

UNITED NATIONS DEVELOPMENT PROGRAMME

BULGARIA

ENERGY EFFICIENCY STRATEGY TO MITIGATE GHG EMISSIONS.
ENERGY EFFICIENCY DEMONSTRATION ZONE IN THE CITY OF GABROVO, REPUBLIC
OF BULGARIA.

BUL/96/G31/1G/72

Final Project Evaluation Report

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April 2004

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I. Executive Summary

This evaluation report contains final evaluation of the GEF/UNDP project BUL/96/G31/1G/72 - "Energy Efficiency Strategy to Mitigate Greenhouse Gas Emissions. Energy Efficiency Demonstration Zone in the City of Gabrovo". The total project budget was 7,436,000 USD, with GEF/UNDP funding of 2,575,000 USD.

The project is focused at developing practices at the municipal level to overcome barriers to improved energy efficiency and reduced GHG emissions, and it consists of two main elements:

- National capacity building and
- Supporting demonstrations

The project was NGO executed by EnEffect, a Bulgarian not-for-profit Center for Energy Efficiency. The management of the project was professional, effective and timely.

The project's development objectives (overcome barriers to increased energy efficiency) and immediate objectives (establishment of sustainable energy policies and programmes, enhance public awareness, accelerate undertaking of sustainable energy projects in municipalities) as well as projects outcomes have been fully reached, and the overall rating of the project is highly satisfactory. The project significantly helped to decrease barriers to energy efficiency by developing and disseminating capacity to prepare energy efficiency projects based on practical experience from the demonstration zones.

The main barriers to energy efficiency - unfinished macroeconomic reforms, subsidized energy prices, and insufficient financial stability of potential project developers and sponsors, have been addressed by the project, however their removal goes far beyond the scope of the project. The project has been strongly influenced by the financial crises of the country and strict financial constraints established by the currency board in 1997. Only recently some of financially strongest municipalities have been able to accept and repay commercial loans for energy efficiency retrofits. Due to the economic crises financing opportunities, including energy efficiency retrofits, have been significantly reduced, and their development delayed. The GEF/UNDP project thus played a critical role in developing and demonstrating energy efficiency capabilities and opportunities during the period when commercial implementation of energy efficiency projects was not yet possible on a wide-scale.

By the end of the project period the economic situation of the country in macroeconomic terms, as well as financial situation of some municipalities has improved in such a way, that energy efficiency projects could start to be developed in practice to some extent as bankable, financially feasible projects. The improvement of the economic situation and a potential to start implementation of energy efficiency projects on a wider scale however provides a unique opportunity to speed up the commercialization of energy efficiency projects. The project has helped significantly in developing energy efficiency skills and policies when it was practically impossible to implement such projects without grants and another financial assistance. Currently, there start to appear creditworthy clients interested in implementation of energy efficiency projects. Although there exists good knowledge of the potential energy efficiency opportunities, and also practical experience with developing

bankable energy efficiency projects, the experience from another CEE countries suggests, that in this period, until the market will be fully matured, availability of professional assistance to project sponsors in developing cost-effective, bankable projects with acceptable risks will have a key influence on the speed and scale of developing, financing and implementation of such projects. This provides an opportunity for follow-up activities that would benefit from existing projects results and newly developed supporting financial mechanisms (such as DCA) and that would help to develop energy efficiency ideas into truly bankable, feasible and cost-effective projects.

II. Introduction

II.1 Key issues addressed through the evaluation

The final project evaluation focused on identification and analysis of real project impacts, and potential for replication and sustainability of outcomes in the context of the country development and economic transformation. The evaluation team analysed if and how planned activities have been performed and implemented, what was the overall performance of the project and its impact on the development of energy efficiency in Bulgaria, but also the team analysed what was value added of the project, what would potentially happen without its implementation, and what are the potential risks for sustainability of its results in the future.

II.2 Methodology of evaluation

The methodology of evaluation followed the GEF Guidelines for Implementing Agencies to Conduct Terminal Evaluations, Monitoring and Evaluation Policies and Procedures, and the UNDP Handbook on Monitoring and Evaluating for Results. The evaluation focused on project achievements according to the GEF project review criteria, namely:

1. Implementation approach,
2. State ownership / Management,
3. Stakeholder participation / Public Involvement,
4. Sustainability,
5. Replication approach,
6. Financial planning,
7. Cost-effectiveness,
8. Monitoring and evaluation.

The evaluation included desk review of all relevant project documents, on-the-field visits organised within two missions to Bulgaria, briefing with local UNDP representation in Sofia, interviews with project management and main project stakeholders, review of main project results, including project questionnaires, validation of preliminary findings with key stakeholders and UNDP management, and debriefing and public presentation and discussion of project review findings at a Annual Conference of Municipal Energy Efficiency Network in Sofia.

II.3 Timing of the evaluation and evaluators team

The evaluation has been performed during the period of March 8 till April 19, 2004.

The evaluators' team consisted of two external evaluators, one international and one national. The international evaluator, Jiří Zeman, served as an evaluation team leader and was responsible for finalising the report and had primary responsibility for evaluating performance of the project and overall project achievements. The national evaluator, Nikola Karadimov, was responsible among others for reviewing national policy documents and legislation, evaluating relevance of the project and sustainability. Both reviewers developed the evaluation report as a team and the evaluation represents opinion shared by both evaluators.

Jiří Zeman works as a deputy director of SEVEn, o.p.s., a Czech non-profit consultancy in energy efficiency. He has an extensive experience in development and implementation of energy efficiency policies, concrete energy efficiency projects and energy efficiency financing schemes in the Czech Republic and other countries with economy in transition in the Central and East European region. Jiří Zeman served also as a UNFCCC In-depth Review team member for the Bulgarian Second National Communication on Climate Change in 1998, and was an international reviewer of Mid-Term Evaluation of this project in 1999-2000.

Nikola Karadimov serves as an advisor to the President of the Republic of Bulgaria on foreign policy issues. Formerly he was Bulgarian Ambassador to Denmark and EU, and from 1991 till 1993 and in 1997 he served as a Minister of regional development and public works in the Bulgarian government. His professional background is architecture, housing policy, regional development, local governance, and energy efficiency.

III. Project Development Context

III.1 Country context

The project “Energy Efficiency Strategy to Mitigate Greenhouse Gas Emissions. Energy Efficiency Demonstration Zone in the City of Gabrovo, Republic of Bulgaria” has been developed in the mid-1990s, and actual implementation started in May 1998, after a signature of the Project Document. The project was intended to last five years till May 2003. In 2003, the project was revised, and a no-cost one-year extension was approved, so the actual project end is April 2004.

During the project period Bulgaria has faced deep economic problems and turbulences. After the political change in 1990 and first democratic elections after the communist regime Bulgaria has started to implement political and economic reforms. However, due to political reasons the transformation process and reforms slowed down and were relatively weak in comparison with leaders among the countries with economies in transition in the Central and East European region. Due to slow economic transformation and reforms, Bulgaria was exposed to significant economic problems that resulted practically in a state financial crisis with serious social impacts. After elections in 1997, new pro-reform government was forced to implemented strict financial budgetary restrictions, reintroduce economic reforms, and the currency board has been established to stabilise the macroeconomic situation.

The economy of Bulgaria was also seriously influenced by the war in former Yugoslavia that had negative impact especially on export possibilities of the country.

However, the political and macroeconomic situation of the country has already stabilised and improved in recent years. At the end of the project period in April 2004, Bulgaria has become a new member of the NATO and is planning to become a member of the European Union by 2007.

At the beginning of the project, the general situation and economic framework did not allow for commercial financing of energy efficiency projects. During the project period, the situation has improved, although the economic problems of the country significantly delayed the involvement of private sector and financial institutions in investing into energy efficiency improvements. The economic turbulences had direct impacts also on the project. However, at the end of the project period the economic and investment climate in Bulgaria allowed private investors to start to enter the market and finance energy efficiency reconstructions and projects at least on a selective basis and in some parts of public and private sectors.

III.2 Brief project description

The intent of the project as described in the project document is to introduce practices at the municipality level that overcome barriers to improved energy efficiency and reduced emissions of greenhouse gases (GHGs) and other environment pollutants.

The project is organised into two main elements:

- 1) National Capacity Building; and
- 2) Supporting Demonstrations.

The Capacity Building activities are the heart of the project. All other activities are designed to strengthen them. The Capacity Building activities focus on municipalities as the critical political and socio-economic unit for bringing about change in Bulgaria. They include municipal energy management, training and financing activities.

Supporting Demonstrations in street lighting, district heating, and building energy efficiency retrofit projects show how Capacity Building can be applied to real projects.

Project Management was designed with a goal to support these efforts and the rapid diffusion of Capacity Building and Demonstrations to other municipalities, reaching at least 30 municipalities--a critical mass for ensuring that the reforms continue throughout the country after the project is concluded.

III.3 Immediate and development project objectives

The Project Document has defined one development objective and two main immediate objectives, as follows:

Development objective

The project development objective is to overcome barriers to increased energy efficiency and to the associated reductions in GHG emissions.

Immediate objectives

Project document has defined two immediate objectives:

1. To establish sustainable energy policies and programmes, and enhance public awareness in municipalities, and
2. To accelerate the undertaking of sustainable energy projects within municipalities by demonstrating their potential for energy and economic savings and for reductions in GHG emissions.

III.4 Problems addressed by the project

The project addressed problems typical for all Central and East European countries with economies in transition from centrally planned to market economies, as well as specific national problems in Bulgaria. The project document identified and focused on three main problems:

1. low level of energy efficiency,
2. severe environmental impacts of energy in-efficiency, and

3. limited societal capacity to increase energy efficiency and need of institutional and behavioral transformation.

The major barriers to energy efficiency have been identified and include:

- (a) Limited experience in incorporating energy efficiency considerations into private and public decision-making;
- (b) Little experience in developing and implementing energy efficiency programmes;
- (c) Uncertainty regarding the energy- and economic-savings that can be expected from different energy products and programmes;
- (d) An undeveloped infrastructure, including the institutions and individuals needed to deliver the technical, managerial, and financial services required by an energy-efficient society.

III.5 Main project stakeholders

In this regular GEF-funded project in the climate change focal area the UNDP acts as Implementing Agency. The project is executed by a NGO – the executing and implementation agent is *EnEffect*, a Bulgarian non-profit professional Center for Energy Efficiency.

The project was designed to actively accommodate participation of a wide range of stakeholders, project beneficiaries, policy makers, utilities, energy professionals and target groups including energy consumers and general public.

Main project stakeholders include Bulgarian municipalities, the city of Gabrovo as a host of the Demonstration Zone, national government, utilities, local professionals, and energy consumers.

IV. Findings, Conclusions and Recommendations

IV.1 Relevance of the project

Overall assessment

The project has been designed and implemented in a way that properly reflects and addresses the needs of the local stakeholders in an effective way. Combination of demonstration projects and capacity building allowed the main stakeholders to obtain hands-on experience and skills with development and implementation of energy efficiency projects when it was not yet feasible to fully finance such projects locally. In the same time, the capacity building component of the project developed skills nationally on a wide range that could and already have been utilised by locally run activities and developed projects. The economic situation of Bulgaria nowadays already allows implementing and financing such projects locally, although at a certain level only. However, this timing is crucial for effective utilisation of developed capacities and expertise. Project information dissemination activities as well as own information activities of project stakeholders including regional media helped to widely disseminate the information on project and its results among wider audience, including relevant decision makers at municipal and utility level, as well to general public – apartment owners and tenants as energy consumers.

a) *Development priorities at the local and the national levels; national compliance and national orientation of the project, country ownership and driveness of the project*

The project is in full compliance with the national energy efficiency policy, formulated in the 1999 Energy and Energy Efficiency Act and the riders to it of 2000, 2001, 2002 and 2003, the Energy Strategy of Bulgaria, approved in 2002, and the National Energy Conservation Programme until 2010 and the National Action Plan on Energy Conservation, approved in 2002. These governmental documents have identified energy efficiency as a priority activity to address both energy and environment related country specific problems. Moreover, by virtue of its specific practical orientation the project goes beyond this framework by initiating actions for and proving the necessity of its further development, which have attained direct realisation in the newly approved Energy Act (2003) and Energy Efficiency Act (2004), in which for a first time provisions were laid down concerning recognition of housing associations as legal entities, entitled to preferential energy prices and financing of energy efficiency projects from the Energy Efficiency Fund. As a result of the conclusions and recommendations formulated by the project, the new Energy Efficiency Act (2004) provides for setting up of an Energy Efficiency Fund, specifically designated for financing of activities for energy efficiency improvement.

