

Government of Georgia

United Nations Development Programme

Global Environmental Facility

Georgia – Promoting the Use of Renewable Energy Resources for Local Energy Supply

The objective of the project is to remove the key barriers to the increased utilization of renewable energy for local energy supply. The project is expected to achieve this goal i) by addressing the legal and regulatory barriers in order to provide fair and competitive access to the market for renewable energy producers, to ensure the collection of payments and to encourage otherwise the investments into renewable energy; ii) by introducing and leveraging financing for a pilot renewable energy fund/credit line so as to overcome the key financial barriers in Georgia, and iii) by addressing the existing public awareness and capacity barriers so as to provide a basis for the general development and implementation of renewable energy projects.

SIGNATURE PAGE

Country: Georgia

UNDAF Outcome(s)/Indicator(s):
(Link to UNDAF outcome.. If no UNDAF, leave blank)

Expected Outcome(s)/Indicator (s):
(Those that are linked to the project, are extracted from the CP and are linked to the SRF/MYFF goal and service line)

Expected Output(s)/Indicator(s):
(Those that are linked to the project, are extracted from the CP and are linked to the SRF/MYFF goal and service line)

Implementing partner:
(designated institution)

Ministry of Environment and Natural Resources

Other Partners:
(formerly implementing agencies)

Programme Period: March 2004 – March 2008
Project Duration: 5 years
Project Title: Georgia – Promoting the Use of Renewable Energy Resources for Local Energy Supply
Project Code: 00034741 (PIMS 1277)
Management Arrangement: National Execution

PIMS 1277 CC FP: Renewable Energy

UNDP and Cost-Sharing Financing	
TOTAL:	USD 13,630,000¹
UNDP-Managed Funds	
UNDP/GEF Full Project:	USD 4,300,000
UNDP/GEF PDF Bs:	USD 210,000 and 200,000
Sub-total:	USD 4,710,000
Co-Financing and Leveraged Financing:	
Government (in-kind):	USD 150,000
German Financial Co-operation Funds (managed by the KfW):	EUR 5,112,918.81 (or USD 5.78 million)
Other local sources:	USD 3,400,000
Sub-Total:	USD 9,330,000

Agreed by (Implementing Partner): Ms. Tamar Lebanidze, Minister, Ministry of Environment and Natural Resources

Signature *T. Lebanidze* Date 16.04.04

Agreed by (UNDP): Ms. Kaarina Immonen, Deputy Resident Representative

Signature *K. Immonen* Date 16 April 2004

Part I. Situation Analysis

During the past few decades, the development of the energy sector in Georgia, like in many other countries, has focused on the construction of big, centralized energy supply systems. With the exception of the big hydro power plants, the development of other local renewable energy resources has largely been neglected despite the fact that the country is exceptionally rich on these resources, in particular geothermal heat and small hydro power.

Since the independence, Georgia has been facing a serious energy crisis. The power supply system is suffering from regular disruptions due to the overloaded distribution system and the lack of sufficient generation capacity in an operation condition. The situation is worst during the winter, when the use of electricity for heating purposes is increasing. For many rural areas, the electricity supply has stopped entirely.

The former district heating systems in all the cities have stopped their operation and the people have been forced to use electricity, wood, gas, kerosene or any other available means to cover their heating needs. This has led, among others, to the i) massive harvesting of trees with serious environmental damages; ii) overloading of the already stretched power system; iii) stretching of the already very tight family budgets due to the high costs of electricity and kerosene; and iv) indoor air quality problems.

For overcoming the energy crisis, the following efforts to improve the situation have been observed over the past years: (i) improving the natural gas supply within the cities, so as to increase the utilization of gas for heating and cooking purposes; ii) rehabilitating the former big hydro power and gas fired condensing power plants; and iii) planning of the construction of new thermal power capacity based on the use of domestic coal. The potential of geothermal resources and existing small hydropower plants presently remains unused.

Hydropower

Georgia is one of the richest countries in the world in terms of hydropower resources and the country has a significant potential to develop the hydropower sector as an alternative to the construction of new thermal power plants. The technical hydroelectric potential (including large hydropower plants) has been estimated at 80–85 billion kWh, while the economically feasible potential, has been estimated at 40–50 billion kWh per year.

In the 1960s, approximately 300 small, mini and micro hydropower plants operated in Georgia. These plants provided several regions, villages, small enterprises and farms with electricity. A subsequent focus on centralized electricity production and large thermal power plants, however, decreased the importance of small, mini and micro hydropower plants, and small facilities to a large extent disappeared.

Today, 30 small and mini hydroelectric plants exist in Georgia, and a significant part of them are privatized. Many of them work at very low efficiency or simply do not work at all; therefore, rehabilitation is crucial. Taking into account the additional investment opportunities for new small hydro power plants, it has been estimated that in total it would be possible to build 160 small and mini hydropower plants in Georgia with a total net capacity of approximately 650

MW, and with an annual energy output of 3.9 billion kWh (corresponding to some 1.6 million tons of CO₂ annual greenhouse gas (GHG) reduction potential). The investment needs for these projects would total approximately USD 700 million.

