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UNDP/GEF SLOVAKIA:

Reducing Greenhouse Gas Emissions through the Use of Biomass Energy in Northwest Slovakia

Final Independent Evaluation
Final Report

Submitted by:
Le Groupe-conseil baastel sprl

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ABBREVIATIONS AND ACRONYMS

APR	Annual Project Review
CEE	Central and Eastern Europe
CH_4	Methane
CO_2	Carbon Dioxide
CPU	Central Processing Unit
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EU	European Union
GEF	Global Environment Facility
GHG	Green House Gases
GWh	Gigawatt
HQ	Headquarters
HR	Human Resources
IPCC	Intergovernmental Panel on Climate Change
KKA	Kommunalkredit Public Consulting
LFA	Logical Framework Analysis
MWh	Megawatt
NPD	National Project Director
OFP	Operational Focal Point
PIR	Project Implementation Review
RES	Renewable Energy Sources
SKK	Slovakian Kroner
TJ	Terajoules
UNDP	United Nations Development Programme
UNDP RC	United Nations Development Programme Regional Center
USD	United States Dollars

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EXECUTIVE SUMMARY

Executive summary

The project and its context

This reports presents the results of the final independent evaluation of a project implemented through UNDP with GEF funding and titled *Reducing Greenhouse Gas Emissions through the Use of Biomass Energy in Northwest Slovakia. The project had a planned* start of January 2003 and lasted 4 years. Work on the project actually started on 1st June 2003. The project was operationally closed on 31 December 2006.

Slovakia, a Central European country covering an area of 49,034 square kilometers, has a population of 5.4 million. The Zilina and Trencin Regions, where the project is focused, lie in the northwest part of the country, and covers 6,788 + 4,502 square kilometers (23 % of Slovakia's area). 52 % of the region is densely forested, as compared with 40% forest density for the entire country. At the time of project approval, more than 2,000 sawmills, forestry companies, and wood processing firms in the Zilina and Trencin regions produced over 200,000 tons of biomass residuals each year. The project was designed to use these wood residuals to heat schools and other public buildings

The aim of the Project was to create, in Northwest Slovakia, a sustainable market of biomass energy for heat generation, by addressing institutional, financial, informational market barriers. It was hoped that, with the dissemination of information, the Project would eventually serve as a model to be used in other regions of Slovakia, as well as in the Czech Republic, Poland and other CEE countries.

The objective of this UNDP/GEF medium size project was to reduce greenhouse gas emissions through promoting the adoption of renewable energy sources, specifically biomass. The project supported the creation of a sustainable market of biomass energy for heat generation in Northwest Slovakia. The Project focused on:

(1) construction of a Central Processing Unit (CPU) for wood pellet production from wood waste residues;
(2) reconstruction of the 44 boiler rooms in schools and public buildings; and,
(3) replacement of the existing coal/coke boilers with pellet boilers, in order to provide a replicable, economically viable and environmentally friendly source of heat.

Purpose of the evaluation

In support to UNDP/GEF Monitoring and Evaluation Policy at the project level, the objective of this final independent evaluation is to assess the achievement of project objective, the affecting factors, the broader project impact and the contribution to the general goal/strategy, and the project partnership strategy. The Evaluation is intended to assess the relevance, performance and success of the project. It looks at signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global and national environmental goals. The Final Evaluation also identifies/documents lessons learned and makes recommendations that project partners and stakeholders might use to improve the design and implementation of other related projects and programs.

Main conclusions

Overall, the project performance was satisfactory and the initiative can be considered a success story by UNDP and GEF in bringing about market change in favor of biomass energy production and use in Slovakia.

The project was relevant to the priorities and challenges faced by Slovakia in energy production and in environmental management. However, in retrospect, the design of the project could have been more robust to include a separate high level policy dialogue component to ensure that adequate market incentives are in place at the national level to support the efforts in production and awareness raising by BIOMASA. Project management was generally efficient, and the significant efforts of the project team to manage a complex implementation set up with numerous partners and co-financiers must be commanded. In terms of resource use, nine months after project end, a number of boiler installations proved oversized in view of actual needs of members, despite BIOMASA efforts to avoid such a situation through its pilot phase resizing exercise. This tends to suggest that consumption estimates from members at the preparation stage were not as reliable as expected. This in turn, had a negative impact on cash flow management and the unit cost associated with the reduction of CO_2 emissions.

In terms of effectiveness, the project performed extremely well overall in achieving its expected results. Impacts in terms of CO_2 reduction are also notable as are some of the economic impacts generated by the BIOMASA operation. The project in fact catalyzed market transformation for biomass in Slovakia, not a small feat for a single intervention, and others are now following suit in the biomass market in the country. However the speeding up and scaling up of the market transformation process for biomass in Slovakia will largely be dependent in the years to come on the emergence of a more enabling policy environment for alternative energy sources to natural gas in Slovakia. In addition, to ensure that the results and global environmental impacts from the project are sustained through continued and financially viable operations at BIOMASA, and that pellet remains a credible energy source in the national market, special attention will have to be given to resolving the current cash flow situation of the association. Efforts are already underway but more will need to be done in that respect.

Key Lessons learned

This evaluation process has brought forth the following lessons learned that can be applied to other GEF initiatives sharing some of the same objectives:

- When designing an initiative aimed at market transformation, plans must ensure that adequate resources and appropriate institutional structures are set up to promote cooperation and high level dialogue on enabling policies to complement actions on the ground;
- To ensure the most cost effective approach to green house gas reductions in energy conversion schemes meant to be financially viable, adequate and independent attention must be given to the process of consumption and capacity estimates;
- Actual demonstration sites, on the ground, are the best showcase to incite replication by other actors;
- The coupling of pellet production and development of a local/national base market for pellet distribution and consumption to kick start the market transformation process is a strategy that can clearly facilitate the market transformation process and its continued development.
- In designing and implementing a market based initiative targeting development and operation in a market not yet mature such as biomass, adequate provisions must be made to ensure continued support through the first few years of plant and business operation, to allow for adjustments of the business model to the early bumps, and to support the move in the enterprise culture from one of development to one of management.
- In an initiative dealing with market transformation processes, it is crucial to pay adequate attention to continuous risk management, given the erratic nature of such processes.
- In order to provide reliable data on CO_2 emission reductions for GEF projects, adequate baseline and monitoring and reporting systems must be systematized.

Recommendations

For UNDP in the future in Slovakia and in the region

- Future initiatives in market transformation for biomass energy production and consumption in Slovakia should focus on the policy environment to create the enabling environment required at the national level.
- Other similar initiatives in the region should build on the lessons learned from this successful pilot experiment in Slovakia

To ensure a sustainable future for BIOMASA and sustained global environmental benefits from this successful project

- Subsidies for heat prices for BIOMASA members should be further reduced to help improve the cash flow situation at BIOMASA and thus improve its prospects for sustainability in view of the volatile market it operates in at the moment.
- Further efforts should be encouraged to promote pellet boiler grid connection from the BIOMASA association members to raise the efficiency of the installed boilers and raise revenues from heat production at BIOMASA and therefore assist in loan repayment. UNDP could play a role in linking up with BIOMASA and with individual municipalities to try to leverage EU structural funds for such connections;
- UNDP should look at the possibility of assisting BIOMASA, perhaps via other partners, in setting up an emergency line of credit to help it weather wide fluctuations in the price for pellets in its first few years of full operation, so that it capitalize on seasonal price fluctuations rather than be a victim of them.
- In parallel to these other measures, special attention should be paid to identifying the most cost-effective way of expanding BIOMASA pellet storage capacity which is at present impeding efficient production at the Central Processing Unit.

1 INTRODUCTION

1.1 PURPOSE OF THE EVALUATION

This final independent evaluation is conducted in accordance with and support to UNDP/GEF Monitoring and Evaluation Policy at the project level which has two overarching objectives [1]:

- promote accountability for the achievement of GEF objectives through the assessment of results, effectiveness, processes and performance of the partners involved in GEF activities. GEF results will be monitored and evaluated for their contribution to global environmental benefits; and
- promote learning, feedback and knowledge sharing on results and lessons learned among the GEF and its partners, as basis for decision-making on policies, strategies, program management, and projects and to improve knowledge and performance.

The objective of the Evaluation is to assess the achievement of project objective, the affecting factors, the broader project impact and the contribution to the general goal/strategy, and the project partnership strategy.

The Evaluation is intended to assess the relevance, performance and success of the project. It looks at signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global and national environmental goals.

The Final Evaluation also identifies/documents lessons learned and makes recommendations that project partners and stakeholders might use to improve the design and implementation of other related projects and programs.

This Evaluation of the UNDP/GEF Project is initiated by UNDP as the GEF Implementing Agency. It aims to provide managers (at the Ministry of Environment, BIOMASA Association, UNDP-Slovakia Project Office and UNDP-GEF levels) with strategy and policy options for more effectively and efficiently design and implement projects, for sustainability of the project's results and for replicating the results. It also provides the basis for learning and accountability for managers and stakeholders.