At a local level, district heating and space heating in public and residential multiapartment buildings, and street lighting represent priorities of municipal policies, because it accounts for significant part of municipal budgets' expenditures, and has direct social impacts. In accordance with the national policies, energy efficiency is recognised as one of main options to address these issues also on municipal level.

The project was fully operated by the state. The project idea was developed by local energy efficiency professionals of the Sofia based *EnEffect*. The specific wording of the project

document was then developed with assistance from *EnEffect's* international partners as well as UNDP country representatives. The project addresses national priority development plans, and has been implemented and co-financed by local national, municipal and private project partners, as well as by international donors. Local project management hired international professionals and consultants to assist them with developing and implementing specific technical and financial parts of the project. The local municipalities have actively participated in the project capacity building activities and have implemented projects within the demonstration zone. Municipal representatives also worked to disseminate project results and lessons learned to national policy makers and to incorporate them into national policies and legislation.

b) *The support by the project for the application of the national climate change policy*

The actually really achieved reduction of GHG emissions by the demonstration projects implemented in the city of Gabrovo and by the series of projects that followed in other municipalities throughout Bulgaria is a direct contribution to the national climate change policy, as provided for by the Law on Ratification of the UN Framework Convention on Climate Change (approved in 1995), the Law on Ratification of the Kyoto Protocol to UNFCCC (approved in 2002), the Environmental Protection Act of 2002, the Clean Air Act (approved in 1996, amended and supplemented in 1997, 2000, 2001 and 2001), the National Climate Change Action Plan (2000) and the Annual National Communications on Climate Change. The local institutional and human capacity building on energy efficiency for the member-municipalities of the Municipal Energy Efficiency Network *EcoEnergy* is yet another direct support for the application of the national climate change policy and replication of projects reducing green house gases.

Because of the direct linkage between greenhouse gas emissions and energy efficiency, the project directly influenced the national climate change policy by demonstrating results of key GHG reducing measures – energy efficiency projects, and by actual savings of GHGs by implementing demonstration projects.

c) *The extend to which the project responds to the demand and needs of the project stakeholders*

The project addresses key issues of developing capacity and implementing energy efficiency projects in the country with economy in transition. It properly reflects the needs of project stakeholders and financial potential of the country of this stage of development when it focused on demonstrating basic cost-effective energy efficiency measures that should be implemented first, before more expensive ones. Thus it supports replicability of the results after project completion based on locally available financing options.

The project has correctly oriented its efforts towards municipalities, firstly because it is within the area of the municipalities that the major energy consumers are located. These are the end-users that need to the highest extent urgent measures for energy efficiency improvement. Secondly, because the municipalities themselves are some of the largest energy consumers and suffer from an acute need of support for their efforts to diminish the level of expenditure for energy costs. It is exactly this adequate response of the project towards the acute demand of municipalities for implementation of target-oriented and planned measures to improve energy efficiency on their areas that explains also the great interest of local authorities in this project, as well as its undoubted success. Municipal policy makers and representatives, that were involved in the project and are members of the Municipal Energy Efficiency Network, are also able to transform their own local concrete experience with energy efficiency projects into policy discussions on a national level and thus effectively influence the policy making process and existing legal framework.

Unfortunately, the legal framework concerning the activities of local authorities, including their actions in the field of energy efficiency, not only does not provide yet for substantial support to implementation of projects aimed at energy conservation in municipal sites, but in certain, although rare cases, it even obstructs their implementation. In this connection one may mention the Law on Local Self-government and Local Administration, approved in 1991 and supplemented in 1995, 1996, 1997,1997, 1998, 2000 and 2002. Despite the almost annual amendments, it has failed, as yet, to provide to the necessary degree financial decentralisation and independence of municipalities in their long-term efforts to achieve bigger (in terms of scale) and more long-term results in the field of energy efficiency.

One should also note here the Law on Municipal Budgets, passed in 1998 and supplemented in 1999, 2001 and 2002, which, because of the limitations imposed by the Currency Board, has a highly restrictive nature with respect to municipal expenditures, including those that lead to energy savings. The method of determination of budgetary revenue and expenditure for a period covering only one calendar year, introduced by this Law, does not permit utilisation of savings achieved through energy conservation measures during the current year to be spent during the next calendar year for capital investments or for paying off of bank credits obtained by the municipality.

The Law on Municipal Property, passed in 1996 and supplemented in 1997, 1998, 1999, 2000, 2001 and 2002, does not support or encourage to an adequate extent public-private partnerships, which are particularly appropriate and effective for energy efficiency projects in municipal buildings and facilities.

d) *Participation of municipalities (stakeholders) in the formulation and application of the energy efficiency policy*

In implementation of its immediate tasks, the project has attained remarkable results with respect to involvement of municipalities in the formulation and application of the energy efficiency policy. The demonstration project in Gabrovo acted as a convincing proof of the key role of local authorities for improvement of the energy efficiency on their respective areas through development of municipal strategies and programmes and implementation of concrete projects in municipal hospitals and schools, in district heating, street lighting systems and in other municipal and private sites. An indisputable achievement of the project is the fact that after Gabrovo, building on the lessons learned through the demonstration project, a total of 37 other municipalities have worked out their own energy efficiency programmes, 18 of which are already being implemented. On the basis of these municipal programmes a large number of energy efficiency projects in municipal buildings, in the district heating systems and street lighting have already been developed and implemented.

e) *Contribution of the project to strengthening of the sustainable management of natural resources in the country (Outcome No. 4 of UNDP Bulgaria SRF 2002-2006)*

By virtue of its activities on administrative and human capacity building for energy efficiency in municipalities, aimed at raising the local capacity to develop and implement municipal programmes and projects for efficient use of energy resources, and as a consequence of it – for reduction of the harmful impact on the environment, the project hereby evaluated has made a direct contribution to the achievement of Outcome No. 4 (Strengthening of the sustainable management of natural resources), which ensues from Task 3.1.1 (National policy and regulatory framework for sustainable environmental development), included in sub-objective 1 (Sustainable environmental management and energy development for improvement of the life and security of the poor) as part of Objective 3 (Sustainable environmental development for mitigation of poverty) of the Bulgarian framework of the UNDP strategic results to be achieved in the period 2002-2006.

IV.2 Performance of the project

a) Attainment of the project immediate objectives and results as per the Project Document

Both project immediate objectives:

- 1) to establish sustainable energy policies and programmes, and enhance public awareness in municipalities; and
- 2) to accelerate the undertaking of sustainable energy projects within municipalities by demonstrating their potential for energy and economic savings and for reductions in GHG emissions;

and all project outcomes:

- 1.1 Energy efficiency considerations are incorporated into public/municipal programmes and strategies;
- 1.2 The capacity to identify, design, implement, and manage energy efficiency programmes and projects on the local level is strengthened;
- 1.3 The existing critical financial barriers to the implementation of energy efficiency projects are eliminated;
- 2.1 Energy-efficient street lighting will be demonstrated in Gabrovo; the results will be evaluated and reported in a case study to other municipalities.
- 2.2 Progressive methods of planning, renovating and managing of existing district heating systems and heating end-uses will be demonstrated;
- 2.3 The energy-efficiency retrofit of typical Bulgarian urban buildings will be demonstrated in Gabrovo, including a school, hospital, multi-family apartment building, and an industrial building. The experience and lessons learned will be used to stimulate similar retrofit projects in other municipalities;

have been fully met and fulfilled. Energy efficiency programmes have been developed, energy efficiency project development capacity has been strengthened, street lighting, district heating, and three type building demonstration projects have been implemented.

The only exception is the project outcome 1.3 – “The existing critical financial barriers to the implementation of energy efficiency projects are eliminated”. All planned activities have been successfully implemented and financial planning capacities have been developed and strengthened. However, the financial barriers have two components: capacity to effectively utilise available financial sources, and actual availability of financial sources for investment in general, not only to energy efficiency projects. The capacity to utilise financial sources for energy efficiency investment was developed and demonstrated by implemented projects. This demonstrated capacity then supported utilisation of the available funds for energy efficiency projects and it also supported necessary economic reforms on a national level such as removal of price subsidies because it demonstrated feasible alternative – to implement energy efficiency and thus to control energy costs. However, the actual availability of financial sources depends not only on capacity to effectively utilise them, but also and heavily on economic situation of the country. During the project period, the macroeconomic situation has improved and thus also the local financing opportunities have been enlarged. Not all financial barriers are yet removed, the country is still in transition process, but the barriers have been decreased by the project significantly.

b) Project implementation approach

The project implementation was flexible enough to adapt to actual development of changing framework conditions, mostly economic. Several changes have been implemented, especially in the form of local co-financing of demonstration projects. For example, due to financial restrictions related to the established currency board, original local grant financing has been changed to preferential loan funding. Also, identification and selection of a suitable industrial building for energy efficiency project demonstration was more complicated and time-consuming than originally envisaged. However, the project management was able to adjust to the new situation and to implement all planned activities within the project period. A proper selection of the industrial demonstration project partners paid off. After completion of the demonstration project, the company decided to implement energy efficiency retrofits also in their other facilities based on their experience from the project demonstration.

The project management was able to identify and attract well motivated project partners who used the experience gained during the demonstration projects in their follow-up activities and even to utilise their own and locally available financial sources. This is the case of the district heating utility, partnership with power utility in a street-lighting project. A very illustrative example is a demonstration project in the Otets Paisiy School. Formerly, the poorly maintained school faced problems, such as uncontrolled graffiti, broken windows etc. After project implementation, reconstruction of the indoor lighting and weatherproofing of windows, the vandalism decreased significantly, the pupils started to respect more the public property and the since that breaking windows occur on an exceptional basis only. Similar experience is from street-lighting project where newly reconstructed street lighting decreased crime and accidents in the streets, and very little vandalism has been reported so far.

Energy efficiency demonstration projects thus had a very interesting side-effect. It did not only result in energy and emission savings, but it helped to change people's attitude towards public space and property. Demonstration projects served as an example that motivated people to pay more attention to how their neighborhood looks like and started to cultivate it.

The direct but also indirect project partners and beneficiaries (students and inhabitants) were not only passive recipients of the project. The project raised their interest and care about the community. The energy efficiency demonstration project served as a driving force in strengthening the civic society on a local level. Concrete energy efficiency and energy savings results were thus not the only results of the project, and perhaps even not the main ones if the social impacts are taken into account.

c) Implementation of the project

The project was well-managed and performed in a cost effective way. Strict financial control was implemented in a competitive selection of contractors in demonstration projects, financial penalties were implemented to motivate suppliers to perform high-quality work.

The whole project was implemented in time according to the planned schedule with some minor modalities that did not cause any delay in total project implementation. The delays in some of the results (such as industrial building demonstration project) were caused because more time had to spend in identification and development of the specific project activity. The project management took the decision rather to slightly delay the originally planed interim deadlines in some cases but to deliver best possible results. The reviewers found this flexible approach to be adequate and effective in terms of the project goals.

The project was regularly monitored and evaluated by the standard GEF/UNDP procedures, including regular quarterly and annual reporting of the executing and implementing agency to the UNDP on the progress of the project, and mid-term independent evaluation. The interim project results were published to policy makers and professionals as well as to the general public.

Internationally recognised auditors PriceWaterhouse Coopers and KPMG that were selected by the UNDP audited annual financial results of the project. The audits report that project disbursements have been made in accordance with project document and UNDP rules, and are valid and supported with adequate documentation, the rate of project delivery is as per workplan, the equipment management is proper, and appropriate financial management structure and internal controls are maintained. The audits had no findings or principal suggestions to change or improve the project monitoring.