During the PDF B phase of the project "Removing Barriers to the Development of the Small Hydro Power Sector for the Mitigation of GHG Emission in Georgia", pre-feasibility studies and business plans were prepared for eight most promising small hydro power projects that were selected among several candidate projects. All the proposed plants are privately owned and one of the main selection criteria for their inclusion was that the owners of plants are also ready to invest their own resources, should the pre-feasibility studies lead to the actual investment phase. In a further study commissioned by the KfW in spring 2002, 6 additional small hydro power plants were assessed. The average power generation costs of the proposed plants after their rehabilitation were estimated from 10 US dollars to over 100 US dollars per MWh depending on the site and the projects' financing structure.

Geothermal resources

Georgia has also abundant geothermal resources, which to large extent have remained unutilized. As a result of the earlier drilling activities, there are currently about 250 registered geothermal wells in Georgia with the depths ranging from 200 close to 4000 meters and with the outlet water temperature of 30-108 °C. The last wells were drilled in the beginning of 1990's, after which their further development has largely got stalled due to the lack of financial resources and the other barriers discussed later in this document. Despite the costly drilling and exploration work that has been done, the costs of geothermal heat can be considered as a competitive alternative to the heating and hot water preparation with natural gas and, in particular, electricity.

At the moment, Tbilisi is considered as the most promising site to start the development of the country's geothermal resources. In addition, one of every four people living in Georgia resides in Tbilisi, therefore, the program would have a substantial impact on the Georgian people as a whole. During the PDF B phase of the project, "Improving the Energy Efficiency of the Municipal Heat and Hot Water Supply", a thorough analysis was conducted for various heat and hot water supply options for Tbilisi. For this purpose, two districts in Tbilisi were selected for a detailed analysis: the Saburtalo and the Didi Dighomi districts. The study included a least cost analysis of several options for organizing the heat and hot water supply services within the selected districts, ranging from the full restoration of the former gas fired District Heating (DH) system to the fully decentralized option consisting of individual gas heaters in each apartment. In the Saburtalo district, the possibilities to increase the utilization of the nearby geothermal resources were also analyzed. As a reference, the current, estimated mix of electricity, kerosene, gas and fuel wood was used.

The study concluded that by taking into account the different technical, economic, financial, social, environmental and institutional aspects, the most feasible strategy for the long term development of the heating infrastructure in Tbilisi would be 1) the gradual upgrading of city's internal gas supply network to increase the possibility to use gas in building boilers and, as applicable, individual gas heaters in those areas that geothermal heat cannot be used (with the exception of some specific districts, in which the former DH network has been better preserved and the use of gas as a primary fuel for supplying district heating could still be considered) and

2) the parallel, gradual development of the infrastructure for increasing the use of geothermal heat in those areas, which could use heat from the existing geothermal wells - starting with hot water supply and once the solvency of the population and, consequently, the heat demand would grow, upgrading the system to provide also heat to the population. According to the estimates confirmed by a recent WB reconnaissance study, about 40% of the heating needs of Tbilisi could be covered with geothermal resources.

There are certain districts, in which the geothermal wells are already used for hot water supply. The supply system used, however, is a simple open-ended system without re-injection, slowly leading to the decrease of the pressure of the wells. In addition, the insulation of the pipes is quite poor leading to high temperature losses.

Given the fact that the existing gas network in Tbilisi is not sufficient for larger scale utilization of gas for heating and hot water preparation, but has been dimensioned mainly for cooking purposes, ultimately it is a strategic choice for the public authorities, in which cities and or parts of a specific city the gas infrastructure should be developed and in which parts the development of the use of the geothermal resources should be promoted. In that regard, the successful implementation of one or more demonstration projects and the removal of other barriers to the increased use of geothermal resources can directly influence the decisions made. Beside the economic and environmental considerations, one of the advantages of geothermal energy from the point of view of national security is also that it is a domestic, local energy resource, which given the past 10-year history of serious energy supply problems in the Caucasus region, is a highly significant feature.

Key Barriers

Despite the general policy support and interest that has been shown among various actors to develop the country's renewable energy sector, not much has happened yet in terms of implementing the suggested measures and realizing concrete investment projects in practice. When analyzing the key barriers to the realization of the identified pilot projects and, correspondingly, to the implementation of similar projects nationwide, it was recognized that many of the key barriers are shared by both the geothermal and the small hydro power projects and the renewable energy projects in general. Especially, this applies to the identified financial barriers, but also to many capacity and institutional barriers such as facilitating access to project financing, building the local capacity to prepare bankable feasibility studies, building the local capacity to manage the renewable energy companies that have been or are to be established, raising general public awareness on the available renewable energy potential and so on. The main technology specific activities, and as such quite essential in providing concrete "case studies" for further replication, are the proposed pilot/demonstration projects, which cannot so easily "cross-used" in the promotion of other kind of renewable energy resources. Moreover, there are few selected areas such as the power sector regulatory framework and the institutional arrangements for payment collection and billing that are often sector/technology specific. A more detailed list of the identified key barriers is presented below.

Capacity and Institutional Barriers

- Lack of experience and capacity of the Government of Georgia to develop concrete programs and policy measures to promote the development of the country's renewable energy resources (apart from big centralized hydro power plants) and to ensure otherwise that a supportive legal and regulatory framework for leveraging investments for local, small and medium scale renewable energy projects is in place;
- Lack of in-country information and experience on the state-of-the-art renewable energy technologies;
- Lack of in-country capacity to develop "bankable" investment proposals, feasibility studies and business plans;
- Lack of experience of the local SMEs and/or consultants to professionally manage and supervise renewable energy projects through their development, procurement and commissioning stages.

