OUTCOME EVALUATION

United Nations Development Program
Georgia

Country Program Action Plan

Access to sustainable energy

FINAL VERSION

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LIST OF ABBREVIATIONS

BP	British Petroleum
BTC	Baku-Tbilisi-Ceyhan pipeline
CCF	Country Cooperation Framework
CDM	Clean Development Mechanism
CFL	compact fluorescent lamp
CHP	combined heat & power
CPAP	Country Programme Action Plan (2006-2010)
EBRD	European Bank for Reconstruction and Development
EOP	Early Oil Pipeline
ESCO	Electricity Sector Commercial Operator
EE	energy efficiency
EU	European Union
EUR	euro
KfW	Kreditanstalt für Wiederaufbau (German Bank for Reconstruction)
GEEP	Georgia Energy Efficiency Project
GEF	Global Environment Facility
GIOC	Georgian International Oil Corporation
GoG	Government of Georgia
GNEWRC	Georgian National Energy and Water regulation Commission
GOGC	Georgian Oil and Gas Corporation
GRDC	Georgian Reconstruction and Development Corporation
GWh	gigawatt-hour (million kWh)
HPP	hydro power plant
IFC	International Finance Corporation
kWh	kilowatt-hour
MW	megawatt (million Watt)
TWh	terawatt-hour (billion kWh)
NGO	non-governmental organization
PJ	petajoule (10^{15} Joules)
PMDI	Pipeline Monitoring and Dialogue Initiative
RBM	results based management
RE	renewable energy
REF	Renewable Energy Fund (under KfW administration)
SCP	Baku-Tbilisi-Erzurum Gas Pipeline
SHPP	small hydropower plant
SWH	solar water heater
TTF	UNDP Thematic Trust Fund (on energy and environment)
TRAC	UNDP regular budget resource
UNDP	UN Development Programme
USAID	US Agency for International Development
USD	US dollar
US$	US dollar

EXECUTIVE SUMMARY

Introduction

In Georgia, the United Nations Development Program (UNDP) aims to provide a support role for the country, especially in the area of poverty alleviation, private sector development, fostering democratic governance and strengthening local government, conflict alleviation and 'energy and environment for sustainable development', as laid down in the Country Program Action Plan (CPAP) for the period 2006-2010. Within the practice area of 'energy and environment', the CPAP aims to attain two main outcomes, namely 'sustainable management of environment and natural resources' as well as 'access to sustainable energy'. The latter outcome was selected by the UNDP Country Office for evaluation by a team of independent consultants.

Thus, this report describes the progress toward achievement of the above-mentioned CPAP outcome of 'access to sustainable energy' and provides guidance on direction of the remaining period of the CPAP and beyond as well as presenting some lessons learned.

The following specific UNDP projects are analyzed as falling under the 'access to sustainable energy' outcome, and can be regarded as the 'outputs' under this outcome.

- Pipeline Monitoring and Dialogue Initiative (PMDI), Georgian NGO Capacity Building Initiative
- Capacity Building of the Georgian International Oil Corporation (GIOC)
- Strengthening Capacities of Georgian Oil and Gas Corporation (GOGC)
- Renewable Energy Sources for Local Energy Supply (co-funded by the Global Environment Facility, GEF)
- Small hydropower resources at the community level
- Clean Energy Technologies in the Oni Region

Development context

Georgia has been undergoing the tumultuous change of Government in the so-called 'Rose Revolution' in 2003, which brought the incumbent President Shakashvili to power. With regard to the energy sector the country has seen a remarkable recovery in the power sector characterized by mismanagement and power outages in the 1990s to the current position in which Georgia is even able to export a small surplus of power to neighboring countries. In oil and gas the country profits from its position as transit country in fuel transport via pipelines from the oil and gas fields in Azerbaijan to Europe. Unfortunately, awareness regarding sustainable energy, i.e. renewable energy (other than the pre-dominant large-scale hydropower schemes) and energy efficiency, remains low at all levels from policy-makers, managers of organizations and companies down to the public at large. This provides both an environment of great opportunity for UNDP in supporting 'non-conventional' sustainable energy activities, but lack of real Government interest also provides significant risk.

Findings and conclusions

As such, UNDP is one of the few players in Georgia that seriously tries to promote sustainable energy. It is not doing this in an isolated matter, but tries to coordinate with existing donor agencies that are active in this field, such as Germany (KfW), United States (USAID), Norway and European institutions (EU, EBRD).

In the oil and gas sector, UNDP has supported the general institutional capacity building of the Georgia International Oil Corporation (GIOC), now merged with other oil and gas parastatals into the Georgian Oil and Gas Corporation (GOGC) as well as supporting civil society involvement in the construction of the BTC pipeline (run by a consortium led by British Petroleum). The Evaluators believe that these efforts have contributed to the institutional strengthening of these parastatals. On the other hand, given the importance of the pipeline for Georgia's economy, one can argue that the Government would have strengthened this important institution anyhow. Regarding the BTC

pipeline, the stakeholders interviewed opinioned that the mobilization of NGOs with various backgrounds (cultural heritance, environment, governance) was an important exercise. Nonetheless, the activity was very focused on the BTC (Baku-Tbilisi-Ceyhan) pipeline project as such. In terms of longer-term impacts, time will tell if similar large-scale infrastructure projects will be scrutinized by civil society. The NGOs acquired auditing and other skills in the BTC project, but are slowly loosing these skills hence no more being able to continue monitoring big projects by being involved in similar projects.

In terms of impacts, less progress has been made in the three renewable energy projects. The largest project is the project co-financed by the Global Environment Facility, aiming at the promotion of small-scale hydropower schemes (SHPP). There were various SHPPs installed in the 1960s that now need rehabilitation. Even at current tariff rates that the power purchaser ESCO can offer, rehabilitation of these plants will be financially viable, having the development benefit of generating income in the more remote mountainous areas of Georgia. However, due to various external factors, such as the delays in setting up the associated financial mechanism, no SHPP has been supported yet, apart from feasibility study preparation.

In the Norwegian-supported project as well as the UNDP-supported biogas and solar water heater projects progress on the ground can be reported. The Evaluators observe that putting large donor funds in hardware (SHPP construction) is hardly a model for sustainability and will have a one-time effect only if not followed by larger initiatives.

Energy efficiency, although mentioned in the CPAP, is clearly missing as a UNDP-supported activity. To the authors' knowledge, there are a few activities going on, such as the EBRD-supported Georgia Energy Efficiency Project (GEEP). In general, there is general lack of awareness regarding energy efficiency at all levels in Georgian society, a culture that dates back from the old Soviet days, when 'efficiency' was not an issue.

Recommendations

The work of the UNDP Environment has been relevant and has been reflecting the Government's priorities. Georgia is strategically placed as a corridor for oil and gas transport from the oil and gas reservoirs in the Caspian region to Europe. It can immensely profit from this as well as limiting its dependence on Russia, its traditional fossil fuel supplier. Therefore, UNDP has rightly supported capacity building activities in the oil and gas sectors.

The Evaluators feel that after a decade of supporting capacity building in the state oil and gas sector institutions and given the fact that the power sector has been successfully revitalized, the Government goal of 'energy security' has been achieved up to an acceptable level. The logic choice for UNDP as a 'sustainable development' organization would be to focus away from the conventional oil, gas and power subsector and focus more on 'greening' the energy sector. This means:

- Given the dearth of energy efficiency activities in Georgia, UNDP can start with creating awareness on energy efficiency, especially at decision-makers level, which can be followed by more larger-scale activities focusing on the public-at-large;
- In renewable energy the current privatization drive should be supplemented in such a way that not only a few large oligopolistic power producers profit, but smaller-scale independent power producers in the rural areas as well. If offered some preferential tariffs, small-scale hydropower producers (SHPPs) can compete and having the development dividend in terms of creating income in more remote rural areas. This will first of all require convincing policy and decision-makers as well as providing technical support in the formulation and implementation of projects, aided by appropriate financing schemes.
- Regarding rural energy, the promotion of energy saving technologies in rural areas, such as solar water heaters and efficient stoves should be further promoted. This will require an appropriate rural energy supply policy that finds a balance between supporting the poorer segments of the rural populace and the financial sustainability of rural energy programs.

If a critical mass of support from Government staff could be established, other funds could be mobilized to have larger-scale for capacity building, institutional strengthening and public awareness raising activities from bilateral or multilateral donors. The use of GEF funds might be looked into, in particular in the area of 'energy efficiency in buildings', one of the priority areas under GEF climate change, if Government support could be mobilized to treat this area as priority.

Last but not least, it should be explored if private sector support could be mobilized set up in the area of renewable energy and energy efficiency under the Clean Development Mechanism (CDM). UNDP has set up a MDG Carbon Facility for this purpose. Sourcing CDM projects to be supported by the Facility should be actively and urgently explored. Regarding CDM, there should be huge opportunities in conservation of fossil fuels as well as fuel switching to biomass sources. Although Georgia's carbon footprint in the power sector is relatively small due to the use of large-scale hydropower, carbon credits under the CDM might supplement power sales by independent small hydropower or wind power producers.

Lessons learned

The sustainable energy outcome of UNDP's Country Program (2006-2010) is highly relevant given the current focus by the Government on conventional energy and energy security. The current portfolio is exists of activities in support of the oil and gas sector as well as renewable energy in rural areas (small-scale hydropower, biogas, solar water heaters, efficient stoves). While all these activities are relevant, the current CPAP seem to provide little long-term strategic vision, because it is merely the sum of projects mentioned under implementation. It is developed in a somehow opportunistic fashion.

The UNDP Environment Unit and the Project Management of the three renewable energy projects have been fairly successful in leveraging additional funding. However, the additional funding reflects the funding source's priorities; the Government is a large co-financier of the oil & gas sector activities, while foreign donors support renewable energy.

The largest renewable energy (RE) project, the UNDP/GEF 'Promotion of RE for Local Energy Supply' is been in place for a number of years, but no real SHPP reconstruction has been initiated yet, except for some SHPPs that received Norwegian financial support, but works not finalized yet. This does reflects on one hand the difficulty when two agencies, UNDP and KfW, have to work together and delays caused by their respective bureaucracies mutually reinforce each other. But it also reflects the lack of priority by the Government that has not intervened really to help speed up the implementation process.

Given these adverse circumstances, there may still be good reasons to prolong support for sustainable energy, i.e. renewable energy and energy efficiency. With energy security within reach, it is time to approach the Government to take sustainability aspects more into account in its energy policy making. However, if by the end of the CPAP period, in 2010, the chances for sustainability and replicability are low due to lack of an enabling environment and Government willingness, UNDP should ask itself at what point in time should UNDP support be stopped.

Having built capacity in oil and gas (reflecting the country's priorities), these objectives should move away from supporting the conventional energy towards supporting efficiency in conventional energy, while promoting small-scale renewable energy for local energy supply from a social equity point of view.

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1. INTRODUCTION

1.1 Outcome being evaluated

Results-based management (RBM) has become UNDP's management philosophy. As part of its efforts in enhancing RBM, UNDP has shifted from traditional project monitoring and evaluation towards evaluation of its cooperation in key thematic cluster groups with the host governments on a regular basis in order to assess whether and how UNDP-funded interventions contribute to the achievement of agreed country program outcomes. An outcome evaluation assesses how and why an outcome is or is not being achieved in a given country context, and the role that UNDP has played. Outcome evaluations also help to clarify underlying factors affecting the situation, highlight unintended consequences (positive and negative), recommend actions to improve performance in future programming, and generate lessons learned.

This report is an 'outcome evaluation' of the 'energy and environment for sustainable development' Component of the United Nations Development Program (UNDP) in Georgia, covering the period 2006-2010. The UNDP Country Program Action Pan mentions as one of the two outcomes under this Component "*access to sustainable energy improved through increased electricity production by using indigenous renewable energy resources, improved energy efficiency and the development of Georgia's energy corrido*r". Under this outcome the following outputs are mentioned:

Expected output	Indicator	Corresponding projects and implementing partners
1. Government capacity in monitoring and controlling BTC's compliance to national and international requirements and standards enhanced	a. Enhanced managerial technical capacity of GIOC to identify, negotiate, implement and monitor gas and oil transport sector	I. Capacity Development of GIOC (1997-2006). *Partner:* Georgian International Oil Corporation (GIOC) II. Capacity Development of GOGC *Partner:* Georgian Gas and Oil Corporation (GOGC), 2007-2011
2. Capacity of civil society independent environmental and social monitoring and audit of BTC pipeline enhanced	b. No. of NGOs able to conduct independent monitoring/audit of BTC pipeline	III. Pipeline Monitoring and Dialogue Initiative (PMDI) *Partners:* Eurasia Foundation, International Finance Corp. (IFC) and British Petroleum (BP) / Baku-Tbilisi-Ceyhan (BTC) pipeline
3. Energy efficiency and use of indigenous renewable energy enhanced	c. RE and EE projects implemented d. Policies, legal documents and amendments to existing laws documents to promote RE resources; e. Existence of a sustainable financial mechanism for the promotion of RE and EE	IV. Renewable energy resources for local energy supply *Partners:* Global Environment Facility (GEF), KfW (German Bank for Reconstruction), Ministry of Energy (MoEn) and Ministry of Environment (MoEnv) V. Small hydropower resources at community level *Partner:* Ministry of Environment VI. Promoting clean energy technologies in Mountainous Regions of Georgia (Oni Region) *Partner:* Ministry of Environment

Please note that Table 1 in section 2.1.1 provides a more complete overview of the CPAP outcome, outputs and the related project activities.

The other outcome under the 'energy and environment' component is 'national and local capacities enhanced and best practices adopted for sustainable environmental and natural resources management'. It should be noted that this Evaluation is does not cover this outcome, but focuses on 'sustainable energy'.

1.2 Evaluation objective and approach followed

The Terms of Reference (given in Annex A) mentions that the purpose (objective) of the "…Energy outcome evaluation is to assess the progress towards the attainment of the selected outcome and UNDP's potential contributions in achieving that outcome. The assessment will consider the scope, relevance, efficiency, and sustainability of UNDP's support. Based on this assessment, the evaluation will make recommendations on how UNDP could improve the prospects of achieving the selected outcome through adjusting its program, partnership arrangements, resource mobilization strategies, working methods or management structures…." A number UNDP projects are analyzed as part of the evaluation as mentioned in Table 1. It should be noted that the Evaluation covers the period corresponding to the UNDP Georgia Country Program (2006-2010), although many of the projects mentioned in Table 1 were initiated earlier.

For this purpose, an Evaluation Team, consisting of two independent evaluators, Mr. Johannes (Jan) van den Akker (ASCENDIS, Netherlands), Team Leader, and Mr. George Abulashvili (Energy Efficiency Centre Georgia), was fielded to Georgia during in April 2008 to undertake the Outcome Evaluation. In order to maximize synergies and use of resources, the same Evaluation team simultaneously carried out the mid-term evaluation of the UNDP/GEF-funded "Renewable Energy Resources for Local Energy Supply' (which falls under the 'energy and environment for sustainable development' to be evaluated), on which a third consultant, Mr. Roland Wong (Clean Energy Alternatives, Canada) took a lead author role. During the mission, extensive discussions were held with representatives from UNDP Georgia, (ex-)managers of the projects mentioned in Table 1, ministries (Energy, Environment, Finance) as well as co-financiers and other partners (KfW, USAID). A field visit was organized to see the progress on the ground regarding implementation of the small hydropower, biogas and solar water heating systems.

The output of the evaluation exercise is this Evaluation report. Before undertaking the mission, the Evaluation Team drew up a table of contents that covers the issues to be addressed as mentioned in its Terms of Reference (see Annex A) and follows the structure of this report:

- Introduction (evaluation method, UNDP program description and development context)
- Findings and conclusions
  - Assessment of progress towards program outcomes
  - Output analysis
  - Assessment of the contribution of UNDP and of the partnership strategy
  - External factors that have affected the outcome
- Lessons learned and recommendations
  - Lessons learned
  - Recommendations for the Country Program 2008-2010
  - General recommendations.

The Evaluation Team adopted the following methodology of evaluation:

i) Familiarization with the various UNDP activities by means of review of program documents (e.g., country program) and individual project reports (project documents, quarterly financial and progress reports, etc.) as well as background information on energy and environmental issues and options Georgia;

ii) Meetings and discussions with the staff of the UNDP Country Office, government partners other stakeholders in the government and NGOs, including a presentation of preliminary findings at the last day of the mission;
iii) Field visit, including small hydropower schemes in Baghdati and Sachkhere areas and to Oni region (solar water heaters; biogas).

A list of people met and interviewed is given in Annex B.1 and the list of documents reviewed is given in Annex B.2.

The report is divided into three sections. This first section provides general background of the project, purpose of evaluation and evaluation methodology. The next section dwells on findings from the analysis of documents and reports and from interactions with stakeholders. Conclusions from the observations and findings are given in the third chapter, which also includes some lessons learnt and with recommendations for further direction of the UNDP Country Program in Georgia.

1.3 Development context: the energy sector

1.3.1 Energy and power sector

Energy

The Soviet Union bequeathed a number of problems to the Caucasus countries, including centrally-planned economies that were heavily dependent on Russia for supply of energy. Natural gas represents a large portion of total energy consumption in Georgia, accounting for 24%. Georgia does not produce significant quantities of natural gas, making it heavily dependent on imports to keep its economy running. The website of the US Department of Energy (DOE) mentions that Georgia in 2004 gas consumption was 35 billion ft^3 with local production being 0.7 billion ft^3. Most gas comes from Kazakhstan via Russian (Gazprom) pipelines.