The tripartite meetings were held that gave an opportunity to officially inform the government and other national parties about the project progress.

IV.3 Overall project results

a) Assessment of the degree to which the project has removed the barriers to energy efficiency identified at the project start

The project significantly supported removal of problems and barriers to energy efficiency in Bulgaria (see also chapter III.4 and IV.2-a). The project developed hands-on expertise with developing, analysing, financing and implementing energy efficiency projects and strategies not only with the executing and implementing agency, but also within municipalities and other project partners, including private sector professionals, and disseminated the gained experience through capacity building activities. The barriers that the project focused on – limited experience and skills in developing energy efficiency projects, uncertainty regarding actual savings that could be expected, and underdeveloped infrastructure – have been effectively decreased by project activities directly as well as indirectly by activities performed by project stakeholders independently and in addition to planned project activities using the expertise developed during the project course.

Advantage for the project success was also its timing, respectively parallel project execution with reintroduced and re-strengthened economic reforms and economic development in the country. The project results seem to be delivered just in time in the country when energy efficiency retrofits do not have to rely on public or grant financing anymore. Thus, it allows for energy efficiency projects to be replicated elsewhere. The project results have been

delivered and energy efficiency barriers removed when locally financed energy efficiency project have started to be developed at least with some investors. Thus the project results, and capacity gained can be effectively utilised in developing another energy efficiency projects. The degree to which energy efficiency projects and retrofits can be replicated depends heavily on the rating of the investor, its financial credibility. Larger and more developed municipalities tend to be ready to accept bank loans or another forms of commercial financing, however smaller and poorer municipalities still face significant economic and also social problems that prevent them in utilising of commercial financing sources on a regular and standard basis.

The project results have been disseminated among other potential beneficiaries through the national Municipal Energy Efficiency Network EcoEnergy. It is a specially developed network of municipalities interested in energy efficiency. This network has gradually attracted majority of municipalities in the country and become an important player on a national level as well. The number of members of the Municipal Energy Efficiency Network EcoEnergy has reached 54 municipalities and 6 regional associations of municipalities, thus EcoEnergy associates in total 159 municipalities with 69% of Bulgarian population.

The network cooperates closely with the National Association of Municipalities in the Republic of Bulgaria and has thus positioned itself to effectively influence local policies and legislation. Municipal representatives of the EcoEnergy network are also members and representatives of the National Association of Municipalities and can directly utilize experience from the project as well as political support from the National Association of Municipalities when discussing energy efficiency policies on a national level.

b) *Contribution of the project to the capacity development of project stakeholders*

A practical experience with development of energy efficiency projects was basically non-existent before the GEF/UNDP project has been launched. During the project period, the project participants and stakeholders gained hands-on experience with this type of activities in the demonstration zone. The gained experience include municipal decision makers, and facility managers as well as practical technical expertise of local professionals developed during analysis of energy efficiency opportunities, project design, tendering for suppliers, installation and maintenance, and project results evaluation.

In 39 municipalities municipal energy efficiency offices have been established equipped with computers with access to Internet, and local energy managers have been trained in municipal energy planning and energy efficiency project development and finance. Specific software has been developed and utilized in municipalities for monitoring of energy consumption in their individual facilities, and nation-wide benchmarking has been introduced.

Municipal energy managers of EcoEnergy have been trained in municipal energy planning, energy auditing, and energy efficiency project development and finance. Seven municipalities have approved their energy efficiency programmes and started its implementation. Another 18 municipalities have developed energy efficiency programmes and started the implementation without formal approval by the local city council. As part of the training activities with municipalities 40 energy efficiency retrofit projects have been developed. These projects include 11 energy efficiency retrofits in street lighting, 1 energy efficiency retrofit in a hospital, 16 projects for school retrofit, 5 for kindergarten, and 7 for another facilities.

c) Dissemination and replication of project results

During its implementation the project has been a major nation-wide energy efficiency activity in Bulgaria that focused both on gaining hands-on experience with developing and implementing energy efficiency projects as well as on dissemination of experience and lessons learned and strengthening local capacity in developing energy efficiency projects. A major but not the only channel developed and used for capacity building and information was creation of Municipal Energy Efficiency Network EcoEnergy.

EcoEnergy was designed to serve as an informal network of municipal energy managers in cities that are interested to share experience gained in demonstration projects in Gabrovo. The network members participated in numerous activities and trainings, including development of energy consumption database in their facilities and energy monitoring, training in energy planning and finance including Energy Performance Contracting, etc. Municipal energy experts as well as city mayors are actively involved in the network activities. Although the project did not provide grants or subsidies for project implementation to the *EcoEnergy* network member municipalities (except for demonstration projects), it has attracted more than expected interest and participation of Bulgarian municipalities. Municipalities were interested to gain experience and to implement their energy efficiency projects on their own if their financial situation would allow. In several member-municipalities (typically larger and richer ones) additional energy efficiency projects – typically street-lighting retrofits – have been developed and implemented by the end of the project period using for the first time in Bulgaria innovative forms of financing (for example in municipal bonds in Varna used for street lighting retrofit).

The EcoEnergy network has established an effective cooperation and synergy with National Association of Municipalities in the Republic of Bulgaria and serves as a source of experience and energy efficiency policy support in discussions supported by the National Association of Municipalities on a national governmental level. The demand for EcoEnergy services illustrates recent development of the network: the informal EcoEnergy network has been institutionalized as a legal entity at the end of 2003 and will collect annual fees from its members in order to be able to provide at least basic services after GEF/UNDP project completion.

d) Project achievements beyond the planned project outputs

The GEF/UNDP project has been designed as a catalyst of energy efficiency activities in Bulgaria. The project itself provided a major impulse in initiating energy efficiency activities and developing necessary expertise in Bulgaria. There have been developed and implemented 40 energy efficiency projects in participating municipalities and training in energy planning, project development and financing have been performed. Several of the EcoEnergy member municipalities have decided to go further than originally planned and have implemented additional energy efficiency projects. An example is the demonstration zone in Gabrovo, where the municipality has decided to implement additional energy efficiency retrofit project in its town hall building.

In addition to the GEF/UNDP sponsored project, there have been numerous other mainly internationally sponsored activities in this field, including bilateral and multinational funded

projects, such as World Bank loan to install heat meters, USAID funded projects, including Development Credit Authority, training provided within MUNEE project – Central and East European Municipal Network for Energy Efficiency, etc). The GEF/UNDP project was managed in a flexible way to complement rather than compete with these additional activities, and thus to maximize its effect.

Project results and experience dissemination scheme has been replicated not only in the country, but also regionally: a Regional Network for Efficient Use of Energy and Water Resources, RENEUER, has been established with the support from the UNECE Energy Efficiency 21 Project, UNDP, and USAID, and EnEffect serves with Black Sea Regional Energy Center as network coordinators. The RENEUER network includes eight countries – Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Moldova, Romania and Serbia and Montenegro. EcoEnergy became a collective member of European municipal network Energie-Cités.

e) *Project impacts and contribution to development objectives*

The results of the implemented project have significantly contributed to the defined development objective of “overcoming barriers to increased energy efficiency and to the associated reductions in GHG emissions”. The major impacts are not only GHG emission reduction actually achieved by the implementation of the demonstration projects and projects developed and implemented in association with main demonstration activities. The strong capacity building component has significantly helped to train municipal energy managers in developing energy efficiency projects, which will accelerate energy efficiency project implementation once commercial financing will become more available. The first commercially financed projects have been implemented already by the end of the project period.

In addition to the stated development objective, additional significant side-effect has been generated by the implementation of the project, and especially by its demonstration component: the energy efficiency retrofit of street-lighting, school and residential building motivated the population of Gabrovo, tenants of the residential building, school staff and pupils to improve the maintenance of these facilities, reduce vandalism, and develop responsibility for their community and public space. Strengthening of these responsibilities and motivation is a key prerequisite for replication of project results and reaching GHG emission reductions, but it is a necessary condition for sustainable development and revitalization with a broader positive social impact.

IV.4 Sustainability of the project results

a) *Development of sustainable organisational structures (EcoEnergy as an institution)*

One of the main conditions for achievement of sustainability of project results is expansion of its scope and involvement of a growing number of municipalities in the application of a targeted energy efficiency policy. For achievement of this condition, a Municipal Energy

Efficiency Network *EcoEnergy* has been initiated and created. To date the membership of *EcoEnergy* comprises 54 municipalities and 6 associations of municipalities, representing more than 60% of the total number of municipalities in the country (264), and 69% of Bulgarian population. With support from the project 39 Municipal Energy Efficiency Offices were set up with the local administrations and these municipalities have developed their own systems for monitoring of energy consumption. Thanks to the project, 124 municipal officials have undergone training in the framework of *EcoEnergy* on energy efficiency planning and management, on how to develop municipal programmes and perform energy audits, how to design business plans for energy efficiency projects and were acquainted with the available and innovative financing mechanisms. Parallel to it, another 54 municipal officers were trained in how to use and maintain the Information System on energy consumption in the municipality.

In the framework of *EcoEnergy* a series of conferences, seminars and workshops were organised, in which a total of more than 1000 people had participated directly. Since its founding to date *EcoEnergy* has conducted five annual conferences, which have reviewed the activities of the Network during the reported period and have made decisions on organisational matters and on the implementation of its immediate and medium-term tasks. At the two last annual conferences the participants had approved declarations on specific issues. In the declaration approved by the Fourth Annual Conference the emphasis was laid on the necessary measures and efforts for improvement of the energy efficiency in school buildings in Bulgaria. The declaration of the Fifth Annual Conference calls for introduction of changes in the regulatory framework on energy efficiency in order to promote public-private partnerships. The annual conferences, which are usually attended by visitors from abroad, serve as excellent forums for in-depth debates on key issues, such as: the reform in the power sector, policies and measures for mitigation of GHG emissions, major barriers to implementation of energy efficiency projects in Bulgarian municipalities, access to information and public participation in decision-making on climate change issues. On the basis of these debates *EcoEnergy*, in coordination with the National Association of Municipalities in the Republic of Bulgaria, formulates a wide range of specific proposals for upgrading of the regulatory framework, some of which have already been taken into account in the new laws on energy and energy efficiency, passed in the beginning of 2004. At the 2003 Annual Conference, a decision was made to register *EcoEnergy* formally as a non-profit legal entity and as of this year this is already a fact.

b) *Development of policy frameworks that further the project objectives (Information System on energy consumption in municipalities and municipal energy efficiency programmes)*

Worth mentioning for their significant contribution to the success of the project are the targeted efforts for procurement of the necessary database through the creation of the Information System on energy consumption of municipal sites in *EcoEnergy* member-municipalities. The system contains data about energy and fuel consumption by municipal activities in material expression by sectors, target groups and individual sites. This information has been collected since 1998 and is processed by means of specially developed software of the database, which has been made available to all municipal energy efficiency offices. Currently, this system contains data about several thousand municipal sites and offers an excellent opportunity for comparative analyses and above all for local energy planning and management. The information from all municipalities, covered by the system, is collected and aggregated by *EnEffect* and is accessible through Internet to everybody, who is interested in or needs a useful tool of this kind.

A quarterly newsletter *EcoEnergy* is published and circulated in the framework of the Municipal Energy Efficiency Network. Every issue focuses on one specific theme, for instance "Barriers to energy efficiency in municipalities", "Energy efficiency and sustainable

development”, “Regulatory framework for energy efficiency”. A special folder, containing information /passports/ about all *EcoEnergy* member-municipalities has been published. A specific information leaflet about the Network has been published in Bulgarian and English. The “Good Practices” brochure, containing information about the demonstration projects in Gabrovo and projects implemented in other municipalities of the Network turned out to be particularly needed and broadly used by the municipalities. The national annual conferences of *EcoEnergy* and the annual conferences of the European network Energie-Cités are a good occasion for presentation of topical information about the development of MEEN *EcoEnergy* and for popularising of the most successful projects worked out in the framework of the Network.