Financial Barriers

- Relatively small size of the individual projects, which make them less attractive to big, international financing organizations (high transaction costs);
- High perceived risks of developing and financing renewable energy projects in Georgia, leading to high interest rates, short pay-back periods and difficulties in getting access to the financing in general; and
- Weak financial status of the local renewable energy companies and problems in meeting the strict guarantee and collateral requirements of the possible financiers.

Specific Institutional and Financial Barriers in the Power Sector

- Regulated power purchasing tariffs, cross-subsidizing thermal power generation against hydro and other renewable sources; and
- Payment arrears and the associated risks for the independent power producers to sell their electricity to the state grid.

Specific Institutional and Financial Barriers in the Heating Sector

- Low solvency of the population, which in the absence of long term and low costs financing mechanisms promotes the solutions with low investments costs, but higher operation and often also higher life-cycle costs;
- Very low level of organization of the apartment owners, limiting the possibilities for organizing the heat and hot water supply services and for applying the least cost alternatives at the building level; and

- Lack of experience with metering and consumption based billing systems, as applied to central heat and/or hot water supply systems.

As a country with the economy in transition, the Government is lacking both the capacity and the financial resources to actively remove the identified barriers and to promote the development of Georgia's abundant renewable energy resources otherwise.

In the absence of the GEF support, the removal of the barriers described above would not take place or the process would be considerably delayed, resulting in major delays in the realization of the identified renewable energy potential.

Part II. Strategy

The objective of the project is to remove the key barriers to the increased utilization of local renewable energy resources. The initial focus will be on promoting the use of geothermal resources for heating and hot water supply and the use of small hydro power for local electricity production. After successful implementation of the first demonstration projects in these sectors, other renewable energy sources can also be incorporated. In addition, the activities are designed to be replicated in a regional context for countries in the Caucasus (including Armenia, Azerbaijan, and parts of the Russian Federation) and in the broader CIS region. A specific emphasis throughout the project implementation will be placed on leveraging additional financial resources for the capitalization of the proposed Renewable Energy Fund so as to sustain its operations and to enhance its possibilities to support renewable energy investments. The project team will focus on the government, other bilateral donors, and international financial institutions as potential investors in the proposed fund.

The project will support, in particular, the local small and medium size enterprises that have expressed and demonstrated real interest in developing renewable energy resources in Georgia - also by investing their own resources. The project is seeking to overcome the barriers listed before, which have been identified as critical to the promotion of local renewable energy development, including support for project preparation and leveraging financing for the actual investments. In terms of technologies, the objective is to reduce the use of electricity, kerosene, gas and unsustainably produced wood fuel for heating and hot water preparation and to increase the share of renewable energy sources in the power generation. A more detail description of the project objectives, outputs and activities as well as measures to ensure its replication and sustainability is presented in Part II of this Project Document.

The proposed activities will complement the Government's Letter of Sector Development Policy (LSDP) and the current energy sector legislation. As in many other countries, however, there is a disparity, in which the measures and technologies promoted at the general policy level are not necessarily implemented in practice. The proposed project aims to overcome the key barriers to the implementation of the identified renewable energy projects. The activities proposed for GEF financing are not likely to be undertaken by the Government on its own, which without the GEF support would considerably slow down the development of the targeted renewable energy technologies in Georgia.

Operationally, the project falls under the GEF Operational Program #6, "Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs".

Enhanced use of local renewable sources, in particular geothermal and small hydro, are listed in the first national communication of Georgia among the key mitigation measures to reduce Greenhouse Gas (GHG) emissions. On March 3, 1998, the Decree of the President of Georgia "On the Development of Non-traditional Energy Sources in Georgia" was signed to: i) promote the use of renewable energy resources as one of the primary branches of the sustainable development of the Georgian energy sector; and ii) elaborate measures to promote the investments needed for the development of these resources.

Part III. Management Arrangements

The project is a result of a process that was started under two separate PDF Bs "Removing Barriers to Energy Efficiency of the Municipal Heat and Hot Water Supply in Georgia" and "Removing Barriers to the Development of the Small Hydro Power Sector for the mitigation of GHG Emissions in Georgia". In the course of the implementation of the first PDF B ("Removing Barriers to Energy Efficiency of the Municipal Heat and Hot Water Supply in Georgia") it became evident that the most feasible measure to start to reduce Georgia's GHG emissions from the heat and hot water supply sector would be to facilitate the use country's abundant geothermal resources for this purpose. Therefore, rather than proceeding further with a separate energy efficiency and small hydro power project in Georgia, it was concluded that a more cost effective strategy for the GEF in the next, full size project phase would be to support the use of country's renewable energy resources for both the heat and hot water supply applications and for the power generation under a single renewable project. As discussed earlier in this project document many of the key barriers are common for both projects.

The proposal has been developed in close consultation with the key stakeholders in Georgia, including the owners of the existing renewable energy facilities that are possible candidates for rehabilitation, relevant government and local authorities, different local and international financing institutions and local NGOs. The modalities for stakeholder participation have included direct consultations, seminars as well as regular meetings of the Project Supervisory Committee.

Broad involvement of the key stakeholders also in the actual project implementation phase is foreseen, and it is considered as an absolute requirement for implementing the project successfully.

