepreneurial skills; and promoting the development of civil society and cooperation between Government, NGOs and businesses in West Georgia. The organization also promotes the concept of volunteerism and youth exchange programs between Georgia and Europe.

After the event, students committed to conduct simple home energy audits and to spread the word about energy-saving measures in their families and schools. In mid-January 2015, students from Kulishkari, Grigolishi, and Jikhashkari schools in the Zugdidi Municipality students who had participated in the December training conducted follow-up seminars on “How to Save Energy” at their schools. They introduced, a total of 60 participants, students and teachers, to the importance of energy efficiency, how to conduct an energy audit, energy-efficient technologies, and simple tips to save energy at home. The group participated actively during the presentation, asking questions and holding lively discussions. Everyone noted the value of organizing other similar events, as they contribute to the awareness of the importance of energy efficiency.

In mid-March, 2015, EC-LEDS held a similar event for 140 students from Tbilisi schools. The seminar “How to Save Energy” was also conducted by Professor Gia Arabidze from GTU. All students were awarded participation certificates. The event was highlighted by the youth environmental program *Ecovision*, aired on the TV Channel Imedi every Saturday at 11:00AM.



Picture 2. Students of Tbilisi schools at the Tbilisi Youth EE Event, March, 2015



Picture 3. EC-LEDS Acting COP, Inga Pkhaladze, and the Dean of Energy and Telecommunications Faculty, Gia Arabidze, awarding certificates to the students, March 2015

III. KEY ACHIEVEMENTS (QUALITATIVE IMPACT)

A. COMPONENT I: GEORGIAN MUNICIPAL ENERGY EFFICIENCY (GEMUNEE)

I.1 SUSTAINABLE ENERGY ACTION PLANS (SEAPS)

Develop Muni-EIPMP Analytical Tool

During Quarter 2 of Year 2, EC-LEDS continued to correct issues and enhance the tool. The software now enables municipalities to incorporate emissions inventories for several years, which will help them monitor their emissions. Work continues, to enable selections from various BAU projections—including a BAU from MARKAL-Georgia, a BAU from the EU’s Joint Research Center (JRC), or other national BAU projections. This will allow municipalities to use whichever national projection is most applicable to a given municipality’s situation. If an approved BAU from the MARKAL model is available, it will provide more detailed sub-sectoral projections. If such a BAU is not approved or available, other national projections may be used. If no national projections are available, the municipality can use the EU’s JRC pre-defined methodology.

The waste and greening sectors were incorporated into the tool and tested during the second muni-EIPMP workshop.

Develop and conduct workshops and on-the-job training on SEAP development and monitoring

A hands-on training workshop was held on February 27 at the Georgia Technical University. The subject of the workshop was “The Inventory of GHGs, Development of Business as Usual (BAU) scenarios, and mitigation measures in waste and greening sectors”. Representatives from 12 self-governing cities and municipalities involved in the COM process participated. Best practices in statistical data collection, development, and application were exchanged by participants. After presentation



Picture 4. SEAP Workshop conducted by Remissia at GTU, February 2015

Assist in developing, revising, and updating SEAPS for municipalities with priority needs

- **Gori:** Gori SEAP, MRV plan, and one full project proposal were finalized and submitted to Gori City Hall for final revisions and for adoption by the Gori City Council. Before finalizing the documents, the project organized a broad consultation meeting in Gori City Hall to present the findings and receive feedback/comments from the senior management of the City Hall, to incorporate into the document.
- **Telavi:** The project held one working meeting with the senior management of Telavi City Hall in order to explain the details of technical support of the project and type of collaboration the project would need from the City Hall. The project team has already hired four local experts for transport, buildings, lighting, greening, and waste sectors who-- with support from the municipality--have started collecting data on a local level. Two Remissia experts on buildings visited Telavi and conducted an audit on typical buildings. So far, the project has received draft reports from the transport, building, waste, and public lighting sectors. Remissia experts review and communicate with local experts almost on a daily basis to guide them and give technical assistance. The project team expects to finalize the SEAP, MRV, and one project proposal for Telavi by the end of May, 2015.
- **Tbilisi:** Technical assistance to Tbilisi City Hall has already been launched. The new SEAP document for Tbilisi will very much depend on the results of the former Tbilisi SEAP document. A significant portion of the report will be used for the new SEAP. Although the focus until now has been on monitoring the report, the work already carried out is contributing to creating the new SEAP document.

I.2 ESTABLISH SUSTAINABLE ENERGY OFFICES OR REGIONAL SUSTAINABLE ENERGY RESOURCE CENTERS

EC-LEDS revised the initial report on a legal structure for SEOs. Once the report is translated into Georgian the project team will share it with municipalities. EC-LEDS staff have verbally presented key findings of the report to municipalities and the latter have all replied that they agree to the recommended legal structure. However, the impacts of the new acts will need to be discussed separately with each of them. After the municipalities agree in principal to the legal structure of SEOs, EC-LEDS will assist them to establish SEOs. A tentative course of action looks like this:

1. Develop standard amendment to the municipality's charter;
2. Develop SEO's charter and personnel chart;
3. Submit the above documents to City Councils for approval;
4. Form a SEO upon approval of the above by City Councils;
5. Provide external assistance (capacity building, know-how etc.) in compliance with the legislation;
6. At a later date, elaborate corporate documentation to form independent legal entities to spin-off SEOs from municipalities to become sustainable legal entities that continue COM and general climate change mitigation-related activities.

I.3 DEVELOP MONITORING/REPORTING/VERIFICATION (MRV) PLANS

EC-LEDS elaborated the MRV plan for the Gori SEAP and submitted it to Gori City Hall along with the Gori SEAP document. Technical work to elaborate the Tbilisi SEAP monitoring report is underway. A significant quantity of data on buildings, waste, public lighting, greening and transport has been collected. Consultations on methodology and data validation and accuracy take place regularly. Although the process started early enough, the project still identifies a medium-level risk related to possible delays with data from the City Hall as well as other institutions (i.e. the Public Registry as well as the Ministry of Education and Science concerning Tbilisi schools). Since this is the first time the project team will assist the municipality to elaborate the MRV report, it might take longer than usual, in order to agree on the methodology and structure of the report.

I.5 IDENTIFY AND IMPLEMENT DEMONSTRATION PROJECTS THROUGH PARTIAL GRANTS

At the end of Quarter I, EC-LEDS issued RFPs for six municipalities; Tbilisi, Rustavi, Gori, Kutaisi, Batumi and Zugdidi. Ten applications were received for five cities, while there was no application for Rustavi.

In order to evaluate the proposals received, EC-LEDS formed a Grants Evaluation Committee (GEC) composed of the following individuals:

- Ms. Inga Pkhaladze – Deputy Chief of Party, EC-LEDS, Winrock Georgia
- Mr. Giorgi Giorgobiani – Financial Advisor, EC-LEDS, Winrock Georgia
- Ms. Margalita Arabidze – Head of Energy Efficiency Department, Ministry of Energy of Georgia
- Ms. Marina Shvangiradze – Director, Remissia (EC-LEDS implementing partner)
- Mr. Zviad Archuadze – Municipal Infrastructure Expert (Independent Consultant)
- Ms. Tamar Barabadze – Mission Environmental Officer, USAID (non-voting member)
- Ms. Tamar Aladashvili – Deputy Head of Environmental Policy and International Relations Department (Ministry of Environment of Georgia)

The project proposals, along with the evaluation criteria and the evaluation sheet were provided to the Commission members at the first Grants Evaluation Committee (GEC) meeting convened on February 13 by the EC-LEDs team. GEC reconvened on February 27 to discuss the applications, provide questions and comments regarding each application and come up with a preliminary shortlist based on evaluation scores and the discussion. Due to the delay in providing a written evaluation by the Ministry of Environment, the EC-LEDS team was not able to finalize and agree on the shortlist with GEC members until March 17.

GEC held interviews with shortlisted candidates on March 27, and asked the candidates to discuss their project proposals and provide additional information from each candidate by April 3. When this information is received, the GEC will reconvene to make final recommendations for awards.

EC-LEDS will work separately with those cities for which the applications were either not received or shortlisted, to directly identify potential grant projects. Besides the fact that there were no applications received for Rustavi, the application for Gori did not get shortlisted.

I.4 DEVELOP SUSTAINABLE ENERGY PUBLIC AWARENESS PLANS

The EC-LEDS communications plan completed in Year 1 includes a two-pronged strategic approach to communications:

- 1) Local information campaigns and events linked to SEAP communications strategies to raise general energy efficiency and conservation awareness; and
- 2) Local outreach efforts including events linked to SEAP communication strategies and a community-based social marketing (CBSM) pilot project to change targeted behavior in selected communities.

These local activities will be complemented by national outreach activities described in the cross-cutting section of this report. In the reporting period, the EC-LEDS assisted Gori Municipality to draft a communications strategy for Gori's SEAP. In Year 2, EC-LEDS will draft outreach strategies for all municipalities that have been assisted for drafting or updating SEAPs. This includes drafting communications strategies for Akhaltsikhe's and Telavi's SEAPs, and updating Tbilisi's SEAP, since the outreach strategy for their initial SEAP was to be supported by GIZ. However, this assistance was never provided. In December 2014, during meetings with COM signatories, EC-LEDS discussed potential local outreach activities for Year 2.

In Quarter 1, focus groups were held in Zugdidi and Kutaisi to identify barriers and benefits/motivators for changing identified behaviors of the target groups, e.g. increasing students' involvement in greening activities in Kutaisi and installing energy efficient lighting in Zugdidi. Based on focus group findings, a survey instrument was finalized and used in interviews that were conducted in both cities in mid-December to validate the barriers and benefits/motivators. The results of the focus groups informed the second survey for the CBSM. Survey questions were based on focus group findings, and designed to determine the specific barriers and benefits associated with the behaviors chosen for the CBSM campaign, and to verify the findings in focus groups and determine the size of the CBSM target segments. The report on CBSM campaign design was finalized at the end of Quarter 2.

I.5 DEVELOPMENT CREDIT AUTHORITY GUARANTEES AND FINANCIAL INSTITUTION ASSISTANCE

EC-LEDS assisted USAID's DCA team in setting up meetings with key stakeholders in municipalities and the building sector.

The EC-LEDS Financial Advisor accompanied USAID DCA and Swedish International Development Cooperation (SIDA) representatives to meetings at Tbilisi and Rustavi City Halls. DCA representatives interviewed municipalities to gauge their interest in accessing financing from local banks for energy efficiency projects.

The EC-LEDS Financial Advisor gave a presentation, "Municipal Investment Opportunities" on March 13 at the EBRD-hosted E5P seminar in Tbilisi. All major European development banks were present at the seminar. Since the municipalities were not invited to this seminar, the EC-LEDS Financial Advisor gave subsequent presentations to representatives of the following municipalities: Rustavi, Gori, Batumi, Telavi, Kutaisi, and Tbilisi. The EC-LEDS team will work with these and other partner

municipalities to identify potential projects for E5P funding and will assist them to submit their project ideas to E5P implementing partners.

Following a meeting with Tbilisi municipality EC-LEDS is assisting them to obtain a loan through E5P mechanism to replace their bus fleet with new, fuel-efficient buses. EC-LEDS will hold a meeting with an EBRD representative on April 17 to discuss this project and other potential areas for collaboration in Tbilisi, as well as in other cities.

B. COMPONENT 2: GREEN BUILDING RATING AND CERTIFICATION SYSTEM

The EC-LEDS program is tasked with recommending, developing, and implementing a voluntary GB rating system in Georgia and conducting outreach activities to promote certification of buildings and public demand for certified buildings. A decision was made to promote the certification of buildings based on the criteria of the LEED and BREEAM rating systems and an energy performance labeling program. The reason for focusing on existing systems was to permit certification to begin immediately and so that Georgian experts could gain experience certifying buildings while developing a Georgia-specific system.

2.1 DEVELOP AND IMPLEMENT A VOLUNTARY SYSTEM FOR RATING AND CERTIFYING ENERGY EFFICIENT AND GREEN BUILDINGS

Training is the first step in increasing professional skills and expanding the pool of experts who can then certify green buildings in Georgia for existing rating systems and energy efficient buildings using energy performance labeling software. The EC-LEDS team held a training of trainers (TOT) event at the end of Year 1 and the beginning of Year 2 focused on green building rating systems, the Leadership for Energy and Environmental Design (LEED) and Building Research Establishment Environmental Assessment Method (BREEAM).

The TOT was conducted from September 30 through October 1, 2014 to provide an introduction to the LEED and BREEAM rating systems and to prepare 10 individuals (supplemented by additional individual study) to take the LEED Associate exam, the first step towards becoming a LEED Accredited Professional. To become a BREEAM licensed certifier, an additional course with an official trainer is required. These trainees can contribute to the GBC Georgia's certification committee and subcommittees (for certifying buildings to LEED and BREEAM, rating systems) and provide training. They received certificates of attendance and training materials.

To design an energy performance labeling program and provide recommendations to GBC Georgia, the Display® and "Energy Passport" software tools were compared. More exactly, their two labeling approaches were compared; the *operational rating* used by the Display® tool and the *calculated rating* used by the Energy Passport.

The European Display® calculation tool is a voluntary scheme set up by municipalities of the Energy Cities Association and designed by energy experts in 2001. It supported the implementation of the new Directive on Energy Performance of Buildings among municipalities at that time and displays an energy performance certificate.

A key rationale for developing the energy display label was to motivate decision makers to take a common approach to energy performance for public buildings. For a reference year, data on energy and water consumption as well as operational hours, service systems and area of a building are entered into the Display® program, which then gives an operational rating for energy performance, environmental performance and water consumption of an existing building. This tool was very successful in EU countries and was used widely by energy managers for labeling of existing public buildings. It is user friendly software that doesn't require professional knowledge.

The "Energy Passport" software tool that permits certification of new buildings was developed by the Sustainable Development and Policy (SDAP) Center and was created for professional use. This software allows the assessment of an integrated building's energy performance at the design/planning stage and takes into account factors that are in principle impossible to incorporate for existing buildings. This includes building geometry and the evaluation of a compactness coefficient, location and optimal directional orientation that influence the solar radiation and wind force, as well as air permeability. This system also considers the integration of passive design elements for the building as well as other factors that can contribute to reductions in energy consumption without special investments.

The SDAP Center recommended that EC-LEDS and GBC Georgia use the Display® certification tool to certify existing buildings, since many of the innovative factors proposed by the Building Energy Passport software tool may be neutralized for existing buildings and may not particularly affect the labeling result. A decision was made to use the Display, and to acquire a license for this software.

The first task in developing an energy performance methodology began in Quarter 1, with the comparison of the energy performance methodologies in the EU Energy Performance Building Directive (EPBD) and the International Code Council's (ICC) International Energy Efficiency Code (IECC). Although Georgia has not yet adopted national energy performance building codes, the Ministry of Economy and Sustainable Development has decided to adopt voluntary energy performance / energy conservation codes (a USA model) that are part of the International Codes Council (ICC).

The EU Commission decided to target the building sector of the Member States, which resulted in groundbreaking legislation, the Directive on Energy Performance of Buildings, EPBD 2002/ 91/EC. The EPBD law promotes building energy performance codes to enhance energy efficiency, and encompasses provisions for enforcement mechanisms to influence policy in the building sector to apply energy efficiency measures and renewable energy technologies in buildings.

The report gives an historical overview of the implementation of EPBD in the member states and presents pros and cons of the implementation process; it illustrates how this was organized by the EU Commission with the Concerted Actions Forum support, recasting the Directive into the EPBD 2010/31/EU. It includes a detailed description of energy performance requirements posed by EPBD 2010/31/EU (recast) and highlights ways it can be implemented by member states.

In 2014 the Ministry of Economy and Sustainable Development, with the assistance of GIZ, developed the General Spatial Planning and Construction Code, an umbrella document that includes provisions on energy performance and the application of renewable energy sources in buildings. Provision 104 states that new energy performance codes must be developed in compliance with the requirements stated by the EU Directive on Energy Performance of Buildings (EPBD) 2010/31/EU (recast). This Code will likely be presented to the Parliament of Georgia for approval in 2015.

To assist the GOG select an approach to develop and carry out innovative energy performance building codes, this study compares energy performance requirements in the EPBD and in the

International Energy Conservation Code 2015 (IECC). The EU commission will follow up with checking procedures associated with the next steps for national transposition of the Directive provisions and the review will be finalized in 2017.

To compare energy performance requirements in both EPBD and IECC, an evaluation of the 2015 version of IECC was performed. The IECC is a purely technical document that includes energy performance requirements for building envelopes and energy consuming systems for commercial and residential buildings.

The federal government in the USA is not empowered to impose mandatory building codes; however states are enacting them at the state government level. The International Energy Conservation Code, IECC 2015, was developed by the International Code Council, a nonprofit organization, and is purely a technical document.

The two documents are based on different models of governing approaches: the EPBD demonstrates a top-down approach from the EU Commission to Member States, and the IECC takes a bottom-up approach based on the US practice of federal and state level collaboration.

Evaluations conducted by the SDAP Center show that states in the USA use different versions of the IECC codes, and they don't enact the new/updated version of the IECC codes as soon as it is released. Only the state of Maryland, known for its pioneering approach, has adopted the 2015 IECC, beginning on January 1. Evaluation results show that the most commonly used version adopted and used by US states is the 2009 IECC. However several examples show that states take different approaches of IECC codes for residential and commercial buildings. For instance the 2012 IECC -Commercial provisions section is used in 10 states and the 2012 IECC -Residential provisions are used in eight states. Several states have developed their own state specific standards based on the ASHRAE standard 90.1-2007 or 90.1-2010. Indeed several states continue to use earlier versions of the IECC codes, for example from 2003 and 2006.