Similarly, Georgia imports oil; in 2004 production amounted to 2,000 bbl per day while consumption was 12,500 bbl per day. In terms of electricity generation, consumption was 9.7 billion kWh and generation was 7.3 billion kWh. The deficit was imported. Hydroelectric power accounted for 81% of Georgia's power generation.

For reasons of energy security, one priority of Georgia has been to diversify its energy supplies and become less import-dependent, especially in the power sector. A second energy priority is cashing in on transit revenues as their neighbors develop export facilities which traverse their territory.

As oil production from the Caspian Sea region increases, the Caucasus region has become an integral export route for oil and natural gas to Europe and elsewhere. In addition to the Baku-Supsa oil route (1999), two large pipeline projects across through Georgia have recently been finalized, namely the Baku-Tbilisi-Ceyhan (BTC, 2005)) oil pipeline and the South Caucasus Pipeline gas pipeline (2006).

Power sector

In the decade after the collapse of the Soviet Union, Georgian was increasingly facing a serious energy crisis. After 2000, the period that the project was designed, Georgia was experiencing serious energy shortages and the country was plagued with frequent blackouts stunting economic growth and adversely impacting the quality of life for all Georgians, leaving the populace without power for days. In 2004, the power sector was characterized by:

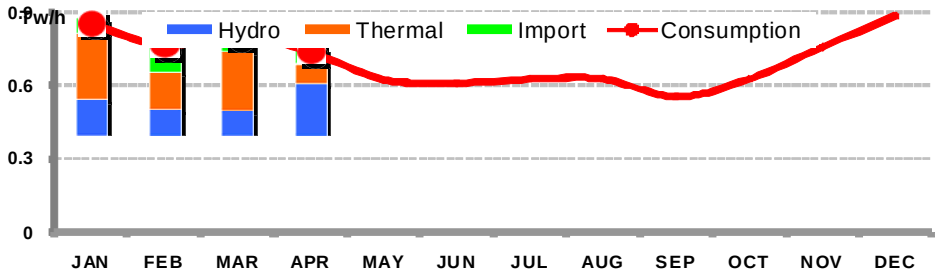
- All thermal units and 3 out of 12 main hydropower plants were idle
- Out of total of 2,700 MW of hydropower plants (HPPs), 41% was not used (many HPPs were standing idle due to the deteriorated and Enguri (the largest Enguri, 1300 MW) needed urgent rehabilitation[1];
- The so-called non-technical transmission and distribution losses (due to theft and bad administration practices, the bill collection rate was about 15-20%);
- Consequently distribution companies were out of money and not able to make large investments;
- The district heating systems in all the cities stopped their operation and the people were forced to use electricity (as well as wood, gas, kerosene or any other available means). This led, among others, to the further overloading of the already stretched power system.

These problems were aggravated in 2003-2004 when non-payment disputes between Georgia and its natural gas and electricity supplier, Russia caused intermittent supply disruptions. Georgia experienced outages in January 2003 when a natural gas line from Russia was accidentally ruptured, resulting in rolling power outages and the total shutdown of public transportation.

One problem in the distribution sector was the metering of supplied electricity and the collection of payments. The cause of the problem was insufficient number of individual meters. The absence of individual meters in many places and the inability to individually disconnect a customer led to an inefficient consumption of the electricity. Customers often were using electricity, which is more expensive than other energy sources, for heating purposes (for heating water and flats, cooking, etc).

Problems in the distribution sector created serious difficulties in financing the operation of the sector. Partial payments for supplied power by distributors disabled the Wholesale Electricity Market to fully pay for the electricity to generating companies. Given a chronic shortage of means, money was mainly spent on just maintaining the energy facilities in an operational mode. Therefore, dams, derivative channels and tunnels, power units and equipment were left without care; this applied also to the electrical network with regard to automatic systems and relay protection, technical state of communications means.

According to information provided by Ministry of Energy, by 2007 the situation had markedly improved with rehabilitated hydro and thermal plants and distribution grid as well as a collection rate of over 95%. Georgia is now actually a small net exporter, as is indicated in the figure below which gives the monthly electricity balance (2007).



[1] Out of 2,700 MW (41%, 1,100 MW) was not used in 2004

The Government has managed to bring about this change by implementing a reform strategy that addressed the various institutional, financial and structural problems:

- Establishment of a framework to promote competition and private sector participation, including an independent regulatory agency (see next section 1.3.2);
- Reduction of the 'non-technical' losses (due to bad administration and theft) by means of better commercial practices and enforcement of payments and better metering.
- Rehabilitation of the hydro and thermal (gas and heavy fuel oil) power plants as well as the transmission and distribution grid, by means of attraction of foreign capital in distribution and production to improve the dire state in which the power sector found itself, as well investing heavily by resources from the Government budget (USD 270 million over the period 2004-2006;
- Improving the natural gas supply within the cities, so as to increase the utilization of gas for heating and cooking purposes.

Power production and distribution

Of the total power generated in 2007 of about 8.3 TWh, about 83% came from hydropower (notably the Enguri power plant)[2]. Energy consumption has been hovering around 8.1-8.3 TWh in the period 2004-2007. There are some 14 large and medium-sized hydropower (HP) plants and 3 thermal stations. New planned large-scale hydropower projects include Khudoni HPP (650 MW) and Namakhvani HPP (450 MW). New transmission lines to neighboring countries are planned, in addition to the existing ones that will facilitate future exports of hydropower.

About 60% of the electricity is distributed by the distribution companies, up to 22% of electricity is consumed by direct customers (large companies, which receive electricity bypassing distribution companies), The collection of payments from direct customers has been sorted out and it is almost 100%, except for the to the autonomous republic of Abkhazia, which is out of the control of the Georgian authority (and to which 15% is supplied).

There are three main large distribution companies in Georgia, (1) Telasi, serving Tbilisi, (2) the United Distribution Company (sold to Energopro), serving the regions, and the (3) Ajara Distribution Company, operating in the autonomous republic of Ajara. In addition, small part is distributed by a small company in Kakheti, while also Abkhazia has its distribution company. In 1999, Telasi was purchased by a strategic investor, AES. The AES made significant investments in the replacement of cables and technical equipment as well as in individual re-metering, being of crucial importance for its operation. As a result, Telasi managed to reduce technical and commercial losses and to achieve almost full collection of payments from the population. The population started consuming electricity more efficiently. In 2003, the Russian electricity giant RAO UES acquired Telasi.

The United Distribution Company was established through merger of several regional companies. Geographically, it is the largest company in Georgia. It needs large investments to arrange accurate metering of the electricity. A project on arranging accurate metering is under way and it envisages the installation of individual and collective meters as well as replacement of old meters. Half of the debt in the electricity sector accounts for the UDC. The state owns the Ajara Distribution Company. The problem of metering here is acute as well. However, the debt of this company is much smaller. Both distribution companies are in the stage to be privatized by the government.

[2] Enguri, 3.0 TWh, other HPs 2.9 TWH and thermal power plants 2.4 TWh (estimate).

Legal framework and tariff setting

In terms of regulation, the current structure is as follows:

- Ministry of Energy of Georgia – policy maker
- Georgian National Energy and Water Regulatory Commission (GNEWRC) – independent regulator
- Georgian State Electricity System (GSE) – technical operator
- Electricity Sector Commercial operator (ESCO) – Commercial operator owned by market participants
- Distribution companies: Telasi, United Electricity Distribution Company (UEDC); Kakheti Distribution and Adjara Distribution;
- Electricity Generation Companies, consisting of small, medium and large size HPP and thermal PP owners and representatives;

In 2006 amendments in the "Law on Electricity and Natural Gas" and new "Market rules" were introduced, which included deregulation of the small (up to 10 MW capacity) hydropower plants (SHPP) were deregulated. They are now allowed to conclude contracts with every client at a tariff, which is not to be set by the regulatory authority. According to the new market rules, the commercial operator ESCO is obliged to purchase all power generated by the SHPPs that has not been sold under private, unregulated contracts. The price per kilowatt-hour (kWh) generated by SHPPs and purchased by ESCO is calculated based on the weighted average cost of electricity (excluding electricity generated by SHP) purchased by ESCO during the previous accounting month. Considering the fact that all thermal power plants are receiving relatively high tariffs for kWhs generated, the tariff for SHPPs, especially during the winter, is higher than what SSHPs would otherwise be getting without the 2006 market rule changes.

1.3.2 Future direction and role of sustainable energy

Having attained self-sufficiency in power supply, the Government plans to export power. Apart from the existing power lines (Russia, 220 kV; Azerbaijan, 330 kV; Armenia and Turkey, 200 kV each), new transmission lines will be built (to Azerbaijan, 500 kV, Armenia, 400 kV and Turkey, 500 kV). In the current energy policy thinking this can be achieved by (private) big large hydro producers that negotiate themselves directly with prospective clients in the neighboring countries.

In this picture, small hydropower plants are left out in practice. Being owned by small private owners they will not have a capacity to negotiate with clients directly and will de facto have to accept the tariffs offered as mentioned in the previous paragraph by ESCO. These tariffs currently hover around USD 0.04 per kWh. The tariff may be sufficient to cover the cost of rehabilitating existing SHPPs, but not the cost of a new SHPP (which could be around USD 0.06 per kWh, as the Evaluation Team was informed by some of the interviewees). In this sense, the 'de-regulation' of SHPPs (< 10 W) in 2006 has been an improvement, but not enough measure for promoting of SHPPs in the longer run. From the project evaluators' point of view small producers should be guaranteed that all the produced energy is sold at least at a certain guaranteed tariff. However, in the current atmosphere of 'de-regulation' in the power sector imposing again a fixed tariff of SHPPs does not seem to be politically feasible in the short run.

Box 1 Renewable energy potential in Georgia

Small hydropower plants (SHPP)

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 and the economically feasible potential has been estimated at 40–50 billion kWh per year. However, in 2006 projected energy production was approximately 7,700 GWh and the capacity of working plants was 2,700 MW. This is only 20 - 25 % of the possible capacity.

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. Currently up to 55 small and mini hydroelectric plants with 86MW installed capacity exist in Georgia and all of them are privatized. Many of them work at very low efficiency or simply do not work at all; therefore, rehabilitation is crucial. A first step in SHPP development is refurbishing these existing SHPPs. 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 CO_2 annual greenhouse gas (GHG) reduction potential).

Geothermal energy

Georgia has also abundant geothermal resources, which to large extent remained unutilized. As a result of the earlier drilling activities, there were about 250 registered geothermal wells in Georgia in 2004 with the depths ranging from 200 close to 4,000 meters and with the outlet water temperature of 30-108 ^{o}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. In fact, 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.

Biomass

Biomass includes products, waste and residues from agriculture (including vegetal and animal waste), forestry and wood processing industries as well as the organic fraction in municipal and industrial waste. Biomass is mainly a local resource in rural areas with agricultural and forestry production. Similar to SHPP, developing biomass resources can help to create jobs and to generate income in rural areas. Large-scale wood processing plants should use wood residues to generate electricity and for heat to meet their own demand and to sell surpluses to the local grid. A typical size of such a combined heat and power plant (CHP) is about 3 MW electrical and 15 MW thermal capacities.

Biogas

Georgia's agricultural sector is characterized by family farms with only a few animals, a couple of cows and pigs. Therefore, the potential for biogas production for heat and power generation is small, but can be of importance to as cooking fuel for the farming household itself.

There are important reasons, however, why the Government should pay attention to renewable energy sources (mentioned in Box 1) for power generation, in particular SHPP:

- Small hydro can be developed by local companies, leaving financial benefits in the rural areas rather than with the 'happy few' in the capital Tbilisi,
- Unlike big hydro schemes which can take up to 10 years to be implemented, SHPP can be constructed within a short timeframe (1-2 years) and can be easily adjusted to local conditions;
- Big schemes usually require an expensive dam and reservoir system, while SHPP can be of the more environmentally benign run-of-river type
- Small hydro will contribute to energy security in terms of diversification in energy generation sources and improved grid stability.

2. ANALYSIS

This chapter assesses UNDP's performance towards meeting the objectives of the Multi-Year Funding Framework (MYFF) by promoting 'energy and environment for sustainable development' which is mentioned as one of the outcomes in its Country Program Action Plan for 2006-2010. The chapter assesses to which extent the outcome has been achieved in terms of baseline (2003) and current status. Next the individual projects are evaluated. Finally the relevance and extent of UNDP's contribution to the outcome is reviewed. The overall results are summarized in an outcome/output table and a results table.

2.1 Outcome analysis: assessment of progress towards the 'access to sustainable energy' outcome

2.1.1 Description of CPAP outcomes and expected outputs

The current Country Program Action Plan (CPAP) started in 2006 and will end 2010, succeeding the Country Cooperation Framework (CCF) for 2001-2003. Unlike the last CCF, the current CPAP specifically mentioned details 'sustainable energy'.

The first relates to the *sustainable management of environment and natural resources* and the second - to the *access to sustainable energy*. More specifically, the sustainable energy outcome is intended to improve the access to sustainable energy through increased electricity production by using indigenous renewable energy resources, improving energy efficiency and ensuring sustainable development of Georgia's energy transit corridor. Expected *outputs* under the Sustainable Energy sub-component of the CPAP are:

- Enhanced capacities of Georgian Government to monitor and ensure the compliance of the BTC pipeline to national and international requirements and standards; enhanced capacities of civil society organizations to conduct independent international-standard based monitoring and audit of BTC and;
- Increased utilization of local renewable energy resources and improved energy efficiency.

See ToR, Annex A, scope, # 1, 2, 11

These two outputs adequately reflect on one hand the main theme of the after the break-up of the Soviet Union, i.e. how to achieve energy improved security by having Georgia benefit from its new position as transit country for energy transport to Europe through oil and gas pipelines and by reforming and creating competition in the (formerly) state-controlled energy.

In this drive for bringing Georgia's energy sector modernize, the focus is heavily on conventional fuels and large-scale hydro. Smaller-scale local renewable energy resources and energy efficiency are largely ignored *de facto* in current Government policy. The second output of the CPAP rightly addresses in addition the potential of local renewable energy resources that may be more expensive in terms of kilowatt-hours produced but yield more local rural development dividend. Unfortunately, no activity on energy efficiency is yet supported.

Table 1 provides a summary of the outcome and UNDP outputs, i.e. the individual projects and project outcomes.

Table 1 Outcome/output table

Outcome indicators and targets	Associated projects	Resources (USD million)	Programme output Project outcomes
Outcome: **Access to sustainable energy improved through increased electricity production by using indigenous renewable energy resources, improved energy efficiency and the development of Georgia's energy corridor**			
Indicator 1: • Net CO_2 emissions per kWh produced; • Electricity produced from geothermal and small hydropower			• No. of RE and EE projects implemented • No. of policy and legal documents • Existence of substantial financial mechanism for the promotion of RE and EE
Baseline value (2006): • 400 $kgCO_2$ per MWh from electricity and 299 $kgCO_2$ from mixed use of gas and electricity • Some 30 small hydropower plants (SHP) operational; 350 MW of geothermal capacity			
Target (2010): • Increased opportunities for improved access to sustainable energy increased through : o improving regulatory and financial barriers to utilization of local RE o implementation of pilot RE and EE development o providing targeted advice to GoG on energy related issues	Promoting the Use of Renewable Energy Resources for Local Energy Supply (2004-2009 or beyond)	Total: 15.37 • 4.3 (GEF) • 7.67 (KfW) • 3.4 (investors) • 0.15 (GoG) *Note:* KfW contributes EUR 5.113, converted a exchange rate EUR 1 = USD 1.5	• Supportive institutional, legal and regulatory frameworks for the LT development of RE • Raised public awareness and capacity built of local entrepreneurs to develop bankable proposals • Experienced gained for and demonstrating feasibility of financing RE investments • Replication (lessons learned and info dissemination)
	Promoting Clean Technologies in Mountainous Regions of Georgia (Oni Region; 2006-2008)	Total: 0.31 • 0.17 (TTF) • 0.13 (TRAC) • 0.01 (other)	• Demonstration of sustainable practices for RE resources • Built local capacities in installation and operation of small RE • Development of RE action plan for Oni
	Promoting the Use of SHP at Community Level (2006-2008)	Total: 1.000 (Norway)	• Sustainable practices of local SHP demonstrated • Built capacity in managing local SHP
Indicator 2: • Enhanced managerial capacity of GIOC / GOGC to monitor contracts in oil & gas • NGOs able to conduct independent monitoring/auditing of BTC			• Enhanced managerial capacity of GIOC / GOGC to monitor BTC • NGOs able to conduct monitoring of BTC
Baseline value (2006): Need of capacity development of GIOC and of NGOs to monitor and audit contracts such as BTC; Absence of civil society's			
Target (2010): Enhanced capacity of GIOC / GOGC in in monitoring and assuring BTC compliance to international standards	Pipeline monitoring and dialogue initiative (2004-2006)	Total: 0.28 • 0.10 (UNDP) • 0.05 (IFC) • 0.10 (BP) • 0.03 (Eurasia)	• Individual capacity building • Organizational capacity building
	Capacity Building of GIOC (2001-2007)	Total: 18.72 • 1.78 (UNDP) • 16.94 (GIOC)	• Increasing capacity in general management, environment, managing infrastructural works, investment promotion and providing advice to GoG
	Strengthening capacity of GOGC for sustainable development and energy security (2008-2011)	Total: 6.50 • 1.30 (UNDP) • 5.20 (GOGC)	• GOGC capacity development and change management • Technical advice and strategic business planning • Monitoring and evaluation

See ToR, Annex A, scope, # 4, 12, 14

The CPAP outputs in terms of associated projects squarely fit in the broader goals of the CPAP 'sustainable energy' outcome. This should be no surprise. With most of the individual projects in place or under formulation when this CPAP was formulated, the CPAP outcomes are wrapped around the individual outputs rather than the other way around. For the better, this implies that the CPAP outcome and output indicators do not come out of the blue, but are linked with specific project activities. But it has the danger that the broader, longer-term, perspective is lost by being so tight to ongoing projects (although the projects do address the two issues of energy security and environmental aspects of energy).