The project will be financed jointly by the UNDP/GEF and the German Financial Co-operation Funds managed by the German Bank for Reconstruction (KfW), together with the expected contributions of the local renewable energy companies for financing the first demonstration projects and the in-kind contribution of the Government of Georgia. A chart presenting the project's financial flows and implementation arrangements is presented in Annex IV with more detailed description of the Renewable Energy Fund in Annex V.

The management of UNDP/GEF's contribution to the Renewable Energy Fund shall be carried out by UNDP through a service contract with KfW. This is in order to facilitate well co-ordinated management of the proposed GEF and the German Financial Co-operation funds allocated for the establishment of the Renewable Energy Fund as well as to leverage KfW's experience in managing comparable financial sector projects in Georgia and other countries. The Terms of Reference presented as the Annex III to this project document specify the services to be provided by the KfW as well as its monitoring and reporting requirements to UNDP under this service contract. In general, the KfW shall exercise the same diligence in the performance of their duties under the service contract with UNDP as they will for the management of the German Financial Co-operation Funds.

The National Executing Agency of the Financial Component of the Project will be the Ministry of Fuel and Energy whereas Executing Agency for the Technical Assistant component of the Project will be the Ministry of Environment and Natural Resources Protection.

A Project Supervisory Committee (PSC), consisting of the representatives of the Ministry of Finance, the Ministry of Fuel and Energy, Ministry of Environment and Natural Resources Protection, KfW and UNDP will be established to supervise the overall implementation of the Project and to provide guidance for its implementation. Other members can be included into the Project Supervisory Committee, as needed. The PSC will be chaired by the Minister of Fuel and Energy. In the absence of the Chair, the PSC will be chaired by the Minister of Environment. In addition to the overall supervision of the project implementation, the PSC is expected to play a key role in supporting the removal of the identified legal and regulatory barriers to the renewable energy development in Georgia. After the end of the project and as applicable, the PSC, eventually with somewhat altered composition and name, is expected to continue the supervision of the operations of the Renewable Energy Fund.

A Financial Intermediate (FI), tentatively a private bank, will be responsible for implementing the financial component of the Project (i.e. the proposed Pilot Renewable Energy Fund / Credit Line). The Financial Intermediate will be selected by the KfW in co-operation with the Ministry of Finance and the UNDP.

The consulting services supporting and training the Financial Intermediate under the Financial Component will be commissioned after international competitive bidding and monitored by KfW. The consulting team should consist of two long-term experts (one international and one local) supported by short-term experts. The consultants will be identified by the KfW in consultation with UNDP. Apart from training staff of the Financial Intermediate in the management of the revolving Pilot Renewable Energy Fund, the implementation and promotion of the credit line, the assessment of loan applications and the monitoring of the renewable energy investments, the Consultant's tasks would include compiling and distributing the progress reports on the Financial Component to the Project Supervisory Committee.

The Project Management Unit (PMU), consisting of a full time project manager, an administrative assistant and a part time international technical adviser will be responsible for the day to day management and co-ordination of the UNDP/GEF funded technical assistance component of the Project. In addition, it will act as a "Secretariat" for the Project Supervisory

Committee, organizing the meetings and compiling, reviewing and distributing the project progress reports from the different participating institutions. The PMU will be hosted by the National Agency on Climate Change on behalf of the Ministry of Environment and Natural Resources Protection. The PMU and the selected Financial Intermediate shall report to the Project Supervisory Committee on the project's progress and its various sub-components.

The Ministry of Finance, as the formal recipient of the German Financial Co-operation grant funds will on-lend the resources to the selected Financial Intermediate under the conditions described in Annex VIII. The final beneficiaries will be the participating renewable energy companies, which will get access to loans at concessional rates to develop their business.

The Ministry of Foreign Affairs will ensure all necessary formal communication, on behalf of the Georgian Government, to the Government of Germany as required by official procedures in relation to the KfW initiative to promote renewable energy resources in Georgia.

The Ministry of Fuel and Energy, in addition to the responsibilities described earlier in this project brief, will take the lead, in particular, in the activities aimed at the development of a national renewable energy strategy as well as a supportive legal and regulatory framework for the development of the small and medium size renewable energy resources in Georgia in general. The Ministry of Fuel and Energy will also provide support for obtaining the necessary licenses, permits and adequate tariffs for the selected pilot projects.

The National Energy Regulatory Committee will cooperate with the project, among others, in determining adequate tariffs for selected pilot projects

The Ministry of Environment and Natural Resources Protection, in addition to the responsibilities described earlier in this project brief, will collaborate with the Ministry of Fuel and Energy in establishing a supportive legal, regulatory and financial framework for the sustainable development of the local renewable energy resources taking into account the climate change as well as other environmental considerations, including the possible additional financial resources that can be mobilized from the GEF and other financial instruments dealing with the climate change issue.

The National Agency on Climate Change, in addition to the responsibilities described earlier in this project brief, will be responsible for monitoring the resulting GHG emission reductions from the implementation of the selected pilot projects. In addition and in co-operation with the other expert institutions in Georgia, it will participate the public awareness raising and capacity building activities to develop a pipeline of "bankable" renewable energy proposals, in particular in the geothermal and small hydro power field.

The implementation of the proposed pilot projects will be led by the participating private sector companies, supported by the international technical advisers under the TA component of the project. In the case of the proposed geothermal pilot project, the establishment of a new joint stock company between interested private operator(s) and the municipality is foreseen.