National codes of the EU Member States have been compared from the standpoint of minimum energy performance requirements for building envelopes. Conclusions show that energy performance requirements for building envelope components differ between countries; however the EU countries have selected a more enhanced level of energy efficiency than the USA. Enforcement mechanisms for the building sector applied in the USA are not included in IECC codes, however in states of USA enforcement is applied separately from codes, within the framework of building sector policy.

The main conclusion based on these assessments is that Georgia has signed an association agreement with the EU which states that according to the EU/GE/Annex XXV of the agreement, Georgia has to implement Directive 2010/31/EU/. The Directive's provisions on energy efficiency have to be implemented in accordance with the timeline agreed by Georgia within the framework of the Energy Community Treaty. It would be advisable to disseminate the results of this work among Ministries, especially the Ministry of Economy and Sustainable Development, which is responsible for regulations in the construction sector, to follow up with their expectations on future developments with respect to the Association Agreement.

A workshop was held on February 24th at the "Radisson Blue Iveria" hotel in Tbilisi to compare energy performance requirements for buildings in the EPBD Directive and the International Energy Conservation Code 2015 IECC. The aim was to present findings of a study to compare these requirements for building energy performance and to follow up with discussions on Georgia's plans for adopting requirements.

Four presentations were prepared by the SDAP Center on energy performance requirements and analyses resulting from the comparison of EPBD and IECC 2015.



Picture 5. Workshop on the comparison of the EPBD and IECC building energy performance requirements conducted by Sustainable Development and Policy Center (SDAP), February, 2015

2.2 DEVELOP AND IMPLEMENT PROMOTIONAL STRATEGY AND CAMPAIGN

During Year 1, EC-LEDS produced a Green Building Marketing Strategy for promoting GB certification. During Quarter 2 of Year 2, EC-LEDS elaborated a Green Building Certification Marketing Action Plan to implement the strategy and a competition to find out and certify existing green buildings.

The Marketing Action Plan currently targets foreign and Georgian companies for certification using LEED and BREEAM. The plan will be further informed by the market assessment currently being conducted through in-depth interviews. During December 2014, EC-LEDS conducted in-depth interviews with developers, builders, architects, realtors, and banks to understand the construction and building rehabilitation market in Georgia and how green building certification and energy performance labeling could enhance value.

The double aim of the report on the GB Marketing Action Plan is to define how to implement a marketing strategy for the USAID- funded EC-LEDS project carried out by the program for certification of green buildings, and to transform and build sustainable environmental markets. The document was produced by the Green Building Council of Georgia on the basis of good practices of green building council organizations who are greening the building industry, and with guidance from the World GBC. The market transformation is being carried out according to the demand from diverse and targeted audiences. The primary aim of the action plan is to understand the attitudes of targeted groups towards green building, then to identify interested stakeholders to serve as ambassadors of the cause for further activities.

Transforming the market stems from demand created by public awareness of the benefits of green building. To certify existing buildings there are multiple options and directions, such as integrating new developments and using international or local rating tools.

EC-LEDS and GBC-Georgia announced a competition for 2015 Green Building Awards. Eligible applicants include companies and professionals that show clear implementation of sustainable design, construction and/or operation of buildings and structures. The ultimate goal is to help establish a good environmental practice model for the built environment sector. The Award will identify, recognize and highlight organizations for innovative and outstanding sustainable building principles and practices. They are designed to facilitate greater understanding of the contributions from the construction sector to sustainable development, and lead to an exchange of ideas and good practices in sustainability in Georgia and in the region. The winning designs for two buildings will be certified by EC-LEDS using the Building Research Establishment Environmental Assessment Methodology (BREEAM) rating system.

As part of the EC-LEDS Green Building public awareness campaign, EC-LEDS supported a youth TV program focused on Green Architecture. For two months, from January 22nd to February 26th, the TV Channel Ertulovneba aired the programs each Thursday at 9:30PM. The 30-minute programs, focused on green building and its impact on the environment; energy efficiency; green materials; climate change; and green building certification systems. The creator of the program, Professor Tina Khimshiashvili, is President of Georgian Association of Landscape Architects (GALA). She hosted guests from academia, the Tbilisi municipality, independent experts and organizations involved in building and architecture. Students from the Georgian Technical University, Tbilisi State Academy of Arts, and Ilia State University questioned guest speakers and expressed their own opinions. The program was produced in cooperation with Green Building Council Georgia and will be re-aired in April 2015.

2.3 DEVELOP MONITORING/REPORTING/VERIFICATION (MRV) PLANS

The GB Assessment report in Year 1 proposed a framework approach to developing MRV plans for certified buildings. The framework will be fleshed out during Year 2 and incorporated into the Georgia-specific rating system and form the basis for developing MRV plans for certified buildings, including the winners of the Green Building of the Year Award and the Green Building Design Contest.

C. COMPONENT 3: NATIONAL EC-LEDS WORKING GROUP AND ADVISORY ASSISTANCE

3.1 SECTORAL WORKING GROUPS (SWG) AND ADVISORY ASSISTANCE

EC-LEDS intensified capacity building activities in Quarter 2 and worked regularly with the sectoral sub-working groups by providing assistance and help in estimating emissions and analyzing mitigation measures in relevant sectors. In addition, EC-LEDS responded to the request of the SWGs and arranged a special meeting of the heads of SWGs for discussions of the report “*Approach to Georgia LEDS Policy Analyses*” prepared by Winrock. The heads of the SWGs attended the meeting, including Margalita Arabidze (Energy SWG), Mariam Gelashvili (Ag SWG) and Nino Kvernadze (Industry and Transport SWG) and received detailed information on LEDS development in Georgia.

At the request of the Analytical Department of the Ministry of Energy, Winrock, working with Remissia experts, provided training on MARKAL Georgia for the AD staff. The experts from DWG

and Remissia demonstrated how to analyze the MARKAL results and run different scenarios of BAU related to the variable GDP growth rate.

The LEDS advisor, along with Mikheil Mumladze, Head of the Analytical Department, overviewed and analyzed the BAU calculation and GDP growth rate as key component and integral part of BAU projection. The LEDS advisor and the AD department staff also discussed the new form of Energy Balance of Georgia, modeled on an EU program (INOGATE), and with its methodological support. The new energy model was also used to calculate the GEOSTAT's 2013 Aggregated Energy Balance. Consequently the AD team changed the 2012-2014 period energy balance according to the updated calculations, making them more accurate and comprehensive. This makes it possible to come up with BAU projections, and shows trends based on data from past years.

The LEDS advisor and the AD staff agreed that while working on the Energy balance the AD team would separate generation, transmission, and supply according to sectors, which will help in generating a clearer picture for the period 2012-2014. They were given the task of processing 2015 data and the information coming in on a regular basis and to incorporate these into the system.



Picture 6. Members of Building Sub-Working Group met in EC-LEDS Office, February 2015

3.2 ASSISTANCE TO THE CLIMATE CHANGE OFFICE OF MOENRP

The CC office asked Winrock to coordinate timely information exchange between the SWGs and the CC office and to process the data in order to meet deadlines and finalize the energy and non-energy baseline emissions. The Climate Change Office also asked Winrock to work closely with the experts of DWG and Remissia and help the AD of MoE to run and analyze several scenarios of BAU, including optimistic and pessimistic scenarios, to produce the most accurate and realistic figures.

EC-LEDS arranged meetings with the Energy, Buildings, Industry, and Transport SWGs and received the necessary information needed for CC office to finalize baseline emissions calculations. As a result, by the end of April energy and BAU calculations will be available for final discussions and approval.

3.3 ASSISTANCE TO GOG

The Deputy Minister of Economy, Irma Kavtaradze, asked for a meeting to receive first-hand information on LEDS process development. The meeting, held in the Ministry offices, was a chance to update the Deputy Minister on LEDS developments and inform her about future LEDS activities and timeline, and BAU projections. Ms. Kavtaradze was especially interested in the progress of the Transport and Industry SWGs and expressed her willingness to increase cooperation between the members of the Industry and Transport SWGs and Winrock's experts, and to discuss Mitigation measures provided by Winrock with them.

EC-LEDS also organized a senior level meeting during Quarter 2, in the MoENRP, held on March 30th and attended by three deputy ministers: Temur Murgulia, Deputy Minister of MoENRP; Mariam Valishvili, Deputy Minister of MoE; and Irma Kavtaradze, Deputy Minister of MoESD as well as by officials and representatives of DWG, Remissia and Winrock Georgia. Mr. Murgulia facilitated the meeting and expressed the position of GoG, thanking Winrock for arranging the meeting so that the three deputy Ministers and key stakeholders of LEDS process could discuss LEDS development with experts and receive updated information on BAU, GHG mitigation measures, and consultancy services from both DWG and Winrock experts.

Inga Pkhaladze, Acting COP, gave a general overview of Winrock activities with special focus on the LEDS process and BAU. She informed those present that Winrock is at the final stages of its work to create BAU calculations and emphasized that cooperation with the SWGs was becoming more intense and fruitful. She said Winrock was moving forward and finalizing LEDS documents which would be also very helpful for the GoG to outline INDC. After the discussions ended, the attendees expressed their wish to hold a future meeting with the same format, as Mr. Murgulia said it had been very interesting and fruitful.

D. PROJECT ADMINISTRATION

In 2014 EC-LEDS faced difficulties in regular and comprehensive communication with the Climate Change Office of MoENRP, however since a LEDS advisor was seconded to the CC office the communications and coordination began to improve. The CC office clarified their needs and priorities for assistance expected from Winrock. Together with Winrock representatives, the CC office identified Baseline Emissions calculations and BAU projections as top priority tasks. They also worked with Winrock on INDC because the MoENRP has to work out and submit INDC to the GoG, and the research and findings of Winrock are indispensable for the INDC as well.

E. LESSONS LEARNED

- Cooperation with the CC office and mutual understanding is key to overall progress.
- Regular capacity building is very helpful for the sectoral SWGs and input from international experts is very valuable.
- The top level managers, Deputy Ministers, who are the curators of LEDS and SWGs need more frequent and detailed information on LEDS developments.

F. ENVIRONMENTAL PROTECTION ACTIVITIES

The updated and finalized Programmatic Environmental Assessment (PEA) was submitted to USAID on 28 January 2015. Before its submission to USAID, the Programmatic Environmental Assessment

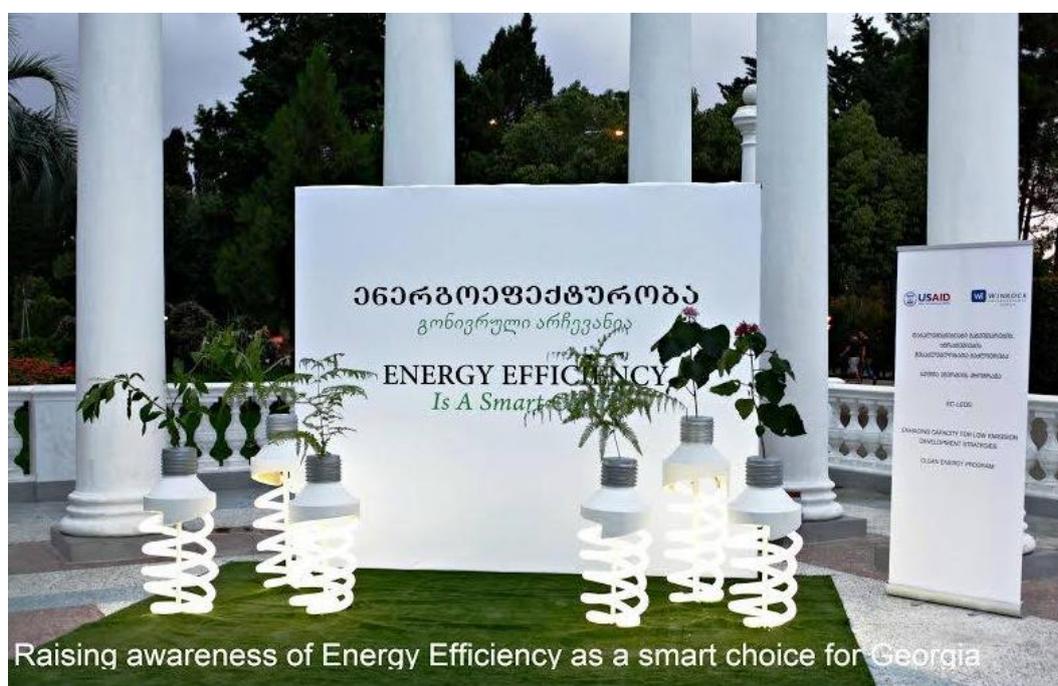
(PEA) draft was adjusted as per recent changes in environmental legislation in the sphere of waste management policy (new “Waste Management Code of Georgia” adopted by parliament of Georgia on 26 December 2014). Respectively, all related components of the PEA have been updated and adjusted. On February 27th, 2015, EC-LEDS received feedback from USAID on the Programmatic Environmental Assessment (PEA) previously submitted. Accordingly, the EC-LEDS PEA team revised the PEA and a revised version is being finalized to be transmitted to USAID’s AOR and MOE.

Additionally, an Environmental Specialist and relevant project management team members continue to review grant applications in order to plan site visits for the respective Environmental Compliance procedures. Relevant action to implement site-specific environmental compliance activities will follow on the approval of the Programmatic Environmental Assessment (PEA) document.

G. CROSS-CUTTING ACTIVITIES

I. NATIONAL PUBLIC COMMUNICATIONS AND OUTREACH

In the reporting period, EC-LEDS won the USAID/Caucasus Photo Contest 2014. The winning photo was taken at Batumi Awareness Campaign in August, 2014. All five winners of the contest were awarded certificates.



Picture 7. USAID Caucasus Photo Contest Winning Photo

EC-LEDS produced two success stories about Youth EE events in West Georgia and a Youth TV Program, Green Architecture. EC-LEDS and its service provider, PR firm Fast Forward Communications (FFC), produced four 30-second public service announcements that will be aired as a social advertisement, free of charge on National TV channels. These short animated films give the audience examples of energy efficient facts along with do’s and don’ts for economizing energy.

PSA Scenarios:

Scenario #1:

- ✓ An energy efficient light bulb consumes 75% less energy than the traditional incandescent one.
- ✓ Using a pan lid while cooking will save 14% of energy.
- ✓ If a human yells for 8 years, 7 months and 6 days non-stop, he/she generates enough energy to heat a cup of coffee.
- ✓ Don't yell to heat coffee – use energy efficiently!
- ✓ Energy Efficiency Is A Smart Choice!

Scenario #2:

- ✓ To switch on a 60 watt light bulb, a wind turbine has to perform 0.0002 rotations.
- ✓ To switch on the same capacity light bulb, 1,160,429 hamsters have to run round a wheel non-stop.
- ✓ Don't make hamsters run to switch on a light!
- ✓ Energy Efficiency is a Smart Choice!

Scenario #3

- ✓ Each time the door of a refrigerator is opened, 30% of its cool air is lost.
- ✓ An electric eel discharges 400 volt energy to defend itself.
- ✓ Do not attack an electric eel.
- ✓ Energy Efficiency Is A Smart Choice.

Scenario #4

- ✓ 75% of energy is consumed by electric appliances in stand-by mode.
- ✓ A washing machine uses 90% of its energy to heat water.
- ✓ Pedaling a bike one can generate 150 watts of energy-- enough to watch TV.
- ✓ You don't need to cycle in the apartment--use energy wisely!
- ✓ Energy efficiency is a smart choice!

During the reporting period, EC-LEDS and FFC launched a Facebook page to reach a wide audience and provide a platform to promote events that EC-LEDS stakeholders (i.e. municipalities) are engaged in. These include Sustainable Energy Week, Energy Days, and special annual events within target municipalities. The Program integrated its energy efficiency brand and slogan “Energy Efficiency is a Smart Choice” into its FB profile and content. EC-LEDS FB content and presence is maintained on a weekly basis and utilizes the platform to share content and broadcast PSAs, distribute press releases, publicize upcoming events and program highlights. The program will also link its FB profile to existing local and international energy efficiency and conservation websites. Specific campaigns will be developed to reach target audiences, with messages geared to their knowledge, attitudes or behaviors according to the findings of our baseline survey.

An EC-LEDS 15-second PSA about energy efficiency was aired on Channel I in February (a total of 35 spots) and March (a total of 23 spots).

The EC-LEDS National outreach campaign is supported by printed materials, and during the reporting period they produced t-shirts, caps, pens, and key chains with the EC-LEDS program logos, energy efficiency brand and slogan “Energy Efficiency is a Smart Choice”.

EC-LEDS produced the Quarterly Newsletter Winter 2014/15 and distributed it during EC-LEDS events and via e-mail.

2. PEOPLE WITH DISABILITIES (PWD), YOUTH AND GENDER

Since December 2014, EC-LEDS cooperates with USAID's Momavlis Taoba (Future Generation) program implemented by PH International. In 2010 PH International created a civics education web portal (www.civics.ge) within the framework of the USAID-funded Applied Civic Education and Teacher Training Program. The Momavlis Taoba Program has supported this web portal since 2014. The purpose of the web portal is to increase public awareness of civic education as a means to influence the knowledge, attitudes and behaviors of youth as active participants in Georgia's democratic society.

Students from the Momavlis Taoba Program Civics Club participated in a youth energy efficiency event, "Energy Efficiency Is a Smart Choice," in Tbilisi on March 20, 2015 organized by the EC-LEDS program in cooperation with PH International. One hundred thirty-three students from Tbilisi schools participated in the event.