The experience accumulated by the demonstration project in Gabrovo permitted the development of a model and methodology for development of a municipal energy efficiency programme. This programme contains the objectives and major tasks of the municipality for the purposes of energy efficiency improvement, by stating the sources of funding, the implementation schedule and deadlines and the indicators for achievement of the required results. On the basis of this model and methodology energy efficiency programmes were developed in a considerable number of the municipalities of *EcoEnergy* and in others they are in the process of project design. Many of these programmes were worked out in the process of training on energy efficiency of municipal experts and were later approved by the respective municipal councils. At present, the majority of the worked out programmes are being implemented. Obviously, this ever-expanding and ever more proving its benefits practice of development and implementation of municipal energy efficiency programmes has provided the grounds for the requirement, laid down in the new Energy Efficiency Act of 2004. According to this requirement, within a period of one year after the enforcement of this Law, all municipal energy efficiency programmes should be submitted to the Energy Efficiency Agency, which, in turn, should work out a National Short-term Energy Efficiency Programme on the basis of these programmes and the National Long-term Programme. Therefore, municipal energy efficiency programmes are no more the object of the will and voluntary approach of municipal councils, but the object of a clearly formulated and mandatory legal requirement.

c) *Incorporation of environmental considerations in municipal activities, leading to future environmental benefits*

The project has demonstrated also some good results in the field of reduction of GHG emissions in implementation of the commitments undertaken by the country as a Party to the UN Framework Convention on Climate Change. Knowledge and experience on specific issues related to climate change, aligned to the scale and activities of the individual municipalities, were disseminated and exchanged. The demonstration zone in Gabrovo and the Municipal Energy Efficiency Network were evaluated in the framework of a regional environmental seminar for Central and Eastern Europe through a comprehensive set of criteria for good practices in mitigating GHG emissions. The results from the evaluation were presented at a seminar on good practices, organised by the Ministry of Environment and Waters, at a regional conference held in Hungary and at a seminar, organised by the UNFCCC Secretariat in Copenhagen in 2001.

d) *Institutional capacity development (with reference to municipalities and to EnEffect)*

The creation and development of the Municipal Energy Efficiency Network was a key step in the local institutional and human capacity building on energy efficiency. It is in the framework of this Network that today’s energy efficiency experts in municipalities were trained and thanks to the efforts of the Network a large number of mayors and municipal council members had obtained adequate information and skills on the issues of energy planning and management. Municipal energy efficiency offices, which are part of the municipal

administrations, were set up with the help of the Network. They have been established as the driving motors for promotion of energy efficiency at the local level, for identification of the opportunities for energy conservation in municipal activities and for expertise back-up of decision-making in municipalities. It is these offices that maintain the system for monitoring of energy consumption and provide the necessary information to the Information System on energy consumption. These offices are responsible for the contacts with the Network Secretariat through a computerised network, specially established in the framework of the project.

The project Executing Agency EnEffect, which has been the main driving motor for the development of *EcoEnergy* and which is still performing the functions of Secretariat of the Network, has also gained strength and developed in terms of institutional and human capacity thanks to the accumulated rich experience and the established daily contacts with the members of the Network. Since its founding till the present day, and particularly in the course of implementation of the project, the staff of EnEffect has demonstrated noteworthy stability. In the recent years it was enriched by a small number of highly qualified young experts. The successful implementation of the function of Executing Agency of the project on the part of EnEffect has demonstrated that an NGO in Bulgaria was able not only to implement a large-scale and exclusively important project, but could also initiate the creation of another NGO, such as *EcoEnergy*, and then to work in partnership and interaction with it in the most effective manner.

e) *Completed or currently implemented projects for energy efficiency in municipalities, building on the experience of the GEF/UNDP project in Gabrovo*

The successful results from the demonstration projects in Gabrovo, which were made known to a large number of municipalities in Bulgaria thanks to the targeted information and training activities of *EcoEnergy*, played the role of a catalyst for a large number of similar projects in Network member-municipalities. The municipalities of Stara Zagora, Varna and Gorna Oriahovitza implemented projects for energy efficiency retrofit of hospital buildings. The municipalities of Rousse, Stara Zagora, Varna, Pernik, Kazanlak, Pazardjik and Belogradchik implemented projects for energy efficiency retrofit of school buildings. The municipalities of Stara Zagora, Rousse, Sliven, Pazardjik, Pernik, Omurtag, Svishtov and Blagoevgrad implemented projects for energy efficiency reconstruction of street lighting systems. In addition to the above listed municipalities, a number of other municipalities, which are not yet members of *EcoEnergy*, implemented or are implementing projects for retrofit of hospitals, educational establishments and street lighting systems.

IV.5 Linkages between the project and other interventions in the sector/region, synergies with similar projects

a) *Synergies with USAID funded projects*

The capacity derived from successful implementation of the demonstration projects in Gabrovo and the favorable macro-economic development of the country in the recent years permitted financing of 15 municipal energy efficiency projects through bank loans and one project was financed through the issue of municipal bonds. The financial support for some of these projects (in the cities of Pazardjik and Pernik) was provided through the extended guarantee on bank loans under the DCA (Development Credit Authority) mechanism, introduced by the US Agency for International Development.

In the framework of the project Municipal Energy Efficiency Network, the USAID rendered assistance both to the preparation of the evaluated project and to the implementation of its initial phase. In the framework of the EcoLinks Programme, the USAID assisted the Municipality of Gorna Oriahovitza by allocating a grant for the reconstruction of the regional hospital.

Through the accumulated experience and good practices the project has made a significant contribution also to the creation of the Municipal Network for Energy Efficiency for Central and Eastern Europe and the Union of Independent States (MUNEE), which is financed by the USAID. MUNEE sponsored activities allowed to disseminate project results in the region as well as to organize further training for municipal energy managers, such as on Energy Performance Contracting.

b) *Participation in RENEUER – Regional Network for Efficient Use of Energy and Water Resources*

The development and successful functioning of EcoEnergy and especially the tangible results, which it has achieved on the area of Bulgarian municipalities, were the principal arguments of the Executing Agency of the Project, EnEffect, to initiate the creation of the Regional Network for Efficient Use of Energy and Water Resources (RENEUER). It has taken place at a regional conference, held in Sofia in November 1999. The conference was organised with support from UNECE, UNDP, USAID and other international organisations. In the next year, RENEUER joined the Energy Efficiency '21 Project of UNECE, and later at the recommendation of the Executive Secretary of this organisation it was included also in the list of projects of the Stability Pact for Southeastern Europe. The Network is also part of the Southeastern Europe Co-operation Initiative (SECI).

Currently, RENEUER is a voluntary regional network of municipal, national, non-governmental, private and international organisations, united by the common interest in promoting the efficient use of energy and water resources. It comprises eight countries from Southeastern Europe and coordinates their efforts in five major directions: policy development and promotion; institutional and human capacity building; financial development; dissemination of information; encouragement and coordination of business.

c) *Membership in ENERGIE-CITÉS – the European Network of Cities for Energy Efficiency*

Until 2003, EcoEnergy participated as observer in the annual conferences of the European network of cities for energy efficiency – Energie-Cités. At these conferences EcoEnergy disseminated printed materials about its activities and its representatives participated in the discussions, which led to fruitful exchange of knowledge and experience. These annual conferences are held in different European cities and the representatives of EcoEnergy and its Secretariat took advantage of this participation to study on the spot the good practices of the host country. Furthermore, these conferences offer an excellent opportunity for establishing contacts with organisations from other European countries, active in the same field. In April 2003, in Krakow, EcoEnergy participated for a first time as an official member of the Energie-Cités Network at its Eighth Annual Conference. Municipalities from EcoEnergy have already joined the new initiative of Energie-Cités for collaboration between the municipalities of Eastern and Western Europe, and the Municipality of Stara Zagora joined via its Municipal Energy Efficiency Agency the Display Project, launched at the Conference in Krakow.

d) *Synergy with the “Good Practices” Project of the Regional Environmental Centre for Central and Eastern Europe.*

In 2002, EnEffect was listed as a partner from the Bulgarian side in the joint project of the Regional Environmental Centre for Central and Eastern Europe and the World Resources Institute for development of instructive examples and criteria for evaluation of good practices and measures for achievement of the goals of the UNFCCC, as well as for initiation of a regional dialogue and dissemination of information on forward-looking initiatives in the countries with economies in transition. This project identified three good practices on the area of Bulgaria: the Energy Efficiency Demonstration Zone in the City of Gabrovo, the Municipal Energy Efficiency Network EcoEnergy and the Regional Energy Centres in Lovech and Haskovo Districts. The fact that the former two of the three selected good practices have been realised in the framework of the GEF/UNDP project under review is a perfect testimonial for the project itself and especially for the concrete results achieved by it. The results from the evaluation of the mentioned good practices have been presented at a seminar on good practices, held at the premises of the Ministry of Environment and Waters, at a regional conference held in Hungary and at a seminar, organised by the UNFCCC Secretariat in Copenhagen.

EnEffect is partner from the Bulgarian side also in another project of the Regional Environmental Centre for Central and Eastern Europe and the World Resources Institute under the title “Capacity for Climate Protection in Central and Eastern Europe”. EnEffect more specifically conducted the study on access to information and public participation in decision-making on climate change issues. Although this study was not directly related to the evaluated project, one may definitely sustain that they have mutually supported and enriched each other.

e) *Synergy with the UNECE energy efficiency project*

The UNECE makes broad use of the lessons learned and the good practices derived from the demonstration projects in Gabrovo in the activities in the demonstration zones implemented in more than ten other countries in Central and Eastern Europe. As already mentioned above, UNECE has played a key role in the creation and development of RENEUER, building on the best achievement of EcoEnergy. It is worth noting also that the methodologies and materials related to human capacity building, worked out in the framework of EcoEnergy, are widely used in the activity of RENEUER.

f) *Linkage to the EU policy in the field of energy efficiency*

Although to a lesser extent, the evaluated project is related also with some energy efficiency related funds and programmes of the EU. For instance, with support from EnEffect the Municipal Energy Efficiency Energy in Stara Zagora was established with funding in the framework of the SAVE II Programme of the EU, while the project “Bulgarian Key Numbers for Energy Auditing of Buildings” has been financed under the Norwegian Plan of Action in Support of the EU accession-candidate states.

V. Lessons Learnt

a) *Methodological innovations:*

The demonstration zone in Gabrovo plays a key role in the project, performing the function of a national test laboratory on mitigation of GHG emissions through energy efficiency

measures, in which, thanks to the target-oriented and co-ordinated efforts, the following has been achieved:

- Different approaches and practices in programming, design, institutional and human capacity building, as well as in implementation of concrete decisions on energy efficiency improvement in municipal sites have been tested, upgraded and successfully applied;
- Knowledge and experience have been accumulated along the entire chain of activities, related to the implementation of concrete energy efficiency measures;
- A concrete range of recommendations and requirements concerning the national policy and regulatory framework on environmental protection and efficient energy use has been systemised.

The Municipal Energy Efficiency Network EcoEnergy is a genuine product of the project, whose strengthening and development ensures the best possible organisational framework for:

- rapid and broad dissemination of the results achieved by the demonstration zone in Gabrovo;
- establishment and strengthening of local energy efficiency institutions in the framework of the local administrations and outside them;
- training of municipal experts on how to develop and manage municipal energy efficiency programmes and projects;
- awareness-raising in municipalities on the issues of energy efficiency through dissemination of specialised information (municipal information system on energy efficiency, specialised publications, conferences, seminars, working groups) and dissemination of general information (publications, websites, information campaigns);
- impact on the national energy policy, on the national environmental protection strategy and the national policy on local self-government.

The project formulated for a first time the major functions of municipalities in the energy sector not only as energy consumer, but also as:

- energy producer and energy supplier, including through the use of renewable energy sources, as well as solid urban waste and other alternative energy sources;
- regulator and investor in the elaboration of development plans, design of transport schemes and urban plans, in endorsement of local building rules and standards and decision-making on local taxes and charges;
- a source of motivation for application of energy efficiency measures by end-users, including households, by intermediaries (different associations, syndicates and NGOs) and by the regional and national energy agencies and energy companies.