The representatives of the universities and other research/educational institutions as well as the NGOs are foreseen to be actively involved in the implementation of project activities, especially as it concerns the activities dealing with the public awareness raising and other educational and training activities, research related to the technical aspects of the technologies to be promoted as well as monitoring and evaluation of the overall results of the project.

Monitoring, Evaluation and Dissemination of Results

The Project Supervisory Committee will supervise and monitor the overall implementation of the project. For this purpose, the Project Management Unit shall regularly report on the project's progress and its various sub-components. Likewise, the subcontractors shall report regularly to the PMU as stipulated in their Terms of Reference.

Development of effective feedback mechanisms to guide the overall project implementation belongs to one of the main activities of the project under the M&E component. The project will monitor the implementation of the overall project activities, the operation of the Renewable Energy Fund/Credit Line as well as the progress of individual projects that receive funding under the financial component of the project. As needed, the experiences and lessons learnt can be used for redefining some of the project activities and approaches and, in particular, in designing the project follow-up and replication activities. Information on the project's progress and results will be updated regularly and made available to anyone interested, for instance through the homepage established for the project to the Internet. A specific emphasis will also be placed on promoting the replication of the project activities at the regional level by disseminating the experiences and lessons learnt through regional workshops and other regional outreach activities.

The overall progress of the project will be monitored against its agreed work plan and performance indicators, as elaborated in Project Results Framework and Annexes IV (Indicative Work Plan), V (Project Planning Matrix) and VI (Monitoring and Evaluation Plan). Should the necessary preconditions not be in place for further continuation of the project activities, the UNDP/GEF and the KfW reserve a right to terminate their assistance. These preconditions include the necessary provisions from the Government side for facilitating the feasible implementation of the suggested demonstration projects, continuing commitment of the local private and semi-private sector to co-finance the suggested demonstration projects and the demonstrated commitment of the Government of Georgia to introduce changes in the institutional, legal and regulatory framework that support the investments in renewable energy in the long term.

As a project co-operating agency managing the financial component of the project, the KfW as well as the selected financial intermediate will report to the UNDP according to standard UNDP and GEF reporting requirements.

The project will be reviewed by a tripartite committee at least once every year. The first such meeting is to take place within the first 12 months from starting the implementation of the project. The Project Manager shall prepare and submit to each tripartite review meeting a Harmonized Annual Project Report (APR)/Project Implementation Review report (PIR). The

Annual PIR prepared by the UNDP CO is intended for submission to the GEF. Additional reviews and progress reports may be requested, if necessary, during the project and the project staff shall support the preparation of these reviews, including Secretariat Managed Project Reviews (SMPRs), as they may arise.

The project will also be subject to an independent midterm and final evaluation undertaken by an independent international expert or team of experts, as applicable. The final project results, experiences and lessons learnt will be compiled into the Project Final Report that will be published and disseminated through the applicable channels.

The Government will provide UNDP with certified periodic financial statements relating to the status of UNDP/GEF funds, including an annual audit of these financial statements, according to the procedures set out in relevant documents. The audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

Stakeholder Participation and Co-ordination with Other Activities and Donors

During the past few years, several donors have been active in Georgia assisting the Government to overcome the pending problems in the energy and environmental sector.

The UNDP/GEF funded "enabling activity" to facilitate the preparation of the first national communication of Georgia under its commitments to the United Nations Framework Convention to Climate Change was launched in 1997 and was finalized in April 1999. The project consisted of (a) an inventory of the country's GHG emissions; (b) an assessment of potential impacts of climate change in Georgia; (c) an analysis of the different measures to reduce the GHG emissions in Georgia; (d) an analysis of the possible measures to adapt to climate change; (e) preparation of a national GHG abatement and adaptation strategy; and (f) preparation of the first national communication of Georgia to the UNFCCC.

The project under consideration is a direct follow-up on the work that was started in the frame of the above described national communication preparation process. The measures that were identified as priority measures to reduce country's GHG emissions were studied in further detail in two UNDP/GEF funded PDF Bs "Removing Barriers to the Development of the Small Hydro Power Sector for the mitigation of GHG Emissions in Georgia" and "Removing Barriers to Energy Efficiency of the Municipal Heat and Hot Water Supply in Georgia", from which in the latter the increased and more efficient use of the existing geothermal resources for heat and hot water supply was considered as one of the primary measures to be promoted. The local implementing agency for both projects has been the National Agency on Climate Change.

Since the mid 1990s, the KfW has actively supporting SME and financial sector development in Georgia. After the collapse of the collective farming systems, the rehabilitation of the agricultural sector was fostered by credit lines made available through private commercial banks to small and medium farmers. In order to stimulate entrepreneurial activities, in the late 1990s KfW took the lead in founding the Microfinance Bank of Georgia together with other international donors as IFC, EBRD and later FMO and Commerzbank. The originally small bank

has grown substantially in the meantime and has granted more than 14,000 loans to SMEs. KfW is currently establishing a credit guarantee fund in Georgia permitting selected and qualified private commercial banks access to cheap refinancing to be used for SME lending.

In the energy sector, the KfW has been involved in the rehabilitation of the Gardabani thermal power plant and is currently discussing with the Government the rehabilitation of the Vartsikhe 180 MW hydro power plant. In addition, the KfW has provided support for upgrading and rehabilitating the national transmission and distribution system.