Picture 8. Participants at the Youth EE Event at GTU in Tbilisi



Picture 9. Students of Tbilisi Schools at Youth EE Event at GTU

Professor Gia Arabidze, Dean of Energy and Telecommunications at GTU, presented information on how to save energy, the importance of energy efficiency, saving energy, energy audits, energy

efficiency in the residential sector, energy efficient technologies, simple tips to save energy at home, energy efficient appliances, renewable energies, and energy efficient/renewable energy projects implemented with donor support.

3. COOPERATION WITH OTHER USAID PROGRAMS

EC-LEDS established good communication and cooperation with other USAID sponsored programs, including G4G, Waste Management Technologies in Regions, as well as the EU funded programs - ClimaEast, German-funded support for Buildings NAMA, and GIZ's support for Georgia's Intended Nationally Determined Contribution (INDC).

To increase further cooperation with the USAID funded projects, a meeting with G4G was organized by Winrock. The meeting took place on Monday, February 2nd, 2015, in Winrock's office. Winrock was represented by COP and DCOP and the LEDS advisor. Winrock updated USAID and G4G about the latest development of BAU and about the cooperation with the Analytical Department of the Ministry of Energy in the efforts to finalize the BAU. They were informed about the progress of the works on the energy balance and the approach which was recently changed and improved, namely how generation, transmission, and supply were separated according to sectors, which gave a detailed picture for the period 2012-2014 and showed the trend based on these years' data.

In March, Winrock hosted Mr. Konrad Von Ritter, Director of Ritter Advisory Services, expert of v-NAMA, and two representatives from the MoENRP. The meeting addressed the vertical integration of mitigation actions in various sectors and the activity of sectoral working groups. A special focus was put on the mitigation options in the transport sector.

IV. YEAR 2 WORK PLAN: DELIVERABLES SUBMITTED IN YEAR 2 QUARTER 2

Component	Deliverable/Product	Date Submitted
Component 2	Green Building Rating and Certification Training Report	13-Jan-15
Public Outreach	EC-LEDS Report on TV Program	15-Jan-15
Component 1	Workshop Report on SEAP Data	15-Jan-15
Component 1	Workshop Report	26-Jan-15
Environmental Compliance	Draft PEA	28-Jan-15
All	EC LEDES Quarterly Report Year 2, Quarter 1	04-Feb-15
Component 1	Sustainable Energy Action Plan for Zugdidi	27-Feb-15
Component 1	Sustainable Energy Action Plan for Batumi	27-Feb-15
Component 1	Sustainable Energy Action Plan for Kutaisi	27-Feb-15
Public Outreach	Media Coverage Report - January - February 2015	19-Mar-15
Component 1	Workshop Report - Inventory of Greenhouse Gas Emissions, BAU Scenario Development and Identification of Mitigation Measures in Waste and Greening Sectors	26-Mar-15
Component 2	Green Building Marketing Action Plan	26-Mar-15
Component 2	Report on Comparison of EPBD and IECC Requirements for Building Energy Performance	30-Mar-15

The indicators with Year 2 targets include outcome indicators OC2, OC3, OC4, OC7 and output indicators OPI, OP2, OP3, OP4, OP5, OP6, OP7, OP8, OP9, OPI0, Op11, OPI2, Op13, Op14, OPI5, OPI6, OPI8, Op19, OP22, OP23.

During Quarter 2 of Year 2, progress was demonstrated in OPI, OP3, OPI0, OPI1, OPI2, OPI6, OPI7, OP8, OP23 indicators and some of them even exceeded defined targets. Other activities in all components and cross-cutting issues are being carried out as planned and measurable results will be documented as they are achieved. OC7 was added to the Performance Monitoring Plan as requested by USAID and a target will be defined.

During this reporting period, EC-LEDS DCOP, M&E Specialist, and Project Manager from Winrock Head Quarters attended Performance Monitoring Workshop organized by USAID/Caucasus, where new approaches from USAID regarding M&E processes and semantics were discussed. In addition, USAID Open Data Policy was explored further, including its requirements. Based on information acquired at the workshop and after intensive study of respective policies and ADS- 579.2.I, Winrock Georgia drafted the type of information that will be uploaded on the Development Data Library

(DDL) indicating the frequency of data collection and data transmission processes and shared with AOR for further comments/revisions (See **Table 2** below). Moreover, it was decided, that while amending Winrock International Georgia's Cooperative Agreement with USAID, the clause indicating datasets (see chart below) will be submitted to USAID/Caucasus along with Annual Reports at the end of each Fiscal Year.

Table 2.Type of Data to be uploaded on Development Data Library

#	Type of Information	Supplementary Documents	Frequency of data collection	Frequency of Data Uploading in DLL	Parties Involved	Note
1	Dataset of Baseline Survey	Survey Protocol	One time	Once	Winrock	Retro-actively
2	Dataset of Organization Capacity Assesment	Survey Protocol	One time	Once	Winrock	
3	List of Training/Worksh op/Meeting Participants		Monthly	Annually		gender – disaggregated (sex, age)
4	Data calculated for SEAP development			Annually	Remissia	
5	MRV Plan Dataset		As prepared and approved	Annually	GBCG, Remissia	
6	Datasets used for producing reports (e.g market assessment to be conducted by GBCG and SDAP)	Survey Protocol	Monthly	Annually	Winrock + all partners	
7	Public Awareness Event Participants		Monthly	Annually		Location & gender – disaggregated (sex, age)
8	Final Evaluation Dataset	Survey Protocol/Instru ments	One time	Annually	Winrock	
9	All data backing up each indicator		Quarterly	Annually	Winrock	

Besides these types of data, the amendment to the EC-LEDS Cooperative Agreement indicates Winrock Georgia must submit all Intellectual Works to the Development Experience Clearinghouse (DEC). This statement regarding uploading all Intellectual Works to DEC on an annual basis will be added during the amendment process.

During the USAID Performance Monitoring Workshop, a new GIS data collection template was presented and later discussed with the USAID Project Management Specialist (GIS). It was agreed that all relevant data will be entered into the database starting from Year 1 of EC-LEDS program and as of Year 2, Quarter 2. The deadline for submitting the stated document is May 2015. In addition, while amending the Cooperative Agreement, the statement regarding quarterly reporting for GIS data will be changed to semi-annual reporting.

The tables below demonstrate the achievements for the indicators with results, and include information on the relevant activities including name, geographic scope, and participants, including sex-aggregated data. INDICATOR TITLE: **Quantity of greenhouse gas (GHG) emissions, measured in metric tons of CO₂ equivalent (CO_{2e}), reduced or sequestered as a result of USG assistance (OC 2)**

<i>UNIT:</i>		<i>DISAGGREGATE BY: None</i>							
Metric tons of CO ₂	<i>Geographic Location</i>	<i>Event</i>			<i>Date</i>		<i>total</i>		
<i>Results:</i>									
Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2		Y3		End of Project	
		<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>
Metric tons of CO ₂	0	0	0	43,000		55,000		236,000	

INDICATOR TITLE: Energy saved due to energy efficiency/conservation projects as a result of USG assistance (OC 3)

UNIT: GW/h _e	<i>DISAGGREGATE BY: Regions or municipality</i>			
	<i>Geographic Location</i>	<i>Event</i>	<i>Date</i>	<i>total</i>

Results:

Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2		Y3		End of Project	
		<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>
GW/h _e	0	0		62,000		75,000		315,000	

INDICATOR TITLE: Number of private sector clean energy investments (OC 4)									
UNIT: USD	DISAGGREGATE BY: <i>Region or Municipality</i>								
	<i>Geographic Location</i>			<i>Event</i>			<i>Date</i>	<i>total</i>	
Results:									
Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	<i>Y1</i>		<i>Y2</i>		<i>Y3</i>		<i>End of Project</i>	
		<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>
USD Million	0	0	0	4.0		3.0		14.0	

INDICATOR TITLE: Number of local organizations positioned to receive USG funding and implement USG projects as a result of EC-LEDS assistance (OC 5)										
UNIT: USD	DISAGGREGATE BY: <i>Region or Municipality</i>									
	<i>Geographic Location</i>			<i>Event</i>		<i>Date</i>		<i>total</i>		
Results:										
Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	<i>Y1</i>		<i>Y2</i>		<i>Y3</i>		<i>End of Project</i>		
		<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	
USD Million	0	0	0	1	0	1		2		

INDICATOR TITLE: Expected lifetime energy savings from energy efficiency or energy conservation, as a result of USG assistance (OC 7)									
UNIT: Gigajoules (GJ)	DISAGGREGATE BY: None								
	Geographic Location	Event			Date	total			
Results:									
Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
	0	0	0						

INDICATOR TITLE: Number of low emissions development plans developed and/or implemented as a result of USG assistance (LEDS, SEAP, other) (OP 1)										
UNIT: No. of Plans developed	DISAGGREGATE BY: <i>Phase of implementation (developed, implemented)</i>									
	<i>Geographic Location</i>		<i>Event</i>			<i>Date</i>		<i>total</i>		
	Gori		SEAP for Gori Municipality developed			March, 2015		1		
Results:										
Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2/Q1+Q2		Y3		End of Project		
		<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	
No. of Plans developed	0	3	3	4	1	3		10		

INDICATOR TITLE Number of Sustainable Energy Offices (SEOs) or shared Sustainable Energy Resource Centers established in participating municipalities (OP 2)									
UNIT: No. of of Sustainable Energy Offices/ Sustainable Energy Resource Centers established	DISAGGREGATE BY: <i>New offices, ongoing offices</i>								
	<i>Geographic Location</i>	<i>Event</i>			<i>Date</i>		<i>total</i>		
Results:									
Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2		Y3		End of Project	
		<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>
No. of Offices created	0	0	0	3	0	2		5	

INDICATOR TITLE: Number of institutions with improved capacity to address climate change issues as a result of USG assistance (OP 3)									
UNIT: Number of Institutions	DISAGGREGATE BY: None								
	Geographic Location		Event		Date		total		
			3 Municipalities of Gori, Tbilisi, Poti attended on-job training in Data Collection and Analysis		October-December, 2014		3		
		3 Municipalities of Gori, Tbilisi, Telavi attended on-job training on inventory and planning in building, greening, public lighting, waste and transport sectors		January-March, 2015		1 (new)			
Results:									
Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline	Y1		Y2/Q1+Q2		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Institutions	0	9	10	5	4	0		14	

INDICATOR TITLE: Number of stakeholders using climate information in their decision making as a result of USG assistance (OP 4)									
UNIT:	DISAGGREGATE BY: None								
Number of Stakeholders	Geographic Location		Event		Date		total		
	Ministry of Energy, Ministry of Environment, Ministry of Economy, Ministry of Agriculture, Energy Efficiency Center, National Statistics Office of Georgia, Economic Council's Office , World Experience for Georgia		4 ministries and 4 other stakeholders participating in Sub-working Group (SWG), Expert Working Group (EWG) and Steering Committee (SC) meetings		October-December, 2014		8		
Results:									
<i>Additional Criteria</i>	<i>Baseline</i>	<i>Y1</i>		<i>Y2/Q1</i>		<i>Y3</i>		<i>End of Project</i>	
		<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>
<i>If other criteria are important, add lines for setting targets and tracking</i>									
No. of Stakeholders	0	8	12	6	8	0		14	

INDICATOR TITLE: Number of laws, policies, strategies, plans, agreements or regulations addressing climate change mitigation officially proposed, adopted, or implemented as a result of USG assistance (OP 5)									
UNIT: Number of Laws, Policies, Strategies	DISAGGREGATE BY: None								
	Geographic Location	Event			Date	total			
Results:									
Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline	Y1		Y2		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Laws, Policies, Strategies	0	1 proposed	1 proposed	1 proposed		1 adopted		1 adopted	2 proposed

INDICATOR TITLE: Number of climate change mitigation tools, technologies or methodologies developed, tested and/or adopted as a result of USG assistance (OP 6)									
UNIT: Number of Tools	DISAGGREGATE BY: None								
	Geographic Location		Event		Date		total		
	For all municipalities		Testing of the muni-EIPMP tool in all municipalities		October-December, 2014		1		
For all municipalities		Testing of the muni-EIPMP tool in all municipalities		January-March, 2015					
Results:									
Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline	Y1		Y2/Q1		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Tools	0	1	2	2	1	2		5	

INDICATOR TITLE: Number of households/ business/ public institutions implementing energy efficiency measures as a result of USG assistance (OP 7)									
UNIT: No. of electricity consumers implementing energy efficiency measures	DISAGGREGATE BY: <i>None HH, Businesses, Institutions</i>								
	<i>Geographic Location</i>	<i>Event</i>			<i>Date</i>		<i>total</i>		
Results:									
Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2		Y3		End of Project	
		<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>
<i>No. of Households</i>	0	0	0	500	2	1000	8	1500	10
<i>No. of businesses</i>	0				2		8		10
<i>No. of institutions</i>	0				2		8		10

INDICATOR TITLE: Number of climate change mitigation projects implemented as a result of USG assistance (OP 8)									
UNIT: No. of climate change mitigation projects	DISAGGREGATE BY: None								
	Geographic Location	Event			Date	total			
	For all municipalities								
Results:									
Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline	Y1		Y2		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Projects	0	0	0	5	0	15		20	

INDICATOR TITLE: Number of buildings labeled based on green building or energy efficiency standards (OP 9)										
UNIT: No. of buildings	DISAGGREGATE BY: Received, Approved									
	Geographic Location			Event			Date		total	
Results:										
Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline	Y1		Y2		Y3		End of Project		
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved	
No. of Buildings	0	0	0	2		4		10		

INDICATOR TITLE: Number of individuals reached through outreach campaigns (OP 10)									
UNIT: Number of Individuals	DISAGGREGATE BY: None								
	Geographic Location	Event			Date		total		
	Georgia	Public Service Announcement – airing of EC-LEDS Energy Efficiency PSA as a Social Advertisement on GPB Channel I			October 1-12, 2014		240,000 individuals		
					December 2-12, 2014		75 individuals (54 – female, 21-male)		
	Kutaisi, Zugdidi, Batumi	Youth Energy Efficiency Event			December 16-18, 2014		165,000 individuals		
	Batumi	Street Art - Energy Efficiency street painting on Batumi Port wall			October-December, 2014		A total of (Y2 Quarter 1)– 405,075		
	Georgia	TV Program Green Architecture airing on TV Channel Ertulovneba			January 26-February 28, 2015		1286 individuals		
	Georgia	Public Service Announcement airing of EC-LEDS Energy Efficiency PSA as a Social Advertisement on GPB Channel I - A total of 58 spots			February 14-28, 2015		1,013,057 individuals		
Tbilisi	Youth EE Event			March 1-8, 2015		133 individuals (47 – female, 86- male)			
				March 20, 2015		A total of (Y2 Quarter 2) – 1,014,476 individuals			
Results:									
Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2/Q1 + Q2		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Individuals	0	250,000	254,157	250,000	1,419,551	250,000		1 million	

INDICATOR TITLE: Number of USG-supported training or activities that contribute to building the EE knowledge and skills in the GOG, Municipalities, industry and other stakeholders (OP 11)

UNIT:	DISAGGREGATE BY: None				
Number of Training activities	Geographic Location	Event	Date		<i>total</i>
	Gori, Tbilisi, Poti	"On job training in the sectors of public lighting, transport, waste, building, waste water management, greening on data collection and analysis"	October-December 2014 27 November, 2014		A total of 3 events for Quarter 1 , Year 2
	Tbilisi	Training-workshop "Inventory of GHGs, development of a Business as Usual (BAU) scenario and mitigation measures in transport, outdoor lighting and building sectors"	September 30 – October 1, 2014		
	Tbilisi	Training of the professionals in green building principles, application of LEED and BREEAM rating tools	January-March, 2015		
	Gori, Tbilisi, Telavi	On-job trainings in inventory and planning in building, greening, public lighting, waste and transport sectors	February 25, 2015		A total of 3 events for Quarter 2 , Year 2 A total of 6 events for Quarters 1 and 2 for Year 2
	Tbilisi	Training-workshop on piloting and testing muni-EIPMP tool in waste and greening sectors for Khashuri, Akhaltsikhe, Tbilisi, Poti, Ozurgeti, Zugdidi, Mtskheta, Telavi, Batumi, Kutaisi, Tianeti municipalities	February 24, 2015		
Tbilisi	Workshop on comparison of the EPBD and IECC building energy performance requirements				

Results:									
Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2/Q1 + Q2		Y3		End of Project	
		<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>
No. of Training activities	0	6	10	30	6	14		50	

INDICATOR TITLE: **Number of individuals receiving USG supported training in technical energy fields (OP 12)**

UNIT: No. of individuals	DISAGGREGATE BY: None							
	Geographic Location	Event	Date	total				
	Gori, Tbilisi, Poti	“On job training in the sectors of public lighting, transport, waste, building, waste water management, greening on data collection and analysis”	October-December 2014	12 (3 female, 9 male)				
	Tbilisi	Training-workshop "Inventory of GHGs, development of a Business as Usual (BAU) scenario and mitigation measures in transport, outdoor lighting and building sectors"	27 November, 2014	12 (3 female, 9 male)				
	Tbilisi	Training of the professionals in green building principles, application of LEED and BREEAM rating tools	September 30 – October 1, 2014	12 (2 female, 10 male)				
	Gori, Tbilisi, Telavi	On-job trainings on inventory and planning in building, greening, public lighting, waste and transport sectors	January-March, 2015	A total of 36 individuals for Quarter 1 , Year 2 15 participants (1 – female, 14 – male)				
	Tbilisi	Training-workshop on piloting and testing muni-EIPMP tool in waste and greening sectors for Khashuri, Akhaltsikhe, Tbilisi, Poti, Ozurgeti, Zugdidi, Mtskheta, Telavi, Batumi, Kutaisi, Tianeti municipalities	February 25, 2015	11 participants (3 – female, 8-male)				
	Tbilisi	Workshop on comparison of the EPBD and IECC building energy performance	February 24, 2015	28 participants (10 – female, 18-male) A total of 54 individuals for Quarter 2 , Year 2 A total of 90 individuals for Quarters 1 and 2 , Year 2				