See ToR, Annex A, scope, # 5, 6, 11, 13, 14, 22

With respect to small-scale renewable energy (RE) and energy efficiency (EE), one important indicator is missing, namely the achievement of a real 'RE and EE policy framework' and the existence of a framework of policy instruments and regulations that support the implementation of RE and EE. As indicators ' no. of legal and policy documents' is mentioned, but having mere documents is not enough, if not followed by government endorsement and real action on the ground. Regarding oil and gas, the CPAP outcome and output indicators sound a bit too much linked with the BTC pipeline project in particular, while the scope is much broader in the sense of capacity building of government institutions to manage and monitor infrastructure (transit pipelines) in general. In terms of gender and impacts of men and women, these are not particularly referred to. In practice, gender is taking into account, depending on the subject; for example, the Oni region project (see section 2.2.6) has provided support to widows as a particular vulnerable group in rural areas.

Regarding the progress the reader is referred for details on each project in the following section 2.2 that deals with output analysis.

2.2 Output analysis

See ToR, Annex A, scope, # 8, 11, 13, 14

Under the environment – climate change outcome to be evaluated, UNDP has supported a number of activities that will be discussed in more detail in this paragraph, namely:

- Pipeline Monitoring and Dialogue Initiative (PMDI), Georgian NGO Capacity Building Initiative
- Capacity Building of the Georgian International Oil Corporation (GIOC)
- Strengthening Capacities of Georgian Oil and Gas Corporation (GOGC)
- Renewable Energy Sources for Local Energy Supply (co-funded by GEF)
- Small hydropower resources at the community level
- Clean Energy Technologies in the Oni Region

2.2.1 Pipeline Monitoring and Dialogue Initiative (PMDI), Georgian NGO Capacity Building Initiative (2004-2006)

(See ToR, Annex A, scope, # 16)

Background

The Baku-Tbilisi-Ceyhan (BTC) pipeline began operating in June 2006 (see figure on the left). With a total construction cost of US$ 4 billion, the BTC pipeline is the first direct transportation link between the Caspian and the Mediterranean seas. At full capacity, it can deliver one million barrels of oil to market, generating important revenues for the Georgian government for decades to come. The BTC pipeline is being developed by a group of 11 national and international oil companies, in which British Petroleum (BP) is a lead investor with a 30% share.

Since the commencement of the BTC pipeline, there has been an emphasis on the environmental and social impacts of pipeline construction and future operations. Since Georgia became independent, a strong and diverse civil society organization sector has been developing in Georgia and which was empowered more after the 'rose revolution' of 2003.

Objective and outcomes

The principal goal of the project is to empower civil society in Georgia (including communities along the BTC gas pipeline), in international standard pipeline monitoring and auditing, through a series of monitoring and training awareness-raising.

The project was intended to complement BP's own consultative approach. Apart from project management and oversight, the project has the following objectives/outcomes[3]:

1. Establish a regular forum of interested NGOs and organization of registered NGOs in smaller working groups;
2. Increase opportunities for dialog between NGOs and representatives of BTC operations
3. Increased technical knowledge by means of NGO representatives (working group members) trained in monitoring management and technical issues;
4. Production of monitoring/audit reports on the before-mentioned issues of priority;
5. Capacity of NGOs increased in information dissemination and community dialogue;
6. Awareness of civil society by means increased flow of balanced information to affected communities and other stakeholders;

Achievements[4]

- *Outcome 1:*

A basic structure of Working Groups (WGs) was established. In the first cycle of activities, four WGs were formed, focusing on (1) human rights and social issues, (2) reinstatement/biodiversity, and (3) waste management and (4) biodiversity. In a second cycle of activities, the themes were (1) cultural heritage, (2) oil spill response, (3) waste management, (4) reinstatement/biodiversity. Representatives from 31 NGOs participated in these working groups, with each working group shared by a representative from an NGO and with representatives of another four NGOs each[5].

- *Outcome 2:*

Regular conferences between BP/BTC representatives and WGs took place throughout the first and second cycles of activities.

- *Outcome 3:*

Participation by NGOs in these consultations was significantly better-informed due to direct training and professional coaching to WG members in the two cycles of operations. Training was

[3] Based on the Project Document and the final report (Eurasia, 2006). Since the exact definition of outcomes in the two documents somewhat differs, the wording of the outcomes in this report is a mix of the text of these reports

[4] Based on analysis of Eurasia (2006) and interviews with relevant project partners (BP, Eurasia, UNDP) and the beneficiary NGO coordinating the 'oil spills response' working group.

[5] Cultural Heritage: Georgian Nouveau Art Protection Group, Association of Researchers of the Paleolithic Period, Georgian Center for Cultural Heritage, Union Suntni, Udabno Foundation

Oil spills: Institute of Social Research, Association EcoAlliance, TAO Archeological Association, Environment Protection League, Caucasus Environment Foundation

Waste management: International Information Center for Social Reforms, Green Earth, Egida-Project for the Future, CENN Youth Network, Young Lawyers Association

Reinstatment/biodiversity: Green Way, Environment Flood Prevention Ecocenter, Forest Researchers, Bio-Rhythm Association, Tao-XXI Center for Research and Development

provided at an average of eight in each cycle, focusing on the WG themes as well as on management systems, auditing standards and methodologies, WG coordination training, work plan development and on report writing.

- *Outcome 4:*

Seven audit reports were released for each WG, three in cycle one (published in December 2005) and four in cycle two (October 2006). The reports and other relevant documentation can be found at http://www.bp.com/genericarticle.do?categoryId=9006625&contentId=7013552 (entry via www.bp.com/caspian, 'reports and publications', 'external monitoring' and 'monitoring by national NGOs').

Apart from a press conference after cycle one and press releases in newspapers, due to restructuring the above-mentioned objectives/outcomes 5 and 6 were dropped. Reason for this elimination were primarily related to budget limitations both higher expenditures (higher-cost expert time) and lack of financing. Regarding the latter, of the originally envisaged budget of USD 486,000, only a part could be secured as, besides the donors mentioned in Table 1, no additional donors could be identified.

Impact

This has been the first initiative of this kind in Georgia, in which NGOs learn about processes of a big organization, such as BP and have an open dialogue with BTC, its contractors and its pipeline operators. NGO recommendations were to a large extent accepted and addressed by BP. The original level of skepticism in the NGO community towards the commitments to environmental safety and social responsibility of a big multinational, such as BP, seems to have significantly decreased.

Feedback from some of the NGO participants revealed that the overall program was well-received and both BP and NGOs seem to have general satisfaction with the results. However, the project contributed more to individual capacity building (NGO representatives were contracted on a personal basis under the PMDI project) rather than the NGO as a whole, throwing doubt in how far participants were able to share their newly-acquired skills with other colleagues in their NGOs. Another observation by the authors of this report is that NGOs acquired auditing and other skills, but will slowly loose these skills if not being able to continue monitoring big projects by being involved in similar projects (not only energy, but also other infrastructure activities).

2.2.2 Capacity Building of Georgian Oil Corporation (GIOC), Phase II (2001-2007)

Background

The Georgian International Oil Corporation (GIOC), established by a special Presidential Decree in November 1995. GIOC was set up, as part of the drive of the Government to modernize the energy sector and break up state monopolies, as government-owned companies separate from the normal ministerial structures to add on managerial capacity and increase flexibility in decision making. GIOC was entrusted to represent the Government in matters related to the oil industry, in particular oil transportation (oil pipelines) and oil refinery. In other words, while the Ministry of (Fuels and) Energy retained its overall policy-making role, joint-stock companies (i.e. fully or partially owned by the Government) such as GIOC, GEC (electricity) and GOC (oil) and GIGC (gas) became responsible for business operations.

With the building of various pipelines, such as Baku-Supsa pipeline (Early Oil Pipeline, EOP) realized in 1999, Georgia has become a major transit country for oil and gas transports. The accomplishment of the EOP Project has become a major event, not only for Georgia but also for the region, ushering a new phase in the development of large-scale hydrocarbon transportation projects within the East-West Energy transportation corridor. The Government Georgia, and its appointed representative GIOC, now became involved in the development of two major projects -

the Baku-Tbilisi-Ceyhan (BTC) Main Oil Export Pipeline Project and the Baku-Tbilisi-Erzurum Gas Pipeline Project (SCP). During the negotiations on the BTC and the SCP Gas Pipeline, Georgia paid special attention to the environmental issues. It has been agreed that in the Georgian territory the BTC project will be implemented according to the best international pipeline construction and operation standards and, in any case, the requirements will be no less stringent than those in industrialized countries.

Outcomes

The project started a first phase (from 1996-1999), followed by a second phase (from 2001-2007), which had the following main objectives[6]:

1. *Management:* Workforce strengthened within the GIOC to perform as a model company and (managerial and technical in the area of oil transportation, operations, environment, monitoring of oil company partners in the construction and operation of oil pipelines) and for its subsidiaries to run their businesses independently;
2. *Environment:* Strengthening of GIOC and its Environmental Working Group to carry out the required environmental protection work of GIOC (monitoring of petroleum industry and of transit pipelines, such as the EOP and BTC) and to ensure that operations of GIOC and its subsidiaries are carried out in a environmentally sound manner;
3. *Technical:* Strengthening GIOC's competency level to carry out construction work and participate in infrastructural works (as a contractor), such as the BTC pipeline and the Baku-Tbilisi-Erzurum gas pipeline;
4. *Investment promotion:* Developed expertise within GIOC for the implementation of energy and industry projects (oil and gas transport, processing and distribution) on a sustainable and profitable basis, through undertaking promotion activities to attract domestic and international investors.

Achievements during 2005-2007:

The cooperation between GIOC and UNDP began in 1999 and ended in 2007. The project managed to mobilize some USD 18.7 million, mainly from GIOC sources (USD 16.9 million) and sources from the UNDP regular (so-called TRAC) budget (USD 1.8 million)[7]. The project managed to incorporate a variety of activities, ranging from technical advice, to procurement support, to training and capacity building, to the introduction of international ISO standards quality management system, the creation of specialized working groups (e.g. on environment) and based on the interviews held by the Evaluation Team could be considered a success in terms of outputs and targets achieved.

Given the fact that the Outcome Evaluation covers the period after 2005 and only progress reports of the period after 2005 were made available, the Evaluation Team cannot assess the progress before 2006 and has limited itself to only analyzing the period of extension of Phase II (2006-2007) in more detail:

- *Outcome 1:*

Achievements have been the design, implementation and audits of a ISO 9001 quality management system as well as the rehabilitation of the GIOC Head Office with the purpose of creating a suitable working environment for GIOC personnel. A training needs assessment was implemented, followed by training in the identified needs. The project assisted also in the merger process with other governmental agencies into the new GOGC (which will be discussed in the next section).

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6 Please note that the text used here is a mix of the text used in the revised project document for Phase II (200-2005, signed in 2002) and the revised document for the extension of the project 2006-2007

7 The revised Project Document for Phase 2 (signed in 2002) , covering the period 2001-2005 mentions a budget of USD 9.1 million, of which USD 7.9 million contributed by GIOC and USD 1.3 million TRAC money

- *Outcomes 2 and 3:*

Delivery of short-term advisory and monitoring services on technical and environmental issues of monitoring the BTC and SCP pipeline construction.

- *Outcome 4:*

Participation of GIOC in gas and oil promotional activities and completion of strategy documents outlining the benefits of the BTC and SCP pipelines.

- *Outcome 5:*

Providing support to GOG in implementation of environmental management and monitoring system for BTC and SCP pipelines during construction phase of the pipelines.

2.2.3 Strengthening Capacities of the Georgian Oil and Gas Corporation (GOGC) for Sustainable Development and Energy Security (2008-2010)

Background

In March 2007, the three government-owned companies, GIOC, GOC (Georgian Oil Corporation) and GIGC (Georgian International Gas Company) were merged into one 'joint-stock' corporation, named the Georgian Oil and Gas Corporation). The new GOGC now covers responsibility for exploration, processing, oil products transportation as well as construction and monitoring of the operation of oil and gas pipelines.

The newly formed GOGC is facing considerable challenges:

- This merger implied the integration of enterprises that were distinctly different in terms of management, culture, operating standards and practices, resource profile and nature of business. Thus, the new GOGC still needs to consolidate its organizational, management and functional framework based on modern best practices;
- Taking on the responsibility to deal with international agreements and standard regarding all hydrocarbon infrastructure works, including supervising outsourced construction works and the facilitation of the further inflow of foreign and domestic capital in the oil and gas sector of Georgia
- GOGC aims at becoming a more proactive organization with respect to environmental and socioeconomic issues and as the Government's policy advisor and center of intellectual research and development in the hydrocarbons sector.

Based on the decade-long experience of cooperation between GOGC (GIOC) and UNDP, it was decided in 2007 to address the above-mentioned capacity building needs by means of extending the UNDP to the new GOGC by means of a capacity building project with a budget of USD 6.5 million (of which UNDP is contributing USD 1.3 million) which started by the end of 2007. One rationale behind the project is that the capacity built in GIOC (with about100 staff members) should not be lost in the new bigger GOGC (with about 500 staff). Reportedly many senior and mid-level managers left, and also technical personnel changed, e.g. in the areas of environment). Also, the ISO quality management system of GIOC should be extended to the whole of GOGC's operations as well.

Outcomes and achievements

The project obviously builds on the past experiences of cooperation with GIOC/GOGC; however, it aims at avoiding the old notion of capacity building split into an array of fragmented activities, by having a more holistic approach starting with acknowledging the existing capacity level first.

The project will consist of the following main components:

1. *GOGC Capacity Development and Change Management* (starting with capacity needs assessment and prioritization, followed by activities on organizational and management systems, human resource development and improving working conditions and modernization);

2. *Technical advice to GOGC* on strategic business planning;

3. *Monitoring and evaluation* (M&E), including the design of a M&E system, inputs and budget planning, followed by monitoring, auditing, review and evaluation.

Since the project has just started it is difficult to judge achievements, although the capacity building needs assessment should have become available shortly after the mission of the Outcome Evaluators.

2.2.4 Promoting the Use of Renewable Energy Resources for Local Energy Supply (2004-2009)

Background

During the design of the project between 2000 and 2004, Georgia was experiencing serious energy shortages, as explained in Chapter 1. The country was plagued with frequent blackouts stunting economic growth and adversely impacting the quality of life for all Georgians. Moreover, the government at that time had focused on the development of large power generation projects while neglecting the smaller power projects, such as small-scale hydropower. At the height of the power shortages, especially in many rural areas power supply stopped entirely and small hydropower plants (SHPPs) were seen as an interesting proposition for decentralized energy supply, hence the 'for Local Energy Supply' in the project's title. With this backdrop, the Project design of 2004 consisted of the removal of legal, regulatory, financial and awareness barriers to the renewable energy development in Georgia.

Since 2004, the country has undergone a remarkable transformation in the power sector, rehabilitation of the large-scale hydropower plants and reforming power sector institutions. This included favorable tariff regimes for the development of hydropower by the private sector and improving efficiency of payment collections. The outcome of these actions has been reliable power supplies for many Georgians since 2006 to the extent that Georgia now considers exporting energy to neighboring countries as a serious energy policy option.

The adoption of market-based policies has made its first mark in the sub-sector of small power producers (< 10 MW). In 2006 amendments in the "Law on Electricity and Natural Gas" and new "Market rules" were introduced, which included deregulation of the small (up to 10 MW capacity) hydropower plants (SHPP). The commercial operator ESCO is obliged to purchase all power generated by the SHPPs that has not been sold under direct, unregulated contracts. This tariff, currently hovering about USD 0.04 per kWh, is higher than what SHPPs would otherwise be getting without the 2006 market rule changes and looks like sufficient to allow the financially viable rehabilitation of the existing about 50-55 SHPPs. In the longer run, the tariffs (largely based on the relatively cheap power supply by large-scale hydroelectric plants of around USD 0.02 per kWh) will not be sufficient to have financially viable new SHPP development (whose cost may be around USD 0.06-0.07 per kWh).

Outcomes

The envisaged outcomes and results are:

1. A supportive institutional, legal and regulatory framework that would encourage long term development of Georgia's renewable energy sources;

2. Public awareness raised on the possibilities for commercial development of Georgian renewable energy resources and building the capacity of the local entrepreneurs to develop "bankable" investment proposals, to structure financing for the projects and to manage the development and the implementation of the projects;
3. Experience for and demonstrating the feasibility of financing renewable energy investments in Georgia, facilitated by the an established credit line for the financing of Georgian renewable energy projects, in cooperation with the German Reconstruction bank KfW, the so-called Renewable Energy Fund (REF);
4. Documentation and dissemination of the results, experiences and lessons learned and promoting the replication of the project activities at the national as well as the regional level.