In 1996-97, the KfW conducted a study for the rehabilitation of the municipal heat and hot water supply system in Tbilisi ("Studie zur Wärmeversorgung von Georgien am Beispiel des Grossraums Tbilisi"). Given the existing institutional and financial barriers, however, the feasibility study has not led to any further investments.

As a part of this project preparatory process, the KfW conducted in spring 2002 an additional evaluation study of potential small hydro and wind energy projects that could be considered for financing under the proposed joint credit scheme of the KfW and the UNDP/GEF. While the wind energy was not considered as feasible for financing yet, the small hydro power projects received a positive mark.

The USAID has been active for several years in the energy sector in Georgia, providing advise for energy sector reform process, auditing and legal issues and financing studies and selected demonstration projects to support this process. Some of them relevant to the proposed GEF project are:

- The study "Thermal Waters of Georgia", published by the Georgian Geothermal Association in 1998 under the Financial Support of USAID and a separate study to closer investigate the geothermal recourses in Tbilisi and Zugdidi;
- Rehabilitation of one of the geothermal wells in Tbilisi (1998);
- The study "Tbilisi Heating System Rehabilitation Possibilities" (1999);
- The pilot project in Rustavi on improved energy distribution, metering and revenue collection;
- The "Georgian Electricity Sector Least Cost Development Plan" (1998), which, however, focused primarily on big thermal and hydro power plants. The small hydro power plants were not considered in the study.

In March, 2003 USAID launched a four-year Georgia Energy Security Initiative (GESI). The project has five main program components and it will be implemented by PA Government Services, Inc. and their team of subcontractors. The five main components include:

- Restoration of Hydropower including so-called "Quick Hits" (i.e., measures that can be taken rapidly to introduce additional capacity and energy into the electricity system), capital maintenance and full rehabilitation of at least one medium-size unit;

- Electricity Distribution Improvement including financing of a management team for the UDC and the formation of one or more Distribution Service Areas, in which aggressive commercialization activities should take place;
- Georgia Winter Heating Assistance Program (GWHAP) VI continuing a cash subsidy program for one additional year, while designing ways to phase out of USAID funded cash subsidies and seeking other ways to address the energy needs of the vulnerable and socially critical institutions;
- Credit Facility Development to explore and develop ways to provide financing for the private sector to spur energy project development to support business and economic development, including renewable energy, energy efficiency and other energy using technologies (e.g., new industrial processes);
- Community Development to identify communities, in which economic development and social welfare can be enhanced through community development activities and community "buy-in" to take control of its own energy, social and economic development needs.

Overall, the GESI is intended to be a four-year initiative. However, only the Hydropower Restoration component is planned to be four years in length. Other program components are approximately two years in length. The bulk of activities under the Credit Facility Development component are due to be completed during the first year of the GESI.

In bilateral consultations, the USAID has indicated its interest in co-operation in the frame of the proposed GEF project.

The **World Bank** has been closely following the power sector reform and has supported the market transformation process. The objectives of the "Electricity Market Support Project" are to improve the efficiency of electricity supply and the financial, and corporate management of the Georgian wholesale electricity market (WEM), controlled by the Georgian National Electricity Regulatory Commission (GNERC). The listed components of the project include: 1) installation of energy meters in the transmission network, supporting the market arrangements from bilateral contracts to short-term spot markets, based on competitive bidding; 2) hardware/software installation, to enable real time acquisition of operational information from power stations, and transmission system; 3) installation of communications equipment to serve the communication needs of the metering, dispatch, and control systems; 4) rehabilitation of selected transmission substations and development of an environmental management plan; and 5) supply, and installation of computerized management information systems. On the power generation side, investment support was provided, among others, for the rehabilitation of a 300 MW unit at the Gardabani Thermal Power Plant.

In spring 2002, a reconnaissance study was finalized under WB's supervision to evaluate the potential for utilizing the existing geothermal resources in Georgia. As a source of information, the study used, among others, the results of the earlier USAID funded studies as well as results and information compiled under the UNDP/GEF funded PDF B phase discussed earlier. In general, the reconnaissance study concluded that there is economically feasible potential to develop Georgia's geothermal energy resources and recommended the WB to pursue this option

further. At the moment, however, it is still unclear whether the Bank is going to proceed with the actual loan. If so happens, however, the opportunities for co-operation are obvious. In addition, the project will explore the opportunities for further co-operation with the WB/GEF project "Strategic Partnership for the Development of Geothermal Energy in the ECA region", which is currently under development. Based on the information received from Bank so far, one of the key barriers this project (and the Fund respectively) would be addressing is the "drilling risk", which, however, might not apply directly to Georgia as a major amount of the wells has already been drilled. It may also be that due to the very different institutional, economic and financial framework between the most Eastern/Central European transitional economies and the lower income CIS countries, the proposed barrier removal strategy in the WB/GEF project does not apply directly to Georgia and the foreseen other countries within the region targeted by the proposed UNDP/GEF project. In any case, close links will be maintained with the WB/GEF team responsible for the above mentioned project and any possibilities for co-operation will be utilized.