Results:

Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2/Q1+Q2		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Individuals	0	50	76	50	90	0		100	

INDICATOR TITLE: Value of grants disbursed as a result of USG assistance for scientific research and energy efficiency pilot projects (OP 13)

UNIT:	<i>DISAGGREGATE BY: None</i>								
Value of grants distributed	<i>Geographic Location</i>		<i>Event</i>		<i>Date</i>		<i>Total</i>		
	<i>For all municipalities</i>								
Results:									
Additional Criteria	Baseline	Y1		Y2		Y3		End of Project	
<i>If other criteria are important, add lines for setting targets and tracking</i>		<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>
Value of grants	0	0	0	300,000		200,000		500,000	

INDICATOR TITLE: Number of promotional plans and campaigns implemented to increase awareness of citizens about energy efficiency (OP 14)									
UNIT:	DISAGGREGATE BY: None								
No. of Plans	Geographic Location		Event		Date		total		
Results:									
Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline	Y1		Y2		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Plans	0	2	2 (Implementation Ongoing)	2	2	2	2	2	2

INDICATOR TITLE: Number of beneficiaries receiving improved infrastructure services due to USG assistance (OP 15)									
UNIT: No. of beneficiaries receiving improved infrastructure services	DISAGGREGATE BY: None								
	Geographic Location	Event			Date	total			
Results:									
Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline	Y1		Y2		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Beneficiaries	0	0	0	1		2		3	

INDICATOR TITLE: **Number of individuals receiving USG supported training in energy related policy and regulatory practices (OP 16)**

UNIT: No. of individuals	DISAGGREGATE BY: None				Total
	Geographic Location	Event	Date		
	Gori, Tbilisi, Poti	"On job training in the sectors of public lighting, transport, waste, building, waste water management, greening on data collection and analysis"	October-December 2014		12 (4 female, 9 male)
	Tbilisi	Training-workshop "Inventory of GHGs, development of a Business as Usual (BAU) scenario and mitigation measures in transport, outdoor lighting and building sectors"	November, 27, 2014		12 (4 female, 9 male)
	Tbilisi	Planning Team Meeting	October 01, 2014		12 participants (6 female, 6 male)
	Tbilisi	LEDS EWG Meeting	October 02, 2014		12 participants (6 female, 6 male)
	Tbilisi	Industry SWG Meeting	November 10, 2014		9 participants (4 female, 5 male)
	Tbilisi	Planning Team Meeting	November 11, 2014		7 participants (5 female, 2 male)
	Tbilisi	Forestry SWG Meeting	November 25, 2014		10 participants (3 female, 7 male)
					Total for Quarter 1, Year 2 is 76 individuals (32 female, 44 male)
	Tbilisi	On-job trainings on inventory and planning in building, greening, public lighting, waste and transport sectors	January-March, 2015		15 participants (1 – female, 14 – male)
	Gori, Tbilisi, Telavi	Training-workshop on piloting and testing muni-EIPMP tool in waste and greening sectors for Khashuri, Akhaltsikhe, Tbilisi, Poti, Ozurgeti, Zugdidi, Mtskheta, Telavi, Batumi, Kutaisi, Tianeti municipalities	February 25, 2015		11 participants (3 – female, 8-male)
	Tbilisi	Workshop on comparison of the EPBD and IECC building energy performance	February 24, 2015		28 participants (10 – female, 18-male)
	Tbilisi	Forestry SWG Meeting	February 5, 2015		14 participants (5 –female, 9-male)
	Tbilisi	Building SWG Meeting	February 19, 2015		22 participants (13 –female, 9-male)
	Tbilisi	Steering Committee Meeting (SCM)	February 20, 2015		27 participants (17 –female, 10-male)
	Tbilisi	Building SWG Meeting	February 26, 2015		14 participants (8 –female, 8-male)
	Tbilisi	Forestry SWG Meeting	March 10, 2015		19 participants (9–female, 10-male)
	Tbilisi	Transport SWG Meeting	March 18, 2015		27 participants (10–female, 17-male)
	Tbilisi	Energy SWG meeting	March 30, 2015		16 participants (10–female, 6-male)
					Total for Quarter 2, Year 2 is 193 individuals (84 female, 109 male)
					Total for Quarters 1 and 2, Year 2 is 269 individuals (116 female, 153 male)

Results:

Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline	Y1		Y2/Q1+ Q2		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Individuals	0	40	137	50	269	0		90	

INDICATOR TITLE: Number of MRV plans developed to track impact of SEAPs implementation (OP 17)									
UNIT:	DISAGGREGATE BY: None								
No. of Plans	Geographic Location		Event		Date		total		
	Gori		MRV Plan for Gori SEAP developed		March, 2015		1		
Results:									
Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline	Y1		Y2/Q1+Q2		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Plans	0	4	4	3	1	3		10	

INDICATOR TITLE:

Number of individuals at national and local level trained in climate change as a result of USG assistance (OP18)

UNIT:	DISAGGREGATE BY: None				
No. of Individuals	Geographic Location	Event	Date	total	
	Gori, Tbilisi, Poti	“On-job training in the sectors of public lighting, transport, waste, building, waste water management, greening on data collection and analysis”	October-December 2014	12 (3 female, 9 male)	
	Tbilisi	Training-workshop "Inventory of GHGs, development of a Business as Usual (BAU) scenario and mitigation measures in transport, outdoor lighting and building sectors"	27 November, 2014	12 (3 female, 9 male)	
	Tbilisi	Training of the professionals in green building principles, application of LEED and BREEAM rating tools	January-March, 2015	12 (2 female, 10 male)	
	Gori, Tbilisi, Telavi	On-job trainings on inventory and planning in building, greening, public lighting, waste and transport sectors	February 25, 2015	<p>A total of 36 individuals for Quarter 1 , Year 2</p>	
	Tbilisi	Training-workshop on piloting and testing muni-EIPMP tool in waste and greening sectors for Khashuri, Akhaltsikhe, Tbilisi, Poti, Ozurgeti, Zugdidi, Mtskheta, Telavi, Batumi, Kutaisi, Tianeti municipalities	February 24, 2015	15 participants (1 – female, 14 – male)	
	Tbilisi	Workshop on comparison of the EPBD and IECC building energy performance	February 24, 2015	11 participants (3 – female, 8-male)	
				28 participants (10 – female, 18-male)	
				<p>A total of 54 individuals for Quarters 1 and 2 , Year 2</p>	

Results:

Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2/Q1 + Q2		Y3		End of Project	
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Individuals	0	10	67	40	54	20		70	

INDICATOR TITLE: Number of developers, investors/building owners/buyers aware of the green building rating and certification system (OP 19)										
UNIT:	DISAGGREGATE BY: None									
Number of Businesses	Geographic Location	Event			Date	total				
	Tbilisi	Meetings with leading companies and organizations: Heidelberg Georgia, AmCham, Cushman and Wakefield, Colliers International, Deloitte			December, 15-19, 2014	5				
Results:										
Additional Criteria If other criteria are important, add lines for setting targets and tracking	Baseline	Results Achieved by Q2, 2014	Y1		Y2/Q1		Y3		End of Project	
		Achieved	Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
No. of Businesses	0	14	10	14	20	5	0		30	

INDICATOR TITLE: Number of decisions made by LEDS steering committee or involved agencies using analysis based on MARKAL or other appropriate tools (OP22)										
UNIT:	DISAGGREGATE BY: None									
Number of decisions	Geographic Location		Event			Date	total			
Results:										
Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2		Y3		End of Project		
		Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved	
No. of decisions		0	0	2		0		2		

INDICATOR TITLE: Number of individuals trained on green building rating systems (OP23)										
UNIT: No. of individuals trained	<i>DISAGGREGATE BY: Gender</i>									
	<i>Geographic Location</i>		<i>Event</i>			<i>Date</i>		<i>Total</i>		
	<i>Tbilisi</i>		<i>Training of professionals in green building principles, application of LEED and BREEAM rating tools</i>			<i>September 30-October 1, 2014</i>		<i>12 participants (2- females, 10-males)</i>		
	<i>Tbilisi</i>		<i>Workshop on comparison of the EPBD and IECC building energy performance</i>			<i>February 24, 2015</i>		<i>28 participants (10 – female, 18-male)</i> Total 40 individuals for Quarters 1 and 2 in Year 2 (12-female, 28 –males)		
Results:										
Additional Criteria <i>If other criteria are important, add lines for setting targets and tracking</i>	Baseline	Y1		Y2/Q1+Q2		Y3		End of Project		
		<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	<i>Target</i>	<i>Achieved</i>	
No. of individuals trained	<i>0</i>	<i>0</i>	<i>0</i>	<i>10</i>	<i>40</i>	<i>0</i>		<i>10</i>		

ANNEX I: SCHEDULE OF PLANNED FUTURE EVENTS

COMPONENT 1

EC-LEDS plans to hold ceremonial signings of several Memoranda of Understandings made with partner municipalities in the 3rd Quarter. The purpose of these MOUs is to outline the terms and conditions under which Winrock and the Municipalities shall establish a channel for exchange of information related to the aspects pertaining to Municipality's CoM-related obligations and outline each side's commitments and areas of collaboration.

COMPONENT 2

A workshop Training of Trainers on the Display® calculation tool is tentatively planned for Quarter 3. This European tool is a voluntary scheme set up in 2001 by the municipalities of the Energy Cities Association and designed by energy experts to support implementation of the Directive on Energy Performance of Buildings in municipalities, with the aim to display an energy performance certificate. Trainees with a technical background will study the methods of evaluating the Energy Performance of the Buildings with the Display® calculation tool.

A Green Building of the Year competition was announced on March 3rd and applications are due April 15th. Selection of the winning projects will be conducted during May and a Green Building of the Year Award ceremony is planned for the end of that month. The Green Build Award concept is usually used by green building councils to stimulate exemplary practice in many countries. "Green Build Award 2015 Georgia" is intended to identify the most successful market player entities, as well as individuals.

Component	Event	Date/Location
2	Training of Trainers on Display tool	June 2015, Tbilisi

COMPONENT 3

Sectoral working group meetings upon agreement with the climate change office of MOENRP.

PUBLIC OUTREACH

Airing EC-LEDS EE PSAs will continue on Channel One and TV Tabula. EC-LEDS Youth EE Events will take place in Gori and Telavi in April and May, 2015.

EC-LEDS will participate in the International Forum Green Days in Georgia, organized by Georgian Association of Landscape Architects (GALA) on May 8th, 2015.

In May, 2015 EC-LEDS scheduled the ceremonies to sign MOUs with the Municipalities of Kutaisi, Zugdidi and Batumi.

As part of EC-LEDS Grants Program, the project scheduled a ceremony of grant awards in Quarter 3 (the date and location of the ceremony are being selected).

As part of Energy Week in June, 2015 EC-LEDS will participate in a Students' Architectural Contest for the Best Coursework Design. The event is organized by Energy Efficiency Center Georgia in collaboration with BP-Georgia. Contest partners include the Georgian Architects Union, GTU, Ilia State University, and Georgian Academy of Arts.

Table 3. Upcoming Events for Year 2, Quarter 3

Component	Event	Date/Location
Public Outreach	Youth EE Event	Week of April 20th, 2015 Gori
Public Outreach	Youth EE Event	Week of April 27th, 2015 Telavi
Public Outreach	MOU Signing Ceremony	May, 2015 Kutaisi, Zugdidi, Batumi
Public Outreach	International Forum Green Days in Georgia	May 8th, 2015 Tbilisi
Public Outreach	Grant Awards	May-June, 2015 Location TBD
Public Outreach	Best Coursework Design 2015	June, 2015 Tbilisi

ENVIRONMENTAL COMPLIANCE

Within the scope of the USAID environmental compliance procedures, including the project related Programmatic Environmental Assessment (PEA) document, a site visit will be conducted with activities followed by the induction of respective activity-relevant Environmental Monitoring and Mitigation Plans (EMMPs) and/or Environmental Review Checklists (ERCs).

ANNEX II: QUARTER 3 PLANNED DELIVERABLES AND PRODUCTS

COMPONENT 1

In the next quarter, EC-LEDS will deliver a draft SEAP for Telavi. The Telavi SEAP will include an MRV plan, a communication strategy and a detailed project proposal. EC-LEDS will also deliver the English version of Gori SEAP.

EC-LEDS will finalize and deliver the Tbilisi Monitoring Report.

COMPONENT 2

The report Training of Trainers on Display will be delivered to USAID.

COMPONENT 3

Business As Usual Emissions Calculations (Energy BAU and non-energy BAU); Mitigation Measures; Set of Policy Analysis (Draft)

COMMUNICATIONS AND OUTREACH

As part of the EC-LEDS outreach activities, the program will produce media coverage reports for upcoming events where applicable. A series of printed materials to accompany events will be prepared, including brochures on GB, energy efficiency, and SEAP awareness.

MONITORING AND EVALUATION

The GIS data collection spreadsheet reflecting all respective data from Year 1 of EC-LEDS program and as of Year 2, Quarter 2 will be delivered to USAID/Caucasus in the first week of May, 2015.

ENVIRONMENTAL COMPLIANCE

Following on a series of communications with USAID AOR, MEO, and BEO, the finalization and approval for the Programmatic Environmental Assessment (PEA) document are expected. LEDS will begin the elaboration of the activity, relevant Environmental Monitoring and Mitigation Plans (EMMPs) and/or Environmental Review Checklists (ERCs) relevant to sub-grant activities.

ANNEX III: SUCCESS STORY



SUCCESS STORY

Green Architecture – Education Through TV Programming

USAID supported a unique youth TV program focused on green architecture



"This is the first step towards raising awareness of green building and related issues. I was amazed to hear that the most interested audience of our program was young people from 14-18 years of age. The results have exceeded my expectations."

— Tina Khimshiashvili, Green Architect, President of Georgian Association of Landscape Architects, author and host of the program.

U.S. Agency for International Development
www.usaid.gov

During the months of January and February 2015, TV Channel Ertzulovneba aired a series of programs on Green Architecture every Thursday evening. The programs, approximately 30 minutes in length, focused on green building and its impact on the environment, energy efficiency, green materials, climate change and green building certifications systems.

The program was supported by the Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program as part of its Green Building public awareness campaign. The author of the Program, Professor Tina Khimshiashvili who is also President of the Georgian Association of Landscape Architects (GALA), hosted guests from academia, the municipality of Tbilisi, organizations involved in architecture and the building sector and independent experts. Students from Georgian Technical University, Tbilisi State Academy of Arts and Ilia State University asked questions of guest speakers and expressed their opinions during the program.

The primary goal of the program was to reach and educate youth about green building in Georgia. Initial feedback suggests that the Green Architecture series helped spread the word about green building among broader audiences of all ages and social groups. "I hope that young architects will pay more attention to the issue of green building, which is not yet fully explored and that they will generate new ideas in green architecture." – Professor Giga Batiashvili, Architect.

The EC-LEDS Clean Energy Program is supported by USAID and implemented by Winrock International Georgia. Through this program, USAID supports Georgia's efforts to increase climate change mitigation through energy efficiency and clean energy activities. The program was produced in cooperation with the Green Building Council Georgia (GBC Georgia) and the Georgian Association of Landscape Architects (GALA), with the support of TV Channel Ertzulovneba.

ANNEX IV: MEDIA COVERAGE REPORT (JAN-FEB 2015)



USAID
FROM THE AMERICAN PEOPLE



WINROCK
INTERNATIONAL
GEORGIA

ENHANCING CAPACITY FOR LOW EMISSION DEVELOPMENT STRATEGIES (EC-LEDS) CLEAN ENERGY PROGRAM

COOPERATIVE AGREEMENT NO. 114-A-13-00008

Media Coverage Report

TV Program Green Architecture



March 2015

This publication was produced for review by the United States Agency for International Development. It was prepared by Winrock International Georgia.

ENHANCING CAPACITY FOR LOW EMISSION
DEVELOPMENT STRATEGIES (EC-LEDS) CLEAN ENERGY
PROGRAM

MEDIA COVERAGE REPORT

TV PROGRAM GREEN ARCHITECTURE

March, 2015

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The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

TV Channel: Ertsulovneba
Date: January 22, 2015
Title: Morning Show Gantiadi

Host: We are back live from our studio with our guests. TV Channel Ertsulovneba is starting a new series of TV programs entitled “Green Architecture”. We are hosting the supporters of this program today in our studio: Ms. Dana Kenney is Chief of Party of the project Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy program, implemented by Winrock International Georgia and supported by US Agency for International Development (USAID) and Ms. Eka Kentchadze will assist us in interpreting. Thank you for coming. First question: what are the aims and objectives of Winrock International Georgia?

Dana Kenney: Here in Georgia Winrock International is implementing a USAID-supported project entitled Enhancing Capacity for Low Emission Development Strategies or EC-LEDS Clean Energy Program, to support climate change mitigation. This includes reducing climate change pollutants and promoting energy efficiency and clean energy.