1.2 KEY ISSUES TO BE ADDRESSED AND STRUCTURE OF THE EVALUATION

As outlined in the Terms of Reference, the Evaluation focuses on the following aspects:

- Project design and its relevance in relation to:
  a) *Development priorities* at the national level;
  b) *Stakeholders* – assess if the specific needs were met;
  c) *Country ownership / driven ness* – participation and commitments of government, local authorities, public services, utilities, residents;
  d) *UNDP mission to promote sustainable human development* by assisting the country to build its capacities in the focal area of environmental protection and management;

- Performance - look at the progress that has been made by the project relative to the achievement of its objective and outcomes;
  a) *Effectiveness* - extent to which the project has achieved its objectives and the desired outcomes,

[1] see http://thegef.org/MonitoringandEvaluation/MEPoliciesProcedures/mepoliciesprocedures.html for more details.

and the overall contribution of the project to national strategic objectives;

b) *Efficiency* - assess efficiency against overall impact of the project for better projection of achievements and benefits resulting from project resources, including an assessment of the different implementation modalities and the cost effectiveness of the utilization of GEF resources and actual co-financing for the achievement of project results;

c) *Timeliness* of results,

- Management arrangements focused on project implementation:
  a) *General implementation and management* - evaluate the adequacy of the project, implementation structure, including the effectiveness of the Project Steering Committee, partnership strategy and stakeholder involvement from the aspect of compliance to UNDP/GEF requirements and also from the perspective of "good practice model" that could be used for replication
  b) *Financial accountability* – extent to which the sound financial management has been an integral part of achieving project results, with particular reference to adequate reporting, identification of problems and adjustment of activities, budgets and inputs
     - *Monitoring and evaluation on project level* – assess the adoption of the monitoring and evaluation system during the project implementation, and its internalization by competent authorities and service providers after the completion of the project; focusing to relevance of the performance indicators

- Overall success of the project with regard to the following criteria:
  a) *Impact* - assessment of the results with reference to the development objectives of the project and the achievement of global environmental goals, positive or negative, intended or unintended changes brought about by the project intervention, (number of households benefiting, number of areas with the new technology in place, level of sensitization and awareness about the technology; any change at the policy level that contributes to sustainability of the tested model, impact in private/ public and/ or at individual levels);
  e) *Global environmental benefits* - reductions in carbon dioxide emissions and other green house emissions.
  b) *Sustainability* - assessment of the prospects for benefits/activities continuing after the end of the project, *static sustainability* which refers to the continuous flow of the same benefits to the same target groups; *dynamic sustainability* use and/or adaptation of the projects' results by original target groups and/or other target groups;
  c) *Contribution to capacity development* - extent to which the project has empowered target groups and have made possible for the government and local institutions (municipalities) to use the positive experiences; ownership of projects' results;
  d) *Replication* – analysis of replication potential of the project positive results in country and in the region, outlining of possible funding sources; replication to date without direct intervention of the project;
  e) *Synergies* with other similar projects, funded by the government or other donors.

The Evaluation Report presents the reduction of CO_2 emissions. The consultant also evaluated/ validated the financial viability and the savings of the investments made by this project. He tried, in as much as possible, to confirm and quantify cost reductions of users by switching to biomass. He also briefly analyzed the profitability of the pelleting system, and the prospects for sustainability; i.e. future orders and price.

Special attention was paid to the impact of the project to the Slovak biomass market in relation to sustainable use of biomass for heating and hot water preparation. The Evaluation Report presents recommendations for further development of pellet market in Slovakia to increase the share of pellets sold in Slovakia.

For future development support in the region, the evaluation also presents an assessment of the support model applied in the project, its implications for the long-term impact and sustainability of the project results.

The Evaluation Report concludes with recommendations and lessons of broader applicability for follow-up and future support of UNDP and/or the Government, highlighting the best and worst practices in addressing issues relating to the evaluation scope.

Accordingly, the structure of the report reflects this. After presenting the methodology for this evaluation in the section below, the report then moves on to present the project and its development context to situate the analysis that follows in the subsequent section around issues of relevance, efficiency, effectiveness, impacts and sustainability that encompass all the themes covered above. The report then concludes with sections presenting the main lessons learned and recommendations for future actions.

2 METHODOLOGY

The following overall methodology was used by the evaluation team to conduct this impact assessment:

A. Preliminary documentation review
The evaluator initiated the mandate with a preliminary review of documentation identified in conjunction with UNDP/GEF and the Project team. This contributed to the thorough preparation of the evaluation field work. For a complete bibliography of documents reviewed, please see Annex II.

B. Logistical arrangements for field missions
After review of the documentation, the evaluator identified a list of key interviews, focus groups and sites to be visited so that on that basis, a detailed mission plan could be set up by UNDP/GEF and the project team. Special efforts were made to meet with all key stakeholder groups and provide for a triangulation of findings and validation during the field mission. Project stakeholders were targeted, including both project implementers and beneficiaries. Mrs. Dagmar Bohunicka from BIOMASA helped in identifying the key individuals to meet those triangulation needs. She also helped with the identification of relevant stakeholders, in getting access to relevant studies and data and in setting up meetings and visits to saw dust producers, boiler rooms and beneficiary institutions. A complete list of stakeholders met for the assessment is found in Annex III.

C. Field mission
The evaluator undertook a 5-day mission to Slovakia to proceed with:

- Interviews with key informants
These interviews constituted the primary tool for qualitative data collection. The evaluator interviewed all key informants from various stakeholder groups such as key government representatives from Bratislava, mayors from various municipalities visited, relevant BIOMASA employees, boiler room operators, and institutional representatives from the various organizations that benefited from the project (municipalities, schools and hospitals in particular). As just mentioned, a list of stakeholders interviewed is found in Annex III.

- Focus Group Study with end-beneficiaries
In order to collect data on and from some primary beneficiaries of the project, the evaluator planned

for interviews with local community leaders and institutional representatives as just mentioned, but also complemented this with short focus groups with end beneficiaries, in particular school children, in order to collect detailed qualitative data to help ascertain the current state of affairs. Focus groups were undertaken in 2 schools. Some 30 children (boys and girls) were met. The focus groups were meant to allow for a verification and triangulation of findings from other sources.

- Updated Documentation
While in Slovakia, the evaluator collected additional documentation, including some feasibility reports, statistical analyses, financial information, evaluative documents on biomass, and information on policies and laws, that could not be made available before.

D. Data Analysis
At this stage, the evaluation team compiled and analyzed all data collected. Data triangulation was achieved through multiple data sources, which allowed for verification and support of the findings presented. In addition to a descriptive assessment, all key evaluation criteria are rated using the following divisions: Highly Satisfactory, Satisfactory, Marginally Satisfactory, Unsatisfactory with an explanation of the rating.

E. Reporting
This report represents the final version of the final evaluation report and integrates, as relevant, comments raised by the UNDP/GEF and the project team on the draft version of the report during the review process, with the aim of providing a valid factual picture and a consequent assessment of the project performance.

3 THE PROJECT AND ITS DEVELOPMENT CONTEXT

3.1 PROJECT CONTEXT[2]

General
Slovakia, a Central European country covering an area of 49,034 square kilometers, has a population of 5.4 million. The Zilina and Trencin Regions, where the project is focused, lie in the northwest part of the country, and covers 6,788 + 4,502 square kilometers (23 % of Slovakia's area). 52 % of the region is densely forested, as compared with 40% forest density for the entire country. At the time of project approval, more than 2,000 sawmills, forestry companies, and wood processing firms in the Zilina and Trencin regions produced over 200,000 tons of biomass residuals each year. The project was designed to use these wood residuals to heat schools and other public buildings

The economy of the Zilina region is based mostly on industry, construction, and agriculture. More than 68,000 Slovaks work in sectors that include machinery, metal processing, electronics, wood processing, textiles, chemicals, paper and cellulose, and foodstuffs. The production of cellulose, paper, and paper products is very significant.

At the time of project approval, of the 314 industrial companies in the Zilina region, 232 were private (74 %), 15 cooperative (5 %), 19 state (6 %), 4 municipal (1 %), 12 foreign (4 %), and 32 international private ownership (10 %).

Energy demand in the Zilina region, with the exception of electricity and energy production from domestic wood sources and other renewable resources, is covered by imported fuel. In 1999, energy consumption in the Zilina region totaled 77,005 TJ (13 %) of the energy consumption in the Slovak Republic. The Zilina region relies on solid fuels such as coal to meet more than 23 % of this need.

[2] Info from this section on context was summarized from the Project Document, pages 4-6

Renewable sources are largely untapped: the region has 5 co-generation units, 35 hydropower stations and 2 biomass-fired boiler systems. Solar energy is used only rarely.

Central heating systems consume 38 % of the energy in the region. The supply of heat is provided both by centralized systems from sources with a capacity of at least 6 MWh and by smaller, local heating sources. The 44 schools and other public buildings that are to be involved in the project currently consume annually a total of 6,150 tons of coal/coke for heating, and produce a corresponding 9,369 tons of CO_2.

Slovakia produces approximately 0.2 % of global GHG emissions (1998 Slovak production of CO_2 totaled 45 million tons in 1998). Slovakia ranks as one of the countries with the highest amount of CO_2 emissions per capita, at about 8 tons per year. GHG emissions in Slovakia peaked in the late 1980s and then dropped by 25 % from 1990 to 1994. However, emissions have remained at a relatively constant level since 1995. CO_2 emission totaled 44.7 million tons in 1998, and 63 % of this amount was produced by the combustion of fossil fuels (e.g. 35 million tons from heat and power production). Total emissions produced in the Zilina region for the year 1997 are listed in Table 1. Air pollution (a significant source of which is the combustion of fossil fuels used in the sectors of energy production, industry, and transportation) remains a major issue in Slovakia.