Achievements

- *Outcome 1*

This Project and USAID lobbied the Government of Georgia (GoG) for tariff deregulation for small hydropower plants (SHPPs) up to 10 MW allowing SHPP operators to conclude direct contracts with buyers. This resulted in all players in the power sector (including small hydro power plants) being obliged to buy or sell power according to a tariff set by the GNEWRC, which in reality did not guarantee return of investments for new and rehabilitated SHPPs. A guaranteed return or tariff would offset risks of the higher investments costs of such projects. Further lobbying in 2007 resulted in changes and amendments in July 2007 to the "Law of Georgia on Electricity and Natural Gas" and new market rules established by the GoG obliging ESCOs to purchase electricity generated from SHPPs at more favorable tariffs. More work, however, is required to expose and inform government policy makers of strategies that support constant growth of the hydro power section through a feed-in tariff;

- *Outcome 2*

This outcome contributes most to the expected results as envisaged in the project design, as 14 pre-feasibility SHPP studies have been completed and out of these, four feasibility studies. The quality of these studies appears satisfactory. However, these studies will need to be updated to reflect the rising costs of construction materials. A second component focuses on geothermal energy. Here, the original envisaged partner, the Tbilisi municipality pulled out. Currently, discussions are held with a private investor, the Georgian Reconstruction & Development Company (GDRC) and the project currently supports conducting geothermal well tests to evaluate the geothermal resource at their Lisi Lake development to sustainable supply hot water to their development through heat exchanges and well re-injection technology.

- *Outcome 3*

Establishment of the REF has met a huge 2-year delay. First, due to UNDP's internal regulations, a proposed UNDP contribution of USD 2 million could not be effected. Second, negotiations between KfW and the Government have dragged on and on and only in April 2008 the Ministry of Finance finally gave its 'no objection' consent. The KfW will provide the seed money for the fund in the order of EUR 5.1 million. This will be enough to support 8-10 SHPPs with 70-75% debt finance (proponents have to provide 25% equity). However, as recovery of payment will take up to 7-10 years, the REF will be almost depleted by 2011, throwing its sustainability into doubt unless the REF can be replenished with additional funding. The Project is now poised to technically support project proponents and update the pre-feasibility and feasibility studies for 14 SHPPs.

Because of the delay in establishing REF, the project has not been able to support real construction or rehabilitation efforts of SHPPs yet, which is quite troublesome given the fact that the project has been in operation since 2004. With the help of an additional international expert as lead author, Mr. Wong, the Evaluation Team was involved in performing the mid-term evaluation of this UNDP/GEF project simultaneously to the Outcome Evaluation. The reader is referred to the corresponding Mid-Term Evaluation Report for more details. One major conclusion is, given the fact that REF will finally be established in 2008 and given the fact that the USD 2.7 million are still available at the moment of writing the report, the project

should be extended until April 2011 to allow the first rehabilitation works of SHPPs to be supported by REF and to allow one year of monitoring after the plants' construction.

2.2.5 Small hydropower resources at the community level (2006-2008)

Background

In order not to repeat background info on issues in the SHPP sub-sector, the reader is referred to Chapter 1 and the previous sections 2.2.4. Under this project, the Government of Norway has kindly made available USD 1 million to support SHPP development. The activity supplements the larger UNDP-GEF project discussed in the previous section and in order to achieve efficiency was implemented by the same Project Management Unit. To achieve even more synergy with ongoing activities, cooperation was sought with the USAID-funded GESI facility[8] and its consultant contractor under the project, Winrock International and its sub-contractor, PA Consulting. However, the financial partner of GESI, Bank of Georgia, closed down the credit line when GESI lapsed in 2005. The USAID-supported successor project, the Rural Energy Program (REP) commenced in September 2005.

Outcomes and achievements

The project has two main outcomes:

- Built SHPPs in selected communities (demonstrating sustainable management practices)
- National trainers trained in SHPP development and members of local communities (project developers) as well as local entrepreneurs trained

The training program consisted of training of small hydropower resources management and financial engineering as well as of on-the-job training of members and local hydropower investors in the communities.

The project aimed at rehabilitating of SHPPs at three sites. Kekhijvari was taken out due to ownership issues. After re-tendering, Winrock International (the US-based NGO implementing REP) was chosen to implement the rehabilitation of the two remaining sites of Khani (Nergeti, Baghdati district, Imereti region, 300 kW)[9] and construction of Pshaveli (in Telavi district, Kakheti, 500 kW)[10]. Later the SHPP in Chiora (55 kW) was added to be implemented by the local company Group Racha Ltd.

Of the budget of USD 1.047 million, USD 0.076 will be spent during 2006-2008 on UNDP administration, management and reporting, USD 0.094 million on operations, monitoring and capacity building leaving USD 0.877 million to support the HPP construction (Pshaveli and Nergeti: USD 0.773 million; Chiora: USD 0.104 million)[11].

The project was supposed to be implemented during January 2006 – December 2007, but has met various delays.

- Frequent changes in government also at local level have hindered project implementation[12];

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8 The USAID-funded Georgian Energy Security initiative (GESI) supported development of local natural resources and businesses through its 'community development' component and has provided loans for rural independent power producers as well.

9 Planned upgrade from 10 kW SHPP from the 1960s to 300 kW. Head: 10 m, designed water discharge of 4.3 m^3/sec. Estimated cost of USD 755 per kW (total: USD 223,000). Expected annual generation of 2.4 GWh.

10 New construction of 500 kW facility. Head: 50.5 m, designed water discharge: 3 m^3/sec. Estimated cost of USD 942 per kW (total: USD 471,000). Expected annual generation of 4.24 GWh. Source: Winrock International

11 Own estimate

12 SHPP smaller than 10 MW do not need a generation licence, but other permits are still needed such as land acquisition or rent agreement (local authorities), water usage permit (Ministry of Environment) and construction permit (Ministry of Economy).

- Delays in implementation at Khani and Pshaveli due to sharp increase in cost of concrete and metal and declining dollar;
- Damage of the dam at Khani (due to flooding). In case of the latter, the dam belongs to the irrigation company Kolkheti and cannot be covered by the project, but will be covered from the budget of the Agriculture Ministry
- Delays in implementation of the work plans of the contractors that relate to the above, but not always appear justifiable.

The above-model of grant-based support to SHPP development is not sustainable from a financial point of view. Nonetheless, the project is important by providing lessons learned for the future rehabilitation/construction of SHPPs under the bigger UNDP/GEF project. One issue has been the problem in delays due to budget overrun and problems with contractors. The new REF fund (see section 2.2.4) could support such rehabilitation activities. The Evaluators recommend therefore that supervision and close monitoring of SHPPs should play a more important role than envisaged and suggest allocating part of the remaining budget for this purpose.

2.2.6 Clean Energy Technologies in the Oni Region of Georgia (2006-2008)

Background

The scale of renewable energy utilization except for large and medium hydropower is very low. At present, about 30-50 small and mini hydropower plants exist in the country out of which many operate at very low capacity or do not operate at all, as discussed in the preceding sections. During 1984-90s, about 70,000 square meters of solar thermal collectors were manufactured and installed in Georgia by the state institution “Spetsheliotbomontazhi”. Today, domestic production of solar panels is extremely limited.

Among different types of biomass, wood fuel is the most predominant. According to the energy balance, calculated by the State Department of Statistics of Georgia, total energy consumption in 2001 was about 126 PJ, out of which 65 PJ (51%) originated from wood consumption. Wood is mainly burnt in low efficiency stoves. The situation has worsened in the recent years due to low energy security, lack or absence of gas supply to the rural areas and problems in domestic energy generation. Given the existing poverty level in rural areas woodcutting sale has become almost the sole source of income for many communities in Georgia. In addition, due to existing energy deficit, rural population has fulfilled the energy demand for basic needs – cooking and heating houses - by intensive cutting of forest wood for fuel. The severe depletion of the forests in Georgia leads to erosion of soil, landslides, reduction in water flow, uncontrolled logging and black marketing. This cycle could be broken by the use of high efficiency stoves being able to burn wood, wood pellets (made of saw dust) and waste wood.

In addition, environmental problems arise from existing sawmills. According to the data of the Ministry of Environment up to 140 sawmills have been legally registered and operating since 2004. Out of this amount, 90% operate in Samtskhe-Javakheti region. Illegal logging is also a major issue. Saw dust generated as a waste product from these facilities is directly dumped into water bodies that lead to severe deterioration of surface water quality.

There are no major biomass-based energy production plants or bio-fuel production developments, existing or foreseen in the nearest future. The only applications are 2-6 cubic meter volume ambient temperature individual biogas installations, financed by international donors and built by farmers with assistance of several enthusiasts from local companies, such as Bioenergia, Ltd and Konstruktori, Ltd.

Financed by the UNDP Thematic Trust Fund (TTF) for sustainable energy and environment and UNDP core resources, a USD 312,717 project is implemented in the Oni and Ambrolauri districts of Racha region[13], focusing on poorer families in this mountainous region as the main beneficiary target group. Key activities financed are selection and implementation of pilot projects, capacity development and development of local 'energy action plans'.

Outcomes and achievements

Overall management of the project lies with the same Project Management Unit (PMU) of the UNDP/GEF project (see section 2.2.4). Project activities are scheduled to end by March 2008.

1. *Demonstrating sustainable practices for utilization of local RE resources at small community and household level in Oni Region*

   Achievements:
   - Installation of 20 solar water heaters (SWH; 100% grant-based) and 10 SWH co-financed by the project (60% grant), allowing the beneficiary families wood fuel savings of about USD 35 per non winter months;
   - Installation of a 10-panel SWH system at the Oni sports school;
   - Donation of energy-efficient wood stoves to 60 deprived families and pensioners, allowing families to save up to 35% of wood (about USD 10 per month);
   - Installation of biogas plants for 18 households, allowing about to save USD 10-14 per month per family[14];
   - Construction of locally produced micro hydropower (2-5 kW) plants on pontoons, however this concept did not prove attractive for the mountainous rivers whose depths vary too much, depending on the season of the year;
   - Small community bath in Ambrolauri using SWH technologies

2. *Developing capacities of local communities in installation and operation of small RE technologies (based on sustainable resources management)*

   Achievements:
   - The revision of the project in 2007 concluded that there was no need for maintaining a local capacity development component as a separate objective. Training of local communities in operations and maintenance of selected equipment was conducted by the project team on-site during installation of equipment as part of outcome 1. Instead addition, the revision implies strengthening of public outreach on project results and micro-scale RE technologies and suggested to include it as a separate project objective.

3. *Preparing a Renewable Energy (RE) Action Plan for Oni region.*

   Achievements:
   - A RE Action Plan was prepared for selected pilot areas of the Racha-Lechlkumi Region, focusing on local RE resources.

4. *Creating a knowledge base on the potential of development of domestic production of biomass-based renewable energy and energy efficient technologies*

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[13] Initially, the project total of USD 177,170 is financed by the UNDP Energy TTF (USD 127,470) and UNDP Georgia (USD 49,700, while a study on 'Producing and Using of High-Efficiency Stoves and Fuel Pellets' was financed in parallel by the project 'UN Global Compact and Multi-Stakeholder Partnerships in Georgia' (USD 9,788). In 2007, it was decided to extend the project and cover more villages, for which purpose UNDP Georgia contributed additional funds, increasing the project total to USD 312,717.

[14] A family has to own about 4-5 head; the concrete gas reservoir (6 $m^{3.}$) is established near the cattle shed. The beneficiary families took part in manual labour in constructing the biogas plants

Achievements:

- The feasibility study was carried out focusing on the feasibility of local production of high-efficiency wood stoves and of producing fuel pellets from wood dust

The experience gained during the project implementation showed that transportation of RE technologies to the selected households is very costly if too many villages are involved (30 in Oni region) especially in winter time. In the extension phase 2 of the project (see footnote 15, financed by UNDP), these lessons learned were taken into consideration. Therefore, 1-2 villages of lower zone of Oni district and 4-5 villages of Ambrolauri district with maximum resource potential will be covered.

The project strategy promotes domestic production and diffusion of micro RE technologies to reduce cost. One problem encountered was that are few local companies that have few contracts and have an interested to keep prices high. The Project Manager has estimated that cost of the biogas plant could be reduced from USD 1,400 to USD 800 and that of the higher-end SWHs from USD 1,000 to USD 800.

While the Government has the plan to provide natural gas to 'every village', this will not be financially and technically viable and firewood is likely to remain the major fuel source in many mountainous areas in Georgia. While the project succeeded in raising awareness on the use of local RE resources, it was realized that just demonstrating technology is not enough, but should be implemented on a larger scale and a larger timeframe and with appropriate financing mechanisms to achieve a beginning market transformation.

Therefore, the PMU has prepared a project proposal *Promoting Clean Energy Technologies in Mountainous Regions of Georgia* with a proposed budget of about USD 2.7 million. UNDP would contribute USD 200,000 and is currently seeking support from the donor community.

The new project envisages cooperating with project partners, local producers of micro-scale RE technologies that can show proven quality and reliability for delivery services and goods and would be expanded to cover 8 mountainous regions and will have the following two outcomes:

- Demonstration of sustainable practices of utilization of local RE sources (280 biogas projects, 550 SWH, 790 wood stoves, coupled with insulation of houses).
- Improving access to financing of micro-scale RE technologies through the elaboration and implementation of a financing scheme in cooperation with local banks.

The project places itself as additional to ongoing donor-funded initiatives, such as USAID's Rural Energy Program (REP), EBRD's Georgia Energy Efficiency Program (GEEP) and the new BP 'Energy Bus' project[15], that provide soft loans and target small-scale renewable energy. The proposed project would focus on more micro-scale RE technologies for poorer households that would require a much larger grant component. As in the TTF-supported predecessor activity, the project will provide 100% grant financing for the vulnerable households and co-financing for others.

[15] By advocating the project results, UNDP has increased donor interest in household-level renewables. For instance, UNDP had very close communications with BP during the first phase of the project and shared the project concept together with progress reports with it. As a result, BP got very interested in providing support to this type of activity. In addition, UNDP has arranged a presentation of project results and short-movie demonstration to donors that triggered interest and discussion among the donors.

2.3 External factors, resources, partnerships and management

2.3.1 External factors

See ToR, Annex A, scope, # 3, 15

Changes in government

In 2003 there was the transition of the government of President Shevardnadze to that of the incumbent, Shakashvili in the 'Rose Revolution' of 2003. The attempts of 'cleaning up' government after the corruption in the Shevardnadze years seem at least to have had positive effects in the power sector. The first decade of the post-Soviet period had left the electricity sector in bad shape, characterized by constant black-outs, lack of investment and high non-technical losses. By 2007, the electricity was functioning in such a way that for the first time it turned Georgia into a net exporter, as is described in detail in the introduction sector 1.1

The changes in the government structure and staff over the past few years have hindered progress in the UNDP-supported renewable energy projects. In the new Government, ministers and deputy ministers have changed quite often. To give an example, since the inception of the UNDP/GEF 'Renewable energy supply' project in 2004, the Minister of Environment has changed 5 times and the Minister of Energy two times. Clearly, no longer-term perspective can be constructed with government officials with such frequent changes.

Power sector and the role of small renewable energy

The current energy strategy appears to be based on a market-based philosophy in which the state is promoting privatization and de-regulation. In fact, the first subsector to be protected using regulation is the small power producers (SHPP). This has improved the situation in the sense that better tariffs were offered than before, as described in section 1.3.2. On the other hand, it seems remarkable that the weakest players in the field, SHPPs, are left to market forces, while big players are still in a *de facto* monopoly position. Second, SHPPs may not be considered 'serious players', being small they may not fit in the grand hydropower schemes of exporting power to neighbouring countries as their cost in terms of kilowatt-hours produced is larger than of the large-scale counterparts.

So why should we support SHPPs or other renewable energy, such as biomass-generated power? First, SHPPs have clear development dividend. They generate employment and benefits in (remote) rural areas and thus contribute to a more decentralised way of income generation. Second, it may take up to 10 years to build large hydropower schemes, while a SHPP can be built in about one year's time, so can contribute to power generation, or in broader terms to the national energy security much more quickly. Third, SHPP's are environmentally friendlier then large hydropower generation that requires large man-made lakes.

Energy efficiency

Energy efficiency is a theme which does not seem on the mindset of current policy makers. The international consultants had the privilege of staying in Tbilisi hotels as well as in the countryside (see Annex B for the itinerary). To give some examples, incandescent bulbs are the norm in these establishments rather than the exception. While in Soviet days, citizens visited Georgia for tourism due to the amount of sunny days, there are few solar water heaters to be seen. In those days energy efficiency was not an item in public discussion and today it still is not an item either, unlike countries in the region that have installed substantial amounts of SWHs, such as Greece, Turkey and Israel. After being able to enjoy reliable electricity supply again since the early 1990s, people

seem to enjoy their electricity use. To consumer, manager and politician alike, the message of energy efficiency may be crudely interpreted as (again) simply cutting back on power consumption after the years that 100% power supply was an illusion. It is not, energy efficiency means maintaining (or even expanding) level of services, but with less energy consumption per service rendered.