The project worked out and applied successfully a genuine methodology for municipal energy planning, which had been described in a special guide and comprises:

- properly selected and systemised useful information about the functions of municipalities in the energy sector, energy and sustainable development, the Integrated Resource Planning method, the regulatory framework of municipal energy planning and the participation in the management of the municipal energy sector;
- detailed guidelines and descriptions of all steps in the preparatory phase, preceding the compiling of the municipal energy efficiency programme and comprising

establishment of an information database of energy planning, selection of the approach and methodology of programme design, formulation of programme objectives, scope, spheres of impact and actors;

- exhaustive description of all steps related to the development and implementation of the municipal energy efficiency programme, covering the determination of the baseline and baseline scenario, ranking of the target groups and sites according to their potential for energy efficiency improvement, determination of the funds which the municipality may allocate to implementation of the programme, formulation of the financial framework of the programme, selection of priorities and compilation of the programme, organisation of the implementation of the programme;
- specialised section of communications with the public, containing practical hints on how to use communications as a tool of the municipal energy efficiency policy, information about the contents and elements of the process of communication and description of the major steps in planning communications.

The development of a comprehensive training course on municipal energy planning and management, designated for Bulgarian municipalities, is one of the most noteworthy achievements of the project. Proven in the practice teaching aids from the USA, Western and Central Europe, and in the first place the training course developed by the Netherlands Agency for Energy and the Environment Novem on the basis of the EU Programme for Regional and Urban Energy Planning, have been amply used in the elaboration of the training programmes. The curriculum of the training course for Bulgarian municipalities has been profoundly re-worked and adapted to the specific local circumstances by the EnEffect team on the basis of the methodology of municipal energy planning, mentioned above. Novem has also developed the necessary set of training materials after a targeted testing against and adaptation to the training practice in *EcoEnergy*. The usefulness and efficiency of the training course are determined above all by the target groups and the thematic coverage:

- Initially the training was oriented towards a national group of trainers (training of trainers) and teams of municipal experts, but later it was extended also to decision makers – to members of municipal councils, local administrations, building managers, experts from municipal agencies, school managers and teaching staff and schoolchildren;
- The main thematic spheres, to which training was oriented, were municipal energy planning, energy auditing and business planning, to which later third party financing, assistance guarantee on credits lent by Bulgarian banks for implementation of energy efficiency projects, the Key Numbers method and flexible mechanisms under the Kyoto Protocol were added.

Broad dissemination of information on energy efficiency issues among the general public is another indisputable achievement of the project. In this field a wide range of tools and approaches were used, whereat some of them were applied for a first time in the country. Worth specific mention are the following:

- The information system on energy consumption in municipalities, which is the first of its kind in Bulgaria. The system collects and aggregates information about the *EcoEnergy* member-municipalities and provides an opportunity for comparing the energy consumption among the different municipalities by sectors, target groups and individual sites;
- The specialised magazine *EcoEnergy*, which is circulated free of charge to a broad range of readers, including all municipalities with a population of more than 10 000 people, state institutions, banks, NGOs. The magazine maintains permanent rubrics, such as: news from the Network, new members, good practices in the

country and abroad, news from Bulgaria and abroad. Since the start of the project, to date, 13 issues of the magazine have come out of print. Since 2002, the magazine comes out in a set with a specialised annex “EnEffect Library”, which deals with themes of topical significance, such as “Major barriers to implementation of energy efficiency projects in Bulgarian municipalities” or “Policies and Measures for Mitigation of GHG Emissions”;

- The list of specialised publications on the project comprises brochures like “The UN Framework Convention on Climate Change and the Kyoto Protocol. A Guide for Beginners”, or “Municipalities and Energy. Good Practices”, which presents examples of projects implemented in EcoEnergy member-municipalities. The results from the project are presented in a very useful series, comprising: “Light for Comfort and Safety”, “Better Health with less Energy”, “Investment for the Future”, “Partnership to Mutual Benefit”, “Untapped District Heating Potential”, “A Guide to Implementation of Projects for Reconstruction of Street Lighting Systems”, “Learning about Efficiency”, “Financial Barriers to Municipal Energy Efficiency Projects”, “Energy Efficiency for Sustainable Development of Municipalities”, “EcoEnergy. Review of Activities during the Period 1997-2003” and “Investments Guide for Municipalities”.
- The annual conferences of EcoEnergy are also a very appropriate and effective form of exchange of information, experience and good practices among the municipalities on the themes, which are the focus of the debates at these conferences. In the course of the so far held five annual conferences subject of broad public significance have been discussed, such as “Opportunities for energy efficiency improvement in Bulgarian municipalities”, “Energy planning for sustainable development”, “Local Level Energy Efficiency – Opportunities for Energy Efficiency Networking”, “Energy Efficiency in School Buildings in Bulgaria”, “EcoEnergy in the Period of Accession to the EU”, “Public-Private Partnership in Energy Efficiency”;
- An original form for exchange of information and popularising of good practices in municipalities is the annual competition for the best energy efficiency project, organised since 2002. The first competition did not have a specific focal theme and for that reason the winners were projects in the field of retrofit of school and hospital buildings and co-generation. The winners of the 2003 competition were divided into two groups – “Energy Efficiency in Street Lighting Systems” and “Energy Efficiency in Buildings”. The theme of this year’s competition is “Development of a Municipal Energy Efficiency Programme”.

b) Encountered problems:

Irrespective of the financial stabilisation that has set in the country after the introduction of the Currency Board in 1997 and the relatively good rates of economic growth (in the range of 3-4% per year), the low GDP baseline and labour productivity, as well as the low income levels of the population, remain till the present the principal macro-economic barriers to project implementation. This framework inevitably imposes restrictions on both the scale and the scope of the energy efficiency projects implemented by municipalities.

The intended and looked forward for years now financial decentralisation in favour of municipalities has not yet taken place. This is to a certain extent due to objective reasons, firstly because of the grave economic state of the majority of municipalities, secondly, because of the Currency Board requirements for a strictly restrictive policy, which is hard to implement under conditions of decentralisation, and thirdly, because of the hard-to-overcome shortage of administrative capacity in many of small and medium-size municipalities. Ever nowadays, because of the stagnation of the local economy and the high unemployment rate

many municipalities are not able to gain their own revenue and rely mainly on the subsidies from the state budget. In addition, the rates of the real estate taxes in Bulgaria are several-fold lower than those in the countries with well-developed local self-government and that situation does not permit Bulgarian municipalities to plan stable and significant amounts of revenue from real estates taxation on their respective area.

Pressed by this annual dependence on the subsidies allocated from the state budget and writhing under the levy of still persistent practices of the centralised planning of the economy of the past, many municipal leaderships and the local administrations are still looking forward to and relying on subsidies alone, even in the cases when they have at hand energy efficiency projects based on a well-proven scheme for good financial return. With the exception of the large municipalities and some of the middle-size ones, the rest of the municipalities in Bulgaria have not yet mastered the market-based approach and behaviour, which rank among the key conditions for the success and sustainability of municipal energy efficiency programmes and projects.

Another problem with respect to the development and especially the successful implementation and sustainability of municipal energy efficiency programmes and projects is related to the term of office of the elected bodies of local self-government. The ascendance of the new leadership after the end of the term of office of the elected body is still accompanied by an unjustified shift in the local policy, including with respect to the policies in the field of environmental protection and energy efficiency. This might be overcome to a great extent with the new Energy Efficiency Act, which assigns to the Energy Efficiency Agency the important role to coordinate and stabilise energy planning at the municipal and district levels.

A problem, which is much harder to overcome, is the still broadly spread current practice in Bulgaria together with the change in the municipal leadership, elected for a specific term of office, to replace also part of the municipal administration. This, in any case, leads to delay of project implementation and in certain cases also to disruption of the financing schemes because of failure to honour contractual liabilities and commitments. One should add to these negative consequences also the loss for the municipality of specifically trained human potential.

In a number of cases the historical actual energy consumption would be gravely distorted if used directly as a baseline for the municipal energy efficiency programmes and projects. The shortage of adequate financial means for paying the operating costs of municipal sites leads to undermining of the heating and lighting comfort levels in the buildings. For instance, in the very demonstration zone in Gabrovo, due to temporary financial problems of the municipality the street lighting had been switched off for as long as nine months, and because of the low temperature in the classrooms in winter children were often sent home on unplanned holidays. Under such a baseline, the primary task of the energy efficiency measures is to achieve at least an acceptable comfort level without increasing the costs, and only after that, from the new normalised baseline, to proceed to realising savings through implementation of additional measures.

Irrespective of the well-developed and stable system of commercial banks in Bulgaria, they are still very cautious in lending credits to municipalities for implementation of energy efficiency projects, since the risk related to such projects is still quite high. On the other hand, municipalities are also refraining from borrowing money, firstly because of the above-mentioned budgetary restrictions, and secondly because of the high interest rates and the large amount of the required bank guarantees, which are beyond the ability of many municipalities. There are municipalities, which as yet possess neither the will, nor experience and administrative capacity to borrow and service regularly a bank loan. On the other hand, in Bulgaria, as yet, there are no specialised financing institutions of the type of housing credit

banks, dealing with lending of long-term investment credits at low fixed-rate interest, in the range of 3 to 6%. In recent years, one of the biggest housing credit banks in Germany made an attempt to establish its branch in Bulgaria, however the absence of an adequate law on this matter is barring the realisation of this intention for the time being.

The first energy services companies outside the structure of the existing district heating companies and the subsidiaries of the National Electric Company emerged during the period of project implementation. An important prerequisite for the emergence of the new ESCOs was the introduction of heat accounting, which called forth the demand for its servicing. The increase of the prices of heat and electricity has forced many companies and households to resort to drastic measures for diminishing of their energy costs. This development opened yet another niche for the companies specialised in this field. However, it is hardly possible to sustain as yet that a real market for energy services has been established in Bulgaria. There are many reasons for that, however two of them are the most important. The first one is related to the absence of sufficiently solvent demand both on the part of municipalities and of households. The second reason is the still absent institution of housing associations as legal entities, uniting and representing the large number of owners of a given residential building. The first reason might be overcome to a considerable extent by the penetration in Bulgaria of the housing credit banks, offering investment credits at fixed low interest rates. The second reason is already dismantled by the provisions laid down in the new Energy Act and Energy Efficiency Act.

c) Major issues:

The demonstration projects in Gabrovo and the projects that followed in many other *EcoEnergy* member-municipalities demonstrated the existence of a large but untapped potential for energy efficiency improvement in municipalities. Two spheres, in which the municipality may and should play a leading role, stand out clearly in the framework of this potential:

- The first sphere covers all municipal sites, including the municipal infrastructure and municipal housing. The projects implemented so far in municipal schools, hospitals, administrative buildings and street lighting systems have shown that in each of these groups of sites the energy conservation measures have a different degree of efficiency, and hence a different payback period. The challenge is thus the need to balance an opportunity to utilize the entire energy efficiency potential and to develop such opportunities as bankable projects that can accommodate commercial financing. Thus rational prioritizing of opportunities seems to be necessary. There are huge untapped reserves also in the municipal infrastructure networks. An illustration in this respect is the success of the projects in the street lighting systems, and one should be aware that the opportunities for realising energy savings to a not lesser degree exist also in the district heating networks, water supply and sewerage systems, including wastewater treatment. As far as the municipal system for waste collection and disposal is concerned, apart from the potential for energy conservation, it contains also a not-to-be-underestimated potential for energy generation, which unfortunately has not yet been developed in practice in Bulgaria.
- It is a well-known, unique in terms of world practice fact that more than 90% of the housing stock in Bulgaria is privately owned and the predominant share of the dwellings is owner-occupied. Besides, more than 60% of the dwellings are situated in buildings of housing co-operatives, while nearly 40% of the dwellings are situated in large-panel apartment blocks. This specific for Bulgaria picture does not at all mean that the municipality should let go this housing stock. It does rather call for a

new legal framework that would equip the municipality with realistic and effective mechanisms for management of its maintenance and renewal, including for implementation of energy efficiency measures. In the first place, Bulgaria needs a specialised law on maintenance and renewal of the building stock. This law, while taking due account of the fact that irrespective of the forms of ownership buildings this building stock will serve to meet the demand of several generations, should lay down socially justified and indispensable measures for maintaining safety and comfort of the building stock on a level matching the European standards. This law should further clearly define also the role of the municipality in the design of appropriate programmes for financial support to low-income occupants through a specialised municipal fund for maintenance and renewal of the building stock. It is obvious that these municipal programmes will comprise also the relevant measures for energy efficiency, as well as that some of the funds in the specialised municipal fund will be allocated for the implementation of such measures. Besides this new law, another factor of decisive importance for the broad application of energy efficiency measures in the residential sector will be the availability of the above-mentioned housing credit banks, as well as the mandatory introduction of the institution "housing association" as a legal entity for all buildings with more than two owners.