Table 1: 1997 Emissions in the Zilina Region [3]

Emissions	Thousand tons
Particulates	4.9
CO_2	5,814.0
SO_2	16.0
NO	5.6
CO	19.4

In Slovakia, at the time of project approval, the wood waste residue market was considered as largely undeveloped, but with great potential. For instance, in the Zilina and Trencin regions alone, approximately 200,000 tons of wood waste residues were available and only 25 % of wood waste was used. The wood waste (sawdust) was either used in agricultural companies, made into local briquettes, or dumped. This project intended to develop the wood waste market through conversion of wood across Northwest Slovakia. Overall, it was expected to be possible to use 18,000 tons of this sawdust for wood pellet production annually (representing 9 % of all wood waste residues in the area). Since there was an abundance of raw material, the project was not expected to require any increased timber harvesting. Wood pellets were preferred over woodchips for this project, because pellets are both easy to transport and to use, and the moisture content can be effectively controlled.

Barriers to the establishment of a market for biomass energy

Although the project has evidently reaped environmental, economical, and other local benefits derived from the use of biomass, its implementation has been a fairly slow process, attributable to institutional, financial and information awareness barriers.

1. *Institutional Barriers:* In Slovakia, at the time of project approval, the public and state sectors were undergoing in a transitional process of reform. The aim of this reform being to shift the jurisdiction from each ministry to its respective municipal office, focusing mostly on the educational and health sectors. However, the process of transformation had been very slow, thereby causing a lack of communication and cooperation between the different ministries and the municipal offices (most of which are included in the project). There remain, at the time of project approval, many bureaucratic

[3] Source: Regional Office Zilina, Environmental Department, 1997.

problems, including those concerning matters of jurisdictional authority.

2. *Financial Barriers:* In Slovakia, at the time of project approval, the use of biomass was discouraged, because the state maintained a relatively low price for natural gas, and this remained true at the time of this evaluation. The price of new types of fuel, for example, biomass, (the price includes all production and operational costs), cannot compete with the price of natural gas, because it is paid in part by the state.

Biomass technology for heating is also very expensive, because there are too few producers in the local market and little information about the possible sources of financing. In addition, municipalities and other communities hesitate to apply for commercial credits because of their weak financial status. There is also little support from the local commercial financing institutions.

3. *Information/Awareness Barriers:* At the time of project approval, according to the project proponents, the biggest problem was the lack of interest on the part of state and public authorities, due to the information (about technologies) and awareness barriers, which led to an unwarranted prejudice toward the use of biomass. The potential end users did not have many possibilities to be informed about the costs, benefits, and environmental impacts due to the lack of available literature on the subject. Because the use of biomass as an energy source was not supported and promoted, it was not sufficiently understood that the demand-side management investments would decrease operational costs and overall consumption.

All the above-mentioned reasons were directly connected with the low awareness of local potential investors for the biomass projects, according to project proponents at the time of submission of the project proposal.

3.2 PROBLEMS THAT THE PROJECT SEEK TO ADDRESS

The aim of the Project was to create, in Northwest Slovakia, a sustainable market of biomass energy for heat generation, by addressing institutional, financial, informational market barriers.

It was hoped that, with the dissemination of information, the Project would eventually serve as a model to be used in other regions of Slovakia, as well as in the Czech Republic, Poland and other CEE countries.[4]

3.3 PROJECT START AND ITS DURATION

The project implemented through UNDP and titled *Reducing Greenhouse Gas Emissions through the Use of Biomass Energy in Northwest Slovakia,* had a planned start of January 2003 and lasted 4 years.[5] Work on the project actually started on 1st June 2003.[6] The project was operationally closed on 31 December 2006.[7]

3.4 IMMEDIATE AND DEVELOPMENT OBJECTIVES OF THE PROJECT

The objective of this UNDP/GEF medium size project was to reduce greenhouse gas emissions through promoting the adoption of renewable energy sources, specifically biomass.

The project supported the creation of a sustainable market of biomass energy for heat generation in Northwest Slovakia. The Project focused on:

[4] Prodoc. page 1
[5] UNDP. Project document. 10 march 2000. Page 1.
[6] Auditor's report. Project number: SLO/01/G 35: Reducing Greenhouse Gas Emissions through the Use of Biomass Energy in Northwest Slovakia. 2003. page 6.
[7] UNDP/GEF. Final Project Implementation Report. APR/PIR 2007. page 1

(4) construction of a Central Processing Unit (CPU) for wood pellet production from wood waste residues;
(5) reconstruction of the 44 boiler rooms in schools and public buildings; and,
(6) replacement of the existing coal/coke boilers with pellet boilers, in order to provide a replicable, economically viable and environmentally friendly source of heat.

3.5 MAIN STAKEHOLDERS

Key stakeholders under this project included: The Ministry of Environment and the BIOMASA Association (which is essentially an association of municipalities). Funding and financing were provided through UNDP/GEF, the EC Life Programme, KKA, The Ministry of Environment, as well as Dexia banka Slovensko, a.s.

The direct beneficiaries of the project were the municipalities, which are the owners of the schools and public buildings to which heating is provided. Ultimate beneficiaries included municipal populations, hospital patient and school children. Other key stakeholders included the saw dust producers on the supply end of the spectrum.

3.6 RESULTS EXPECTED

As listed in the project LFA in the project document, the expected results included the following:

The global environmental objectives were:

- The reduction of Greenhouse Gas emissions
- The reduction of fossil fuel consumption

The immediate objectives were:

- To establish a sustainable wood pellet market in the region by constructing a Central processing Unit (CPU) for wood-pellet production, a transport system for wood-waste residue supply and pellet delivery, and a sufficiently large customer base to ensure adequate cash flow.
- To provide a replicable, economically viable, and environmentally friendly source of heat in 44 schools and public buildings by replacing existing coal/coke boilers with wood-pellet fired boilers
- To contribute to the increasing of the use of biomass as a fuel source for heating, in order to increase the share of the renewable sources in Slovakia energy consumption

Short terms results/outputs included:

- Preparation activities for reduction of the technical barriers are completed
- Central Processing Unit with the annual production 12 000 tons of wood pellets is constructed and started operation
- 44 boilers installed and heating systems in operation
- Operations and safety training provided for key-on-site personnel
- Information campaign to increase the use of biomass as an energy source developed and disseminated.[8]

[8] UNDP/GEF. Project document. Annex 1.

4 FINDINGS AND CONCLUSIONS

This section presents the results of the evaluation and is structured following the five internationally recognized OECD/DAC evaluation criteria, namely: relevance, efficiency, effectiveness, impacts and sustainability.

4.1 RELEVANCE

Country ownership/Drive ness

In Slovakia, the Kyoto Protocol was signed on February 26, 1999 and the government approved its ratification in January 2002. Under Kyoto, Slovakia has agreed to reduce its aggregate emission of all six greenhouse gases by 8% from the level of the 1990 base year during the first commitment period from 2008 to 2012. Slovakia is thus prepared to fulfill the Kyoto Protocol obligation concerning GHG emissions mitigation. However, this is primarily because of the extensive decrease in national economic activity rather than as a result of environmental policy. Emissions of CO2 per capita per year are decreasing but they still amount to approximately twice the worldwide average.

Slovakia's energy policy was first approved in 2000 and dealt only marginally with renewable energy sources (RES). It mentioned in particular the need to increase RES on the primary energy sources consumption as one of its strategic aims. While the medium term for share of RES on the primary energy sources consumption was set at 4 % in 2005 (the share in 2000 was 1,6 %).

In 2003 the Government approved the base frame for renewable energy sources development. The first indicative goal defined in the agreement with the EU was that 31 % of the total gross electricity consumption in the year 2010 should come from renewable energy sources. This target was then downscaled in the Slovak Energy policy in 2006 to 19 %. As the share of green electricity in Slovakia is very dependent on the production through large hydro plants, the Strategy for increased use of renewable energy sources in Slovakia, ratified at the end of 2006, also defines the goals without large hydro plants. According to the strategy, 4 % of the electricity produced in 2010 (1 240 GWh) and 7 % in 2015 will have to come from biomass, biogas, wind and small hydro-power plants. To give a sense of magnitude, the electricity production from these sources in 2004 was only 290 GWh. Targets for electricity from biomass were stated at 410 GWh for 2010 and 650 GWh for 2015.

More recently, the new government in place in Slovakia, with an emphasis on socially responsible development, has made a clear commitment to keep the price of natural gas low. While this may have a number of developmental benefits, it is a source of significant constraints when it comes to promoting market transformation towards alternative renewable energy sources. Electricity prices in Slovakia are still regulated by the state. Compulsory purchase of electricity from renewable energy sources is not defined by act, but independent producers of green-electricity have in principle the priority right for delivery and distribution of electricity. The minimum feed-in-tariffs for electricity from renewables were introduced only in 2006. They are guaranteed only for one year by decree of the regulatory office, leaving little comfort for long term planning and investment. The minimum prices differ for individual renewable energy sources and the year of installation. The decree for 2007 sets the tariffs higher by 2,5 to 70 % in comparison with 2006. The highest growth of prices is for small plants generating electricity from biogas (113 Euro/MWh), for electricity from biomass co-combustion it is 67 Euro/MWh and 83,1 Euro/MWh for biomass from energy plantations. A longer period for tariff guarantees is not planned to be set by act, the new amendment of the energy regulation should set the obligation of the regulatory office to prepare the 7 years strategy for regulation of the green electricity prices.