Delays in project implementation

As discussed in section 2.2.4, especially the UNDP/GEF SHPP project has faced huge delays, which are outside the project management's control. It has taken several years to approve the associated KfW-supported Renewable Energy Fund (REF). Frequent changes at level of Minister and Vice-Ministers in the Energy and Environment ministries has not helped to shape a clear direction regarding the project's activities in particular and the policy regarding sustainable energy in Georgia in general.

2.3.2 Resources

See ToR, Annex A, scope, # 9, 21, 23

The CPAP 2006-2010 mentions the following tentative budget for realizing activities/project in support of the 'sustainable energy' outcome, UNDP regular resources (so-called TRAC): USD 0.214 million and other resources: USD 9.641 million. Since actual realized projects (as mentioned in Table 1) do not necessarily fit in the 2006-2010 timeframe, it is a bit difficult to assess what funds will be raised,. Looking at the new GOGC project and the three sustainable energy projects only (UNDP-GEF, Oni region and SHPP, Norway), UNDP-TRAC funds are an estimated USD 1.47

Table 2 Fund raising for energy security and energy and environment activities

Amounts in ÚSD million	PMDI	GIOC, 2nd	GOGC	UNDP-GEF	Oni Region	SHPP, Norway	Total
UNDP	0.10	1.78	1.3		0.17		3.35
GEF & TTF				4.3	0.13		4.43
GoG		16.94	5.2	0.15			22.29
Other reported parallel and co-finaning	0.18			11.07	0.01	1.03	12.29
Total	0.28	18.72	6.5	15.52	0.31	1.03	42.35

Note: own estimate, based on analysis of project documents and progress reports as well as information provided during the mission

million and mobilized other funding will be an estimated USD 21.9 million, in total more than the funding that was originally envisaged in the CPAP.
The funding patterns provide good insight in the funding priorities. The Government of Georgia (GoG) primarily has co-financed the oil and gas projects, while also a large part of UNDP Georgia regular resources has gone into this sub-sector. The renewable energy projects have been largely funded from UNDP-managed trust funds (GEF and TTF) as well as other donors (Germany, Norway).

2.3.3 Assessing the contribution of UNDP and partnership strategy

See ToR, Annex A, scope, # 8, 17, 19, 20, 21

The above-mentioned external factors (section 2.3.1) have severely restricted a significant contribution towards achieving the desired energy outcome of "access to sustainable energy". This is evidenced by the lack of a sound enabling environment in terms of policy, let alone regulatory, framework for energy efficiency and renewables, other than large-scale hydropower.

The authors believe that as the economy progresses the theme of sustainable energy will slowly become in the picture again as is slowly happened in other Eastern Bloc nations. UNDP can assist in speeding up this process by bringing 'green energy' to the attention of the policy makers first. Therefore, the current renewable energy program may look small in terms of visible impacts, but its relevance lies in keeping the theme of 'sustainable energy on the agenda.

In matters of sustainable energy, i.e., renewable energy and energy efficiency, UNDP is partnering well with other donors, such as USAID, KfW, EU and EBRD. The three renewable energy projects are examples of cooperation with bilateral donors (Norway, USAID, Germany), while contacts are maintained with EBRD.

But, as explained earlier, the priority of the past decade has been to bring the conventional energy sector in order by having a reliable power supply and by taking advantage of the new status as energy transit country. Given the fact, that in the Soviet days 'efficiency' was not an issue, this all has results is a 'culture' in which energy efficiency is not considered important and rural-based, small-scale, renewable energy is not considered viable.

UNDP Georgia and the PMU that coordinates the three renewable energy projects have been successful in coordinating well with existing donors that try to promote the sustainable energy concept in Georgia, such as KfW (Germany), USAID and EBRD. There have been various discussions between PMU and these donors on cooperation resulting in formal cooperation (such as KfW participation in the UNDP/GEF project) and the cooperation with USAID/Winrock in the Norway-funded project and informal consultations with EBRD.

2.4 Summary of findings

The preceding paragraphs have shown that in Georgia the focus of the Government has been on the conventional energy sector to achieve *energy security*, i.e. institutional strengthening of the oil, gas and large-scale hydropower. In summary, UNDP has managed to contribute in a significant manner to energy and environment policy development, as is detailed in Table 2.

Table 3 Synopsis of findings

Outcome indicator	*Baseline (2003)*	*Result (2007)*	*Influencing factors (drivers)*	*UNDP contribution*	*Partnerships*	*UNDP impact and rating*
• Electricity produced from geothermal and small hydropower (SHPP) and CO_2 emission reduction • Enhanced managerial	• Some SHPP and geothermal capacity • Need of capacity development at GOIC-GOGC; Absence of civil society's	• SHPP: Pre-feasibility and four feasibility studies of SHPP, but no real SHPP development yet, nor is financial mechanism	• Changes in government and in staff at individual ministries • Focus in government on institutional strengthening of oil, gas and power	• Supported capacity building of NGOs and institutional strengthening of GIOC and GOGC • Preparatory work and some pilot supported	• Government: Ministries of Environment and Energy • Networking with private sector (SHPP developers, BP) as well as donors (EBRD, USAID, KfW)	Impact : Modest, due to influencing factors Rating : While impacts are modest, the project management of the three RE project tries its

capacity of GOIC-GOGC; NGOs able to monitor and BTC	capacity in independent monitoring	functioning • Energy efficiency: activity • Some pilots on biogas and solar water heater (SWH) supported • Capacity development at GOGC ongoing; • NGOs trained on independent monitoring	sectors to profit from status as fuel transit country and to achieve energy security rather than on sustainability aspects	(SHPP, biogas, SWH), but no real up-scaling achieved		best to put RE on the agenda of the Government

The main conclusions regarding the effectiveness of UNDP's support coming out of the evaluation of the outcome 'access to sustainable energy' can be summarized as follows:

See ToR, Annex A, scope, # 17, 27, 28, 29, 30

National capacity development

In the oil and gas sector, UNDP has supported the general institutional capacity building of the Georgia International Oil Company (GIOC), now merged with other oil and gas parastatals into the Georgian Oil and Gas Company (GOGC) as well as supporting civil society involvement in the construction of the BTC pipeline (run by a consortium led by British Petroleum). The Evaluators believe that these efforts have contributed to the institutional strengthening of these parastatals. On the other hand, given the importance of the pipeline for Georgia's economy, one can argue that the Government would have strengthened this important institution anyhow.

Regarding the BTC pipeline, the stakeholders interviewed opinioned that the mobilization of NGOs with various backgrounds (cultural heritance, environment, governance) was an important exercise. Nonetheless, the activity was very focused on the BTC (Baku-Tbilisi-Ceyhan) pipeline project as such. In terms of longer-term impacts, time will tell if similar large-scale infrastructure projects will be scrutinized by civil society. The NGOs acquired auditing and other skills in the BTC project, but will slowly loose these skills if not being able to continue monitoring big projects by being involved in these projects.

In terms of impacts, less progress has been made in the three renewable energy projects. The largest project is the project co-financed by the Global Environment Facility, aiming at the promotion of small-scale hydropower schemes (SHPP). There were various SHPPs installed in the 1960s that now need rehabilitation. At the current tariff rates that the power purchaser ESCO can currently offer, rehabilitation of these plants will be financially viable, having the development benefit of generating income in the more remote mountainous areas of Georgia. However, due to various external factors, such as the delays in setting up the associated financial mechanism, no SHPP has been supported yet under the UNDP/GEF project, apart from feasibility study preparation.

In the Norwegian-supported project as well as the UNDP-supported biogas and solar water heater projects progress on the ground can be reported. The Evaluators observe that putting large donor funds in hardware (SHPP construction) only, without creation sustainability of project operation may hardly serve as a model for sustainability and will have a one-time effect only if not followed by larger initiatives.

National ownership and fostering an enabling environment; gender equality

The co-funding patterns provide good insight in the funding priorities of the Government of Georgia (GoG). It has primarily cash-financed the oil and gas projects with GIOC/GOGC. The renewable energy projects have been largely funded from UNDP-managed trust funds (GEF and TTF) as well as other donors (Germany, Norway) with little or no cash government contribution. This strongly indicates the Government's real priorities in the energy sector in the first decade of the 21st century, i.e. ensuring *energy security* first over sustainability considerations.

The importance of the three renewable energy project, thus, is not laying in its contribution to development of governmental sustainable energy strategy, but for now has had the more modest impact of keeping renewable energy on the agenda and by preparing the groundwork for future activities by gaining on-the-ground experience on issues facing when implementing SHPP, biogas and solar water heater technology in rural areas. In addition, the Oni region project in addition has a gender focus, in the sense that it provides support to vulnerable groups, such as widows.

Partnerships

UNDP Georgia, and the PMU that coordinates the three renewable energy projects, have achieved a good coordination with existing donors that try to promote the sustainable energy concept in Georgia, such as KfW (Germany), USAID and EBRD, with the private sectors in SHPP and geothermal energy as well as with the various NGOs involved in the BTC pipeline activity.

3. LESSONS LEARNED AND RECOMMENDATIONS

3.1 Recommendations for future activities under the CPAP, 2006-2010

See ToR, Annex A, scope, # 24, 25, 26

In general, there is general lack of awareness regarding energy efficiency at all levels in Georgian society, from households to managers in companies to government officials to political decision makers. After coming out of the power crisis, people seem to enjoy having 24-hour electricity; why cutting it back? The answer is that you can still enjoy the same comfort levels, while reducing power consumption by using it more rationally. For example, a 5 Watt compact fluorescent bulb (CFLs) gives the same luminance as a 25 Watt incandescent and even lasting up to 6-8 times longer. This is one example; numerous energy efficiency measures can be introduced in the residential, commercial and industrial sectors. In general, saving a kilowatt-hour (kWh) is cheaper than producing a kWh. This could be a powerful sales argument to unwilling government officials; in many cases saving a kWh is even more profitable than the kWh produced by the relatively cheap large-scale hydropower schemes. By saving, more power could be sold to the neighboring countries' markets.

The Evaluators feel that after a decade of supporting capacity building in the state oil and gas sector institutions and given the fact that the power sector has been successfully revitalized, the Government goal of 'energy security' has been achieved up to acceptable levels. The logic choice for UNDP as a 'sustainable development' organization would be to focus away from the conventional oil, gas and power subsectors and focus more on 'greening' the energy sector. This means:

- Given the dearth of energy efficiency activities in Georgia, UNDP can start with creating awareness on energy efficiency, especially at decision-makers level, which can be followed by more larger-scale activities focusing on the public-at-large;
- In renewable energy the current privatization drive should be supplemented in such a way that not only a few large oligopolistic power producers profit, but smaller-scale independent power producers in the rural areas as well. If offered some preferential tariffs, small-scale hydropower producers (SHPPs) and renewable energy producers in general, can compete and having the development dividend in terms of creating income in more remote rural areas. This will first of all require convincing policy and decision-makers as well as providing technical support in the formulation and implementation of projects, aided by appropriate financing schemes.
- Regarding rural energy, the promotion of energy saving technologies in rural areas, such as solar water heaters and efficient stoves should be further promoted. This will require an appropriate rural energy supply policy that finds a balance between supporting the poorer segments of the rural populace and financial sustainability.

After the current capacity building project with GOGC ends, it is recommended that UNDP focuses more on promoting energy efficiency and small-scale renewable energies and direct its funding, both core and non-core, towards these directions. The current efforts of close coordination with donors in the area of renewables should be extended to the area of energy efficiency. Although limited in size, some of UNDP's core funding (about USD 100,000-300,000 annually) could be used to raise awareness amongst policy and decision-makers in public and private sector on the need for energy efficiency and benefits of renewable energy.

If a critical mass of support from Government staff could be established, other funds could be mobilized to have larger-scale for capacity building, institutional strengthening and public awareness raising activities[16] from bilateral or multilateral donors. The use of GEF funds might be looked into, in particular in the area of 'energy efficiency in buildings', one of the priority areas under GEF climate change.

Last but not least, it should be explored if private sector support could be mobilized set up in the area of renewable energy and energy efficiency under the Clean Development Mechanism (CDM). UNDP has set up a MDG Carbon Facility for this purpose. Sourcing CDM projects to be supported by the Facility should be actively and urgently explored. Regarding CDM, there should be huge opportunities in conservation of fossil fuels as well as fuel switching to biomass sources. Although Georgia's carbon footprint in the power sector is relatively small due to the use of large-scale hydropower, carbon credits under the CDM might supplement power sales by independent small hydropower or wind power producers.

3.2 Lessons learned

The sustainable energy outcome of UNDP's Country Program (2006-2010) is highly relevant given the current focus by the Government on conventional energy and energy security. The current portfolio is exists of activities in support of the oil and gas sector as well as renewable energy in rural areas (small-scale hydropower, biogas, solar water heaters, efficient stoves). While all these activities are relevant, the current CPAP seem to provide little long-term strategic vision, because it is merely the sum of projects mentioned under implementation. It is developed in a somehow opportunistic fashion.

The UNDP Environment Unit and the Project Management of the three renewable energy projects have been fairly successful in leveraging additional funding. However, the additional funding reflects the funding source's priorities; the Government is a large co-financier of the oil & gas sector activities, while foreign donors support renewable energy.

The largest renewable energy (RE) project, the UNDP/GEF 'Promotion of RE for Local Energy Supply' is been in place for a number of years, but no real SHPP reconstruction has been initiated yet, except for some SHPPs that received Norwegian financial support, but works not finalized yet. This does reflects on one hand the difficulty when two agencies, UNDP and KfW, have to work together and delays caused by their respective bureaucracies mutually reinforce each other. But it also reflects the lack of priority by the Government that has not intervened really to help speed up the implementation process.

Given these adverse circumstances, there may still be good reasons to prolong support for sustainable energy, i.e. renewable energy and energy efficiency. With energy security within reach, it is time to approach the Government to take sustainability aspects more into account in its

[16] Georgia has about USD 3.2 ceiling amount in the GEF 4. The country falls in the group allocation countries, where funds are shared by a number of countries. So, there is no guaranteed amount in the GEF 4 for George. However, GEF SEC has recommended that for the first phase of GEF 4, all group allocation countries utilize up to 1 million USD for on-grid, biomass, sustainable transport or energy efficiency projects. However, for a GEF project to be set up again this will require the commitment and willingness from the Government side. For almost two years, UNDP has been having consultations with key government agencies regarding the utilization of GEF funds. Initially, a proposed sustainable transport project was dropped due to the low interest from Tbilisi Municipality. Then together with the Ministry of Environment, GEF focal point we came up with biomass project idea (pellets, etc). However, since there is a big unclearity regarding forest concessions, UNDP Georgia could not move forward. Discussions have been held with the Ministries of Energy and Environment and other donors, e.g. USAID, regarding energy efficiency in buildings that the GEF offers, but so far no positive feedback regarding their commitment has been received.

energy policy making. However, if by the end of the CPAP period, in 2010, the chances for sustainability and replicability are low due to lack of an enabling environment and Government willingness, UNDP should ask itself at what point in time should UNDP support be stopped.

Having built capacity in oil and gas (reflecting the country's priorities), these objectives should move away from supporting the conventional energy towards supporting efficiency in conventional energy, while promoting small-scale renewable energy for local energy supply from a social equity point of view.

ANNEX A. TERMS OF REFERENCE OF THE EVALUATION

Outcome and Project Mid-term Evaluations
UNDP Georgia Energy and Environment for Sustainable Development Portfolio

1. INTRODUCTION AND BACKGROUDN

In 2006, UNDP Georgia and the Government of Georgia signed the UNDP Country Programme Action Plan (CPAP). According to the document, energy and environment for sustainable development is one of the programmatic areas for UNDP Georgia in 2006-2010. All the intended outcomes and outputs under the CPAC energy and environment programme portfolio/component are aimed at contributing to the attainment of environmental sustainability, the broader outcome #5 of the UN Development Assistance Framework (UNDAF).

CPAP Energy and Environment component consists of two CPAP outcomes. The first relates to the sustainable management of environment and natural resources and the second - to the access to sustainable energy. More specifically, the sustainable energy outcome is intended to improve the access to sustainable energy through increased electricity production by using indigenous renewable energy resources, improving energy efficiency and ensuring sustainable development of Georgia's energy transit corridor. Expected outputs under the Sustainable Energy sub-component are: enhanced capacities of Georgian Government to monitor and ensure the compliance of the BTC pipeline to national and international requirements and standards; enhanced capacities of civil society organizations to conduct independent international-standard based monitoring and audit of BTC and; increased utilization of local renewable energy resources and improved energy efficiency.

To attain the first output, from 1997 through 2006 UNDP supported the Georgian International Oil Corporation (GIOC) in its capacity building. At present, UNDP continues capacity development of the Georgian Gas and Oil Corporation (GOGC), one of the successors of the GIOC. For the achievement of the second output, UNDP in partnership with BP/BTC and IFC supported Eurasia Foundation, an international NGO to enhance capacities of local NGOs in independent monitoring and audit of the BTC pipeline. In order to attain the third output, UNDP CO Georgia has been implementing 3 projects in the field of Renewable Energy. These projects are: "Georgia - Promoting the Use of Renewable Energy Resources for Local Energy Supply" (project ID 00034741); "Promoting the Use of Small Hydro Resources at Community Level" (project ID 00048095); and "Promoting Clean Energy Technologies in Mountainous Regions of Georgia on the example of Oni Region" (project ID 00050786)

The full-sized UNDP/GEF RE project #00034741 is implemented since 2004. The Project consists of two components: financial and technical assistance (TA) components. UNDP/GEF supports the TA component of the project, an implementing partner for which is the Ministry of Environment Protection and Natural Resources of Georgia. The day-to-day management of the project is implemented by the Project Management Unit (PMU) consisting of a Project Manager, an International Consultant (company Posch & Partners) and administrative and technical assistants. The project aims at removing legal-regulatory, institutional and financial barriers to utilization of local renewable energies through supporting the creation of enabling legal-regulatory environment, establishing renewable energy revolving fund and credit line, implementing a number of demonstration projects for development of small hydropower and geothermal resources and, building capacities and raising awareness of local owners of renewable energies.