One of the important lessons learned from the evaluated project is that because of their significant value the applied energy conservation measures should be maximum sustainable and effective. This requires the following:

- Creation of an adequate legal framework, which should not simply regulate, support and promote the initiation of energy efficiency measures, but should also ensure their maintenance and control. In this case the proposed for adoption new law on maintenance and renewal of the building stock, along with the Energy Efficiency Act, will play a key role.
- The municipal energy efficiency programmes, which are an important prerequisite for the sustainability of the measures under the conditions of fixed-term term of office of the elected municipal decision-making bodies, should also comprise specific measures for control and maintaining of the achieved results over a longer period of time, which has to go far beyond the payback period.
- Setting in place of comprehensive and sustainable institutions for planning and management of the implementation of the energy efficiency measures in the framework of the municipal administration, as well as outside it. One should not neglect the fact that municipal administrations are not safeguarded against politically motivated replacements as yet, nor against overloading with inadequate responsibilities and activities. With a view to that fact, an alternative organization of municipal energy efficiency offices might be assessed – municipal energy offices/agencies organized as municipally controlled entities but separated from the daily administration - in this way they would be able to concentrate on the range of issues, for which they have been specifically created.
- The evaluated project has demonstrated that municipalities in Bulgaria, even the biggest and the best developed among them, are not able by themselves, without external support, to implement successfully the urgently needed energy efficiency measures. The banks and the energy services companies, on the other hand, are not ready to undertake the risk connected with the implementation of an energy efficiency project either. The good practices and the project itself demonstrated and proved that these really existing problems might be resolved the best through public-private partnership. The establishment, development and masterful application of such partnership in the energy efficiency field would require:

- Creation of the necessary legal framework, which could help overcome the corruption practices existing in the country – in the relationships between the public and the private sectors – under which all risks and losses are finally for the account of the public sector, while all benefits and profits – for the private sector.
- Development and application of specific mechanisms, including contractual arrangements, which would guarantee shared mutual liability by both parties of the risks and financial burdens, as well as the benefits, in all cases of public-private partnerships.
- Adequate involvement of the Energy Efficiency Fund, envisaged by the new Energy Efficiency Act of 2004, in the public-private partnership schemes through lending of credits at low interest rates, as well as granting of guarantees on credits lent by commercial banks or by undertaking to cover some portion of interest on loans lent by these banks for energy efficiency projects.
- Introduction and broad application of the “Win-Win” schemes in implementation of energy efficiency projects. These schemes may involve the municipalities and the Energy Efficiency Fund on the part of the public sector and the banks, energy efficiency companies and households – on the part of the private sector.

The new laws on regional development and energy efficiency, approved during the year 2004, require from every municipality in Bulgaria to work out and respectively approve a municipal development plan and a municipal energy efficiency programme. The experience accumulated by the project under review indicates that even in municipalities with a substantial number of available administrative staff months and years are needed for building the necessary administrative capacity for development of municipal energy efficiency programmes, which are one of the integral component parts of the municipal development plan. The situation in the small and a significant number of the medium-size municipalities, which predominate in the country, is quite different. The local administrations in these municipalities neither possess any initial human potential in field, nor is it necessary and possible to start building it from now on. The solution to this problem may be sought in three parallel and mutually complementing each other directions:

- The first direction is the advance of EcoEnergy, so that it may cover all municipalities in Bulgaria. The so far developed organisational, methodological, educational and information potential of the Network should become available to and accessible for the small and medium-size municipalities as a primary prerequisite for their involvement in the energy efficiency policies and practices.
- The second direction is further development of the regional associations of municipalities, which on the basis of their common regional belonging, similar conditions, circumstances and interests, and on the principal of regional solidarity, might focus their efforts on rendering support to the small and medium-size municipalities with limited administrative capacity.
- The third direction is taking up by the district administrations of the functions of planning and management of the energy conservation measures on the area of the small and medium-size municipalities. For the implementation of these additional functions the district administrations might get comprehensive support from the municipal administrations of the district center cities and the municipal energy efficiency offices.

The energy efficiency measures implemented through the project under review are a concrete contribution to the preparation for Bulgaria’s accession to the European Union, since in essence this is application of the European policies on:

- reduction of harmful emissions in the air and efficient use of energy resources;

- improvement of the competitive capacity of the national economies of the member-states through minimising of energy costs;
- raising of the standards and comfort of the environment for work, habitation and recreation;
- decentralisation of the power structures and development of local self-government;
- equalisation of the degree of development of the different areas and administrative territorial units;
- broad public participation in the management and implementation of socially significant programmes and projects.

VI. Recommendations for Future UNDP/GEF and/or Government Support

a) Recommendations related to the approaches to be taken for dismantling of the existing barriers, indicated in Section I

The results from the project should be collected and systemised in a special edition (in a printed, electronic and multi-media format) and thus made available to the broadest possible public circles in order to overcome the poor awareness on the energy efficiency issues. The most appropriate modality for this purpose would be a broad public campaign addressed to the following major target groups:

- the central institutions, including the respective commissions of the National Assembly, as well as all ministries and agencies with them;
- all municipalities in Bulgaria, which are not members of *EcoEnergy* as yet;
- all district authorities;
- the newly set up administrations of the six planning regions;
- the employers' organisations and associations, and particularly those of the small and medium-size enterprises;
- commercial banks; and
- households.

The broad public campaign for popularising the results from the project should make maximum use of:

- The Municipal Energy Efficiency Network *EcoEnergy*, which already possesses a full range of successful practices on how to popularise and disseminate information;
- The National Association of Municipalities in the Republic of Bulgaria, whose membership covers all municipalities in the country and which also possesses a well-established system for dissemination of information;
- The existing websites run by *EnEffect* on energy efficiency issues;
- The specialised websites of the Ministry of Energy and Energy Resources, the Ministry of Environment and Water, the Ministry of Regional Development and

Public Works, the Ministry of Economy, and, certainly – the respective agencies with each of them;

- The mass media.

In order to help overcome the limited experience in development and application of energy efficiency programmes, the Methodology on Municipal Energy Planning, worked out in the framework of this project, should be made available to all municipal and district administrations in the country, by taking advantage of the training opportunities in the framework of *EcoEnergy*. Along with it, it shall be necessary to encourage:

- The development of capacity building potential in the framework of the regional associations of municipalities through establishment of regional energy efficiency networks, where a higher degree of specific focus could be achieved in compliance with the local conditions, particularly with respect to those in the small municipalities.
- Setting up and development of regional non-governmental energy efficiency agencies, able to take up the functions of secretariats of the regional municipal energy efficiency networks.

On the basis of the information system on energy consumption in municipalities, containing data about the situation prior to and after the application of the energy efficiency measures, to elaborate averaged indicators for the energy and cost savings at the different sites and from the different measures, which, if properly summarised, systemised and supplemented by analogous indicators from the practice abroad, might be used as a reference in municipal energy planning.

The broad implementation of a complex of measures for energy efficiency improvement in buildings and infrastructure facilities opens in real terms a wide niche for economic activity, related to the manufacture and supply of materials, equipment and devices for energy conservation, as well as to the planning, design and implementation of services for energy efficiency improvement. Winning and mastering this niche would require a targeted campaign for familiarisation of the employers' organisations and association, and particularly those of small and medium-size enterprises, with the concrete results and achievements of the project under review.

b) *Identification of future actions, which will consolidate and promote the initial benefits from the project*

EcoEnergy and its Secretariat *EnEffect* should activate and expand their contacts and direct interaction with the major partners in municipalities in the implementation of their respective energy efficiency programmes, and in the first place with:

- The key ministries – the Ministry of Energy and Energy Resources, the Ministry of Environment and Water, the Ministry of Regional Development and Public Works, the Ministry of Economy, the Ministry of Finance – and their executive agencies;
- The Energy Efficiency Fund and the Enterprise for Management of Environmental Protection Activities;
- The Agency for Small and Medium-size Enterprises and the employers' organisations and associations;
- Commercial banks and their associations.

Through the already created and established in the practice *EcoEnergy* Network and the administrative capacity built in its framework, the project may advance through follow-up self-development in terms of several consecutive or parallel steps, as follows:

- Application of additional energy efficiency measures in the sites, in which already such measures have been implemented, with a view to application of innovative technologies and materials and tapping of the full energy potential of the sites;
- Full coverage of all municipal sites in a given municipality in the design of the municipal energy plan;
- Extension of municipal energy planning to cover all municipalities in the country;
- Extension of the scope of municipal energy planning for incorporation of all municipal infrastructure sites, networks and systems, including the waste collection systems,
- Extension of municipal energy planning for incorporation of the residential stock, irrespective of the form of ownership, and for attraction of households as an important partners in the energy efficiency projects in residential buildings.

After the full territorial development of *EcoEnergy* through incorporation in its scope of all municipalities in the country and after creation of regional energy efficiency networks, the project might develop its capacity in the field of elaboration and application of specialised national (in the framework of the entire Network) or regional (in the framework of the regional networks) energy efficiency programmes for:

- all municipal schools in the country or in the respective region;
- all municipal hospitals in the country or in the respective region;
- all street lighting systems in the framework of the country or the respective region;
- the housing stock on the area of the municipalities in the framework of the country or the respective region.

The newly established Energy Efficiency Fund should identify its adequate place in the further development of the project by assisting the application of its financial schemes through:

- granting of low-interest loans;
- granting of bank guarantees on credits lent by commercial banks;
- taking up some portion of the interest on loans lent by the commercial banks.

c) *Recommendations for a new project intervention, building on the achievement of this project*

The results from the evaluated project are incontestable, however they only lay the beginning of the necessary comprehensive measures for energy efficiency improvement on the area of Bulgarian municipalities throughout the country. The chief achievement of the project is that by building the necessary administrative and human capacity in municipalities, with the active support from *EcoEnergy*, it deservedly raises them to the rank of leading structures in municipal energy planning. It may be declared with sufficient evidence that the project has reached such a degree of development and maturity, that from now on it is capable of self-upgrading, provided a new project could render it support for resolution of the key issues of the partnership between the municipalities and the rest of the stakeholders in the field of

implementation of energy efficiency measures. These stakeholders may be divided into five major groups:

- partners – governmental institutions, the administrations of the planning regions, the district authorities, NGO structure, including the national and regional municipal energy efficiency networks;
- suppliers and contractors – energy efficiency companies;
- creditors – commercial banks, housing credit banks, public funds;
- donors – public funds, international organizations.

The key issues of the partnership of municipalities with the above mentioned five groups of stakeholders, on which a future new project should focus, may be divided into three groups:

- regulatory framework;
- financial relationships;
- organisational linkage.

The regulatory framework with respect to the relationship of the municipalities with the other stakeholders in the partnership should cover the following:

- horizontal links between municipalities and the other structures of the public sector, built on the principles of decentralisation and independence of local self-government;
- the links of municipalities in the frameworks of the public-private partnerships, built on the principle of equitable sharing of the risk, the financial liabilities and the benefits;
- taxation liabilities, including preferential taxation and sanctions;
- insurance;
- public control;
- judicial arbitration.