The latest development on the policy front can be witnessed through the new Energy Policy approved in 2006 – the estimations of renewable energy sources utilization for electricity and heat production, as well as in transport in 2010 are 53,7 PJ, which is about 6,7 % of gross domestic energy

consumption. For 2020 the expected share is estimated to 12 % of gross domestic energy consumption.

To implement this policy, the Strategy for increased use of renewable energy sources approved by the Government in April 2007, includes a new financial support program for households, which is expected to be introduced in the fall of 2007, along with more detailed requirements, including some basic subsidies for household conversion, however, the largest share of the subsidies will be targeted at solar conversion. However, already, little support is to be expected for biomass development in that respect. Indeed, at the time of putting together this final evaluation report, it had been confirmed that in 2008, the budget for the planned grants for biomass boilers and solar panels for households were not approved by the government, as it is not considered as the government's priority for next year.

One of greatest changes during the project life related to the establishment of the EU structural funds. Indeed, installation of small biomass and solar technologies in public sector and entrepreneurs (not households) might also be supported through Structural funds – several Operational Programs (in public sector grants up to 95 % of investment and for private sector about 60 %). Detail provisions for 2007 – 2013 will be specified during the fall of 2007, after closed negotiation with European Commission.

Other subsidy programs for renewable energy conversion are also in development, in particular through an EBRD sponsored program with banks. Detailed requirements are under preparation.[9]

In conclusion, at the time the project was designed and approved, little existed in Slovakia in terms of actual actions at the policy and strategic level in favor of biomass market development. The project was in effect a demonstration pilot, which received significant government support considering the limited resources available for renewable energy conversion and development at the time. While accession to the EU has been a driving force towards putting renewable energy issues on the political map, the expectations have in fact been downscaled in that respect since 2000, and only limited action has taken place to create the basic conditions to allow the development of a larger, sustainable pellet and biomass market in Slovakia. This development is in particular constrained by other social and pro-growth aspects on the current political agenda, limiting the competitiveness of alternatives where a natural gas grid is available.

That being said, since the projection inception, when municipalities had limited access to financing - therefore building the case for an association of municipalities such as BIOMASA as an organizing mechanism - alternatives have now emerged through the structural funds for direct access to capital investments by individual municipalities. This might open other avenues for pellet market development.

Given all the above, it is the evaluator's assessment that **country ownership/drive-ness was marginally satisfactory** for this project.

HS	S	MS	U	N/A
		X		

UNDP mission to promote sustainable human development

The project, through its design, clearly has contributed to the development of capacities in Slovakia

[9] Extracted from Policy and strategy update provided by BIOMASA project management, 2007

for environmental protection, focusing on the development of the capacities of BIOMASA and its members to manage and help transform the market for biomass energy. However, in view of the developments at the national level, the project could perhaps have done more to build capacity in policy making and strategic planning in the central government. This is not a reflection on the performance of BIOMASA and its members (which have actively participated and continue to participate to consultations processes with the government to further the biomass agenda) but rather a reflection on what one can now see as a design gap in this initiative. For instance, a separate policy dialogue component at the national level could have helped build the enabling environment for further market transformation. This was confirmed by various interviewees in this evaluation process as the most significant remaining constraint to biomass market expansion in Slovakia.

Stakeholders' needs and participation

The evaluator's interviews with various stakeholders and site visits have confirmed that the project and the work of BIOMASA have indeed been instrumental in meeting key needs of the member municipalities and their populations. Indeed, in the communities visited, many heating installation were outdated with low efficiency prior to the project actions. They were a source of unstable heat supply and pollution. The fact that capital costs were heavily subsidized went a long way towards meeting these needs for capital investments and creating at the same time a base market from which BIOMASA and the pellet market could evolve.

In terms of local ownership and driven-ness, the Evaluator's discussion with various stakeholders involved in the project confirms what was to be expected given the project implementation arrangements. The municipalities clearly owned this project idea and championed its implementation with BIOMASA and still appreciate, today, the sustained benefits from this involvement, which could be witnessed through site visits and focus groups with users. However, now that capital investments have been made by the project, this commitment from the municipalities is being challenged, at least for some members. Indeed, the review of the project has brought to light the need to make a more efficient use of the new heating capacities installed. In a number of municipalities, as we will discuss later, the required capacity was overestimated (in particular either because of parallel energy efficiency measures implemented or lower than anticipated connections to the heating grid in the municipality). The municipalities must therefore expand their demand for heat to meet their commitments to BIOMASA and this requires in many cases expanding their grid to other buildings. But this is a slow process, dependent on limited subsidies and municipal finance, facing competing priorities. This lower than expected demand for heat (as we will discuss in a later section), is in turn putting pressure on the financial viability of BIOMASA.

The review of the project achievements, as well as the discussions with various stakeholders (municipalities, users, steering committee members, etc) in the course of this evaluation have confirmed that this project has actively, and continue to actively involve the beneficiaries in the development and management of the base market for pellet created by this initiative. Numerous information and awareness raising sessions were held to acquaint the participants and users to the potential and benefits of biomass use for heating. In addition, one must outline the extensive work done by BIOMASA to increase awareness about the biomass alternative and technologies amongst producers and users. Indeed, BIOMASA organized more than 40 seminars during the project duration, 3 annual conferences (involving 570 participants), did pro presentation in 11 international conferences abroad and 7 conferences in Slovakia, 9 international seminars/workshops and 9 national and regional seminars/workshops. In total, it reached out to more than 3000 people through these events and through daily consultancies, excursions and the development and distribution of promotional material.[10]

[10] APR 2007, page 15.

By its very structure and its decision making process (which is sometimes cumbersome as acknowledged by the stakeholders themselves), BIOMASA is in fact committed and accountable to carry on with this process. For all these reasons, **stakeholder participation is rated as satisfactory**

HS	S	MS	U	N/A
	X			

Replication approach

The BIOMASA initiative provides insight into a number lessons with respect to associative and publicly led management of pellet and heat production. On several occasions in the course of this evaluation, the complex nature of BIOMASA as an organization was noted, be it from an awareness raising, decision-making, management or financial perspective, with different stakeholders involved in this initiative, each with a crucial role to play. However, since this project and BIOMASA were set up, the institutional and socio-economic reality in Slovakia has evolved. Municipalities, at the time of project design, could not directly and individually access funding and lending for infrastructure projects. With the advent of structural funds and the recognition of the municipal structure in the decentralization process, and association of municipalities would provide little advantages today for individual municipalities in Slovakia and is therefore not an easily replicable model.

What is clear however, is that BIOMASA was meant to demonstrate the advantages and potential of biomass use in Slovakia and elsewhere in the region and that, it has succeeded in doing so. This will be discussed further in a later section of this report.

Analysis of LFA and project logic

A review of the LFA confirms that the use made of it is adequate. The project logic and strategy is evident and straightforward. The indicators are clear and SMART. However, in retrospect has as already mentioned, in order to establish a sustainable wood pellet market, the project might have benefited from a policy dialogue component to work on enabling environment conditions require for the emergence of such a market, namely the right government policy incentives.

Conclusion on overall Proposed Implementation Approach in project formulation

In view of the analysis provided above, it is the evaluator's assessment that **the proposed implementation approach for this project was satisfactory**

HS	S	MS	U	N/A
	X			

4.2 EFFICIENCY

UNDP comparative advantage

One of UNDP's key comparative advantage in moving ahead with this project was its strong momentum and potential for regional cross-fertilization through the linkages with the other biomass projects it was supporting in Central and Eastern Europe, namely: The *Integrated Approach to Wood Waste Combustion for Heat Production Project* in Poland, The Project on *Removing Barriers to the Increased Use of Biomass as an Energy Source* in Slovania; The *Biomass Energy for Heating and Hot Water Supply project* in Belarus, and in Latvia, the project on *Economic and Cost-Effective use of Wood Waste for Municipal Heating*

Systems. In addition, UNDP's regional office, with Climate Change and management expertise was located close by to the project site, a situation that had the potential to benefit the project.

Linkages between project and other interventions within the sector

In addition to these regional linkages which were exploited by the project through attendance to regional events in particular (e.g. UNDP/GEF Lessons Exchange Biomass Workshop in Bratislava and Heating and Hot Water Portfolio of the UNDP/GEF: Strategic Directions" in February 2004[11]). And by UNDP/GEF through the commissioning in 2007 of a Thematic Study on *Opportunities for Biomass Energy Programmes – Experiences and Lessons Learned by UNDP in Europe and the CIS*[12], the project benefited in particular from direct linkages with other donor initiatives through the extensive co-funding set up for this project. Indeed, and as we will expand on in a later section of this report, after Project Document signature, the project received a financial contribution from the EU Programme LIFE III , as well a s from the Environment and Austrian Environmental fund managed by Kommunal kredit Public Consulting.