The project #00048095 is implemented since November 2006 under the financial support of the Government of Norway. The overall goal of the project is to promote the use of small hydropower resources in Georgia and build the capacity of local communities and SMEs in managing these resources, based on practices of sustainable natural resources management. This goal will be achieved through the implementation of the 3 pilot projects (rehabilitation of Khani-2 mini hydropower plant in Nergeeti, Baghdati district; construction of mini hydropower plant in Pshaveli, Telavi district and construction of Chiora HPP in Oni district). The implementing partner is the Ministry of Environment Protection and Natural Resources; responsible parties are Winrock International (NGO based in USA, contractor of USAID's "Rural Energy Program" in Georgia) for Khani-2 HPP and Pshaveli HPP and local company Group Racha Ltd for Chiora HPP. Project had to be

finalized by 31 December, 2007. However, recently Winrock asked for the extension of the project by 2 months. The day-to-day management of the project is implementing by the same PMU, which is used for the project #00034741.

The objective of the project #00050786 is to increase the access of rural population of Georgia living in remote mountainous areas to local renewable energy resources. This objective is to be achieved through implementing pilot projects and developing RE Action Plan(s) for pilot region(s). The pilot projects include installation of solar thermal and biomass energy technologies (biogas) and high efficiency woodstoves.

Although, UNDP CPAP is to be finished in 2010, UNDP Georgia has decided to comission outcome evaluation of the Energy-related outcome of the CPAP in Janaury-February 2008 in order to measure the relevance of the intended outcome, the progress towards its attainment and as well, its contribution to the broader UNDAF outcome. In addition, the outcome evaluation will study the underlying factors affecting the situation and recommend actions, if necessary to redirect UNDP's efforts in Energy field in order to make UNDP's programme more relevant, effective and efficient. One more reason, that predetermined Energy-related outcome evaluation until the end of the CPAP period, is the planned Mid-term Evaluation of the UNDP/GEF project "Georgia - Promoting the Use of Renewable Energy Resources for Local Energy Supply", which consists of sizable portion (USD 4.3 million) of Energy and environment portfolio of UNDP Georgia. In order to maintain the integrity of the portfolio, ensure synergies among projects and achieve great efficiency, UNDP CO has decided to merge UNDP-GEF RE project Mid-term and energy outcome evaluations and conduct outcome evaluation with a greater emphasis on the evaluation of UNDP-GEF RE project.

2. OBJECTIVES AND SCOPE OF THE EVALUATION

The purpose of the Energy outcome evaluation is to assess the progress towards the attainment of the selected outcome and UNDP's potential contributions in achieving that outcome. The assessment will consider the scope, relevance, efficiency, and sustainability of UNDP's support. Based on this assessment, the evaluation will make recommendations on how UNDP could improve the prospects of achieving the selected outcome through adjusting its programme, partnership arrangements, resource mobilization strategies, working methods or management structures. For the UNDP GEF Renewable Energy project Mid-term Evaluation, detailed ToR is developed and annexed to this document.

In general, outcome evaluation is based on UNDP guidelines on outcome evaluation that call for an assessment of the results of UNDP's development cooperation activities in a particular thematic area. The proposed outcome evaluation of the sustainable energy thematic area will focus on:

- *outcome analysis* - what and how much progress has been made towards the achievement of the outcome (including contributing factors and constraints);
- *output analysis* - the relevance of and progress made in terms of the UNDP outputs (including analysis of both project and non-project activities);
- *output-outcome link* - what contribution UNDP has made/is making to the progress towards the achievement of the outcome;

The results of the outcome evaluation will be used for designing UNDP's interventions during the current UNDP CPAP period and designing the new programme for the next programming cycle.

More specifically, the scope of the outcome evaluation is as follows:

(the numbers of each item are referred to in the main body of the text, so the reader can track which items are addressed by the Evaluation Team)

Outcome analysis

1. Assess whether or not stated outcome, indicators and targets are appropriate for the development situation in Georgia and UNDP's program of assistance in this field
2. Assess what is a current status and likelihood for achieving the outcome with indicated inputs and within the planned timeframe
3. Assess what are the main factors (positive and negative) within and beyond UNDP's interventions that are affecting or that will affect the achievement of the outcome. How these factors limit or facilitate progress towards attainment of the outcome?

4. Assess whether or not UNDP's proposed contributions to the achievement of the outcome are appropriate, sufficient, effective and sustainable
5. Assess whether or not outcome indicators chosen are sufficient to measure the outcome
6. Assess whether the outcome is guided by UNDP broad policy objectives on gender equity
7. Examine the intended/unintended impacts for women and men
8. Assess to what extent synergies in programming such as partnerships among various UNDP programmes relate to the outcome
9. Assess cost-effectiveness of the programme and how economically programme inputs are converted into programme outputs.
10. Assess the extent to which the capacity developed under the programme can continue to function without continued external support from UNDP

Output analysis

11. What are the key outputs that have been or that will most likely be produced by UNDP to contribute to the outcome?
12. Are the UNDP outputs relevant to the outcome?
13. Are the monitoring and evaluation indicators appropriate to link these outputs to the outcome, or is there is a need to improve these indicators?
14. Is sufficient progress been made with regard to UNDP outputs?
15. What are the factors (positive and negative) that affect the accomplishment of the outputs?
16. Assess whether capacity development activities in support of sustainable development of Georgia's energy corridor have resulted in enhanced government ad civil society capacities.
17. Assess whether or not enabling environment was created/is being created for utilization of local renewable energies and improving energy efficiency.
18. Assess whether or not UNDP's outputs/project are sustainable.

Resources, partnerships, and management analysis

19. Is UNDP's resource mobilization strategy in sustainable energy appropriate and likely to be effective in achieving this outcome?
20. Are UNDP's management structures and working methods appropriate and likely to be effective in achieving this outcome?
21. Overall, assess the scope, relevance, efficiency and sustainability of UNDP's resources mobilization, partnership and management arrangements in achieving the intended outcome.
22. The evaluation is expected to correlate gender outputs with the broader outcomes of UNDP.
23. What are the key financial contributions that UNDP has made/is making to the outcome?
24. With the current planned interventions in partnership with other actors and stakeholders, will UNDP be able to achieve the outcome within the set timeframe and inputs – or whether additional resources are required and new or changed interventions are needed?

Recommendations

25. Based on the above analysis, provide with practical recommendation how should UNDP adjust its programming, partnership arrangements, resource mobilization strategies, working methods and/or management structures to ensure that the proposed outcome is fully achieved by the end of the CPAP period?

26. Provide with practical recommendations on how to improve the quality of delivery of projects in the sustainable Energy area.

Other Areas to be evaluated

Besides putting primary focus on the above areas, evaluators will have to concentrate on the following throughout the outcome evaluation process. Outcome analysis will be focused on the five drivers of development effectiveness, as such the five drivers can be considered as cross-cutting issues that need to be emphasized in all outcomes.

- developing national capacities
- enhancing national ownership
- advocating and fostering an enabling policy environment

- promoting gender equality
- forging partnerships for results

These drivers of development effectiveness, when taken together, help to connect UNDP's substantive results to larger intended national development outcomes.

27. Developing national capacities

- How is the national dialogue on energy among key stakeholders supported that leads to broad consensus and agenda-setting?
- How is institutional capacity development at national and regional levels promoted for guaranteeing rights and providing services, including through strategy development, policy formulation and application, data collection, analyses and utilization, implementation, management (staff management, salaries, incentives), monitoring and learning?
- Has there been civic engagement of all sectors of society and empowerment of disadvantaged in planning and implementing programmes and policies, monitoring progress and learning from experiences?
- Have key skills (e.g. visioning, strategic planning, management, analysis, knowledge management) and domain-specific technical skills been enhanced?
- Have improvement of leadership skills at societal, institutional and individual levels been supported in order to drive integrated national and local development agenda?
- Have there been networking system established at a global, national and local levels?

28. Enhancing national ownership

- Do national and local governments take the lead in:
  - developing and implementing frameworks and strategies for sustainable energy;
  - mobilizing national and local resources to meet funding requirements for reaching the targets;
- Are the efforts made to encourage and reinforce the voice and role of the government and other national/local actors in claiming and assuming responsibility for a national development agenda, process and implementation?

29.. Advocating and fostering an enabling policy environment

- Are energy dimensions mainstreamed into the key national development documents?
- What are the specific legal, policy and regulatory changes made through UNDP efforts?

30.. Promoting gender equality

- How are gender issues integrated into energy frameworks and strategies?
- How is participation and representation in national and local arena promoted that influence policy decisions?

31. Forging partnerships for results

- Is there effective coordination and partnership established between UNDP, government and other energy and environment partners?
- Are the project stakeholders and local communities involved in planning and implementation of environmental and energy programmes?
- How partnerships were oriented to focus on agreed outcomes and using joint monitoring and review mechanisms?
- Is South-South cooperation promoted?

<u>Projects to be evaluated:</u>

Output 1:

- Capacity Building for the Georgian International Oil Corporation (finished);
- Capacity Building for the Georgian Gas and Oil Corporation

Output 2:
Pipeline Monitoring and Dialogue Initiative

Output 3:
- Georgia - Promoting the Use of Renewable Energy Resources for Local Energy Supply (project ID 00034741);
- Promoting the Use of Small Hydro Resources at Community Level (project ID 00048095);
- Promoting Clean Energy Technologies in Mountainous Regions of Georgia on the example of Oni Region (project ID 00050786)

2. KEY DELIVERABLES/PRODUCTS

Following key deliverables/products are expected from this outcome and project Mid-term evaluations:

1. Comprehensive Outcome Evaluation report that includes, but is not limited to:

- Executive summary
- Introduction
- Description of the evaluation methodology
- Analysis of the situation with regard to outcome, outputs, resources, partnerships, management and working methods
- Key findings
- Conclusions and recommendations for the future program implementation

2. UNDP-GEF project: "Georgia - Promoting the Use of Renewable Energy Resources for Local Energy Supply" Mid-term Evaluation report (scope and outline of the report is provided in the Annex 1: Terms of Reference for Project Mid-term Evaluation)

3. METHODOLOGY/EVALUATION APPROACH

An overall guidance on outcome evaluation methodology can be found in the *UNDP Handbook on Monitoring and Evaluating for Results* and the *UNDP Guidelines for Outcome Evaluators*.

UNDP-GEF project Mid-term evaluation is to be undertaken in accordance with the "GEF Monitoring and Evaluation Policy"

(see: http://thegef.org/MonitoringandEvaluation/MEPoliciesProcedures/mepoliciesprocedures.html)

The evaluator(s) should develop detailed methodologies for outcome and Mid-term evaluations during the preparatory phase of the evaluation. They should study above documents before coming with the concrete methodology for the outcome evaluation.

Evaluation tools and techniques may include, but not limited to:

(i) desk review of existing documents and materials

(ii) interviews with partners and stakeholders (including what the partners have achieved with regard to the outcome and what strategies they have used)

(iii) field visits to selected key projects (the purpose of the field visits is mainly to verify the UNDP produced outputs and the impact of the outputs)

(iv) Participatory techniques and other approaches for data gathering and analysis

(v) briefing and debriefing sessions with UNDP and the government, as well as with other donors and partners. Of course, the evaluation team has certain flexibility to adapt the evaluation methodology to better suit the purpose of the evaluation exercise.

Each aspect/dimension will be rated as: Highly Satisfactory, Satisfactory, Marginally Satisfactory, Unsatisfactory, and N/A.

4. EVALUATION TEAM

The evaluation team will consist of three consultants: two international consultants – one to evaluate outputs and UNDP's interventions related to capacities for sustainable development of Georgia's energy corridor and another to evaluate outputs and UNDP's interventions related to renewable energies and energy efficiency, and a national consultant. The international consultant tasked to evaluate capacities for development of Georgia's energy corridor will also perform the Team Leader's role.

More specifically, following duties, responsibilities, skills and qualifications are expected from evaluation team

1. International Energy Expert/Outcome Evaluation Team Leader

Duties and Responsibilities:

- Desk review of documents and development of the outcome evaluation methodology, detailed work plan and report outline (4-day homework);
- Debriefing with UNDP CO, agreement on methodologies, scope and outlines of the reports (1 day);
- Interviews with key stakeholders (5 days);
- Field visits to project sites (4 days);
- Debriefing with UNDP (1 day);
- Development and submission of the aide memo and the first draft of the Outcome Evaluation report (5 days). The drafts will be shared with the UNDP CO and key project stakeholders for review and commenting. The 20th day of an assignment is a deadline for submission of the first draft(s);
- Finalization and submission of the final Outcome Evaluation Report (5 days);
- Supervision of the work of evaluation team (during entire evaluation period)

Skills and Qualifications:

- Master's of higher degree in energy, environmental and natural resource economics or other related fields;
- Experience in designing and evaluating projects aiming at capacity development of public institutions and CSO, especially in the energy field, including conventional energy (gas and oil) area;
- Experience in evaluating energy programmes and/or projects for UN or other international development agencies;
- Knowledge of UNDP outcome/project evaluation methodologies is an asset;
- Knowledge of the CIS region and particularly Georgia's context is an asset;
- Strong analytical skills;
- Excellent communications and writing skills;
- Fully e-literacy in terms of software and e-networking.
- Excellent coordination and team working skills;
- Fluency in English
- Knowledge of Russian or Georgian is an asset

Suggested Level:

Senior expert

Contract Type, Duration and Payment Modality:

The Outcome Evaluation Team Leader will be hired for 25 days under Special Service Agreement (SSA) with 10 days of home work and 15 days of mission to Georgia. He/she will be paid daily fee and DSAs according to UNDP salary scale for international experts and local DSA rate. DSA payments will be made based on actual days spent in Georgia. Fee payments will be maid based on following milestones:

20% - First draft of Outcome evaluation report;
80% - Final Evaluation report

Duty Station:

UNDP Georgia while on mission

International Expert in Renewable Energies

Duties and Responsibilities:

- Desk review of documents, contribution to the development of a draft methodology for outcome evaluation, specifically to the development of renewable energies part of it, detailed MTE work plan and outline (4-day homework);
- Debriefing with UNDP CO, agreement on the methodology, scope and outline of the MTE report (1 day);
- Interviews with executing agency(s), relevant Government, NGO and donor representatives, UNDP/GEF Regional Technical Advisor (5 days);
- Field visits and interviews with owners of the small hydropower and geothermal projects (4 days);
- Debriefing with UNDP (1 day);
- Elaboration of the renewable energies and energy efficiency parts of the outcome evaluation report and submission to the Team Leader (2 days);
- Development and submission of the first MTE report draft (3 days). The draft will be shared with the UNDP CO, UNDP/GEF (UNDP/GEF RCU Bratislava) and key project stakeholders for review and commenting. The 20th day of an assignment is a deadline for submission of the first MTE draft (s);
- Finalization and submission of the final MTE report (5 days)

Skills and Qualifications:

- Master's of higher degree in energy, natural resource management, environmental economics or other related fields
- Experience in evaluating energy programmes for UN or other international development agencies is an asset
- Experience in RE in particular, small hydropower and geothermal resources project development and/or evaluation
- Knowledge of UNDP outcome evaluation methodologies is an asset
- Knowledge of GEF M&E guidelines and procedures
- Competence in Adaptive Management, as applied to GEF RE and/or natural resource management projects
- Knowledge of the CIS region and particularly Georgia's context is an asset
- Strong analytical skills
- Excellent communications and writing skills
- Fully e-literacy in terms of software and e-networking
- Excellent team working skills
- Fluency in English
- Knowledge of Georgian or Russian is an asset

Suggested Level:

Senior expert

Contract Type, Duration and Payment Modality:

The consultant will be hired for 25 days under Special Service Agreement (SSA) with 10 days of home work and 15 days of mission to Georgia. He/she will be paid daily fee and DSAs according to UNDP salary scale for international experts and local DSA rate. DSA payments will be made based actual days spent in Georgia. Fee payments the will be maid based on following milestones:

20% - First draft of Outcome evaluation report;
80% - Final Evaluation report

Duty Station:

UNDP Georgia while on mission

3. National Energy Expert

Duties and Responsibilities

- Collection of background materials upon request by the outcome evaluation team leader and renewable energy expert;
- Desk review of materials;
- Provision of important inputs in developing methodologies, work plans and report outlines;
- Participation in debriefings with UNDP CO representatives;
- Coordination and participation in setting and conducting interviews with relevant stakeholders;
- Coordination and participation in interviewing local stakeholders at project sites;
- Debriefing with UNDP and project implementing partners;
- Contribution in developing outcome evaluation and UNDP-GEF project MTE reports

Skills and Qualifications:

- Master's degree in energy, natural resource management, environmental economics or other related fields;
- 5 years of experience in energy project development. Experience in small hydropower and/or geothermal project development is an asset;
- Good understanding and knowledge of Georgia's context with regard to energy sector of Georgia, including renewable and conventional energies;
- Experience with UNDP/GEF renewable energy projects is a strong asset;
- Experience in energy program/project evaluation is an asset;
- Strong analytical skills;
- Strong oral, communications and writing skills;
- Fully e-literate in terms of software and e-networking.
- Excellent team working skills;
- Fluency in Georgian and English

Suggested Level:

NOC (equivalent to national professional, senior-level)

Contract Type, Duration and Payment Modality:

The national expert will be hired under Special Service Agreement (SSA). He/she will be paid lump sum based on UNDP Georgia local project staff salary scale. Payments will be maid based on following milestones:

20% - First draft of the report;
80% - Final MTE report

Duty Station:

UNDP Georgia

5. IMPLEMENTATION ARRANGEMENTS

The energy outcome and project mid-term evaluations will be carried out by Outcome Evaluation Team. The logistical support and venue to the Evaluation team will be provided by the UNDP Georgia. The principal responsibility for managing this evaluation lies with UNDP-Georgia. It will be responsible for

liaising with the project team to set up stakeholder interviews, arrange field visits (if necessary), coordinate with the Government and ensure the timely provision of DSAs and travel arrangements.