Host: What exactly do you mean by energy efficiency and how can we contribute to climate change mitigation?

Dana Kenney: Energy efficiency can be increased in any field. People often think of it as making buildings more energy efficient, for example with insulation. It can also be promoting energy efficient vehicles and other means of transportation that use less energy; more efficient methods of cooking; and it can be carried out in every sector like agriculture and building.

Host: How long has this organization existed and how efficient have its projects been?

Dana Kenney: Winrock International Georgia has been working almost ten years on clean energy projects including rural energy, clean energy and energy efficiency in urban areas. The current program began in October 2013, so we have been carrying out this program for about a year. We have three more years and will help prepare at least one or more other organizations to take over the primary activities, such as working with municipalities and the private sector to promote energy efficiency and climate change.

Host: Do you cooperate with the Ministry of Energy?

Dana Kenney: Yes, we do, and not only with the Ministry of Energy. We have different counterparts depending on which of three components we are working on. In the first component we work with at least ten municipalities who are either currently signing or have already signed the EU’s Covenant of Mayors agreeing to reduce emissions and improve their economic development.

Host: The program has a very interesting title – Green Architecture. What do you mean by this title?

Dana Kenney: I would like to explain why the concept of Green Building is important and how we can move it forward. Buildings are one of the largest users of energy worldwide, and that is true in Georgia, although the transport sector uses more energy and has more emissions. Buildings also have many other resources that impact the environment, like water use, construction materials,

waste disposal, etc. All of those are issues that are addressed by municipalities under Sustainable Energy Action Plans. But at the same time buildings and transport are the only ones that are required that they address. Green buildings are not only energy efficient-- they minimize resources and the impact of construction and household activities on the environment.

Host: How did you contact our TV Channel and why did you prefer that our channel air this program?

Dana Kenney: What we have been doing is working with the private sector to educate and train people to certify buildings. We want to continue to raise awareness about architecture, green building and the benefits of green architecture, especially for health and indoor air pollution, to breathe better and reduce costs. This TV show is really the beginning of our public outreach efforts. We have been working with the architect stakeholders. Believe it or not, there are already architects building green in Georgia.

Host: It should be mentioned that the host of Green Architecture is Ms. Tinatin Khimshiashvili, who is the President of the Georgian Association of Landscape Architects.

Dana Kenney: She proposed a series of shows that will go from the concept of green building all the way to details, and to involve youth. We have a strong commitment to involving youth, and it is a perfect opportunity to introduce these concepts and educate people. I think we chose this TV station because your viewers' interest.

Host: Let us thank you on behalf of TV Channel Ertsulovneba for this cooperation. We hope that the results will be positive and large-scale. My last question is how green is our country in your opinion?

Dana Kenney: The natural environment-- yes. As for the built environment, there is an opportunity to better synchronize it with nature and to do more to promote the population's health.

Host: Thank you! We wish you good luck!



TV Channel: Ertsulovneba
Date: January 22, 2015
Title: Green Architecture

Host: Tina Khimshiashvili, Green Architect, Professor, President of Georgian Association of Landscape Architects (GALA)

Guests: Giga Batiashvil, Architect, Professor; Ia Kupatadze, Architect, Expert; Natia Kapanadze (MA), Landscape Architect, Member of GALA; students from Ilia State University and the Georgian Academy of Arts

Host: Dear viewers, I am the host of the program Green Architecture, Tina Khimshiashvili. I would like to read a small passage from Ilia Chavchavadze's letter describing the Old Tbilisi environment and architecture: "How different was Tiflis in ancient times with its gardens and parks that had a positive impact on the climate. Winter wasn't as cold as today, and summer was cool. Our city needs to have walking areas for pedestrians and parks that give a new life to our city Tiflis." This was written nearly one century ago. Today our city is bigger, with a larger population and ecological problems that are more evident. Soil, water and air are contaminated with various kinds of pollutants and green zones are drastically limited. In the 21st century Green Architecture has changed and gained a new form. My question is, what can we say about modern Green Architecture?

Giga Batiashvili: First of all, let's talk about Green Architecture itself. We call architecture an artificial environment, yet architecture is created from natural and live materials. Gardens, parks and recreation zones are examples of green architecture. We can say that Green Architecture originated in ancient times. Our ancestors lived in caves and the hollows of trees, which could be considered the roots of Green Architecture. With progress and modernization green architecture became more organized, and took the form of gardens, parks etc. In the second half of the 20th century a new tendency was to connect exterior and interior; green architecture meant that more green is brought into indoor spaces. This notion refreshes the built environment and makes it more comfortable. Today using "green" we can generate energy resources for the future years. Today we use different types of resources for energy generation. In the future there it could be possible to use hydrogen. There are alternatives to avoid the destruction of nature, to use it wisely and thus help its regeneration. Therefore, green architecture has two benefits-- one can use it as an alternative energy resource that will reduce hazardous impacts on the environment and at the same time it will increase comfortable living conditions. So I hope that young architects will pay more attention to this issue, which is not yet fully explored, and that they will be generators of new ideas in green architecture.

Host: Let us have a short historical review of examples in Green Architecture--among them the famous Chinese, Japanese and French gardens, Central Park of New York, green areas/zones between towns and the modern types like the Gardens of Semiramida. New buildings with green zones designed by the architectural bureau WOHA have received the LEED Gold Certificate. Upcoming programs will be dedicated to the LEED and BREEAM Certification system, in order to understand their importance for green building certification. This is the background of green building, and now my question is about the meaning of green building today.

Ia Kupatadze: Modern green building refers to a building that damages the environment less and can generate energy itself. In other words, we can say it is a building that operates using its own

resources, and we can compare such a building to a tree that exists through its own natural resources.

Host: Dear students, you can ask questions or express your opinion about green building.

Irakli Kirkitadze MA Student: As you explained, “green building” means operating on its own energy and generating energy as well. What kind of energy do you mean?

Ia Kupatadze: There are a variety of ways a building can generate energy. Solar energy can provide electricity and hot water. We can use rain water for technical purposes--cooling or heating. It subsequently needs purification, but this is not a difficult process. We can use it in the basement as well for ventilation and heating. Even wind can be used to generate electricity.

Host: what are the advantages of the indoor environment of a green building compared to a traditional building?

Ia Kupatadze: First of all, the indoor environment of a green building regulates air quality. There are special sensors that clean the air, and do not need much energy. One can find wooden materials and plants that create indoor micro-climates in green buildings.

Giga Batiashvili: Sun is our energy for living. So if we use its potential to a maximum, we will gain in terms of electricity, heat and nature as well. We said that we have solid experience in landscape design, and architects who design gardens, parks and other recreation place. Now it is time to have more comfort in the buildings where we spend the most of our time. Green can be brought into indoor environment that will improve significantly our comfort and our major need of energy.

Ia Kupatadze: In the past we had a lot of the so-called “sick” buildings, in other words, buildings without sun or ventilation. Today the situation has changed and more green buildings are being constructed. People prefer to live and work in healthier environments, and green buildings provide this.

Vladimer Afanasievi, Student: Can you talk about green buildings in Tbilisi?

Ia Kupatadze: There is one such building in Tbilisi. The Center of New Technologies is a green building at the entrance of Tbilisi that uses natural resources: daylight for lighting and it has its own resources for technical water. It has a garden inside for employees to relax. So this building by its design and technical parameters is a good example of a green building. There is a residential building in Tbilisi as well, built by the ARSI company that is more energy-efficient than green.

Host: A green building conference was held in the New Technologies Center, and experts mentioned that this building had all parameters to gain a LEED certificate immediately. Now I'd like to attract your attention to the issue of environmental improvement. It is a complex issue and it will be good to hear from young generation.

Natia Kapanadze, MA Student: As a citizen I want to stress the lack of nature in my life. It is important for personal development. In the big city like Tbilisi it is very hard to be in contact with nature, so I have a question: what should be done to accelerate this process, to have visible results in a very short period of time and not after, say, 50 years?

Giga Batiashvili: We know that results for any developing process can be visible some time later. The same situation we face with regard to green building, but the core issue here is demand from the society, its awareness and benefits. Public opinion is very important and Government has to respond to this demand. Decisions, approvals or rejections, must be made on the basis of society's

welfare. Legislative regulations are very important as well. We had a good tradition in Tbilisi--yards with a tree in the center and a small fountain. Tbilisi was traditionally surrounded by green slopes that created a natural wall and had a very good impact on the city's environment. But over time slopes were deforested for heating resources. In times of progress, innovations should be introduced, like installing air filters throughout the city. We know that Tbilisi has strong wind potential so this type of filter could clean and distribute fresh air from zone to zone.

Natia Kapanadze: This situation is similar for the entire world. There are a number of groups working on this issue; they create public demand and afterwards push this idea to the political level to attract attention from the authorities. In Georgia we have a landscape architects' association that seeks to create much tighter links between people and nature.

Host: The Green Building Council Georgia and Winrock International Georgia are involved in popularizing the green building and certification system. Ia, what can you say about your activities?

Ia Kapatadze: Certification systems were introduced in the early 1990s. There are certification systems like BREEAM and LEED. LEED is an American system created by association of professionals - engineers, developers, designers, materials producers. To promote this system they established an annual contest and awarded 10 buildings with a LEED certificate each year. With this promotional campaign, building constructors and owners were interested in winning the certificate, and to thus attract more clients.

Vladimer Gai, Student: Do we have information about our cultural heritage of energy efficient measures. Can we find energy efficient techniques in our churches, old houses and settlements?

Ia Kapatadze: You can find examples in the Georgian Ethnographic Museum, where different houses from Georgian regions are represented. For example, a house from the Kartli region has a first floor that is buried in the ground. The floor earthen and light comes from the top in the roof, while heating and cooling are done by the earth. You can find an interesting house in west Georgia that is built on poles for ventilation and to avoid moisture. Made from wood, its attic provided ventilation. There are suggestions for green architecture found in historical houses.

Host: We will continue talking about green architecture in the next programs. Should you have questions, please send them to the following address: Greenarchitecture@ersulovneba.ge and the Facebook page – Green Architecture. The program Green Architecture is supported by Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program supported by USAID and implemented by Winrock International Georgia.





Web source: CENN Network
Date: January, 26, 2015
Title: The First Release of “Green Architecture” – A Youth TV Program to Raise Awareness of Green Building in Georgia

The Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program supports a youth TV Program focused on Green Architecture as part of its Green Building public awareness campaign.

The first program was aired on Thursday, January 22nd on TV Channel Ertulovneba. The author and host of the Program was Professor Tina Khimshiashvili, President of Georgian Association of Landscape Architects (GALA). Also participating were Professor and Architect Gia Batiashvili, Architect Ia Kupatadze from the Green Building Council Georgia (GBCGeorgia) and Architect Natia Kapanadze, Member of GALA. Professor Khimshiashvili and participants discussed the importance and the concept of green building with students from the Tbilisi State Academy of Arts and Ilia State University.

The TV Program is being implemented by Georgian Association of Landscape Architects (GALA) in cooperation with TV Channel Ertulovneba and Green Building Council Georgia (GBCGeorgia). The program will be aired every Thursday at 21:30 on TV Channel Ertulovneba.

Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program is supported by the US Agency for International Development (USAID) and implemented by Winrock International Georgia.

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Please follow the link to watch videos:

<https://www.youtube.com/watch?v=PDZRgNEeb5Y> (Announcement/Morning Show Gantiadi)

<https://www.youtube.com/watch?v=hYYrz4NWDck> (First program 01/22/2015)

TV Channel: Ertsulovneba
Date: January 29, 2015
Title: Green Architecture

Host: Tina Khimshiashvili, Green Architect, Professor, President of the Georgian Association of Landscape Architects (GALA)

Guests: Professor Gia Arabidze, Dean of Energy and Telecommunications Faculty at Georgian Technical University; Khatuna Sitchinava, Director of Sustainable Energy and Environment Union, Expert; Students from faculty of Energy at GTU.

Host: Today our guests are the Dean of Energy and Telecommunications Faculty at Georgian Technical University, Professor Gia Arabidze, Director of Sustainable Energy and Environment Union, Expert Khatuna Sitchinava and students from faculty of Energy at GTU. We will talk about an interesting topic called energy efficiency. We will learn what energy efficiency is and why it is important for us.

Gia Arabidze: Let me greet participants of today's show and thank the organizers of this program for inviting me. I think that this program is very important for general audience as well as for students. You asked a very important question – what is energy efficiency? There are many explanations, but most precisely it means living in better conditions and spending less money. The place where we are now has significant energy expenses and low efficiency. If our residential buildings could comply with EU standards, for instance, if they had building envelopes with thermal insulation like in EU countries, we would have spent around 100-150 GEL during the whole heating season and live more comfortably. Today 100-150 GEL covers around 120m² area heating. In Tbilisi savings on heating mean that many only use part of the house and not the entire apartment. Imagine how much we could save in financial resources and increase our comfort in apartments if we could heat more efficiently!

Host: I know there is a methodology to conduct an energy audit of buildings. What can you say about it? Who can residents or government ask for such an audit?

Gia Arabidze: I would like to stress the importance of an energy audit. The concept is vast, but for any household or individuals it is necessary to create such a center. This was discussed not only with Tbilisi City Hall but other municipalities. There is a great potential to reduce our energy costs. Currently 82% of our heating comes from external energy sources, natural gas and electricity. In European apartments it is the opposite. They save 10-15%, because European houses are constructed according to required norms and insulated properly. We should take into account the energy generated by ourselves as well, which significantly contributes to accumulated energy in the apartment.

Host: Ms. Khatuna, can you tell us more about energy efficient measures: how can they be conducted in the residential buildings?

Khatuna Sitchinava: First of all, thank you for inviting me. As for energy efficient measures in residential apartments, we have to take into account not only the building envelope and the construction and the design, but also to the building's condition as well. For example, how much solar energy can it use and how can less electricity be used for lighting? What kind of materials should be selected for walls? How does the architect/engineer select materials and, determine the

location and number of windows and in an apartment? What is the calculation of the ratio of wall and window areas? Energy efficiency in a building includes windows, walls, floor, ceiling in complex and those technologies that we use for heating, ventilation and cooling. We ourselves can implement energy efficient measures-- expensive as well as cheap ones. According to calculations 40-45% of energy consumed goes for heating, especially for natural gas. You know that the winter season is very expensive for Georgians. We use natural gas as a main resource for heating and hot water supply and respectively expenses are relatively high. Most citizens can hardly afford the cost of heating. In rural regions, some households use electricity for heating because they have no natural gas. Here I want to stress that in rural areas today farmers use wood burning stoves for heating, and some use energy efficient stoves that significantly reduce firewood consumption by approximately half. These new types of stove are popular in rural areas of Georgia.

Gia Arabidze: I agree, this is very efficient equipment for rural populations and according to our calculation this type of stove generates 60% of heat, which is sufficient for heating, hot water supply and cooking. I want to address the issue Khatuna was talking about: energy efficient measures in apartments. We are facing problems with old dwellings. Renovating them is costly but no one considers energy efficiency at all. What should an ordinary resident do in this situation, someone without financial resources to insulate their apartment from outside? How can they reduce the consumption of natural gas and electricity? Is there any information for them on saving energy and increasing comfort? Information on these measures would be very important for the public.

Khatuna Sitchinava: Of course, there are a number of measures that ensure reduced energy consumption in apartments. For instance, we can replace the old lighting system with a new one. Traditional bulbs should give way to energy efficient ones, paying attention that we buy bulbs in the A category, which indicates a long bulb life.

Gia Arabidze: Good advice for the public is to unplug all electrical devices after use. It doesn't matter if we leave TV or other equipment in stand-by mode, because in that mode they still consume energy. We must assist people to change their behavior and habits in energy consumption. Increased electricity bills contributed to a change in the bad habits of uncontrolled use of electricity. But now it is time to change behavior towards electrical equipment. This is a complex task; first of all we need to deliver information about energy efficient measures, then behavior will gradually change. The younger generations are very interested in this topic and they can totally change their energy consumption behavior.

Salome Naskidashvili, student: Can you advise on how can we determine that a building is energy efficient?

Khatuna Sitchinava: Unfortunately, I cannot remember a construction company that addressed us to conduct an energy audit for a building.

Gia Arabidze: When you buy a car, you ask about its technical parameters. The same is in case of a building. You can hardly find a construction company or developer today who will say that his buildings are not energy efficient. In this case you have to ask them about energy passport of the building you plan to purchase. Of course the costs for such residential buildings will be much higher, but it is a customer's right to have full technical information about the building.

I want to share my experience: I had to change apartments and moved into a partially finished one, where we faced a problem in winter and had to insulate around 20m² of external walls because of moisture condensation. This measure cost around 800 laris. If I had included these 800 laris for the energy efficient measures initially, I would not have faced the problem. We calculated the cost of

energy efficient measures with Khatuna and concluded that the cost of a square meter increases by \$10-15 when energy efficient measures are applied during construction. Yet this sum has zero effect on the final cost, because as you know average area of our apartments is 100-120m², so that's an additional \$1000-1200. However in one or two years you will cover all the extra cost by your savings on energy costs. Your question is correct, but this issue needs regulation at the legislative level. Adoption of a law to oblige constructors and developers to provide an energy passport for the building is highly necessary. In other cases the buyer must hire an auditor to examine the apartment. Not everyone can afford to hire an auditor, and that's why we need regulations.

Giorgi Gorgodze, student: How can we reduce energy consumption in old apartments?