Management arrangements

In terms of management set up and oversight, the Ministry of Environment was the Executing Agency for this project. The Executing agency appointed a National Project Director (NPD). The Project Implementing Agency was the BIOMASA Association, which is an association of 19 municipalities, Kosice Selfgoverning Region, 2 health centres, 2 professional schools and 1 NGO in the region.

The Project Steering Committee was composed of NPD – Executing Agency, GEF OFP, Representative of BIOMASA Association, Project Manager, representatives of Slovak Energy Agency, Dexia banka Slovensko, a.s., and UNDP Regional Center (RC) Bratislava. The Project Steering Committee was the main decision-making body of the project.

An advisory committee was also established, in order to provide outside advice and guidance to the project. The Advisory committee was composed of representatives of the following institutions: Ministry of Environment, BIOMASA Association, UNDP RC Bratislava, Dexia Banka Slovensko, a.s., Slovak Environment Agency, Slovak Energy Agency, Ministry of Construction and Regional Development, Ministry of Education, Ministry of Health, Regional Energy Management Agency, technical University in Zvolen, University in Zilina, Trencin Selfgovernmental Region, Kosice Self governmental Region and DEPA. The Project was also regularly monitored by BIOMASA member meetings. The Project's organigram is in Annex I, in annex to the TORs.

Overall, from the review of literature and interviews with members of the Steering Committee and advisory board, it is the assessment of the evaluator that the structure functioned well. It allowed steering the project and making corrective actions as required. Both formal and informal meetings of the two structures were held regularly. After project end, the management board of BIOMASA continues to oversee the operations of BIOMASA and make decisions on actual priorities.

Actual implementation approach

The geographical scope of the project was the Northwest Slovakia, Žilina and Trencin Regions, but some boiler rooms sites were also in Eastern Slovakia. With the BIOMASA member, Kosice Self-

[11] UNDP. Annual Project report for UNDP/GEF Projects 2004.. page 9.

[12] For details on the study results which draw from the different project experiences in the region see: Ballard-Tremeer, Grant. *Opportunities for Biomass Energy Programmes – Experiences & Lessons Learned by UNDP in Europe and the CIS*. London. 6 March 2007.

governmental Region, the project was enlarged also to the East Slovakia, with a great potential for biomass heating development. (See map provided in section on effectiveness below for details on site locations). The BIOMASA office and CPU were set up in Zilina, in proximity to both the raw material (saw dust) supplier market and the local client base and was therefore a cost-efficient choice from a transportation perspective.

Given the complex funding and management structure of the project (built on numerous partnerships), management of this project turned out to be quite extensive from the perspective of BIOMASA. In addition, the project start up phase took longer than expected. The main reasons for delay being the unclear and changing administrative procedures, the long approval processes with both UNDP and the Ministry of Environment at the beginning of the project, the process of evaluation and accreditation of suppliers.[13]

In terms of management tools, it is the evaluator's assessment that the logical framework for this project was well developed and provided a solid basis for management and reporting by result. The LFA was used consistently during project implementation and for reporting purposes.

The management and implementation structure of this project, by its vary nature, relied heavily on partnership arrangements, both institutional (as already noted, BIOMASA itself is a partnership arrangement between different public institutions), and market based through the establishment of a strong client-based approach, focussed on service quality, reliability and timeliness. This could be confirmed through the evaluation mission through interviews with a sample of both raw material suppliers and the heat consumers. Supply and service contracts were put in place with both raw material providers, pellet and heat consumers, and with technology providers for the maintenance of equipment.

In view of the analysis above, it is the evaluator's assessment that the **actual implementation approach during implementation was satisfactory**

HS	S	MS	U	N/A
	X			

Financial Planning

A review of audits and financial reporting points out to overall sound financial reporting and management. Four annual budget revisions were necessary in 2003, 2005, 2006 and 2007, essentially to reflect the rephasing of unspent funds from previous years. [14] Audits followed international audits standards and UNDP prescribed procedures.[15] Table 2 below summarizes the overall project planned versus actual costs.

Table 2 : Planned vs Actual Budget (for project duration)

Name of Partner or Contributor (including the Private Sector)	Nature of Contributor[16]	Amount used in Project Preparation (PDF A, B)	Amount committed in Project Document[17]	Additional amounts committed after Project	Total Disbursement at Project end

[13] UNDP. APR for UNDP/GEF Projects, 2004. page 3.

[14] See Annual Budget Revisions 2003, 2005, 2006 and 2007.

[15] Auditor's report. UNDP. Project number: SLO/01/G35. 2003.

[16] Specify if: UN Agency, other Multilateral, Bilateral Donor, Regional Development Bank (RDB), National Government, Local Government, NGO, Private Sector, Other.

[17] Committed amounts are those shown in the approved Project Document. These may be zero

				Document finalization[11]	
GEF Contribution	GEF	0,02m	0,97m		0,99m
Cash Cofinancing – UNDP Managed					
UNDP (TRAC)	UN Agency				
Cash Cofinancing – Partner Managed			**3,23m**	**2,59m**	**5,82m**
Ministry of Environment SR	National government		0,96m		0,96m
EU Program LIFE Environment	Multilateral			1,2m	1,2m
Austrian Env. Fund through KKA	Bilateral donor			0,76m	0,76m
Dexia banka Slovensko - loan	Private sector		2,27m	0,63m	2,9m
In-Kind Cofinancing			**4,29m**	**1,43m**	**3,44m**
BIOMASA members – municipalities, schools, health centers	Local governments, Others		0,71m	0,33m	1,14m
BIOMASA for operational costs for boiler rooms	NGO		3,58m	1m	2,30m*
Total Cofinancing			**7,52m**	**4,02m**	**9,26m**
Total for Project		**0,02m**	**8,49m**	**4,02m**	**10,25m**

Source: Compiled from Final PIR 2007; and, BIOMASA, Summary table on project co-financing. 11 November 2007
Note: *the difference in BIOMASA expected and actual operational costs is due to the fact that operational costs in the project document were actually estimated for 10 years of operation. At project closure, this has been adjusted to actual costs for the project duration period only.

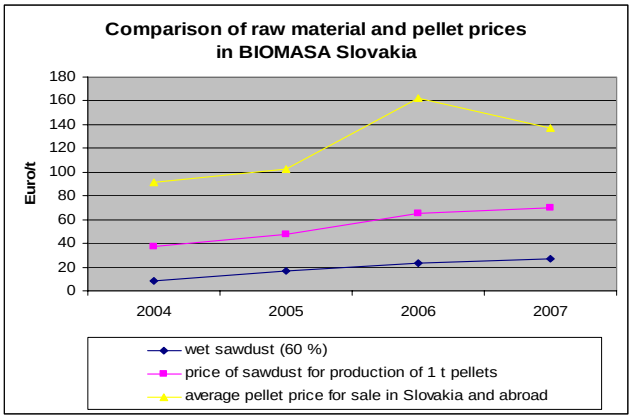
The three biggest challenges to financial planning for this project rested on: 1) the dramatic change in the price of the saw dust raw material; 2) The well known and extensive exchange rate fluctuation on the USD between 2000 and 2004, and 3)The higher than expected investment costs.

The graph below shows the most recent evolution of the pellet price over time compared to the price of saw dust. It clearly outlines an unexpected increase in the price of raw materials, affecting the bottom line of BIOMASA. Furthermore, at the time of project design, up to 2000, saw dust was in fact often considered a waste, at a near zero cost (and often a fertilizer used by local farmers)[18]. However, as has been confirmed through the evaluator's interviews with saw dust producers, the market for saw dust in Slovakia evolved rapidly after 2000, thanks to the increased demand from other new pellet producers in the region (Slovakia or Czech Republic) or from newly installed wood board manufacturers in the region.

Graph 1

in the case of new leveraged project partners.

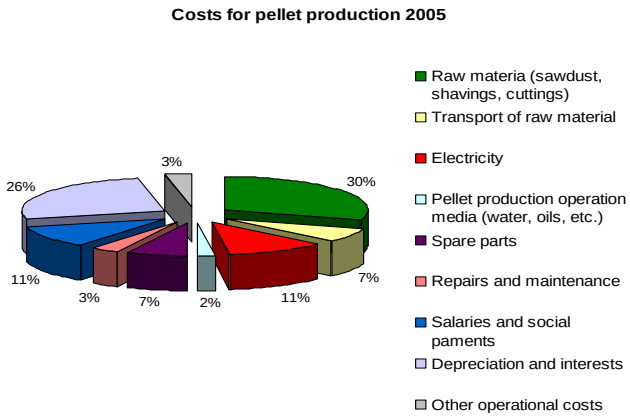
[18] Agency for Regional Development. Feasibility Analysis Summary. February 2001



Source: BIOMASA, 2007

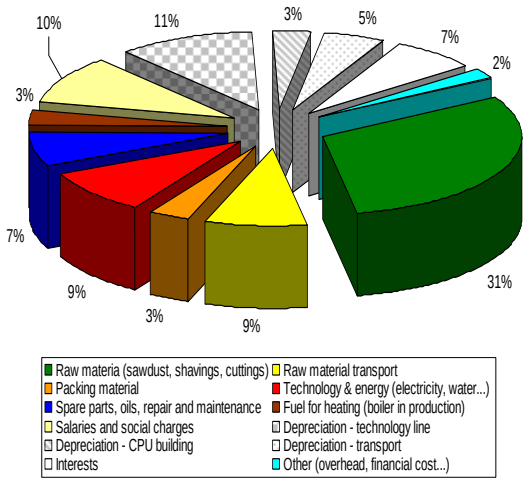
The two pie charts below show the cost structure for pellet production at BIOMASA for 2005 and 2006 and also point out to the significant proportion of that cost (30% or above) going to the purchase and handling of raw materials.