6. DOCUMENTS FOR STUDY BY THE EVALUATORS

1. UNDP Handbook on Monitoring and Evaluation for results;
2. UNDP Guidelines for Outcome Evaluators;
3. UNDP Result-Based Management: Technical Note;
4. GEF Monitoring and Evaluation Policy (http://thegef.org/MonitoringandEvaluation/MEPoliciesProcedures/mepoliciesprocedures.html);
5. UN Development Assistance Framework (UNDAF) for Georgia 2005-2009;
6. Country Program Document for Georgia 2006-2010;
7. Country Program Action Plan for Georgia 2006 – 2010;
8. Common Country Assessment
9. Millennium Development Goals Reports in Georgia;
10. UNDP ROARs for 2005-2006;
11. Georgia's strategic Directions in Energy;
12. Georgia's energy balance sheet;
13. Energy programmes/strategies and reports (source: Ministry of Energy, Georgian Gas and oil corporation);
14. Laws and regulations in energy sector, if available in English;
15. Sector assessment reports, if available
16. Project documents, progress and final reports:
    - PMDI;
    - GIOC Capacity Building;
    - GOGC capacity building;
    - UNDP-GEF RE project;
    - Small Hydropower project;
    - Clean Energy Technologies

ANNEX 1. TERMS OF REFERENCE FOR PROJECT MID-TERM EVALUATION

UNDP/GEF Project: # 00034741: Georgia - Promoting the Use of Renewable Energy Resources for Local Energy Supply (PIMS 1277)

1. Introduction

The Monitoring and Evaluation Policy at the project level in UNDP/GEF has two overarching objectives:

a) Promote accountability for the achievement of GEF objectives through the assessment of results, effectiveness, processes and performance of the partners involved in GEF activities. GEF results will be monitored and evaluated for their contribution to global environmental benefits; and

b) Promote learning, feedback and knowledge sharing on results and lessons learned among the GEF and its partners, as basis for decision-making on policies, strategies, program management, and projects and to improve knowledge and performance.

A mix of tools is used to ensure effective Project monitoring and evaluation. These might be applied continuously throughout the lifetime of the project e.g. periodic monitoring of indicators – or as specific time-bound exercise such as mid-term reviews, audit reports and final evaluations.

The evaluation is to be undertaken in accordance with the "GEF Monitoring and Evaluation Policy" (http://thegef.org/MonitoringandEvaluation/MEPoliciesProcedures/mepoliciesprocedures.html).

Since 2004, UNDP Georgia has been implementing the UNDP/GEF full-sized project entitled "Georgia - Promoting the Use of Renewable Energy Resources for Local Energy Supply". Project consists of two components: financial component and technical assistance (TA) component. UNDP/GEF is implementing TA component of the project, the implementing partner for which is the Ministry of Environment and Natural Resources of Georgia. The day-to-day management of the project is implementing by the Project Management Unit (PMU) consisting of Project Manager, International Consultant (company Posch & Partners), administrative and technical assistants.

The duration of the project is 5 years (May 2004 – April 2009). The objective of the project is to remove the key barriers to the increased utilization of renewable energy (RE) for local energy supply. The initial focus is on promoting the use of geothermal resources for heating and hot water supply and the use of small hydro power for local electricity production. The project has four immediate objectives: (i) Creating a supportive institutional, legal and regulatory framework for the long term development of Georgia's renewable energy resources; (ii) Raising public awareness on the possibilities for commercial development of the local renewable energy resources in Georgia and building the capacity of the local entrepreneurs to develop "bankable" investment proposals, to structure financing for the projects and to manage the development and the implementation of the projects otherwise; (iii) Gaining experience for and demonstrating the feasibility of financing renewable energy investments in Georgia, building the local capacity to manage these operations leveraging additional financing for the capitalization of the Fund or for the renewable energy investments otherwise; and (iv) Documenting and disseminating the results, experiences and lessons learned and promoting the replication of the project activities at the national as well as the regional level. These objectives are to be achieved among others through the implementation of the pilot projects (rehabilitation of the small hydropower plants and geothermal heat and hot water supply systems).

The project (its financial component) is co-financed by the Government of Germany through KfW, the financial resources of which are to be used for establishing the Renewable Energy Fund (REF), which will have the revolving nature. According to the project document (Prodoc), UNDP also had to contribute to the REF by USD 2.0 M.

For the time being the TA component of the project implemented by the UNDP, has prepared a draft of the National RE Strategy; finalized 14 pre-feasibility and 4 feasibility studies for small hydropower plants; finalized pre-feasibility study for Saburtalo geothermal project, Cooperation Agreement between UNDP and KfW has been concluded, according to which UNDP has to contribute USD 2 M to the REF if and when it has an endowment policy enabling it to jointly establish such a fund with KfW. Along with these

achievements there is a significant delay in progress of the financial component conditioned mainly by delay in institutional arrangements related to the establishment of REF, which are expected to be finalized before the end of 2007. However, still there are no legal provisions for transfer of USD 2.0 M to KfW for establishment of REF. Thus, the project reached the phase, when the progress should be reviewed, the project approach analyzed and if found necessary modified, lessons learned captured, replication strategy developed and implemented.

2. Objectives of the Evaluation

The Mid-term Evaluation (MTE) is initiated and commissioned by UNDP Georgia country office. The objectives of the MTE is to evaluate the progress towards the attainment of global environmental objectives, project objectives and outcomes, capture lessons learned and suggest recommendations on major improvements. The Mid-term Evaluation serves as an agent of change and plays a critical role in supporting accountability. To this end, the MTE will serve to:

1. Strengthen the adaptive management and monitoring functions of the project;
2. Enhance the likelihood of achievement of the project and GEF objectives through analyzing project strengths and weaknesses and suggesting measures for improvement;
3. Enhance organizational and development learning;
4. Enable informed decision-making;
5. Create the basis of replication of successful project outcomes achieved so far.

In addition, MTE has to identify/validate proposed changes to the Prodoc in order to ensure achieving all the objectives. MTE has also to assess whether it is possible to achieve the objectives in the given timeframe, taking into consideration the speed, at which the project is proceeding. More specifically, the evaluation should assess:

Project concept and design

The evaluators will assess the project concept and design. The evaluator should review the problem addressed by the project and the project strategy, encompassing an assessment of the appropriateness of the objectives, planned outputs, activities and inputs as compared to cost-effective and feasible alternatives. The executing modality and managerial arrangements should also be judged. He/she will assess the relevance of indicators and review the work plan, planned duration and budget of the project.

Implementation

The evaluation will assess the implementation of the project in terms of quality and timeliness of inputs and efficiency and effectiveness of activities carried out. Also, the effectiveness of management as well as the quality and timeliness of monitoring and backstopping by all parties to the project should be evaluated. In particular the evaluation is to assess the Project team's use of adaptive management in project implementation.

Project outputs, outcomes and impact

The evaluation will assess the outputs, outcomes and impact achieved by the project as well as the likely sustainability of project results. This should encompass an assessment of the achievement of the immediate objectives and the contribution to attaining the overall objective of the project. The evaluation should also assess the extent to which the implementation of the project has been inclusive of relevant stakeholders and to which it has been able to create collaboration between different partners. The evaluation will also examine if the project has had significant unexpected effects, whether of beneficial or detrimental character.

3. Detailed Scope of Work

The evaluator(s) will look at the following aspects:

3.1 Project Concept/Design, Relevance and strategy

3.1.1 Project relevance, country ownership/driveness: the extent to which the project is suited to local and national development priorities and organizational policies, including changes over time as well as the extent the activities contribute towards attainment of global environmental benefits:

a. Is the project concept in line with the sectoral and development priorities and plans of the country?
b. Are project outcomes contributing to national development priorities and plans?
c. How and why project outcomes and strategies contribute to the achievement of the expected results.
d. Examine their relevance and whether they provide the most effective way towards results.
e. Do the outcomes developed during the inception phase still represent the best project strategy for achieving the project objectives (in light of updated underlying factors)? *Consider alternatives.*
f. Were the relevant country representatives, from government and civil society, involved in the project preparation?
g. Does the recipient government maintain its financial commitment to the project? Has the government – or governments in the case of multicountry projects – approved policies or regulatory frameworks been in line with the project's objectives?

3.1.2 Preparation and readiness

a. Are the project's objectives and components clear, practicable and feasible within its timeframe?
b. Were the capacities of executing institution and counterparts properly considered when the project was designed?
c. Were lessons from other relevant projects properly incorporated in the project design?
d. Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project approval?
e. Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place at project entry?

3.1.3 Stakeholder involvement

a. Did the project involve the relevant stakeholders through information-sharing, consultation and by seeking their participation in the project's design?
b. Did the project consult and make use of the skills, experience and knowledge of the appropriate government entities, NGOs, community groups, private sector, local governments and academic institutions in the design of project activities?

3.1.4 Underlying Factors/assumptions

a. Assess the underlying factors beyond the project's immediate control that influence outcomes and results. Consider the appropriateness and effectiveness of the project's management strategies for these factors.
b. Re-test the assumptions made by the project management and identify new assumptions that should be made
c. Assess the effect of any incorrect assumptions made by the project

3.1.5 Management arrangements

a. Were the project roles properly assigned during the project design?
b. Are the project roles in line with UNDP and GEF progamme guides?
c. Can the management arrangement model suggested by the project be considered as an optimum model? If no, please come up with suggestions and recommendations

3.1.6 Project budget and duration:

Assess if the project budget and duration were planned in a cost-effective way?

3.1.7 Design of Project Monitoring and Evaluation system

a. Examine whether or not the project has a sound M&E plan to monitor results and track progress towards achieving project objectives.

b. Examine whether or not the M&E plan includes a baseline (including data, methodology, etc.), SMART indicators and data analysis systems, and evaluation studies at specific times to assess results and adequate funding for M&E activities.
c. Examine whether or not the time frame for various M&E activities and standards for outputs are specified.

3.1.7 Sustainability:

a. Assess if project sustainability strategy was developed during the project design?
b. Assess the relevance of project sustainability strategy

3.2 Project Implementation

3.2.1 Project's Adaptive Management

a. Monitoring Systems
- Assess the monitoring tools currently being used:
    - Do they provide the necessary information?
    - Do they involve key partners?
    - Are they efficient?
    - Are additional tools required?
- Assess the use of the logical framework as a management tool during implementation and any changes made to it
- What impact did the retro-fitting of impact indicators have on project management, if such?
- Reconstruct baseline data if necessary[17]. Reconstruction should follow participatory processes and could be achieved in conjunction with a learning exercise[18]
- Apply the GEF Tracking Tool for OP 6 and provide a description of comparison with initial application of the tool.
- Assess whether or not M&E system facilitated timely tracking of progress towards project's objectives by collecting information on chosen indicators continually; annual project reports are complete, accurate and with well justified ratings; the information provided by the M&E system is used to improve project performance and to adapt to changing needs

b. Risk Management
- Validate whether the risks identified in the project document and PIRs are the most important and whether the risk ratings applied are appropriate. If not, explain why.
- Describe any additional risks identified and suggest risk ratings and possible risk management strategies to be adopted
- Assess the project's risk identification and management systems:
    - Is the UNDP-GEF Risk Management System[19] appropriately applied (with particular emphasis on the financial risks related to micro-grants)?
    - How can the UNDP-GEF Risk Management System be used to strengthen the project management?

c. Work Planning
- Assess the use of routinely updated workplans
- Assess the use of electronic information technologies to support implementation, participation and monitoring, as well as other project activities
- Are work planning processes result-based[20]? If not, suggest ways to re-orientate work planning.

d. Financial management

[17] See p.67 of UNDP's "Handbook on Monitoring and Evaluation for Results", available at http://www.undp.org/gef/05/monitoring/policies.html

[18] See Annex C of "Participatory Monitoring and Evaluation: approaches to sustainability", available at http://www.undp.org/gef/05/monitoring/policies.html

[19] UNDP-GEF's system is based on the Atlas Risk Module. See the UNDP-GEF Risk Management Strategy resource kit, available as Annex XI at http://www.undp.org/gef/05/monitoring/policies.html

[20] RBM Support documents are available at http://www.undp.org/eo/methodologies.htm

- Consider the financial management of the project, with specific reference to the cost-effectiveness of interventions. (Cost-effectiveness: the extent to which results have been delivered with the least costly resources possible. Also called cost-effectiveness or efficacy). Any irregularities must be noted.
- Is there due diligence in the management of funds and financial audits?
- Did promised co-financing materialize? (Please fill the form on co-financing).

Cofinancing

Co financing (Type/Source)	IA own Financing (mill US$)		Government (mill US$)		Other* (mill US$)		Total (mill US$)		Total Disbursement (mill US$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants										
Loans/Concessions (compared to market rate)										
– Credits										
– Equity investments										
– In-kind support										
– Other (*)										
TOTALS										

* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

e. Reporting
- Assess how adaptive management changes have been reported by the project management
- Assess how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.

f. Delays
- Assess if there were delays in project implementation
- Assess if there were delays in project implementation then what were the reasons
- Did the delay affect the achievement of project's outcomes and/or sustainability, and if it did affect outcomes and sustainability then in what ways and through what causal linkages?

3.2.2 Contribution of Implementing and Executing Agencies:

- Assess the role of UNDP and the project executing agency(s) against the requirements set out in the UNDP Handbook on Monitoring and Evaluating for Results. Consider:
    - Field visits
    - Participation in Steering Committees
    - Project reviews, PIR preparation and follow-up
    - GEF guidance
    - Skill mix
    - Operational support
- Consider the new UNDP requirements outlined in the UNDP User Guide[21], especially the Project Assurance role, and ensure they are incorporated into the project's adaptive management framework
- Assess the contribution to the project from UNDP and the project executing agency(s) in terms of "soft" assistance (i.e. policy advice & dialogue, advocacy, and coordination)
- Suggest measures to strengthen UNDP's soft assistance to the project management.

3.2.3 Stakeholder Participation, Partnership Strategy

[21] The UNDP User Guide is currently only available on UNDP's intranet. However UNDP can provide the necessary section on roles and responsibility from http://content.undp.org/go/userguide/results/rmoverview/progprojorg/?src=print

a. Assess whether or not local stakeholders participate in project management and decision-making. Include an analysis of the strengths and weaknesses of the approach adopted by the project and suggestions for improvement if necessary.
b. Assess how local stakeholders participate in project management and decision-making.
c. Does the project consult and make use of the skills, experience and knowledge of the appropriate government entities, NGOs, community groups, private sector, local governments and academic institutions in the implementation and evaluation of project activities?
d. Consider the dissemination of project information to partners and stakeholders and if necessary suggest more appropriate mechanisms.
e. Identify opportunities for stronger partnerships;

3.2.4 Sustainability: extent to which the benefits of the project will continue, within or outside the project scope, after it has come to an end. The evaluators may look at factors such as establishment of sustainable financial mechanisms, mainstreaming project objectives into the broader development policies and sectoral plans and economies or community production

3.2.5 Gender perspective: Extent to which the project accounts for gender differences when applying project interventions.

a. *Explore how* gender considerations are mainstreamed into project interventions. Suggest measures to strengthen the project's gender approach.

3.3 Project Results (Outputs, Outcomes and Impact)

3.3.1 Progress towards achievement of intended outcomes/measurement of change: Progress towards results should be based on a comparison of indicators before and after (so far) the project intervention, e.g. by comparing current conditions for development of RE resources (legal and regulatory frameworks, access to financing, existence of the similar programs, existence of the RE strategy, etc.) to the baseline ones;

3.3.2 Changes in development conditions: Focus on capacity of the local entrepreneurs to develop "bankable" investment proposals, to structure financing for the projects and to manage the development and the implementation of the projects otherwise.

4. Evaluation Methodology

The project progress and achievements will be tested against following GEF evaluation criteria:

(i) Relevance – the extent to which the activity is suited to local and national development priorities and organizational policies, including changes over time.

(ii) Effectiveness – the extent to which an objective has been achieved or how likely it is to be achieved.

(iii) Efficiency – the extent to which results have been delivered with the least costly resources possible.