The EU/TACIS has provided technical assistance to the Ministry of Fuel and Energy for the "Development of an Energy Policy in Georgia", and as the continuation of this project "Technical Support for Industry and Residential Sectors" seeking to improve the demand side energy efficiency. The EU/TACIS has also been supporting the establishment of an Energy Efficiency Centre in Tbilisi and the preparation of a "Natural Energy Resources Study in Georgia", in 1999. The objectives of the study were to assess the technical and economic potential for renewable energy development in Georgia and to identify concrete investment opportunities. Until now, however, the studies have not led to the actual investment phase. Some of the small hydro power projects identified in the frame of the mentioned study are, however, listed as candidate projects for funding under the proposed joint GEF/KfW Pilot Renewable Energy Fund.

In addition to the ones mentioned before, also other donors have been supporting the rehabilitation of the big hydro power plants in Georgia, including the support of OECF (Japan) for the rehabilitation of the Lajanuri and Khrami II hydropower stations and the EBRD providing financing for the rehabilitation of the Enguri hydropower station. Until now, however, the small hydro power stations have largely been neglected.

Part IV Legal Context

This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Georgia and the United Nations Development Programme, signed by the parties on July 1, 1994. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

UNDP acts in this Project as Implementing Agency of the Global Environment Facility (GEF), and all rights and privileges pertaining to UNDP as per the terms of the SBAA shall be extended *mutatis mutandis* to GEF.

The UNDP Resident Representative in Georgia is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

- (a) Revision of, or addition to, any of the annexes to the Project Document;
 - (b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
 - (c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
- Inclusion of additional annexes and attachments only as set out here in this Project Document.

Annual Work Plan (2004-2008)

EXPECTED OUTPUTS ¹ & MONITORING ACTIVITIES ²	Key Activities <i>List all the activities to be undertaken during the year towards stated output</i>	TIMEFRAME				RESPONSIBLE PARTNER	PLANNED BUDGET		
		2004	2005	2006	2007		2008	Source of Funds	Description
Georgia – Promoting the Use of Renewable Energy Resources for Local Energy Supply	Institutional, legal and regulatory analysis and recommendations	X	X	X	X	X		International Consultants	525,000
								Local Staff (long term)	78,000
								Local Staff Consultants	201,600
								Travel	64,400
								Equipment	521,000
								Leases and communication	100,000
								Reporting and audit	60,000
								Miscellaneous	35,000
								Sub-total	1,585,000
				X	X	X	X		Media/PR
							Sub-total	30,000	
	Technical Assistance	X	X	X	X			Subcontract (Financial consultancy services, and Management Management	650,000
								Sub-total	650,000
	Strengthening Local Capacities (workshops)	X	X		X			Workshops, trainings	35,000
								Sub-total	35,000
	Pilot Renewable Energy Fund			X					2,000,000
								Sub-total	2,000,000
TOTAL								Sub-total	4,300,000

¹ State the outputs that the project is expected to achieve/contribute to. Include relevant indicators/benchmarks
² List monitoring activities such as Field Monitoring Visits, Technical backstopping missions, Evaluations, Annual Project Report.



Annual Work Plan

Georgia - Tbilisi

Award Id: 00033446

Award Title: Renewable Energy for Local Supply

Year: 2004

Report Date: 25/3/2004

Project ID	Expected Outputs	Key Activities	Timeframe		Responsible Party	Planned Budget				
			Start	End		Fund	Donor	Budget Descr	Amount US\$	
00034741	Renewable Energy for Local Sup	Institutional Analysis/Recom	18/3/04		GEO-GOVERNMENT	62000	GEFTrustee	71200	International Consultants	126,000.00
					GEO-GOVERNMENT	62000	GEFTrustee	71300	Local Consultants	43,200.00
					GEO-GOVERNMENT	62000	GEFTrustee	71400	Contractual Services - Indi	15,600.00
					GEO-GOVERNMENT	62000	GEFTrustee	71600	Travel	12,900.00
					GEO-GOVERNMENT	62000	GEFTrustee	72000	General Operating Expense	35,000.00
					GEO-GOVERNMENT	62000	GEFTrustee	73100	Rental & Maintenance-Premis	20,000.00
					GEO-GOVERNMENT	62000	GEFTrustee	74100	Professional Services	5,000.00
					GEO-GOVERNMENT	62000	GEFTrustee	74500	Miscellaneous Expenses	7,000.00
		Public Awareness	18/3/04		GEO-GOVERNMENT	62000	GEFTrustee	72100	Contractual Services-Compan	6,000.00
		Technical Assistance	18/3/04		GEO-GOVERNMENT	62000	GEFTrustee	72100	Contractual Services-Compan	130,000.00
		Workshops	18/3/04		GEO-GOVERNMENT	62000	GEFTrustee	74500	Miscellaneous Expenses	1,000.00
TOTAL										401,700.00
GRAND TOTAL										401,700.00