Graph 2: Costs for pellet production 2005



Source: BIOMASA 2007

Graph 3: Costs for pellet production 2006



Source: BIOMASA. 2007

In addition to raw material cost and exchange rate fluctuations, as mentioned, the other challenge related to the higher than expected investment costs at the plant, which were due in particular to unforeseen adjustments required in the plant design for instance the addition of a silo for storage and crusher for sawdust, equipment for addition of flour for better pellets consistency), the need to buy an additional lift for loading and off loading of production for distribution, as well as container truck for saw dust collection.[19]

At the design stage, the total project budget was set at 8,5 M USD, including 973.500 USD GEF funding. Originally, (in the Project Document) the financial sources were planned to be composed by GEF grant, a Ministry of Environment grant, a loan of Prva komunalna banka (later Dexia Banka Slovensko a.s.) and the resources of BIOMASA and its members.

At the end of the project though, the higher investment project costs and drop-out of GEF sources due to extreme exchange rates changes from the project planning phase to the end of its implementation, brought the total value of the project budget disbursed to over 12 M USD.

Indeed, after PD's signature, and after considerable efforts and time spent by the project manager to find complementary funding sources, the project received a financial contribution from the EU Program LIFE III - Environment and Austrian Environmental fund managed by Kommunalkredit Public Consulting (KKA). The bank loan was also increased.[20]

Each donor and financial institution covered different types of costs. KKA covered only part of the costs related to boiler rooms reconstruction (15%), EU LIFE covered 30 % of investment costs, non-investment, management and dissemination costs of BIOMASA, while the Loan from Dexia Bank was been used for investment in CPU and boiler rooms.

BIOMASA management has to be commanded for its persistence in the face of these unexpected changes in budgeting and its ability to attract other sources of fundings. This, in effect, has resulted in a bigger than expected leveraging effect from GEF resources, from a factor of 8.7 to a factor of 12.3 times the GEF initial investment.

[19] Interviews with BIOMASA staff and CPU site visit
[20] APRs 2004 and 005 and interviews with project management

One of the biggest treat to sustainability for the project at the moment resides in the ability of BIOMASA to sustain its cash flow amid depressed pellet prices. A summary review of the past three years of balance sheets from BIOMASA, in this respect, is instructive.

Table 3: Historical overview of BIOMASA annual balance sheet (2005-2007)

Balance sheets	FY 2005 (SKK)	FY 2006 (SKK)	FY2007 (planned SKK)
Annual Balance sheet – Pellet production	- 3 760 255.00	6 775 114.00	10 810 982.00
Annual Balance sheet – Heat production	147 305.00	- 2 873 356.00	- 7 321 915.00
Annual Balance sheet - Administrative costs	- 1 040 860.00	- 2 572 839.00	- 1 851 665.00
Overall balance sheet	**- 4 653 810.00**	**1 328 919.00**	**1 637 402.00**

One must keep in mind that the previsions for 2007 are made on the basis of an average price of 155.00 Euros/ton of pellets. The actual October 2007 export market price for pellets was at 115.00 Euros/ton, while the pellet price for direct distribution in the Slovakian market was 140.00 Euros/ton. Expectations at BIOMASA were that the pellet export price would go up towards the end of 2007 (as it normally does), pending a cold climate this winter…

This outlines the difficulty regarding the predictability of cash flow in a market not yet mature. Indeed, the pellet market is now rapidly developing in Slovakia and in the region, thanks at least in part to BIOMASA pilot experience and its catalytic effect. In such a new market, with a rather small client base, any significant new production capacity on the global market can provoke a depressing effect on the export market price. In recent years, additional capacity has been mushrooming, namely in Russia and China more recently, forcing export prices momentarily down. This has been compounded by a warm winter in 2006 which has further depressed the demand for pellet for the past year. With adequate cash flow, to weather such fluctuations, a producer would want to wait until the pellet price goes up again (within the year) and eventually over the years. However, BIOMASA does not have the cash flow (nor the storage capacity for that matter) to allow it to make the most of these price fluctuations. In addition, its heating price to members being subsidized by the pellet production operation (as can be clearly seen from the table above), its final production cost for pellets is actually higher than the competition. It thus has to sell for part of the year at below production cost to meet its cash flow needs to continue both pellet production and heat production operations. Needless to say, this is likely to further aggravate in the longer run the performance of BIOMASA and the cash flow situation of the association, limiting further potential to withstand other price fluctuations or unexpected capital investments required to keep production going (such as major production or transportation equipment break). This led, at the time of the mission, to a situation where BIOMASA had to enter into negotiation with Dexia Bank to postpone by 6 months its next payment on debt principal.

In view of this reality, it is clear that the project would have benefited from the set up of a parallel cash flow mechanism to account for raw material and finished product price fluctuations, not only over the years, but also intra-annually. This analysis was confirmed through the evaluator's separate discussion with Dexia Bank in Bratislava, which highlighted the tight cash flow model that was underpinning from the beginning the BIOMASA financing model. It is the opinion of the evaluator that this could have been noted at the design stage as a potential weakness of the model to be managed through appropriate alternative credit mechanisms

Execution and implementation modalities

The choice of BIOMASA as an implementer has proven wise. Although it is a complex structure to manage which has required a lot of sustained awareness raising, communication and negotiation efforts, with a wide membership embedding different and sometimes slightly diverging interests, it has succeeded in bringing together the critical mass required to impact on the market development in Slovakia. At the time of project development, municipalities had to come together through an associative format such as BIOMASA to benefit from access to loans and banking in a weak institutional environment. Today though, such a choice of implementation vehicle would likely not materialize as municipalities are now recognized and can access banking and EU structural funding directly. Therefore, in today's context, the BIOMASA model would not be replicable in the Slovakian context as its advantages would most likely not outweigh its management complexities.

Management by the UNDP country office

UNDP management was involved throughout the project life through the Steering Committee and earlier on through the advisory committee. UNDP staff visited the project mostly as part of official delegations. No particular management issues were noted by project proponents with respect to UNDP's handling of management. In fact, communication with UNDP, after a slow and time consuming start, appeared to be fluid and stable, and this good performance can perhaps in part be explained by the proximity of the regional office in Bratislava which might have shielded the project team from usual management issues and delays witnessed in other projects in the region.

Monitoring and evaluation and adaptive management

With respect to monitoring and evaluation, it is the evaluator's assessment that it was overall satisfactory. Good reporting is available on the project. The mid-term evaluation was performed timely by an independent consultant in October 2005[21]. Progress reports as well as Annual Project reviews were available throughout the implementation period and show reasonably well the progress of the project.[22] A Tripartite review was conducted in October 2005 and a final APR in June 2007. The review of these documents, the recommendations made and risk identified and management actions taken, all indicate that M&E was used through this project as a feedback mechanism in management, leading to adaptive action.[23] In particular, risks were identified with respect to approval and regulatory risks, equipment maintenance, availability of raw material and changes in the market for wood pellets, change in interest for boiler room reconstruction, and counter measures taken. The project clearly demonstrated its ability for adaptive management, thanks to a dynamic project team at BIOMASA.

HS	S	MS	U	N/A
	X			

4.3 EFFECTIVENESS

Under this section, the evaluator reports on the extent to which the project outcomes were attained. A discussion of the assessment of the global environmental objectives will be treated under section 4.4 below dealing with impacts, as those objectives relate essentially to global environmental impacts.

Overall, it is clear that the project has been successful in achieving all its expected outcomes

[21] Scheuer, Horst D. Mid-term Evaluation of the UNDP/GEF project "Reducing Greenhouse Gas Emissions through the Use of Biomass Energy in Northwest Slovakia" (SLO/01/G35 – PIMS / 1945). UNDP. October 2005

[22] See bibliography for complete list of progress reports and APRs.

[23] See bibliography for a complete and detailed list of M&E reports reviewed.

Expected Outcome no. 1: A *sustainable wood pellet market in the region through the construction of a Central processing Unit (CPU) for wood-pellet production, a transport system for wood-waste residue supply and pellet delivery, and a sufficiently large customer base to ensure adequate cash flow.*

The main indicators to measure progress towards this outcome were:

a)*Reutilization of wood waste directly from the region.*
On this, the target level was set at 18 000 tons annually and as of June 2007, the project was using 20 000 tons of wood waste from the region. Interviews with a sample of local sawdust producers confirmed the on-going saw dust reutilization and the general quality of the service provided by BIOMASA to suppliers.

b)The CPU is constructed, under operation and produces pellets.
The target was set at 12 000 tons annually. At the time of the evaluation, expectations were that full capacity would be reached in 2007, with a reported tonnage of 11 420 as of June 2007.