Khatuna Sitchinava: Of course there are plenty of thermal insulation materials on the market—we can line inner walls with mineral or basalt wool, with thermal insulation panels or even paints. If we plan to insulate a room or our whole apartment, we can conduct energy efficient measures gradually. We can install metal-plastic windows with double glazed windows, and my advice is to select the best option available on the market. I don't want to promote any company here but very few companies can provide high quality products. If someone cannot afford it due to high costs, there are different materials that cost less and are easy to install. For example, add an additional glass in a wooden frame, put thermal insulation on windows avoid heat loss, etc. All these simple measures can be done by the residents themselves without any professional assistance.

Gia Arabidze: Summer season is more complicated than winter. In most cases, we can solve the heating problems better than cooling problems. We know that summer is hot in Tbilisi and everywhere in the country. As we calculated the increase of energy consumption, the so-called “energy consumption peaks” are reached in the summer season. But if the consumption was 7 billion Kwh in summer 2007 and 2008, today it's up to 10 billion Kwh. This is caused by an increased demand for comfort. People buy more appliances like air conditioners and coolers. However there are possibilities to save energy here as well, for example, if you want to cool a room, turn the air conditioner on 25 c exactly, which is the right temperature for getting a room cool. Even 1 degree centigrade can make a 5% difference in energy consumption. Most of us have water heaters, which should be set at no hotter than 60-70C.

Host: The 21st century is an era of renewable energy. When visiting foreign countries, the very first thing hosts show us is their equipment that operates on renewable energy.

Gia Arabidze – You are absolutely right! Today the world is moving towards renewable energies and the trend is inevitable, because everything has its end--for example, oil, coal and other fossil fuels. Substitutes are essential, and there are two possibilities here: nuclear energy development and renewable energy development. The first option is extremely risky, so the world tends to move toward renewable energy sources. Today one cannot perceive much movement in this direction in Georgia. There are no solar or wind power plants for our country's industrial needs, yet we have very important resources of renewable energy. Today the construction of a 20MW wind plant is in progress in Gori, and my students know about the small capacity 400W wind plant in the Tbilisi Technical University laboratory, with a solar station. These are not for industrial purposes but models for student research. I want to address the obstacles for developing renewable energy sources in Georgia. I would like to stress that in Georgian seaside regions hot water should be provided by solar heating collectors in summer. Solar heating collectors are technologically advanced and are competitive to natural gas. Natural gas is the cheapest source for heating at the present time, so solar collectors are a major competitor. Using solar collectors is advisable in places with a huge demand on energy, like in residential multi-storey buildings where a collector can be installed on the roof or balcony. In Georgia situation varies by region, so it is important to calculate

where it is suitable to construct electrical grids or install solar collectors locally like in the village of Gotstibe, where we have worked and installed solar stations. For example, Winrock International implemented local small hydro power plant construction under project NATELI II in Shatili. I should admit that USAID supported a number of projects in mountainous regions to ensure local autonomous electricity systems. So a feasibility study is essential for the selection of appropriate options and technology will determine progress.

Host: I think it will be interesting for the audience to know what architects should take into consideration for green building.

Khatuna Sitchinava: Architects, constructors and specialists in our field should work together. When designing, an architect needs a constructor's advice as well as the opinion of energy experts to understand what should be done about energy efficiency in the building. They should consider energy efficiency as well as the ecological components of the building, i.e. using ecologically clean materials. Using solar energy is important for green building. What does that mean--architects design windows to ensure maximum daylight consumption for the building, for example, and there are many other details they consider like "light shelves" that stop heat inflow during the summer season.

Host: Can you give us examples of green buildings worldwide?

Khatuna Sitchinava: There are many examples, like in Dubai where some green buildings generate power themselves. There are wind generators installed on bridges to provide enough autonomous light for the bridge and neighboring districts too. There is a famous green house constructed in Egypt that is a very attractive design architecturally as well.

Kakha Kakhiani, student: What factors foster the development of renewable energy sources and why is this direction developing more rapidly abroad than in our country?

Khatuna Sitchinava: It's the lack of legislation. Even if we generate renewable energy, we have no way to connect it to the grid. There is a problem with price regulations. Developed countries act as major donors and the state allocates subsidies for their citizens, for example in Germany houses with solar collectors on the roofs consume energy they need in the household and then the surplus flows to the grid. In other words, they sell surplus energy. This is a source of personal income, but at the same time it is in a country's interest to develop this. Subsidizing policies are very important, as they help promote new directions. There are huge solar plants in the USA, like in the state of Arizona. These are not commercial and no one even considers making profits. My colleagues and I hope that renewable energy sources will be actively promoted and developed in Georgia.

Host: To summarize, what can you add to the topics discussed?

Gia Arabidze: I think programs like this one should be aired more often in order to give the audience information on the topics we have addressed.

Khatuna Sitchinava: Waste management, renewable energy sources, why consumers have to turn off lights and save energy, how to protect the environment - these topics need behavioral changes that can be achieved through educational programs.

Host: If you are interested in having more information about issues raised in this program please send questions to the following address: GreenArchitecture@ersulovneba.ge and Facebook page – Green Architecture. The program Green Architecture is supported by Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program supported by USAID and implemented by Winrock International Georgia.



TV Channel: Ertsulovneba

Date: February 5, 2015
Title: Green Architecture

Host: Tina Khimshiashvili, Green Architect, Professor, President of Georgian Association of Landscape Architects (GALA)

Guests: Guliko Karumidze, Landscape Architect; Mamuka Salukvadze, Urbanist, Architect, Environmental Specialist; Students from Georgian Academy of Arts

Host: Today we will talk about energy efficiency and green spaces--in other words landscape architecture. Today, one cannot imagine a green city without energy efficiency and green spaces. These two concepts are interlinked.

Mamuka Salukvadze: Today one can hardly find a leading city without energy efficient policies as a priority. Energy saving and energy efficiency are addressed in most cities' agendas, yet this trend is new for our country. However, if we compare it with other Georgian cities, Tbilisi has made significant progress. The city has signed the Covenant of Mayors, which is a European initiative that joins 4000 cities worldwide. These cities have made certain commitments to implement energy efficient measures. What is the main commitment of the Covenant of Mayors? It is the reduction of greenhouse gas emissions (CO₂) by 20%, by 2020.

Host: This means that implementing this initiative will significantly contribute to air purification in Tbilisi. We all know how dirty the air is today in the city.

Mamuka Salukvadze: I want to stress the difference between CO₂ emissions and other pollutants in the city. The Covenant of Mayors requires only the reduction of greenhouse gas emissions.

Host: Can we discuss the first steps? It will be interesting for me and for the audience.

Mamuka Salukvadze: Tbilisi elaborated the Sustainable Energy Action Plan (SEAP), which was a European Union requirement. In this document we described four sectors. The first three sectors are the major sources of CO₂ emissions--transport, buildings and outdoor lighting. We have added a fourth – city greening --because increasing green zones will significantly improve the city's environment. The transport sector is the greatest source of CO₂ emissions in the atmosphere, followed by building, where we residents consume energy for heating and cooling; municipal infrastructures are fourth, especially outdoor lighting. The Action Plan lists a series of measures, and if the city fulfills their commitments by 2020 it will certainly benefit from these measures.

Host: Has the implementation started?

Mamuka Salukvadze: Yes, it has already begun in the transport sector. I have to admit that only a description of measures and actions in the document is not sufficient, and success is measured only by implementation. We have to reduce CO₂ emissions for example by renovating the public transport fleet, introducing "green" traffic lights in the city, creating "road islands" to avoid traffic jams, and insulating buildings and many more. And we all know that implementation of these measures is complicated. For residential buildings we can advise residents on simple measures that will contribute to CO₂ emissions reduction and energy savings in apartments. These issues are addressed in the action plan, but once again I believe we must ensure that all of them be fulfilled.

Host: Mrs. Guliko, you know every park in our city, their origin and current situation. What has been done to date and what do you plan to do in the future?

Guliko Karumidze: In the 20th century when our city started growing fast, the very first park was Mtatsminda, designed by the Kurdiani brothers and the dendrologist Alexandre Machavariani with his wife Elene Tsitsishvili. Tsitsishvili designed our famous Vake Park as well. It is interesting that by 2000 when the Tbilisi General Plan was elaborated, a Tbilisi landscape, greening and irrigation plan was created simultaneously. This plan included green constructions, the organization of the landscape and per capita planting of plants.

Host: Can we tell our audience how many plants are advisable per capita?

Guliko Karumidze: We cannot survive without oxygen and plants are the main source of it. For big cities, which are often deprived of green zones, an essential norm is 50ha of green zones.

Host: What about existing parks?

Guliko Karumidze: Today Tbilisi is deprived of greening zones. Over the last 20-25 years no new parks or gardens have been created. On the contrary, parks, gardens, and green squares are poorly maintained and in some cases even destroyed. One can often find parking areas, cafeterias, restaurants, and even residential buildings on their territories. Every day the greened zones of the city disappear. For example, in Vake Park, the area was originally 120 ha. Today it is around 20 ha. It is our obligation to preserve and restore each hectare and create even more green zones and territories. Parks, gardens and boulevards are multifunctional for people. Not only do they have an importance of sanitation of the environment, but they important for recreation as well.

Host: According to the General Plan of the year 2000, it was decided to create 7 new parks, but this plan was not implemented--what can you say about this?

Guliko Karumidze: Indeed, there were huge projects planned. For example there was to be 200 ha of park area in the Gldani district. Not only in Gldani but in every newly built district, the creation of 200 ha of parks was planned. However social and economic problems kept this from happening. I hope that the new Million Tree project will create green architecture, preservation and development.

Mamuka Salukvadze: I would like to give statistical information on the measures implemented in green zones, taken from the General Plan of 2009. If I am correct, around 34% of the surface should include recreation, green and forestry zones. However in the new urban areas only 5% is allocated for greening. This is a bad indicator.

Mamuka Salukvadze: And this percentage only includes existing parks and gardens, because new green territories are not yet identified.

Host: We can say that Rike Park is a new one.

Guliko Karumidze: Its area constitutes only 5 ha and the area is small.

Mamuka Salukvadze: Unfortunately, it is not sufficient for the needs of a city.

Sopho Gvazava, GALA member: Can you tell us about the foreign experience--how much territory is allocated for greening?

Guliko Karumidze: These zones are divided by categories. The ones are open to the public and free of charge. Other territories can be owned by private owners or organizations –people pay to enter. Territories that exceed 20 ha are called a park. Generally gardens are from 2 ha to 10 ha. In foreign cities you can find district parks with smaller areas, as it depends on location and district. In

regard to green squares they should not exceed 2 ha and are found mainly at administrative buildings and schools.

Host: From the viewpoint of a landscape architect, the issue of green parks is important for our population. In Mtatsminda district, there was a green square near the Academy of Arts where residents of the neighborhood used to gather. The same was true of a green square in the Saburtalo district, near the GTU building. Today there is a building in the middle of the square. So we can say that green squares suffer much more compared to other green zones.

Host: Starting from ancient times, all cities had urban plans--for example, Paris' round city. All green zones have a common direction, in other words, they have an outline over which the landscape is designed.

Guliko Karumidze: Urban planning is very broad issue and we need more time to talk about this topic. The General Plan of the city acts as a constitution. In this document all actions are reflected, starting from construction and ending with underground communications.

Mamuka Salukvadze: In this regard we are facing legislative problems. Today, interested parties are discussing the adoption of a law to protect green zones. Mrs. Guliko has described the best scenario. Unfortunately, that is not the reality. Our city has a general plan and concept adopted in 2009, but this document is still far from perfection and needs further improvement. Today Tbilisi City Hall plans to update this document and include the component that addresses the greening issue. Regarding legislation, without a law on greening it is impossible to determine the number of parks. Today parks don't have any legal status. At the same time we cannot use laws adopted 30 or 40 years ago, as many parks and gardens don't exist anymore.

Elene Tskhadaze, GALA member: Mr. Mamuka you have talked about an action plan that should be implemented by 2020. Do you plan to include the legislation issue?

Mamuka Salukvadze: Good question! Without legislation it will be impossible to manage this process. The action plan adopted in the framework of the Covenant of Mayors describes measures only, but indicates the necessity for legislative norms. Concerning private cars, the CoM advises that the city move towards public transport. However public transport must become better for it to be chosen by all citizens. The younger generation is not lucky because you live in the city that is not properly organized compared with European ones. But at the same time you are lucky, because you have a clear vision about what should be done to improve the city. Our city is deprived of many things, including greening, and this program helps people understand the importance of green zones in the city. A few words about architecture in the city: you all see what kind of buildings have been constructed in Tbilisi, so you know what improvements must be implemented. Measures described in the action plan will help to improve the situation in the city regarding the transportation and building sectors.

Host: What attracts our attention in regard to greening is a properly managed irrigation system. We landscape specialists know how to plant different cultures or plants and how to select proper places for cultivation, but it is important to maintain all these plants. Our association cooperates with the Italian association's school, the Milan Summer School. During our visit our students designed a green square. This exchange program for students is conducted annually and this program gives the younger generation an opportunity to learn modern directions in landscape architecture. In June 2015 we plan to take another group of young people.

Natia Kapanadze, GALA member: As you mentioned, we visited Bergamo and attended the annual summer school meeting there. In a couple of words I want to share information about the

Bergamo event. A square of approximately 300-400 m² is located in the historical part of the city. Students from different countries are invited to participate in the event along with leading specialists, aiming to design the project and implement it. Each year visiting conference guests have the opportunity to see all the projects. This event gives a new life to the city itself. My question is, how do you see youth involvement? More than 100 students graduate annually from the Georgian Academy of Arts, so how can their capacity be used?

Host: Based on the Italian experience youth involvement can be achieved, Natia has talked about landscape specialists, but various other specialists can participate as well. People with different professions who want to change their profile can attend the summer school in June.

Sopho Gvazava, GALA member: You have said that people of different professions can attend this summer school, but is there any restriction regarding age?

Host: There is no restriction on age, and even 60-year-olds can attend these courses.

Host: To summarize, what can you advise about what should be done to achieve the greening of Tbilisi?

Guliko Karumidze: For example, I can name big cities like London and Paris, where large territories are allocated for recreation. Parks and gardens are located in the centers of the cities. It is important to cover developed parts of the city with greening systems that will contribute to improvement of fresh air, recreation and living conditions. Boulevards, green squares and gardens must be interlinked. New York Central Park is 300 ha, and a very good example of a green zone in the middle of the city. Six parks are connected with each other in London. The famous Champs-Elysees is connected to two huge parks - the Boulogne Forest and the Forest of Vincennes. Another good example is the northern city of Amsterdam, which is perfectly covered by green systems. These parks attract tourists as well. In Tbilisi we have an attraction, the Botanical Garden, which may increase the interest of tourists to visit our other famous parks. Lisi Lake is a private territory and an investor has started renovation works for a park near residential buildings, which are planned so they are linked to the recreation zone of Lisi Lake.

Mamuka Salukvadze: Tbilisi faces one problem - it has no united system. Mrs. Guliko talked about the importance of connecting parks, yet today Tbilisi has been deprived of this privilege. Our city has no system in place, and most green zones in the suburbs and centers of the city are deprived of these systems. So, it is very important to create a system and plan with the participation and advice of landscape architects and environmental specialists, in order to integrate such a system into the framework of the General Plan of the City.

Host: At the end of our program what you can wish our city?

Mamuka Salukvadze: It is not only about my wish, I have to do a lot of work in order to improve things in the city.

Guliko Karumidze: I wish all citizens, especially youth; to put more effort into environmental protection, and that the future generation of educated persons will love nature and serve it.

Host: Society, Tbilisi City Hall and landscape architects are major drivers for improving environmental conditions in the city, which is how this mechanism works abroad. We will meet in the next program. Thanks for watching!

The program Green Architecture is supported by Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program supported by USAID and implemented by Winrock International Georgia.



TV Channel: Ertsulovneba
Date: February 12, 2015
Title: Green Architecture

Host: Tina Khimshiashvili, Green Architect, Professor, President of Georgian Association of Landscape Architects (GALA)

Guests: Archil Papava, Marketing Specialist; Architect Giorgi Jamarjashvili; Nana Meparishvili Doctor of Technical Sciences, Engineer, Energy Auditor Professor; Students from St. Dimitri Kipiani Boarding School

Host: Today we are hosting guests and students from Khashuri. Please introduce yourselves.

Student: We are from Saint Dimitri Kipiani Boarding School under the Patriarchate's patronage.

Host: This program is dedicated to discussion of green construction and materials. Mrs. Nana can you explain what green materials are, and why they are better than traditional materials?

Nana Meparishvili: Green materials are made from natural components and produced with minimal energetic resources. As we all know, cement production requires generated energy – energy received from the combustion of different fuels, and as a result this causes serious damage to the environment. The absolute precondition for the production of green materials and green construction is to produce ecologically clean products. Consider two examples, wooden and laminate doors: wooden ones are made from renewable resources, and laminate doors are also made from renewable resources from chips and sawdust from making wooden furniture and doors. However we should pay attention to the ecological composition of laminate products, and know what type of binding glue is used to avoid poison products. This issue needs more attention.

Archil Papava: We can have two different wooden doors, but the wood might be obtained from different forests--one from a forest that is managed sustainably and where trees can be cut and new ones planted.

Mariam Leshkasheli, student: What are some green materials produced in Georgia?