The financial relations of the municipalities with the other stakeholders in the partnership should comprise:

- the relationship of municipal budgets with the state budget;
- the relationships of municipalities with the different public funds – for energy efficiency, environmental protection, PHARE, the EU pre-accession funds (until 2007), the structural funds and the cohesion fund (after 2007);
- the relationships of municipalities with domestic and foreign donors – NGOs, international organisations, foundations;
- the relationships of municipalities with the companies and the citizens through the local taxes and charges;
- the relationships of municipalities with the companies in the course of payments for services and deliveries;
- relationships of municipalities with commercial banks and housing credit banks (after their creation).

Organisational linkage of municipalities with their partners should comprise:

- development of *EcoEnergy* in the direction of full coverage of all municipalities in Bulgaria;

- creation and development of regional municipal energy efficiency networks;
- creation and development of associations and networks based on public-private partnership;
- creation and development of thematic associations and networks – by types of sites, types of measures, types of applied schemes;
- creation and development of regional energy efficiency agencies.

Finding the optimum solutions of the above listed three groups of key issues requires that the follow-up activities should launch a new series of demonstration projects, which it would be best to be implemented in parallel:

- in Gabrovo, as a follow-up - to develop further what has been achieved so far and compare it with the results of the expired project;
- in a specially selected set of municipalities possessing different institutional and human capacity (large, medium and small) and different experience in energy planning (proven, in its initial phase, start-ups);
- The demonstration projects should contribute to testing and comprehensive adapting to the Bulgarian circumstances of modalities, which have been proven in the practice abroad and partially in the country:
 - “Win-Win” schemes;
 - innovative financing schemes;
 - innovative crediting schemes;
 - innovative insurance schemes.

VII. Rating of the Project

The project has been evaluated according to the GEF project review criteria. The criteria include are defined as follows. Information on the main part of the text of evaluation where they were addressed is indicated bellow:

- Implementation approach (IV.2.b)
- Country ownership/driveness (IV.1.a)
- Stakeholder participation/public involvement (IV.1.c-d)
- Sustainability (IV.4)
- Replication approach (IV.3-4)
- Financial planning (IV.2.c)
- Cost-effectiveness (IV.2.c)
- Monitoring and evaluation (IV.2.c)

VII.1 Summary of project evaluation and rating

The evaluation of the project is described in detail in the preceding text. The summary rating according to GEF criteria shows the following table.

Table: Project rating

Ratings' criteria	Rating
1. Outcomes/Achievements of objectives	Highly Satisfactory
2. Implementation Approach	Highly Satisfactory
3. Stakeholder Participation/Public Involvement	Highly Satisfactory - Satisfactory
4. Sustainability	Highly Satisfactory - Satisfactory
5. Monitoring and Evaluation	Highly Satisfactory

The project rating using pre-defined scale of 6 rating categories depends strongly on subjective estimation of the ratings level by evaluators.

The overall project performance is highly satisfactory. There are two issues that might have been strengthened, however they do not depend necessarily on project execution, but on external objective and subjective circumstances.

First, this is the case of stakeholder participation, which involved effectively all major stakeholders and was very active especially with local, public and professional stakeholders. The central government has been actively involved in the project as well, however their activity changed during the project period, depending on concrete government in power and personalities in charge. The opportunity to actively participate in the project has been provided but the response was different.

Second, practical sustainability of project results strongly depends on economic development of the country. Due to postponed reforms and financial crises of the country in 1990s the economic situation of potential energy efficiency project owners (municipalities, residential buildings, district heating utilities, etc.) was not strong enough to accommodate commercial financing of projects on a wide scale. The sustainability of projects results, potential for utilization of capacity developed and replication of experience gained at the demonstration zone, strongly depends on financial capacity of potential project sponsors. Although in long-term the trend clearly will be implementation of energy efficiency projects on a wider scale, it will very much depend on the capacity to accommodate commercial financing in short-term.

Major financial data

Title of the institution	Proposed financing (US Dollars)	Actual financing (US Dollars)
	Million USD.	Million USD.

A. Primary input			
Project budget	GEF through UNDP	2.575	2.575
B. Co-financing			
Bulgarian party (cash)	Incl. NEPF*, Gabrovo Municipality, Committee of Energy, Elektrorazpredelienie Gabrovo Branch, Toplofikatsiya Gabrovo SPJsC, private sector entities	2.256	0.847
Bulgarian party (in-kind)**	Incl. Gabrovo Municipality, EcoEnergy member-municipalities, the Government and governmental institutions	1.705	1.710
Bilateral donor	USAID – for the hospital in Gabrovo	0.900	0.900
C. Parallel financing			
Bilateral donors ¹	USAID – other projects, UN ECE, Japan, The Netherlands, Norway, miscellaneous donors ²	-	0.860
Direct and parallel financing total		4.861	2.965
Financing total (A+B+C)		7.436	4.979

¹ The table does not comprise the amounts spent directly by the leading foreign contractors.

² The Regional Environmental Centre (REC), the World Resources Institute (WRI), the Organisation for Economic Cooperation and Development (OECD), the World Bank (WB), the European Commission (EC), Canada.

VIII. Attachments to the Evaluation Report

Terms of Reference (TOR)

Final Project Evaluation

Project Title: Energy Efficiency Strategy to Mitigate GHG Emissions.
Energy Efficiency Demonstration Zone in the City of Gabrovo,
Republic of Bulgaria

Project Number: BUL/96/G31/1G/72

I. Introduction

This is a regular GEF-funded project in the climate change focal area. UNDP acts as Implementing Agency for the project. The final project evaluation will comply with UNDP's "Hand Book on Monitoring and Evaluating for Results³" and the GEF "Monitoring and Evaluation Policies and Procedures⁴". The evaluators will assess the relevance, performance and success of the project. The evaluators will analyse the achievement of the project objectives and outputs; assess the impact of the project in terms of capacity development and sustainability of the achieved results; document lessons learnt and provide recommendations regarding future UNDP/GEF involvement in the climate change focal area in Bulgaria.

The project is a major component of the current UNDP Bulgaria environmental portfolio, and contributes to the achievement of SRF Outcome No 4 "Enhanced sustainable management of natural resources".

The development objective of the project is to introduce and develop practices at the municipal level targeted at overcoming barriers to increased energy efficiency and to the associated reductions in GHG emissions. The major barriers include:

- limited experience in incorporating energy efficiency considerations into private and public decision-making;
- little experience in developing and implementing energy efficiency programmes;
- uncertainty regarding the energy and economic savings that can be expected from different energy products and programmes;
- undeveloped infrastructure, including the institutions and individuals needed to deliver the technical, managerial, and financial services required by an energy-efficient society.

³ See <http://www.undp.org/eo/>

⁴ See http://www.gefweb.org/M_E_Policies_and_Procedures.pdf

The project has two immediate objectives:

Establishment of sustainable energy policies and programmes and enhancement of public awareness in municipalities.

Support to the undertaking of sustainable energy projects within municipalities by demonstrating their potential for energy and economic savings and for reductions in GHG emissions.

The core project component is capacity building for municipalities. It includes municipal energy efficiency planning, management, training, and financing. Supporting demonstrations at the municipal level (street lighting, district heating, and building retrofit) are the other project component, which translates capacity building efforts into real life. EnEffect, the project management team, supports the demonstrations and their rapid diffusion to other municipalities through the Municipal Energy Efficiency Network EcoEnergy. Project impacts have now reached 60% of all Bulgarian municipalities, which is a critical mass for ensuring that the reforms in the area of sustainable management of natural resources are well accepted throughout the country.

The Project was conceived and developed by the Bulgarian Center for Energy Efficiency EnEffect, a non-governmental organization based in Sofia. Full project activities started in March 1998, with a planned duration of five years. At the request of the Project Steering Committee of 18 March 2002, a 12 months no-cost extension was approved. The revised project completion date is 30 April 2004. The Project is NGO-executed by EnEffect.

II. Purpose of the Evaluation

UNDP, as the GEF Implementing Agency for the project, has initiated the present external final evaluation.

The objective of the evaluation is to draw lessons learnt, while assessing the overall project performance and impact, as well as the sustainability and replication value of the project results. The project's relevance, performance, impact and linkages to similar interventions will be assessed in the context of the project baseline and current country situation. The achievement of the planned project outputs and immediate objectives will be rated against a set of performance indicators.

UNDP and the project Executing Agency EnEffect have initiated the development of a follow-on project in the field of energy efficiency and climate change in Bulgaria. The present final evaluation of the current project is a pre-requisite for inclusion of the new concept proposal in the GEF work program. It is expected that the evaluation report will provide critical recommendations on the formulation of the follow-on project.

The main stakeholders of the final evaluation are:

- * UNDP;
- * The project Executing Agency – the Bulgarian NGO Center for Energy Efficiency EnEffect – National Project Director, Project Manager, members of the project team;
- * The government counterparts – the Ministry of Environment and Water (MOEW), Ministry of Energy and Energy Resources (MEER), Energy Efficiency Agency (EEA);
- * The Municipality of Gabrovo – the Mayor, the Municipal Energy Efficiency Officers, the Financial Manager of the Municipality;
- * Representatives of the Municipal Energy Efficiency Network EcoEnergy – Mayors, members of the Board of Directors of EcoEnergy, Municipal Energy Efficiency Officers, and other participants in the training courses;
- * Direct project beneficiaries – managers and users of the demonstration project sites: the District Heating Company, the Otets Paisiy School, the Mehatronika Company;
- * Project sub-contractors and consultants – private companies, providing goods and services for the demonstrations, the Technical Universities in Gabrovo and Sofia,
- * Others project partners – the Electricity Supply Company in Gabrovo.

III. Scope of the Evaluation

III.A. The evaluation team will review, analyze, and provide findings, conclusions, recommendations on seven groups of issues listed below.

Group 1. Relevance of the project

- a) development priorities at the local and national level; country ownership⁵ and country drivenness of the project;
- b) support provided through the project to the implementation of the national climate change policy;
- c) extent to which the project has met the specific needs of project stakeholders;
- d) stakeholders (municipal) participation in the formulation and implementation of energy efficiency policies;

⁵ Examples of country drivenness indicators include: the project concept has its origin within the national sectoral and development plans; outcomes (or potential outcomes) from the project have been incorporated into the national sectoral and development plans; relevant country representatives (e.g., governmental officials, civil society, etc.) are actively involved in project identification, planning and/or implementation the recipient government has maintained financial commitment to the project; the government has approved policies and/or modified regulatory frameworks in line with the project's objectives.

- e) contribution of the project to an enhanced sustainable management of natural resources in the country (Outcome 4 of the UNDP Bulgaria SRF 2002-2006)

Group 2. Performance of the project

- a) Attainment of the project immediate objectives and outputs as per Project Document
- b) Project implementation approach
 - a. project adaptation to changing conditions;
 - b. changes in project design and work plan;
 - c. effective partnerships and parallel financing in the implementation of the project;
 - d. stakeholder participation.
- c) Implementation of the project
 - a. execution and implementation modalities;
 - b. project management arrangements, including stakeholder participation;
 - c. project financial planning and control⁶;
 - d. timeliness of project implementation, as compared to the work plan and reasons for delays
 - e. cost-effectiveness of project operations⁷;
 - f. project monitoring and evaluation.

Group 3. Overall project achievements

- a) assessment of the degree to which the project has removed the barriers listed in section I above.
- b) contribution of the project to the capacity development of project stakeholders;
- c) dissemination of project experiences and project replication approach through EcoEnergy, the Municipal Energy Efficiency Network;

⁶ Examples of effective financial plans include:

- identification of potential sources of co-financing as well as leveraged and associated financing⁶.
- strong financial controls, including reporting and planning that allow the project management to make informed decisions regarding the budget at any time, and allow for a proper and timely flow of funds, and for the payment of satisfactory project deliverables.
- Due diligence in the management of funds and financial audits.