BIOMASA Offices and Central Processing Unit

c)Long-term contracts for sales of heat, pellets and woodwaste residue purchase
As of June 2007, BIOMASA confirms about 30 contracts with sawdust suppliers, 25 contracts for heat production and about 30 regular purchasers of pellets. This was verified by the evaluator through an interview sample.

Some elements of the system in place for pellet delivery

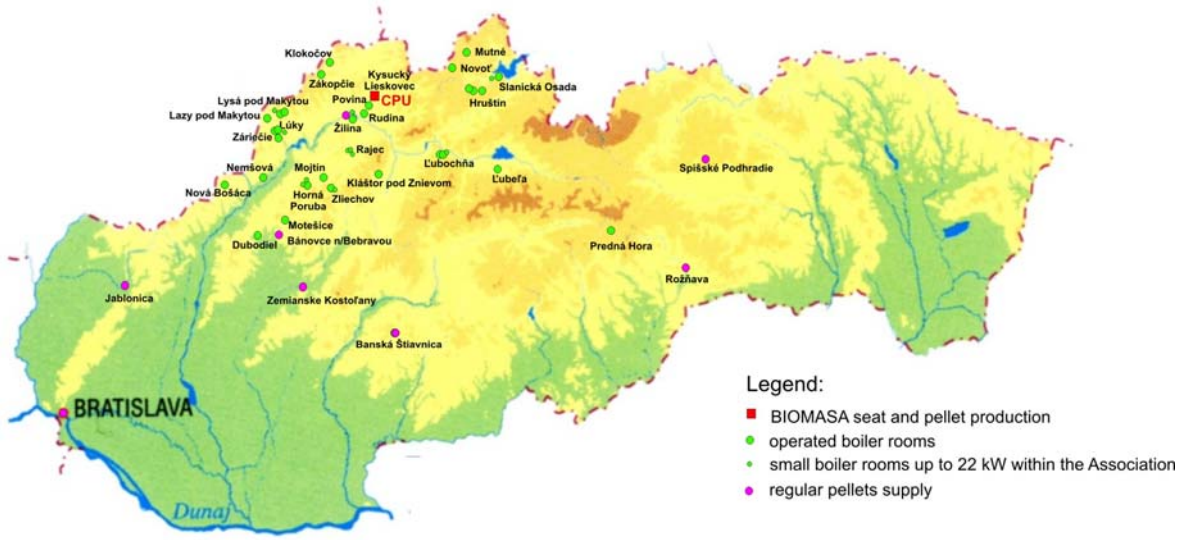
d)New job creation:
A target of 16 jobs was set under this indicator. As of June 2007, BIOMASA reported 33 jobs created. At the time of the evaluation, a few positions were vacant in BIOMASA. The evolution of the job market in Slovakia to full employment, along with the scarcity of skills and increased salaries was mentioned by the management of BIOMASA as a constant constraint in HR management.

Expected Outcome number 2: *Provision of a replicable, economically viable, and environmentally friendly source of heat in 44 schools and public buildings by replacing existing coal/coke boilers with wood-pellet fired boilers*

The indicators to measure progress towards the achievement of this outcome were:

a)Installation of modern, high quality technology combusting wood pellets
The target was set for the installation of 44 high quality pellet technology. As of June 2007, BIOMASA reported the installation of 44 new pellet automatic boilers, which together replaced 100 obsolete boilers in 54 old coal/coke boilers. The evaluator validated this through a sample of site visits to different boilers (see annex for of list of sites visited for details)

Map 1: Location of pellet boiler rooms installed and managed by BIOMASA



Source: BIOMASA. November 2007

b)Operation of pellet boilers and delivery of heat to final consumers
As of June 2007, BIOMASA reported that 44 new pellet boilers were in operation. Selected site visits by the evaluator also allowed validating the claim of on-going operation.

One of the boilers installed in Slanicka Osada

c)Energy efficiency measures and improvements in heating systems and heated buildings

No clear targets were set at this level. As of June 2007, the project reported that energy efficiency measures, modernization and regulations of heating systems were realized in the majority (80%) of the boiler rooms and in connected buildings (regulating valves, windows, doors, and radiators replacement, additional thermal outside insulation). New heating operational regulations were introduced. All this leading to better heating quality in buildings. This was confirmed by the evaluator through selected site visits. Heating quality was confirmed through interviews with selected users (hospitals, schools, municipal offices) and two focus groups with school children.

One of the public buildings heated in Fatra Lubochna

d)Decreased operational heating costs

The target for decreased operational heating cost for users was set at 5%. The evaluation did not allow for a thorough review of all sites receiving heating services. Nor could this have been done in the absence of clear baseline data to build from in many cases. However, interviews with managers at most of the sites visited confirmed decreased costs beyond the 5% target. In cases where heating costs were similar, other benefits were also mentioned such as reduced maintenance and associated staffing costs, reduced pollution, increased quality of heating and stable heat supply. BIOMASA also reported decreased where compilations in comparison with a baseline could be made. Eight sites were reported all showing a decreased cost ranging from 7% to 45%. For instance, in Hrustin primary school, a 30% drop in costs was noted. The municipal office and culture hall in the same municipality noted a 13% decrease. In Nedu Lubochna, a 28% reduction in costs was registered. Again in Lubochna, the apartment building and glass house registered a 34% decrease.[24]

Expected Outcome number 3: *Contribution to the increasing use of biomass as a fuel source for heating, in order to increase the share of the renewable sources in Slovakia energy consumption*

The indicators to measure progress towards achievement of this last project outcome included:

a)Meeting the wood pellet demand in Slovakia.

The target for this indicator was set at 15 new consumers of pellets. The last project APR (June 2007) reported 25 new purchasers of heat from biomass within the project, 12 new consumers in pilot small boilers installed within the project. In addition, it reported that a number of new businesses, public buildings and households converted to pellets and were regularly supplied by BIOMASA, such as the church school in Banska Stiavnica, Roznava school, the church in Spisska Kapitula, several houses and companies in Zilina, Trnava, Trencin and Spis regions, etc. Data provided to the evaluator from BIOMASA on consumers indeed confirms this. In fact, in addition to the 12 new consumers in pilot small boilers installed within the project, new regular purchasers of pellets outside the project amount to at least 44.[25] (see also the Map1 – regular pellets supply)

[24] BIOMASA. Examples of Costs reductions in some of BIOMASA Consumers, September 2007.

[25] BIOMASA. *List of regular pellet consumers and converted boilers.* November 2007

b)Increased demand on wood technology among small scale consumers – households
The target for this indicator was set at a minimum of 2 new pellet consumers replacing coal boilers. The last project PIR (June 2007) confirmed 12 new consumers replaced their fossil boilers within the project plus about 20 more according to BIOMASA information. This was confirmed by the evaluator's review of BIOMASA internal data and client lists.[26]

Additional information on result achievement
In addition to all these project achievements, the evaluator was in a position to collect other information suggesting that BIOMASA has contributed to the creation of the emerging market for biomass energy and wood pellets production in Slovakia. For instance, at the time of project start, BIOMASA was the only pellet producer in Slovakia, today, emulating this example, other producers have increased the production capacity in the local market. Indeed, according to a survey done by BIOMASA in 2007, the total production capacity in Slovakia is estimated at 72 000 tons per year for 2006, with actual production for that year standing at 45 000 tons per year, while the pellet consumption in Slovakia was estimated at 9 000 tons per year, suggesting the market for pellet production was developing slowly locally but still mainly an export market. Main new local producers beside BIOMASA include AVS Plus which operates 2 to 3 plants in the different regions, Drevomax, PFA Lozorno, AMICO DREVO, Oravsky Podzamok, JUGI and PALIENERGY.[27]

Interviews with Dexia Bank and with a technology provider, as well as with some municipalities, have also highlighted the expanded market for biomass heat production in Slovakia. For instance, according to our interviews with one of BIOMASA original technology provider, the number of competing providers for Biomass boilers in the Slovak market has more or less quintupled since 2003, while business for this particular provider has continued to diversify, half of his biomass sales focusing on pellets and half on wood chips. Municipalities and public sector institutions now represent only 30% of its client base in Slovakia, the majority of the customers now being entrepreneurs and individual household users. Dexia also supports the view from its own lending operations that the market has "developed dramatically" since 2003, including at the municipal level. At the time of Biomasa, it had do Biomass loans in its portfolio. It now has 7 projects in its portfolio in support of biomass production, mostly co-financed with structural funds. Typically, a Dexia loan for the municipal sector for boiler conversion will stand at about 2 million euros. However, an emerging trend points towards more diversification into wood chips rather than pellets as combustible, due in large part to the relative price increase for pellets in recent years and to the consequent lower operational (fuels) costs at such scales. This is also confirmed by Dexia's portfolio of loans which is more typically for woodchip boilers at the moment. However, it is still too early to say whether the choice of pellet rather than woodchip production for Biomasa was or wasn't the optimal choice. The development of woodchip market in Slovakia is also new and could face its own sets of challenges in the years to come, one of them being the unproven suitability of the heat intensity from woodchip boilers in the Slovak climate context. The jury is still out in this respect.