Nana Meparishvili: Even in past centuries we had a good tradition of green roofing and walls, for example like slate, basalt, and different colored tuff stone is one of the most popular construction materials in Georgia. These materials were used by our ancestors. The concept of green architecture means ecological construction - construction with less damage to the environment. Today, green architecture combines all contemporary achievements in green construction, indoor climate conditions and engineering devices. Contemporary architecture and engineering activity require that architects and engineers work together. You will see an individual approach is needed for making decisions on each building or during the designing of the building by the architect. Without these decisions it would be difficult for us, specialists in technology, to realize the comfort needed. Modern architecture involves specialists from different fields, and the time element is important. Energy savings are not connected to poor living conditions; to the contrary, increased comfort is linked to health. That is why the green house idea has become more important today. It is useful to have information on the experience of other countries using green materials. For example, when the USA faced an energy crisis, energy saving house construction became important. So they started to build houses that use passive energy. Today the situation has evolved even more, and Germans, for example, build houses that use active energy, and can even sell electricity to the

central grid. Modern constructions consider that health is very important, and the green house not only offers a healthy environment for those who live there, but protects the environment as well.

Host: Giorgi, what can you say about the green house and global experiences? As I know you have designed several green houses in Georgia. Can you tell us about their location and number?

Giorgi Jamarjashvili: Greetings everyone. The green house tradition in Georgia is unique. A “green house” means it was built with green materials and modern green technologies first of all. The most evident example of a green house is in Tusheti where there are traditional dwellings built with ecologically green materials – stone and wood - and today they can be integrated with new technologies like solar energy. Inhabitants use this resource for electricity and water supply. This is a very good example of combining traditional and new technologies. The architecture of the 21st century uses new technologies. There is a brilliant example of this at the Center of New Technologies, located directly across from the Shopping Center Tbilisi Mall in Didi Dighomi, designed by Sandro Ramishvili. The building combines water and electricity saving technologies, and the building design is presented in such way to ensure a maximum of solar energy. The building is covered with green roofs, and we use filtered rain water. When we are talking about green building efficiency for Georgia, this building is a very good example. When we started construction the site was bare and had no infrastructure. Before building it, when we calculated construction related costs, we found that by using these technologies the final budget would save more than originally planned.

Archil Papava: Most consumers think that costs related to energy efficient green houses are high and that they cannot afford this, while in reality the situation is quite different. Many aspects are important--first of all, the role of the architect who is the designer of the building; then comes the group of engineers who will add all necessary details and only after these stages, construction starts. If the entire cycle is properly planned, expenses can be minimized. Factors should be considered, like the location and the possibility of using wind or solar energy when there is no grid, and one can use only renewable resources.

Host: All of you are professionals and know what you are talking about. I have a question about price: for example if the construction cost per m² is \$500, can you give us the price of an energy efficient house compared to a traditional one?

Archil Papava: For the same price you will get increased comfort and significantly reduced energy related costs.

Luka Kavlashvili, student: What is the impact of new technologies on the development of green architecture?

Nana Meparishvili: There is a direct connection between these two fields. When talking about green technologies and materials, I omitted mentioning the possibility of reusing of materials. My advice to the audience is to avoid throwing away plastic bottles, tires, construction and used wooden materials. For example, tires can be used when constructing the house. Architects and designers know examples of houses constructed by using tires. As regards the price, I had to prepare report on zero energy consuming houses. Of course the basis for it was an architectural idea, because architectural design should give opportunities for using such technologies that reduce energy consumption. Compared to the final cost of a traditional house it showed that the price of building an energy efficient house is 30% more expensive because of used new technologies; however within three years energy savings and benefits from it completely cover this difference. And after three years you can easily live without any energy related expenses. Considering the

advantageous location of our country, there are plenty of opportunities to use renewable energies (solar, wind, biomass, etc). Having architects and technological engineers who can tackle these technologies, I don't consider green building as an impossible mission. Even some old buildings can be renovated by using efficient technologies but this is expensive. In addition, there may another problem of initial design of the building that makes it impossible to transform it into an energy efficient building.

Using local green construction materials is very important, because transporting materials means additional emissions into the air. These details are taken into consideration before starting construction. Professional expertise is most expensive elsewhere, while in Georgia we have no such attitude – every professional should be paid according to his/her competence. I can say that green materials are more or less cheap; but decisions of professionals are more expensive.

Luka Kavlashvili, student: What is the green construction trend in Georgia?

Giorgi Jamarjashvili: Well, I can say that the idea of green construction in Georgia is becoming more popular in certain circles. To some extent, there is a demand for green buildings on market. The greatest demand is related to the reduction of thermal loss, and insulating apartments and houses.. For old houses, energy efficiency can be increased by additional insulation and integrating new technologies. Regarding the construction of real green houses (that can generate energy) we have limited progress here in Georgia. I want to go back to the question on the impact of new technologies on architecture. A couple of years ago there was a very active discussion on energy efficiency of glass and whether it is a green material. Today technologies developed so we can glass in big areas without thermal losses, for example, one can use glass that keeps the heat indoors but lets the sun indoors too. Some glasses are combined with solar panels. There are heat-inducting elements integrated in some roofing materials as well.

As for international experience, there is a significant progress in green houses construction, not only one-storey houses but multi-storey green buildings as well. Even skyscrapers are constructed using new technologies like integrated solar panel systems and wind turbines. Usually there is an experience of collecting rain water from the façade of the building and after filtration using it as gray water. Green buildings are popular on the market internationally and are sold and rented more easily because the money spent on energy efficiency (construction, technologies, etc) is paid back within 3-4 years.

Archil Papava: There are different certification and rating systems in Europe and the USA. These are created specifically to evaluate buildings. The assessment takes many details into consideration, including location, transportation, use of materials and technologies, recycling used materials, etc), then rates the buildings as green or not.

Giorgi Jamarjashvili: A study conducted in the USA showed that in LEED certified schools students performed better, and in LEED certified hospitals patients were discharged earlier compared to ordinary buildings.

Host: It will be interesting for our audience to get more information about this study.

Archil Papava: In most countries there are building requirements concerning constructions. In the USA there are institutions that require construction/developer companies to obey the rules that are already accepted. In Georgia we don't have requirements for residential and public buildings. Very often customers, businessmen and construction companies are not interested in long-term financial benefits and prefer making short-term profits. As a result, today most newly constructed buildings here are not energy efficient at all. However, as we see from TV commercials, there are a number of

construction/developer companies who claim their buildings are energy efficient. However we still face a problem of legislation—there is neither a state inspection office nor any obligatory legislation on construction norms and requirements. These problems have been solved in Western countries.

Sopho Gaprindashvili, student: What is the input of an architect in green construction?

Giorgi Jamarjashvili: The initial stage of construction is an idea, followed by the design. While designing, the architect takes a very important role by defining the building area, parameters, orientation and materials to be used. New technologies are vital at the design stage.

Host: I assume that if private house is located in a green zone, an architect thinks about solutions to minimize damage to the environment. The famous 20th century architect Le Corbusier stated that he had always tried to avoid damage to the environment if the building location was situated in a green zone. I can quote another famous architect, Frank Lloyd Wright, who designed the famous Villa Fallingwater in 1935, located in the middle of nature: “I put a small pebble in the middle of nature and tried to avoid destroying it.”

Giorgi Jamarjashvili – Preserving green zones is a tendency in modern architecture, which is why the so-called “brown fields” are mostly mastered. These are lands where houses were previously built, and an architect usually thinks about the future building location as to whether there are trees nearby helping to make natural shade for the house in summer and vice versa in winter.

Host: Today’s program is coming to an end, and let us wrap up with the role of state and society in green building.

Nana Meparishvili: The idea of green architecture, energy efficiency and energy saving became popular worldwide because of the greater understanding both on an individual and on the state level to move towards energy independence. Just imagine living in the house and paying zero energy costs. You will feel more independent--The same is true for the state. If the state pays attention to these issues, it means it cares about its population. The second issue is public awareness. When one builds and lives in a green building the person is considered developed and caring for the environment, the neighbors and their own household. These two components create the state and society we all want to have.

Archil Papava: I hope that the tendency of demand on energy efficient, sustainable green buildings will continue; the interest will increase, and the state will issue regulations and requirements; I hope the business sector will express its interest in green construction. As a result our state’s economic conditions will improve and we will live in a healthier and more protected natural environment.

Giorgi Jamarjashvili: The demand for green architecture in Georgia is gradually developing. Now, it is our duty to respond to this demand by educating professional architects and specialists in modern energy-efficient technologies, who will be able to explain the ideas of green architecture and its advantages to society. In the case of Georgia, we have our own potential. Our intellectual products are exported, for example our company now works in Libya and is in charge of green construction. We have to promote green architecture, teach it to students. Professionals in the field can promote the idea of green architecture to society.

Host: Thanks to all for coming and participating in our program. We hope that you, the young audience, will push the idea of green architecture forward. Join us every Thursday at 21:30 and watch Green Architecture with me, the author and host of the program, Tinatin Khimshiashvili.

The program Green Architecture is supported by Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program supported by USAID and implemented by Winrock International Georgia, and the Georgian Association of Landscape Architects (GALA) in cooperation with the Green Building Council of Georgia (GBC-Georgia).



ნინო მჭედუცხიანი
 ტექნიკური უნივერსიტეტი, სტრუქტურული ინჟინერი, სტრუქტურული ინჟინერი, სტრუქტურული ინჟინერი



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TV Channel: Ertsulovneba
Date: February 19, 2015
Title: Green Architecture

Host: Tina Khimshiashvili, Green Architect, Professor, President of Georgian Association of Landscape Architects (GALA)

Guests: Nino Chkhobadze, Chairman of the NGO Green Movement; Marina Shvangiradze, Third National Communication Coordinator on Climate Change; Students from the Georgian Academy of Arts

Host: Let me greet our audience. It will be interesting to learn about climate change, global warming and why these have become important today.

Nino Chkhobadze: Nothing extraordinary is happening today. We all know the facts from the history of human development -- there were periods of ice ages and as a result of climate change a new life cycle/stage of evolution began. The earth changes over time. Today, in Georgia, we have the historical footprints of such ice age periods. According to scientists, the preserved biocenosis in Kolkheti National Park belongs to the very first ice age. Climate change is happening now and started in the 20th century, but scientists disagree on which of two approaches is correct: the first approach suggests that this is a cycle that is normal for the Earth, while the second maintains that humans have accelerated climate change by our negative impact on the environment through emissions, and especially by greenhouse gas emissions. Everyone agrees that climate change is evident today and that the metrological situation has changed as well. We face changes in temperatures in many regions. We see initial indicators that point to climate change, but how long this will continue is unknown and whether global warming will be succeeded by a freezing period is still uncertain.

The issue of climate change has become important not only in terms of environmental protection but also politically and economically. Leaders of different countries include this topic in their agendas and discuss it at important summits by all involved parties, so all these movements indicate that countries are preparing themselves to face the possible outcomes of climate change and try to minimize its effects at a global level. We all know that every climate change has its impact on economic development and each country might suffer from its impact. Let me give an example: in agriculture we know that every plant has its harvest season, and climate change can affect harvesting significantly. Harvesting times in Georgia have changed and new terms should be defined because we may not harvest like before. This is not only due to climate changes but to soil degradation or erosion as well. However, in many cases the soil degradation is connected to climate change, for example when there are great differences between day and night temperatures, which cause soil exhaustion.

Host: Our program is dedicated to green architecture; green architecture also includes green buildings and urban territories. Climate change impacts buildings and buildings impact the environment - how does this work, and what kind of problems do we face in the city and urban development?

Marina Shvangiradze: I completely agree with Nino and just want to add a couple of suggestions. Today everyone is concerned about ongoing environmental processes in the world. The possibility of temperature increases above 2C might make the process irreversible. We have to take into account that in times of previous climate changes population numbers were lower and the world was not so developed economically. It could resist these types of changes. Today the situation is different and the world is moving faster into development. Cities and green buildings a number of studies have been conducted to assess the contribution of different sectors, like agriculture and forestry, to the global warming process. The largest contributors to greenhouse gas emissions are big cities and urban settlements. Big cities include transport and buildings, and the share of emissions from buildings in the world total 47% of the world's emissions.

Host: Our audience should understand the difference between old and new buildings. With climate change these new constructions play a major role because their impact on the environment is less than for old buildings. What can you say about the role of green building in for mitigating climate change?

Marina Shvangiradze: Because of their significant role in mitigating global warming green buildings become more important. Here we can also include green cities. One can think that by constructing one or even hundreds of green buildings, energy might be saved and emissions reduced. But these actions alone cannot improve the whole situation. Green building must not be considered as a separate unit but as part of the whole infrastructure that serves a particular building. For example, if a building is located in a remote area with no developed infrastructure, or when kindergartens, hospitals and work places are far from residential buildings the emissions are increased three-fold. In general public transport emits less than individual transport since cars can transport only 1-4 people. I think that norms accepted in Soviet times must be revised, because climate parameters have changed, including wind directions. The situation on our Black Sea coast is under observation as recently a hotel was flooded because the wind direction had changed, that caused an unpredicted inflow. As for cities, wind directions have also changed so we have to take this into consideration for the construction sector and use solar energy to a maximum.

Host: Climatology has always been a highly developed science in Georgia. In the 1970s prominent scientists like Manana Bokeria and others worked on climatology engineering, particularly for the comfort of houses and the indoor environment. The location of Tbilisi is very lucrative and the city has a natural wind ventilation system. Unfortunately, however urban planning has never considered this factor. Greening, urban planning and climatology have to be linked.

Marina Shvangiradze: Today we have no clear picture on temperature and wind directions even for Tbilisi, because only a few meteorological stations operate in the city. Previously there were more.

Nino Chkhobadze: The so-called "Wind Rose" of Tbilisi has changed. There are several reasons--the construction of high buildings, global warming, improperly planned infrastructures and reduced green zones—all of which pose major obstacles for ventilating the city.

Alex Solomnishvili, student: I would like to know how the Georgian Constitution regulates environmental protection taking into consideration ongoing climate change?

Nino Chkhobadze: Article 37 of the Georgian Constitution states that every citizen of Georgia has the right to live in a clean and favorable environment. There is also another article emphasizing the country's sustainable development. In reality, we must improve and correct many legalities. A

few seconds ago you were talking about the contamination of the city, and I want to point to the improper planning of Tbilisi which has resulted in smog conditions.

Host: “Smog” in an English word and means the contaminated air, a mixture of smoke, mist and dust. What happens when air is contaminated? For example, there was continuous smog in the 19th century in London for 30 days when around five thousand people died. Do we have any data from the Georgian Ministry of Health?

Marina Shvangiradze: Yes, we do. We have data on the influence of smog on the city population. Several studies were conducted on this. There are two ozone layers we have to consider—one at ground level and the other is troposphere ozone that protects us all from ultra violet radiation. Ground level ozone is created from different chemical substances and according to recent inquiries; temperature plays a significant role in the increase and length of the smog in the cities or regions. Of course the direction of the wind must be considered as well. The study showed that a 26C degree temperature is not sufficient to cause smog, but temperatures above 32C can correlate with causing smog. We conducted several studies thermal waves for Tbilisi and other cities and results showed a high correlation to illness.

Host: There is a term used in engineering climatology, the so-called “Heat Island”. In the very hot season the population, especially children and older people, are advised to leave the city because it is very hard for these groups to tolerate very high temperatures correlated with smog.

Nino Chkhobadze: Several years ago Tbilisi faced a problem where early in the morning the whole city was covered with mist and fog. At that time there was no opportunity to examine the situation, but at the first glance it was evident that the smog was caused by shifts in temperature. Night and day temperatures created different flows and as a result the city was covered with mist. Several things contributed to the formation of smog: There was no ventilation in the city, transport was congested, infrastructures increased and green zones diminished. Today the construction of new buildings in Tbilisi is being done very poorly, as new buildings are constructed very close to each other, making adequate ventilation impossible.

Host: We all remember Agmashenebeli Avenue before the street was enlarged, when there was an alley of trees and the birds’ singing woke us up. At international conferences I often hear about how green building and proper urban planning have actually improved the environment so that bird species have increased in number.

Nino Chkhobadze: Despite the fact that new highways have improved the traffic flow in the city, we all know that the Vera valley and Mziuri Park were considered the ventilation systems for the city. Now a new load of pollution has been added to these two important systems.

Host: Students from the faculty of Architecture created different projects for those highways which ensured the ventilation systems were preserved.

Natia Kapanadze, GALA Member: I would like to learn about the importance of public awareness on climate change, ongoing processes and the role of non-government or government sectors?

Nino Chkhobadze: Our main goal is to educate the public by raising awareness on how we all can contribute to climate change mitigation. For example, if we have to buy bread in the nearest market, there is no reason to drive a car, just walk. Many cities now promote the idea of green roofs and green walls. Today’s world is characterized by new technologies and innovative ideas.

Host: A few words about the present novelties: the future belongs to green cities. The city of the future, a floating ecopolis, Lilypad, is a lotus-shape model designed by Belgian architect Vincent Callebaut for future climate refugees. This project was elaborated but due to the financial crisis it has not been implemented. The idea of a green city is becoming more and more popular and people are willing to live in such cities.

Marina Shvangiradze: Every decrease in the quantity of local pollutants will have an effect on global warming. We have several factories in Georgia that are sources of emissions, but the major share of still belongs to the transport sector. My viewpoint on this issue is that we should not only blame the government for increased emissions, but society should come up with an idea that building in Vake Park, for example, is not a question of prestige. The demand comes from society and the duty of the Government is to develop a country's economy and avoid such improper incomes. In Germany, nobody is keen to live in Berlin, Bonn, or Frankfurt.

Host: Paris is an ancient city, and many wish to live near the famous and attractive Place Trocadero. Tbilisi is a very old city as well, but everyone wants to live in the center.