The evaluators should also complete the table in Annex 2 of the “Guidelines for Implementing Agencies to conduct Terminal Evaluations”.

⁷ Examples of how to measure cost effectiveness include:

- compliance with the incremental cost criteria (e.g. GEF funds are used to finance a component of a project that would not have taken place without GEF funding.) and securing co-funding and associated funding;
- the project used either a benchmark approach or a comparison approach (did not exceed the costs levels of similar projects in similar contexts); a benchmark approach in climate change projects measures cost-effectiveness using internationally accepted threshold such as 10\$/ton of carbon equivalent reduced.

- d) project achievements beyond the planned project outputs:
- coverage of the municipal network;
 - role of EnEffect as EcoEnergy Network Secretariat and as a service provider;
 - implemented municipal projects in and outside Gabrovo: description of the projects (investments) and the expected impacts;
 - non-GEF resources leveraged for municipal investments;
 - tons of CO₂ avoided by investments.
- e) project impact in terms of contribution of the project to the stated development objective.

Group 4. Sustainability of the results achieved

- a) development of suitable organizational arrangements (EcoEnergy as institution)
- b) development of policy frameworks that further the project objectives (municipal energy information system and municipal energy efficiency programmes);
- c) incorporation of environmental considerations into municipal operations leading to future environmental benefits;
- d) institutional capacity development (with reference to Municipalities and to EnEffect);
- e) ongoing municipal energy efficiency projects initiated following the UNDP/GEF experience in Gabrovo.

Group 5. Linkages between the project and other interventions in the sector/region; synergies with similar projects

- a) synergies with USAID-funded projects (Development Credit Authority; South-East Europe and CIS Municipal Network for Energy Efficiency - MUNEE);
- b) participation in RENEUR - Regional Network for Efficient Use of Energy and Water Resources;
- c) participation in ENERGIE-CITÉS European Cities Network for Energy Efficiency;
- d) synergy with the “Good Practices” Project of the Regional Environmental Centre for Central and Eastern Europe;
- e) synergy with the UNECE Energy Efficiency Project.

Group 6. Lessons learnt in the course of project implementation

Through interviews with stakeholders and project management, the evaluators shall address lessons learnt both in terms of project substance and in terms of project process. Distinguish (if applicable) between what was supposed to happen and what actually happened, focusing on “why” did processes occur as they did.

The evaluators shall document positive and negative lessons learnt, grouping them by theme of lesson – i.e. “methodological innovation”, “problem encountered”, “substantive issue”.

The evaluators shall provide an analysis of the lessons learnt based on the following guiding questions:

- a) What was supposed to happen? Why?
- b) What actually happened? Why?
- c) What is the difference? What was the solution? What action can be/was taken?
- d) What went well? Why?
- e) What could have gone better? Why?
- f) What insights/lessons can we learn?
- g) How did the project come to these insights/lessons?

Group 7. Recommendations for future support through UNDP/GEF and/or the Government

- a) recommend approaches that should be taken to remove remaining barriers listed in Section I above;
- b) outline future actions that will build on and reinforce the initial benefits from the project;
- c) based on the achievements of the project, provide recommendations for viable new project interventions in the future.

III.B. Based on the findings under III. A. above, the evaluation team will provide **ratings** against the following criteria according to the “*GEF Guidelines for Implementing Agencies to Conduct Terminal Evaluations*”:

- a) achievement of project outputs and objectives
- b) implementation approach
- c) stakeholder participation/public involvement
- d) sustainability
- e) monitoring & evaluation.

To allow for consistency across all GEF IAs/EAs, the ratings shall be: Highly Satisfactory, Satisfactory, Marginally Satisfactory, Unsatisfactory, and N/A.

IV. Product Expected from the Evaluation

The output of the evaluation assignment will be a **Final Evaluation Report** prepared in English and in Bulgarian, in full compliance with the *GEF Guidelines for Implementing Agencies to Conduct Terminal Evaluations*.

The suggested report outline is contained in **Annex I** to the present TOR. Changes and additions to the outline will be discussed and agreed with UNDP in the course of the assignment.

V. Evaluation Approach

The approach to be used by the evaluation team will include: extensive review of documentation, interviews, field visits and questionnaires. The evaluation will take place mainly in the field. The evaluators will work closely with UNDP, the Executing Agency, the government counterparts, the Municipality of Gabrovo, representatives of the Municipal Energy Efficiency Network EcoEnergy, sub-contractors and other project stakeholders.

Desk Review

The evaluation team will review the documents related to the project, listed in **Annex II** to the present TOR, prior to the start of the field mission. The documents will be provided by the Executing Agency EnEffect and the UNDP Country Office.

The evaluation team will become familiar beforehand through desk research with the Bulgarian energy and energy efficiency policy and legislation, the Bulgarian policy on climate change, the country's policy and practice in local self-governance. Sources of such information are provided in **Annex III** to the present TOR.

Field visits and interviews

The evaluation team will visit the central project management premises, the UNDP Bulgaria Country Office, the city of Gabrovo and the municipal administration, the demonstration project sites (school building, residential building, industrial building, DH Company), as well as other municipalities from the EcoEnergy network.

Questionnaires

During the project implementation some questionnaires were disseminated to provide feed back about project activities. The results of these questionnaires will be provided to the evaluation team to be used accordingly.

Participatory techniques

The evaluation team may apply any other relevant participatory techniques and approaches for the gathering and analysis of data.

In preparing the Evaluation Report, the evaluators will observe the "Guidelines for Implementing Agencies to Conduct Terminal Evaluations", which are presented in Annex IV to the present TOR.

VI. Evaluation Team Responsibilities, Individual Responsibilities and Required Qualifications

The evaluation team will be composed of two independent consultants - one external international and one external national consultant. Both consultants should not have participated substantively during project preparation and/or implementation and should have no conflict of interest with any proposed follow-up phases.

International Consultant Responsibilities and Qualifications

The international consultant (IC) will act as team leader.

He/she will be responsible for the overall finalization of the evaluation report in English in accordance with UNDP/GEF requirements.

The IC will focus on Group 2 and Group 3 activities, as stated in Section III.A. above.

The IC should have an updated knowledge of the GEF policies and strategies, as well as the UNDP/GEF monitoring and evaluation policy. He/she should be a professional possessing expertise in the area of energy efficiency and climate change, outstanding analytical and evaluation skills, experience in conducting evaluation missions, technical expertise in energy efficiency, knowledge of current economic and social issues, excellent drafting skills in English.

National Consultant Responsibilities and Qualifications

The national consultant (NC) will support the team leader throughout the evaluation assignment and will contribute to the development of the final evaluation report.

He/she will review the written materials, project publications and data that are available in Bulgarian only, and will analyse them for the purposes of the evaluation.

He/she will also be responsible for finalizing the Bulgarian translation of the evaluation report.

The NC will focus on Group 1 and Group 4 activities, as stated in Section III.A. above.

The NC should be a professional with expertise in the area of energy efficiency and climate change, strong analytical and evaluation skills, excellent knowledge of the national energy and energy efficiency policy, legislation and practice, and the national policy to address climate change, wide experience with energy and energy efficiency issues in the public and private sector in Bulgaria.

Joint Responsibilities of the Evaluation Team

The IC and the NC will both work on Group 5, Group 6 and Group 7 activities, as stated in Section III.A. above.

The IC and the NC will share responsibility for the drafting, reflecting of Executing Agency and UNDP comments and finalization of the Final Evaluation Report, including all its sections as proposed in Annex I to the present TOR and as subsequently amended in the course of the assignment.

VII. Implementation Arrangements, Time Schedule for Conducting the Evaluation Assignment and Deadlines for Submission of Outputs

The evaluation assignment will take place in the period 8 March – 19 April 2004, whereas the International Consultant will work for a total of 15 days and the National Consultant will work for a total of 25 days within the aforementioned period.

EnEffect will organize all international and in-country travel and meetings, and will provide logistical support for translation/interpretation, office space and equipment, accommodation, and transportation.

The field mission to Bulgaria of the IC will take place in two phases: 10-13 March 2004, and 15-17 April 2004, in order to allow for IC participation in the EcoEnergy Annual Conference taking place on 16-17 April 2004 in Sofia.

International Consultant Schedule

Day(s) Number	Planned Date(s)	Task	Details
1	8 March 2004	Desk Review	
2-5	10-13 March 2004	First Field Mission to Bulgaria	Briefing at UNDP; interviews with stakeholders in Gabrovo and Gorna Oriahovitsa; meetings at the EnEffect Office, the Ministry of Environment and Water, and the Energy Efficiency Agency
	13-16 March 2004	Submission and approval by UNDP and EnEffect of the Evaluation Report Outline	To be coordinated by EnEffect
6-10	B/n 16 March and 25 March 2004	First Draft Report Preparation	Work in coordination with the NC
	26 March 2004	First draft of the Evaluation Report to be submitted to EnEffect and UNDP	
	2 April 2004	Submission of UNDP/EnEffect	

		comments to the Draft Evaluation Report	
11	B/n 2 April and 9 April 2004	Inclusion of UNDP/EnEffect comments to the draft	Work in coordination with the NC
	9 April 2004	Submission to EnEffect and UNDP of the Final Draft	
12-14	15-17 April 2004	Second Field Mission to Bulgaria	Participation in EcoEnergy Annual Conference; Debriefing at UNDP
15	19 April 2004	Finalization of Evaluation Report in coordination with UNDP and EnEffect	

National Consultant Schedule

Day(s) Number	Planned Date(s)	Task	Details
1-2	8-9 March 2004	Desk Review	
3-6	10-13 March 2004	Work with IC during IC First Field Mission to Bulgaria	Briefing at UNDP; interviews with stakeholders in Gabrovo and Gorna Oriahovitsa; meetings at the EnEffect Office, the Ministry of Environment and Water
7-9	B/n 15-19 March	Second round of field visits in municipalities	Exact list of meetings to be provided by EnEffect
10-16	B/n 16 March and 25 March 2004	First Draft Report Preparation	Work in coordination with the IC
	26 March 2004	First draft of the Evaluation Report to be submitted to EnEffect and UNDP	
	2 April 2004	Submission of UNDP/EnEffect comments to the Draft Evaluation Report	
17-20	B/n 2 April and 9 April 2004	Inclusion of UNDP/EnEffect comments to the draft	Work in coordination with the IC
21-23	15-17 April 2004	Work with IC during IC Second Field Mission to Bulgaria	Participation in EcoEnergy Annual Conference; Debriefing at UNDP
24-25	18-19 April 2004	Finalization of Evaluation Report in coordination with UNDP and EnEffect	

List of Interviewed Persons

UNDP

Neil Buhne, Resident Representative
Ogniana Glavoussanova, Programme Officer

EnEffect – Executing and Implementing Agency

Zdravko Genchev, National Project Coordinator
George Chavdarov, Project Manager
Lubomir Tchervilov, Building Retrofit Coordinator
Kalinka Nakova, Municipal Network Coordinator
Zoya Giurova, Training Coordinator
Dimitar Doukov, Financial Analyst
Bilyana Chobanova, Street Lighting Coordinator
Atanas Stoykov, District Heating Coordinator
Peter Todorov, Business Manager

National Association of Municipalities in the Republic of Bulgaria

Julia Stefanova, Donors Programs Expert

Ministry of Energy and Energy Resources

Angel Minev, Deputy Minister

Ministry of Environment and Water

Daniela Stoicheva, UNFCCC Focal Point

Gabrovo Municipality

Bogomil Belchev, Mayor
Stiliyana Tincheva, Deputy Mayor
Rositsa Stancheva, Chief Expert Electrical Infrastructure, EE Officer

Toplofikatsiya Gabrovo SPSCo (Gabrovo District Heating Company)

Georgi Rashkov, Director General

Otets Paisiy School, Gabrovo

Georgi Marinov, Director
Sofia Indjova, former Director

Technical University, Gabrovo

Stoyo Platikanov, Professor

Gorna Oriahovitza Municipality

Nikola Kolev, Mayor