(iv) Results/impacts – the positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. In GEF terms, results include direct project outputs, short-to medium term outcomes, and longer-term impact including global environmental benefits, replication effects and other, local effects.

(v) Sustainability – the likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

The Project will be rated against individual criterion of relevance, effectiveness, efficiency and impact/results based on the following scale:

- Highly Satisfactory (HS): The project has no shortcomings in the achievement of its objectives.
- Satisfactory (S): The project has minor shortcomings in the achievement of its objectives.

- Moderately Satisfactory (MS): The project has moderate shortcomings in the achievement of its objectives.
- Moderately Unsatisfactory (MU): The project has significant shortcomings in the achievement of its objectives.
- Unsatisfactory (U) The project has major shortcomings in the achievement of its objectives.
- Highly Unsatisfactory (HU): The project has severe shortcomings in the achievement of its objectives.

As for sustainability criteria the evaluator should at the minimum evaluate the "likelihood of sustainability of outcomes at project termination, and provide a rating for this.

The following four dimensions or aspects of sustainability should be addressed:

Financial resources:

a. Are there any financial risks that may jeopardize sustenance of project outcomes?
b. What is the likelihood of financial and economic resources not being available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project's outcomes)?

Socio-political:

c. Are there any social or political risks that may jeopardize sustainability of project outcomes?
d. What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained?
e. Do the various key stakeholders see that it is in their interest that the project benefits continue to flow?
f. Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?

Institutional framework and governance:

a. Do the legal frameworks, policies and governance structures and processes pose risks that may jeopardize sustenance of project benefits?
b. While assessing this parameter, also consider if the required systems for accountability and transparency, and the required technical know-how are in place.

Environmental:

a. Are there any environmental risks that may jeopardize sustenance of project outcomes? The evaluation should assess whether certain activities will pose a threat to the sustainability of the project outcomes. For example, construction of dam in a protected area could inundate a sizable area and thereby neutralizing the biodiversity related gains made by the project.

On each of the dimensions of sustainability of the project outcomes will be rated as follows:

- Likely (L): There are no or negligible risks that affect this dimension of sustainability.
- Moderately Likely (ML): There are moderate risks that affect this dimension of sustainability.
- Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability
- Unlikely (U): There are severe risks that affect this dimension of sustainability.

All the risk dimensions of sustainability are critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an 'Unlikely' rating in either of the dimensions then its overall rating cannot be higher than 'Unlikely'.

In addition to project relevance, effectiveness, efficiency and sustainability, the evaluator should rate Project M&E system, including design of M&E systems and implementation of the Project M&E plan. More specifically, Project monitoring and evaluation systems should be rated as follows:

- Highly Satisfactory (HS): There are no shortcomings in the project M&E system.
- Satisfactory(S): There are minor shortcomings in the project M&E system.
- Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.
- Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.
- Unsatisfactory (U): There were major shortcomings in the project M&E system.
- Highly Unsatisfactory (HU): The Project had no M&E system.

The evaluator(s) should develop detailed methodology and work plan for MTE during the preparatory phase of the MTE. The MTE tools and techniques may include, but not limited to:

- Desk review;
- Interviews with major stakeholders, including UNDP/GEF project implementing partners, government representatives, NGOs, donors, owners of small hydropower and geothermal companies, etc.
- Field visits to the project sites (not sure that this is necessary);
- Questionnaires;
- Participatory techniques and other approaches for gathering and analysis of data.

An indicative outline of the Mid-term Evaluation Report is presented below.

5. Deliverables

- Detailed methodology, work plan and outline;
- Mid-term evaluation report;
- Lessons learned and recommendations for improvement including recommendation for the revision of Prodoc, extension of the project;
- Recommendations for a strategy for future replication of the project approach for other types of the renewable energy, for other countries in the region.

6. Indicative Outline of the Mid-term Evaluation Report

The key product expected from this mid-term evaluation is a comprehensive analytical report in English that should, at least, include the following contents:

- Executive summary (1-2 pages)
  - Brief description of the project
  - Context and purpose of the evaluation
  - Main conclusions, recommendations and lessons learned

- Introduction (2-3 pages)
  - Project background
  - Purpose of the evaluation
  - Key issues to be addressed
  - The outputs of the evaluation and how will they be used
  - Methodology of the evaluation
  - Structure of the evaluation

- Project and its development context (3-4 pages)
  - Project start and its duration
  - Implementation status
  - Problems that the project seek to address
  - Immediate and development objectives of the project
  - Main stakeholders
  - Results expected
  - An analysis of the situation with regard to the outcomes, the outputs and the partnership strategy;

- Key findings (including best practice and lessons learned, assessment of performance) – (8-10 pages)
  - Project concept/design
    - Project relevance
    - Implementation approach
    - Country ownership/Driveness
    - Stakeholder participation
    - Replication approach
    - Cost-effectiveness
    - Sustainability
    - Linkages between project and other interventions within the sector

- Management arrangements
- Implementation
  - Financial management
  - Monitoring and evaluation
  - Management and coordination
  - Identification and management of risks (adaptive management)
- Results
  - Attainment of outputs, outcomes and objectives
  - Project Impact
  - Prospects of sustainability

- Conclusions and recommendations (4 – 6 pages)
  - Findings
  - Corrective actions for the design, duration, implementation, monitoring and evaluation of the project
  - Actions to strengthen or reinforce benefits from the project
  - Proposals for future directions underlining main objectives
  - Suggestions for strengthening ownership, management of potential risks

- Lessons learned (3 – 5 pages)
  - Good practices and lessons learned in addressing issues relating to effectiveness, efficiency and relevance.

- Annexes: TOR, itinerary, field visits, people interviewed, documents reviewed, etc.

The length of the mid-term evaluation report shall not exceed 30 pages in total (not including annexes).

7. Management Arrangements

The mid-term evaluation will be carried out by Mid-term Evaluation (MTE) Team composed of one international expert and a national expert. The logistical support and venue to the MTE team will be provided by the UNDP Georgia. The principal responsibility for managing this evaluation lies with UNDP-Georgia. It will be responsible for liaising with the project team to set up stakeholder interviews, arrange field visits (if necessary), coordinate with the Government and ensure the timely provision of per diems and travel arrangements.

8. Duration of the Mid-term Evaluation

It is expected to start MTE in the second half of January, 2008 and complete it within 25 days

9. Duties, Skills and Qualifications of Evaluation Team

International Expert in Renewable Energies

Duties and Responsibilities:

- Desk review of documents, contribution to the development of a draft methodology for outcome evaluation, specifically to the development of renewable energies part of it, detailed MTE work plan and outline (4-day homework);
- Debriefing with UNDP CO, agreement on the methodology, scope and outline of the MTE report (1 day);
- Interviews with executing agency(s), relevant Government, NGO and donor representatives, UNDP/GEF Regional Technical Advisor (5 days);
- Field visits and interviews with owners of the small hydropower and geothermal projects (4 days);
- Debriefing with UNDP (1 day);
- Elaboration of the renewable energies and energy efficiency parts of the outcome evaluation report and submission to the Team Leader (2 days);

- Development and submission of the first MTE report draft (3 days). The draft will be shared with the UNDP CO, UNDP/GEF (UNDP/GEF RCU Bratislava) and key project stakeholders for review and commenting. The 20th day of an assignment is a deadline for submission of the first MTE draft (s);
- Finalization and submission of the final MTE report (5 days)

Skills and Qualifications:

- Master's of higher degree in energy, natural resource management, environmental economics or other related fields
- Experience in evaluating energy programmes for UN or other international development agencies is an asset
- Experience in RE in particular, small hydropower and geothermal resources project development and/or evaluation
- Knowledge of UNDP outcome evaluation methodologies is an asset
- Knowledge of GEF M&E guidelines and procedures
- Competence in Adaptive Management, as applied to GEF RE and/or natural resource management projects
- Knowledge of the CIS region and particularly Georgia's context is an asset
- Strong analytical skills
- Excellent communications and writing skills
- Fully e-literacy in terms of software and e-networking
- Excellent team working skills
- Fluency in English
- Knowledge of Georgian or Russian is an asset

Suggested Level:

Senior expert

Contract Type, Duration and Payment Modality:

The consultant will be hired for 25 days under Special Service Agreement (SSA) with 10 days of home work and 15 days of mission to Georgia. He/she will be paid daily fee and DSAs according to UNDP salary scale for international experts and local DSA rate. DSA payments will be made based actual days spent in Georgia. Fee payments the will be maid based on following milestones:

20% - First draft of Outcome evaluation report;
80% - Final Evaluation report

Duty Station:

UNDP Georgia while on mission

National Energy Expert

Duties and Responsibilities

- Collection of background materials upon request by the outcome evaluation team leader and renewable energy expert;
- Desk review of materials;
- Provision of important inputs in developing methodologies, work plans and report outlines;
- Participation in debriefings with UNDP CO representatives;
- Coordination and participation in setting and conducting interviews with relevant stakeholders;
- Coordination and participation in interviewing local stakeholders at project sites;
- Debriefing with UNDP and project implementing partners;
- Contribution in developing outcome evaluation and UNDP-GEF project MTE reports

Skills and Qualifications:

- Master's degree in energy, natural resource management, environmental economics or other related fields;
- 5 years of experience in RE project development. Experience in small hydropower and/or geothermal project development is an asset;;
- Good understanding and knowledge of Georgia's context with regard to RE sector of Georgia;
- Experience with UNDP/GEF renewable energy projects is a strong asset;
- Experience in RE project evaluation is an asset;
- Strong analytical skills;
- Strong oral, communications and writing skills;
- Fully e-literate in terms of software and e-networking.
- Excellent team working skills;
- Fluency in Georgian and English

Suggested Level:

NOC (equivalent to national professional, mid-level)

Contract Type, Duration and Payment Modality:

The national expert will be hired under Special Service Agreement (SSA). He/she will be paid lump sum based on UNDP Georgia local project staff salary scale. Payments will be maid based on following milestones:

20% - First draft of MTE report;
80% - Final MTE report

Duty Station:

UNDP Georgia

10. List of Documents to be Reviewed

1. Project document and its annexes;
2. Annual work plans;
3. 2005, 2006, 2007 UNDP/GEF Project Implementation Reviews (PIR) and latest progress reports;
4. Technical reports;
5. Georgian legislation and policy documents in the area of renewable energy;
6. Quarterly Operational reports;
7. Minutes of the Steering Committee meetings;
8. Project financial work plans and expenditure reports;
9. GEF Monitoring and Evaluation Policies;
10. Financing Agreement and Separate Agreement between KfW and the Government of Georgia in the framework of the Program for the Promotion of Renewable Energy
11. Cooperation Agreement between the UNDP and KfW
12. Other upon request

11. Evaluation Policy

The evaluators should follow the major GEF principles for evaluation[22]:

- Independence
- Impartiality
- Transparency
- Disclosure
- Ethics
- Partnership

[22] See p.16 of the GEF's Monitoring and Evaluation Policy

- Competencies and Capacities
- Credibility
- Utility

The evaluators must be independent from both the policy-making process and the delivery and management of assistance. Therefore applications will not be considered from evaluators who have had any direct involvement with the design or implementation of the project. Any previous association with the project must be disclosed in the application.

If selected, failure to make the above disclosures will be considered just grounds for immediate contract termination, without recompense. In such circumstances, all notes, reports and other documentation produced by the evaluator will be retained by UNDP.

ANNEX B. LISTS OF PEOPLE INTERVIEWED AND OF REVIEWED DOCUMENTS

B.1 Itinerary and list of people interviewed

In the two weeks from 13 to 28 August, the Evaluation Team did not only evaluate the 'Sustainable energy' Outcome of the Environment-Climate Change cluster of activities of UNDP, but was joined by another international consultant, Mr. Wong, who focused on the Mid-Term evaluation of the UNDP-GEF project on renewable energy (as mentioned in the Terms of Reference, Annex A). The following table shows the meetings held by the Team for both the RETDAP and the Outcome Evaluations.

April 5 (Saturday)	• Arrival of Mr. J.H.A. van den Akker (team leader) in Tbilisi
April 7 (Monday)	• Meeting at UNDP with Ms. Mariam Shotadze (environment & energy Team Leader), Mr. Paata Janelidze (Manager, renewable energy projects) and George • Meeting with Levan Gujabidze (Project Manager, GOGC) and Levan Karalasvili (GIOC project)
April 8 (Tuesday)	• Meeting at CRRC with Mr. Koba Turmanidze (ex-coordinator of PMDI project) • Meeting at BP with Ms. Eka Grigalava (Coordinator, NGO and community affairs) and Ms. Rusudan Medzmariashvili (Team Leader, corporate responsibility)
April 9 (Wednesday)	• Arrival of Mr. Roland Wong in Tbilisi (international consultant, mid-term evaluation of UNDP/GEF Promoting Use of Renewable Energy project) • Meeting with Mr. George Abdushelishvili (Deputy Minister of Energy) • Discussion at Environment Ministry with Mr. Paata Janelidze
April 10 (Thursday)	• Meeting with Ms. Keti Vashakidze (Country Director) • Discussion at UNDP with Ms. Matilda Dimovska (Assistant Resident Representative), Ms. Shotadze and Mr. Janelidze
April 11 (Friday)	• Meeting at KfW with Mr. Christian Calov (Country Director) and Ms. Nino Shanidze (Project Coordinator) • Meeting with Mr. Hannes Posch (International advisor in UNDP/GEF project; Director of Clean Energy Solutions, Austria).
April 12 (Saturday)	• Report writing
April 13-14 (Sunday – Monday)	• Site visits to Sachkere (SHP), Zestaponi (SHP) and Oni region (Oni and Ambrolauri; community biogas and SWH)
April 15 (Tuesday)	• Meeting at GOGC with Mr. Bob Ethrington (Consultant, Resanco) and Mr. Jemal Akobia (Officer, monitoring and evaluation) • Report writing
April 16 (Wednesday)	• Meeting with Mr. Irakli Vardigoreli, Business Development Manager, Energy Efficiency, EBRD • Meeting with Mr. Woody Rybczynski, Exec. VP of Operations and Ms. Rusudan Pantsulaia, Director, GRDC and JSC Lisi Lake Development • Field trip to Lisi Lake
April 17 (Thursday)	• Meeting at UNDP with Ms. Shotadze and Mr. Janelidze
April 18 (Friday)	• Wrap-up meeting with Mr. Peter Van Ruysseveldt (Deputy Resident Representative, UNDP)
April 19 (Saturday)	• Departure of Mr. Van den Akker from Tbilisi
April 20 (Sunday)	• Report writing
April 21 (Monday)	• Reporting Writing
April 22 (Tuesday)	• Meeting with Dr. Murman Margvelashvili, Director Energy Studies, WEG

	(World Experience for Georgia) • Meeting with Ramaz Tchitanava, Head , MoEPNR, Hydrometeorological Department, Tbilisi
April 23 (Wednesday)	• Meeting at KfW with Mr. Christian Calov (Country Director) and Ms. Nino Shanidze (Project Coordinator) • Wrap-up meeting with UNDP with Ms. Shotadze and Mr. Janelidze • Submission of first version of mid-term evaluation report • Departure of Mr. Wong from Tbilisi

B.2 List of documents reviewed

1) UNDP Draft Program Document for the Republic of Georgia (2006 – 2010);
2) UNDP and Government of Georgia, Country Program Action Plan (2006 – 1010);
3) UNDP-GEF Georgia "Promoting the Use of Renewable Energy Resources for Local Energy Supply", 2004, Project Document; UNDP Annual Progress Reports and Project Implementation Review Reports (2005, 2006, 2007); and UNDP Meeting Notes from first PSC meeting (2004) and Kick-off Meeting and Four-Partite Meeting (July 2004);
4) UNDP/Rutanen, Mission Report of August 2004;
5) UNDP/Posch & Partners, Pre-Feasibility and Feasibility Studies for SHPP Projects for Chkhorotsku, Tskhomareti, Borjomi , Abasha, 2006;
6) UNDP/Posch & Partners, Renewable Energy Strategy for "Georgian – Promoting the Use of Renewable Energy Resources for Local Energy Supply", 2007;
7) USAID/Winrock International, Energy Efficiency Potential in Georgia and Policy Options for Its Utilization, February 2008;
8) Government of Georgia, "Georgian Law on Electricity and Natural Gas", 1997;
9) Government of Georgia, "Main Directions of State Policy in the Power Sector in Georgia", June 2006;
10) Ministry of Finance, Georgia, Dossier for Selection of Program Banks for Program for Promoting Renewable Energy, February 2007.
11) George Abdushelishveli, deputy Minister, ' New Generation Investment Opportunities', presentation at 7th Georgian International Oil, Gas, Energy and Infrastructure Conference, Tbilisi, April 2008
12) Nika Gilauri, Minister of Energy of Georgia,'Investment Opportunities in the Energy Sector of Georgia', presentation, Istanbul, February 2006
13) UNDP-GEF Georgia "Capacity Building of GIOC, 2nd Phase", Project Document; Progress Reports 2006
14) UNDP Georgia "Promoting the Use of Small Hydropower Resources at the Community Level", Project Document plus Annex; Annual progress report 2007; Notes from UNDP meeting 5 July 2005
15) UNDP Georgia "Promoting Clean Energy technologies in the Mountainous regions of Georgia, Example of Oni region", Project Document; Substantive Project Revision (April 2007); Revised Project Summary (2007);