Nino Chkhobadze: In order to somehow alleviate the situation with traffic, Parisians have created a schedule of movement for odd and even numbered vehicle license tags.

Marina Shvangiradze: When I was talking about Vake Park and constructions there, I wanted to stress that there is no sense in constructing buildings in parks. These constructions are harmful for the environment and would make the center much less attractive.

Nino Chkhobadze: When new constructions harm recreation places like small green squares it is an issue that needs proper attention. Lisi Veranda that has already been constructed is a very attractive place for the population to live in and in the nearest future this place will have capacity to become a prestigious one because of its clean environment. Many cities have changed their policy in transport and road maintenance in order to decrease emissions on the ground. They have adopted tough rules on fuel quality and road pavement condition. Similar steps must be taken by Tbilisi.

Host: What about the idea of the tram?

Marina Shvangiradze: While working on the Tbilisi Sustainable Energy Action Plan, one section of the document was dedicated to the tram restoration project, namely on Chavchavadze Avenue. As I know this project still exists, but I have no updated information. The Gldani District was also proposed. By the way Batumi has never considered the idea of a tram, but we advised local decision-makers to include this measure in the plan. A tramway from the center along the sea coast would be attractive for tourists as well. It is not necessary to implement this idea everywhere in Georgia, however the tramway system should be as rapid and comfortable as it is in European cities and help citizens avoid using cars.

Nino Chkhobadze: All these steps lead us towards the elaboration of a municipal public transport system, otherwise it will be hard to achieve all the goals.

Marina Shvangiradze: Proper planning and the development of a cable infrastructure is another good solution to improve the transport sector and clean air in the city.

Nino Chkhobadze: The city has to have a zoning system and respectively recreation zoning as well. We have little information or data and what we have is not sufficient. Only by planning the city can we ever develop it.

Maia Balishvili, student: Taking into consideration the typology of urban development, what are some restrictions against the construction of multistory buildings in terms of insulation and direction of winds?

Nino Chkhobadze: Under the legislation, an investor is not restricted at all: if he requires an increase in the coefficient of flats and space, he has to pay for it. There are some restrictions in planning of course. In Europe, however, there are restrictions with regard to coefficient depending on city zones. Unfortunately we have no such restrictions in Georgia. That is why we have problems in urban planning.

Host: Our program is coming to an end. To summarize our discussion what should be done for the city?

Nino Chkhobadze: First of all it is important to have a complete city plan.

Marina Shvangiradze: I would like to repeat that behavior change is the major key. If we consider it seriously, changing people's behavior is very strong tool for climate change mitigation.

Host: Thank you for participating. Join us every Thursday at 21:30 and watch Green Architecture with me, the host of this program, Tina Khimshiashvili.

The program Green Architecture is supported by Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program supported by USAID and implemented by Winrock International Georgia, and the Georgian Association of Landscape Architects (GALA) in cooperation with Green Building Council Georgia (GBC-Georgia).





TV Channel: Ertsulovneba
Date: February 26, 2015
Title: Green Architecture

Host: Tina Khimshiashvili, Green Architect, Professor, President of Georgian Association of Landscape Architects (GALA)

Guests: Levan Beridze, Vice President of the Georgian Architects Union, Doctor, Professor, Architect; Giorgi Gurgenidze, Member of Green Building Council Georgia (GBCGeorgia), Green Construction Expert, Architect; Members of the Green Building Council of Georgia (GBCGeorgia)

Host: Let me greet our guests. Today we will talk about certification of Green Buildings and the Green Building Council Georgia. Let's start with you, Mr. Levan. During our previous programs we have addressed the issue of green architecture. Can you explain to the audience the essence of Green Architecture?

Levan Beridze: Many of us think that green architecture considers only greening plants and outdoor visual effects. In reality, the basis of green architecture includes the conceptual idea, design and technical services. These stages must consider environmentally clean technologies, services and resources. The term 'Green Architecture' was introduced in 1980s and includes not only architecture with integrated natural components, but also energy efficiency and economic architecture --and we have to discuss all components in conjunction with each other. Green architecture rests on several principles, of which a major one is cooperation with nature. What is meant by this? Not only should natural components be considered in green design and construction, but such buildings have to be autonomous, hence energy efficient; they must utilize natural resources and generate energy, for example using rain water, etc. As we all know, buildings are large consumers of water. For green buildings there is a possibility to use rain water directly as gray water—this water is collected and filtered and can be used for heating or irrigation.

The second principle is energy saving so green building design should consider energy saving for heating and for cooling as well. Another principle is using solar energy as a main source for heating and lighting.

Host: Giorgi, you are a member of Green Building Council Georgia. Can you elaborate more on your activities?

Giorgi Gurgenidze: We are a regional member of the European Councils and from August 2015 we plan to introduce certification systems that have already been elaborated to evaluate ongoing constructions. Introducing certification systems caused interest both from developers and the public. As regards a green building, it covers broad spectrum. Starting from a very simple construction built from natural materials, where the energy expenses are very insignificant. Its visual design may seem poor and not attractive but as a whole a building comply with requirements of green certification systems.

Host: Can you elaborate on these requirements?

Giorgi Gurgenidze: These are essential state standards in the construction field.

Host: Do we have these standards in Georgia?

Giorgi Gurgenidze: At the current stage we are in the process creating them, but unfortunately, we do not have previous experience using them. These standards should be drafted in accordance with the country's economic potential and not be utopian.

Host: As I know LEED certification has its own criteria. Is there any chance to replicate this system here in Georgia? One important thing is that there is no chain production of green building materials.

Giorgi Gurgenidze: Well, I can say that certain criteria can be introduced in Georgia. Of course the country is not specialized in producing green materials but we have local resources that can be used. The range of green buildings is wide--there are buildings with advanced technologies and high cost construction. It is advisable to reconstruct and rehabilitate existing buildings, rather than build new ones which will mean using new land resources and new materials.

Levan Beridze: the initial stage for green building construction is the design stage. Here we are facing a number of problems. What should be done in order to introduce green architecture? First of all, it is legislative system. Relevant legislative and normative frameworks must be created so accepted norms will be used by architects during the design stage.

Host: Is it essential to have such norms?

Levan Beridze: Of course, it is essential. Today we have no such legislative framework. Currently, there is a Zoning and Construction Code. The Ministry of Economy and Sustainable Development will pass this Code to the Parliament of Georgia and then technical regulations, norms and standards should be elaborated. The second issue is who should design green buildings. Of course architects, engineers and other relevant specialists. For this purpose the properly educated architects are needed. My suggestion is to introduce special courses of study for students. Another issue is the professional architects. Many are not informed on green building, and it is necessary to conduct trainings and qualification courses for them. Without all this, it will be impossible to develop green architecture in Georgia.

Host: As I know such trainings are already conducted, Mr. Giorgi.

Giorgi Gurgenidze: Yes, we have already conducted training.

Mariam Gugunava, GBCGeorgia Member: Why is green construction efficient?

Giorgi Gurgenidze: The efficiency of green construction includes several elements. First of all, an ecological component that not only has impact locally but worldwide as well. Green construction includes issues that immediately intervene not only in human life but also in the whole eco system. For example, the phenomenon of "light pollution" affects space within the whole eco system--excessive lighted billboards, building illuminations and street lamps. Even these issues are regulated by green evaluations, and for private residential space, according our recommendation; building lighting sources should not be annoying to neighbors.

Host: Is Tbilisi more illuminated than New York?

Giorgi Gurgенidze: New York faces this problem as well. Light pollution has an impact on bird navigation and migration, the life of insects too. As a result the eco system is damaged. Even for humans, excessive lighting at night time damages human health. Eco acoustic norms should regulate sound levels as well to maximums with proper planning.

Levan Beridze: This is an issue of education: natural lighting issues, architectural acoustic issues. Noise levels in the city are important. Noise is measured in decibels, and there must be norms for residential apartments and public spaces. All these issues must be addressed properly while designing the building, for example, where bedrooms are located, the sound insulation for walls and roofs, bushes and trees used as barriers to noise. Another issue is insulation--in other words, using sunlight. In the past we respected norms for sunlight.

Host: Today new buildings are constructed so close to each other that it is impossible to have sunlight.

Levan Beridze: The Code was elaborated to address this and it will help to promote green construction.

Host: I know you have designed a green building. Was it difficult to implement?

Levan Beridze: I have designed it but it is not built yet. There is no investor interested in implementing such a construction. There are many issues that must be considered properly at the initial stages before an investor takes on a project. There is a false perception that green construction is related to higher financial costs, while the reality is different. When the life cycle of the green building was calculated, its efficiency was assessed as much more profitable than ordinary buildings.

Host: In one of our previous programs we hosted a marketing specialist who explained many advantages of green buildings and their positive impact on human life and health.

Giorgi Gurgенidze: Of course, green buildings have a positive impact on people, and even on academic performance at schools and universities.

Host: As I know, Green Building Council Georgia is planning to build a green kindergarten in Rustavi.

Giorgi Gurgенidze: Yes, we are planning this project, and its elaboration will be open and transparent. All interested specialists and parties will be invited to discuss this project.

Host: The Public will understand the outcome and have a clear idea of what green building is.

Giorgi Gurgенidze: Each component in the construction will be considered precisely, like used materials, design of backyard; and renewable energy resources.

Host: Many kindergartens do not have yards and in many cases they do not use even small yards. We faced this in the design of kindergartens by our students; there are no green zones in the yards. So I think that the first green kindergarten will attract public interest as this building will help to connect little children with nature.

Giorgi Gurgенidze: Of course, the formation of human behavior or consciousness is connected with nature.

Natia Kapanadze, GALA member: Considering the above-mentioned norms is being done for future or planned constructions, but what can the population do with existing buildings and structures to bring them closer to those norms and help improve efficiency and comfort in the buildings?

Levan Beridze: Unfortunately, many existing buildings do not comply with these requirements. In other countries the reconstruction of such buildings has already started. They are implementing different energy efficient measures in order to save energy during winter and keep buildings cool during summer.

Giorgi Gurgенidze: I have my suggestion for this issue. There are different options on improving the energy efficiency of the building, for example, by installing water filtration systems or helio-systems, and of course greening is very important.

Host: We all see how greening is promoted in foreign countries. How parks and gardens are preserved and enlarged. You can find green roofs and walls in modern projects.

Levan Beridze: Your program helps audiences understand the idea of green building, and to have an accurate understanding that this idea unifies different components.

Host: I agree with you. Our society is very interested in greening issues, green buildings. While meeting with different persons they always express their interest in this direction, so our program is an attempt to raise awareness about green architecture for our audience. Now I want to address the issue of green councils. Giorgi, what can you say about these organizations?

Host: Green building councils have existed for decades abroad. The oldest one is the British BREEAM followed by USA's LEED certification. Different developed countries have their own certification systems, like Australia. The main ideas are similar and the only difference is that they are adapted according to countries climate conditions and other peculiarities. The most important thing is that green buildings promote sales and competitiveness and thus contribute to economic growth. These criteria help sell buildings used for tourism. For foreign guests it is more comfortable to live in green buildings because they are aware of its efficiency. Green building acts like a business card for the country and tourist attractions.

Host: I assume that a lot of work has to be done to develop our certification system, to take some components from foreign systems and adjust them to Georgian reality.

Giorgi Gurgенidze: We consider the LEED certification system good for a Georgian analogy. Our aim is to share all information on green architecture to our society and interested groups. We should take into account our ancient experience of green architecture. For example, the Javakheti region is very rich in ancient green buildings. In the Svaneti region, too, with its towers built from natural materials and stones to adapt to the severe climatic conditions.

Host: For example, in times of huge avalanches in Svaneti, buildings constructed in the 1970s were destroyed and towers survived the disaster. We should use our ancient experiences in construction and modify it to adapt to new realities.

Levan Beridze: It very interesting how our ancestors considered all components in construction-- location, climate conditions, materials, etc. Svanetian and Kakhetian houses differ from each other because the specificities of these regions were considered by their builders. We have to combine traditional experience with modern technologies. You were talking about certification. Today when person wants to buy a building or apartment there is no information about the building's quality, materials used or construction technologies, while maybe the facade of the building is attractive. When a building has a certificate or passport, everything is clear. For this reason, building certification and passports play an important role for the current real estate market.

Host: We addressed the issues of green councils worldwide, certification systems, why there is such great interest in the world toward these issues, and a number of conferences and seminars are dedicated to green architecture.

Giorgi Gurgenidze: Every citizen has the right to know where he/she lives and about their living conditions. Is this building healthy to live in?

Host: The issue of Global ecology is very important. Every country has to preserve its eco system to avoid polluting its neighbors, just as in the case of the Chernobyl disaster that impacted many countries. What can you add to our conversation to summarize the program?

Levan Beridze: There is a serious question regarding the development of the micro climates in the country. If every country takes responsibility for these developments we will all live in healthier and more comfortable environments.

Giorgi Gurgenidze: I would like to provide more information about all issues addressed during this program. This will help introduce more green buildings to our country.

Host: Our program comes to an end. Thank you for coming! The program Green Architecture is supported by Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program supported by USAID and implemented by Winrock International Georgia, and the Georgian Association of Landscape Architects (GALA) in cooperation with Green Building Council Georgia (GBC-Georgia).

ANNEX V: MEDIA COVERAGE REPORT (MARCH 2015)



USAID
FROM THE AMERICAN PEOPLE



WINROCK
INTERNATIONAL
GEORGIA

ENHANCING CAPACITY FOR LOW EMISSION DEVELOPMENT
STRATEGIES (EC-LEDS)
CLEAN ENERGY PROGRAM

COOPERATIVE AGREEMENT NO. 114-A-13-00008

Media Coverage Report

March, 2015



March 2015

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ENHANCING CAPACITY FOR LOW EMISSION
DEVELOPMENT STRATEGIES (EC-LEDS) CLEAN ENERGY
PROGRAM

MEDIA COVERAGE REPORT

March, 2015

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The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

Source: Navigator.ge
Date: March 24, 2015
Title: Energy Efficiency Is a Smart Choice

On March 20 the Georgian Technical University hosted an event entitled “Energy Efficiency is a Smart Choice”, organized by Winrock International Georgia with the participation of members of “Momavlis Taoba” (Future Generation) Program Civic Clubs.

The event was organized by Winrock International Georgia within the framework of the Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program, and in collaboration with the USAID-supported implementing partner, PH International.

Approximately 140 Tbilisi school pupils received information on “How to Save Energy”. The Dean of Energy and Telecommunications Faculty at GTU, Professor Gia Arabidze, spoke on energy efficient technologies and specific issues such as saving energy in apartments, energy audits, renewable energy and climate change.

Source: <http://14school.ge>
Date: December 29, 2014
Title: Ani Svanidze’s Success Story

On December 16, 2014 a training course entitled “Energy Efficiency is a Smart Choice” was organized within the framework of the public education program of “Momavlis Taoba” (Future Generation), implemented by the Kutaisi Education and Employment Center in the Imereti region, in collaboration with Winrock International Georgia. The training was delivered by Professor Gia Arabidze, Dean of the Energy and Telecommunications Faculty at GTU, .

Mr. Arabidze discussed energy efficiency, and training was interactive. At the end of the session a competition was held for the training participants. The third-place winner was a student from the Kutaisi Public School #14, Ani Svanidze (tutor: Nino Cholokava). All participants received certificates and honorary medals.

Source: <http://agrokavkaz.ge>
Date: March 24, 2015
Title: Energy Efficiency is a Smart Choice - Youth Event in Tbilisi

On March 20th, 2015 members of civic clubs established under the program “Momavlis Taoba” (Future Generation) participated in the event “Energy Efficiency is a Smart Choice” organized by Winrock International Georgia.

The seminar was held at the Georgian Technical University within the framework of Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program in collaboration with PH International. This organization carries out the Momavlis Taoba (Future Generation) program through support from USAID.

Approximately 140 pupils from Tbilisi schools attended the seminar “How to Save Energy” and Professor Gia Arabidze, Dean of the Energy and Telecommunications Faculty at GTU discussed a variety of energy efficient technologies. These included saving energy, types of energy efficient technologies, how to save energy in the home, energy audits, renewable energy, and the relationship between energy efficiency and climate change.

The event was highlighted by the environmental TV program for youth, “ECOVISION”.

The Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program is implemented by Winrock International Georgia with support from USAID, which supports Georgia’s efforts to mitigate climate change through energy efficiency and clean energy activities, and contributes to more responsible management and development of Georgia’s natural endowments.

Source: Gtu.ge
Date: March 20, 2015
Title: Energy Efficiency is a Smart Choice - GTU Hosted an Event

The Georgian Technical University hosted an event entitled “Energy Efficiency-- a Smart Choice” organized by Winrock International Georgia. Around 200 students from Tbilisi schools, members of civic clubs established under the “Momavlis Taoba” (Future Generation) Program participated in the event.

The event was organized by Winrock International Georgia within the framework of the Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program, and in collaboration with PH International which is implementing partner for “Momavlis Taoba” (Future Generation), and through support from USAID.

The informative seminar “How to Save Energy” was led by Professor Gia Arabidze, Dean of the Energy and Telecommunications Faculty at GTU, who discussed a variety of energy efficient technologies. These included saving energy, types of energy efficient technologies, how to save energy in the home, energy audits, renewable energy, and the relationship between energy efficiency and climate change.

The Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program is implemented by Winrock International Georgia with support from USAID; it supports Georgia’s efforts to mitigate climate change through energy efficiency and clean energy activities, and contributes to more responsible management and development of Georgia’s natural resources.

Source: www.gtu.edu.ge
Date: **March 20, 2015**
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