Annual Work Plan

Georgia - Tbilisi

Award Id: 00033446

Award Title: Renewable Energy for Local Supply

Year: 2005

Report Date: 25/3/2004

Project ID	Expected Outputs	Key Activities	Timeframe		Responsible Party	Planned Budget										
			Start	End		Fund	Donor	Budget Descr	Amount US\$							
00034741	Renewable Energy for Local Sup	Institutional Analysis/Recom	18/3/04		GEO-GOVERNMENT	62000	GEFTrustee	71200	International Consultants	166,000.00						
						62000	GEFTrustee	71300	Local Consultants	47,300.00						
						62000	GEFTrustee	71400	Contractual Services - Indi	15,600.00						
						62000	GEFTrustee	71600	Travel	12,900.00						
						62000	GEFTrustee	72000	General Operating Expense	25,000.00						
						62000	GEFTrustee	73100	Rental & Maintenance-Prems	20,000.00						
						62000	GEFTrustee	74100	Professional Services	5,000.00						
						62000	GEFTrustee	74500	Miscellaneous Expenses	7,000.00						
						62000	GEFTrustee	72100	Contractual Services-Compan	6,000.00						
						62000	GEFTrustee	72100	Contractual Services-Compan	130,000.00						
						62000	GEFTrustee	74500	Miscellaneous Expenses	18,000.00						
						TOTAL										452,800.00
						GRAND TOTAL										452,800.00



Annual Work Plan

Georgia - Tbilisi

Award Id: 00033446

Award Title: Renewable Energy for Local Supply

Year: 2006

Report Date: 25/3/2004

Project ID	Expected Outputs	Key Activities	Timeframe		Responsible Party	Planned Budget									
			Start	End		Fund	Donor	Budget Descr	Amount US\$						
00034741	Renewable Energy for Local Sup	Institutional Analysis/Recom	18/3/04		GEO-GOVERNMENT	62000	GEFTTrustee	71300	Local Consultants	47,300.00					
						62000	GEFTTrustee	71400	Contractual Services - Indi	15,600.00					
						62000	GEFTTrustee	71600	Travel	12,900.00					
						62000	GEFTTrustee	72000	General Operating Expense	455,000.00					
						62000	GEFTTrustee	72100	Contractual Services-Compan	112,000.00					
						62000	GEFTTrustee	73100	Rental & Maintenance-Premis	20,000.00					
						62000	GEFTTrustee	74100	Professional Services	15,000.00					
						62000	GEFTTrustee	74500	Miscellaneous Expenses	7,000.00					
						62000	GEFTTrustee	72100	Contractual Services-Compan	6,000.00					
						62000	GEFTTrustee	72600	Grants	2,000,000.00					
						62000	GEFTTrustee	72100	Contractual Services-Compan	130,000.00					
						TOTAL						2,820,800.00			
						GRAND TOTAL						2,820,800.00			



Annual Work Plan

Georgia - Tbilisi

Award Id: 00033446

Award Title: Renewable Energy for Local Supply

Year: 2007

Report Date: 25/3/2004

Project ID	Expected Outputs	Key Activities	Timeframe		Responsible Party	Planned Budget				
			Start	End		Fund	Donor	Budget Descr	Amount US\$	
00034741	Renewable Energy for Local Sup	Institutional Analysis/Recom	18/3/04		GEO-GOVERNMENT	62000	GEFTrustee	71300	Local Consultants	36,100.00
					GEO-GOVERNMENT	62000	GEFTrustee	71400	Contractual Services - Indf	15,600.00
					GEO-GOVERNMENT	62000	GEFTrustee	71600	Travel	12,900.00
					GEO-GOVERNMENT	62000	GEFTrustee	72000	General Operating Expense	5,000.00
					GEO-GOVERNMENT	62000	GEFTrustee	72100	Contractual Services-Compan	58,000.00
					GEO-GOVERNMENT	62000	GEFTrustee	73100	Rental & Maintenance-Premitis	20,000.00
					GEO-GOVERNMENT	62000	GEFTrustee	74100	Professional Services	10,000.00
					GEO-GOVERNMENT	62000	GEFTrustee	74500	Miscellaneous Expenses	7,000.00
		Public Awareness	18/3/04		GEO-GOVERNMENT	62000	GEFTrustee	72100	Contractual Services-Compan	6,000.00
		Technical Assistance	18/3/04		GEO-GOVERNMENT	62000	GEFTrustee	72100	Contractual Services-Compan	130,000.00
TOTAL										300,600.00
GRAND TOTAL										300,600.00



Annual Work Plan

Georgia - Tbilisi

Award Id: 00033446

Award Title: Renewable Energy for Local Supply

Year: 2008

Report Date: 25/3/2004

Project ID	Expected Outputs	Key Activities	Timeframe		Responsible Party	Planned Budget										
			Start	End		Fund	Donor	Budget Descr	Amount US\$							
00034741	Renewable Energy for Local Sup	Institutional Analysis/Recom	18/3/04		GEO-GOVERNMENT	62000	GEFTTrustee	71300	Local Consultants	27,700.00						
						62000	GEFTTrustee	71400	Contractual Services - Indi	15,600.00						
						62000	GEFTTrustee	71600	Travel	12,800.00						
						62000	GEFTTrustee	72000	General Operating Expense	1,000.00						
						62000	GEFTTrustee	72100	Contractual Services-Compan	63,000.00						
						62000	GEFTTrustee	73100	Rental & Maintenance-Premis	20,000.00						
						62000	GEFTTrustee	74100	Professional Services	25,000.00						
						62000	GEFTTrustee	74500	Miscellaneous Expenses	7,000.00						
						62000	GEFTTrustee	72100	Contractual Services-Compan	6,000.00						
						62000	GEFTTrustee	72100	Contractual Services-Compan	130,000.00						
						62000	GEFTTrustee	74500	Miscellaneous Expenses	16,000.00						
						TOTAL										324,100.00
						GRAND TOTAL										324,100.00