The project clearly played a key role in raising the profile of biomass energy in Slovakia and in the region and certainly did not lack recognition for its achievement in the regional market. It was awarded the 2004 Climate Star, category special prize for cooperation, a European award for local climate protection activities.[28] In 2007, it won the 2007 Energy Globe Award, which is considered as today's most prestigious and acknowledged environmental award, honoring achievements in energy saving and broadcast by international TV stations.[29] The project was also the subject of various press

[26] Ibid.
[27] BIOMASA. *Slovakia: Pellet Production Data.* 2007
[28] *Pellets for Slovakia* in Unwelt & Gemeinde. Climate special 2005, page 23.
[29] See www.energyglobe.info *Life project ILUBE recognized at the 2007 Energy Globe Award Presentation.* 24 April 2007.

articles in local and international new papers.[30]

In view of the analysis above and the data available on the achievement of global environmental objectives, the evaluator's assesses **as highly satisfactory the attainment of the project objectives**

HS	S	MS	U	N/A
X				

4.4 IMPACTS

Global environmental benefits

The project global environmental objectives were to reduce GHG emissions and to promote the adoption of renewable energy sources. The two indicators to measure progress towards these objectives were:

a*)The CO2 emission reductions.*

The target for this indicator was set at 20 000 tons annually. As of June 2007, the last APR reports that this target has been met. Following the draft report for this evaluation, BIOMASA management performed and provided further updated CO_2 calculations for actual boiler conversion savings, CH_4 emission savings from sawdust reused in pellet production, as well as emission savings from the sale of pellets for both the local and export markets. A review of these data and calculations confirms that savings for 2006 amount to 20020 tons and thus that the target has been reached.

Table 4: CO2 annual savings from BIOMASA project

Source of CO_2 savings	Amount of CO_2 savings (tons)
Heat production (according to data on original fuel consumed by old boilers before conversion)	9418
Sales of pellets (local slovak market and export)	4504
Use of sawdust (CH_4 savings starting in second year of production)	6098
Total annual emission reductions from the project	***20020***

Source: BIOMASA, November 2007

b)The reduction of fossil fuel consumption through boiler reconstruction.

The target for this indicator was set at 6000 tons annually. The last APR (June 2007) reports that 8 000 tons of fossil fuel consumption have been replaced by consumption of 4500 tons of pellets in reconstructed boilers. This is also confirmed by the data provided by BIOMASA for the new CO_2 saving calculations.

Other impacts

In addition to its global environmental impacts, BIOMASA also reported that the project contributed to the strengthening of the local economy as it has generated numerous contracts for local companies (raw material, construction, technology, services), new biomass fuels producers as well as new pellets consumers. It also contributed to the expansion of business and supporting services for renewable energy and energy efficiency, strengthening companies assembling and projecting RES (biomass) systems through experiences gained in the project implementation. For instance, interviews with technology providers confirmed that their work with BIOMASA in Slovakia has allowed them to

[30] See for instance: Durianova, Marta. *The biomass alternative: Slovakia's forests have great potential as an ecologically sustainable energy source* in The Sloavak Spectator. March 2005. page 8. and ILUBE: Creating a biomass market in Slovakia in Life and Energy page 12.

clearly establish themselves in this market in Slovakia. One of them noted that at project start fully 80% of his turnover in the biomass trade was with BIOMASA. Today, he can operate at the same level, but without any business from BIOMASA. By the same token, the project also assisted in the development of the basis for accession of boilers/ stoves producers and sellers in the Slovak market due to increased demand.

As already stated, the project has also created 33 direct jobs and it considerably contributed to the regional development through its investment activities.[31]

4.5 SUSTAINABILITY

Contribution to upgrading skills of the national staff

By the time of this evaluation, in September 2007, a full nine months after the closing date of this project, BIOMASA was still fully functional thanks to its strong leadership. Its management board was still regularly meeting. Furthermore, BIOMASA is now in a position to operate at full capacity, with adequate supply contracts for raw material. BIOMASA was very active in government dialogue on renewable energy policy and strategies, and remained an active player in global and European networks (e.g. through its actions with Energy intelligence and the EU research agenda under FP6)[32]. Interviews and site visits confirmed that the municipal members were satisfied with the services provided, as were the saw dust producers. The boilers room visited operated well. Maintenance was still under warranty with no major technical challenges. Operators were well trained and certified to operate boilers and comply with regular maintenance, with no apparent sign of attrition in service staffing. An interview with a technology provider confirmed the high quality of the maintenance and operation work done for boiler equipments operated by BIOMASA, translating in much less maintenance problems for BIOMASA operated boilers than with their average client.

In terms of market transformation for biomass energy, interviews with various stakeholders confirmed that other municipalities were showing interest in biomass market and that the biomass market was expanding, confirming BIOMASA catalytic role in this on-going market transformation process (interest in the biomass market is not limited to pellet but also includes a growing interest in woodchips in particular). The emergence of other pellet producers on the Slovak market (as already detailed) and of growing interest from enterprises and households for biomass energy was also a clear indication of a changing market. The interview with one of the technology providers also pointed out to a growing market for their biomass technology in Slovakia and in the region, thanks to a large extent to BIOMASA catalytic effect.

However, some problems, as noted in earlier sections of this report, continue to threaten the sustainability of the laudable results attained so far by BIOMASA, namely: its weak cash flow situation, limiting its ability to withstand the vagaries of a transformed but not yet mature market for wood pellets. This in turn, was leading to adverse impacts on staffing and operations at HQ. Indeed, two staff positions were essentially unfilled at the time of the evaluation: financial advisor and logistics coordinator for transport. These tasks were now cumulated by BIOMASA General Manager, keeping him away from other strategic management tasks, in the absence of qualified candidates and adequate financial resources to attract such candidates and a tightening employment market in Slovakia.

As earlier mentioned, two key factors explaining this difficult cash flow situation relate to: 1) the difficulties inherent to a market which is not yet mature, facing wide fluctuations in market prices for

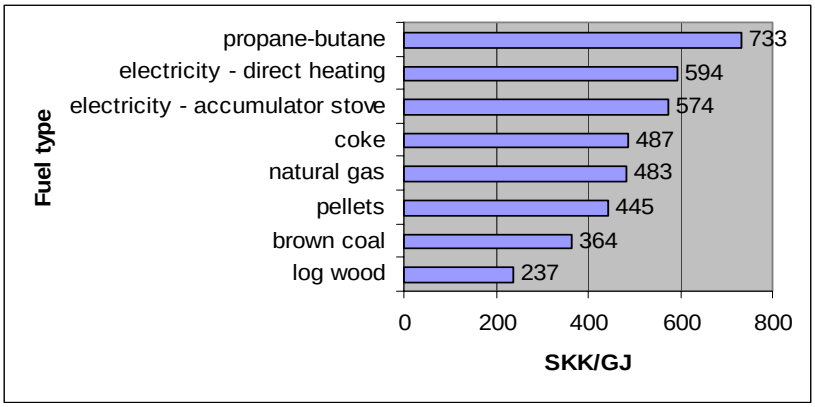
[31] Extracted from ToRs

[32] Site visit and interviews with BIOMASA management and staff

pellets; and, 2)the fact that the BIOMASA model involves a subsidized price for heat production for members of the association.

Regarding this first factor, the slow pace of increase in the demand for pellets in Slovakia, according to a number of stakeholders interviewed, is largely influenced by the legal environment, promoting a subsidized price for natural gas. The graph below exemplifies this, ranking the price of energy for pellet with other major energy sources in Slovakia. When capital costs for conversions are included in those numbers, present users of natural gas have little financial incentive to switch to pellets.

Graph 4: Costs for home heating with yearly consumption of 100 GJ (price in March 07)



Source: BIOMASA, 2007
Note: the prices above only include operation costs and fuel costs, but not capital costs (technology)

Meanwhile, comparison with other countries clearly show the potential to expand the renewable energy sources market in Slovakia

Table 5: Renewable energy in selected countries

Share of renewable energy sources of domestic consumption of primary energy sources (RES/DCPES) ad share of renewable energy sources of gross domestic electricity consumption (RES/GDEC)

	RES/DCPES		RES/GDEC	
Countries	**2005 (or other year)**	**Plan (until 2010)**	**2005 (or other year)**	**Plan (until 2010)**
Slovakia	3%	6%	16%(2001)	19%
Czech Republic	2%	6%	3.5%	8%
Poland	3.6%	7.5%	1.6% (1997)	7.5%
Hungary	3.6%	7.2%	0.5%	3.6%
Estonia	11% (2002)	13%	0.8% (2003)	5.1%
Slovenia	8.8% (2001)	*	29.9% (1997)	33.6%

**figure should get close to the EU average, which was set at 12 percent*
Source: The Slovak Spectator. Business Focus. 21 March 2005, page 9.

The other factor affecting BIOMASA cash flow, the subsidized price for heat paid by BIOMASA members is best exemplified using data from the table and graph below. The market for BIOMASA services corresponds to the line in yellow in the table: *Boiler houses in the consuming premises.* In 2007,

despite annual increases from 2003 to 2007 (see graph below) the price charged by BIOMASA to its members was 426SKK/GJ (without VAT), this still well below the actual market price. Leaving room for adjustment to help ensure financial sustainability of the BIOMASA operation.

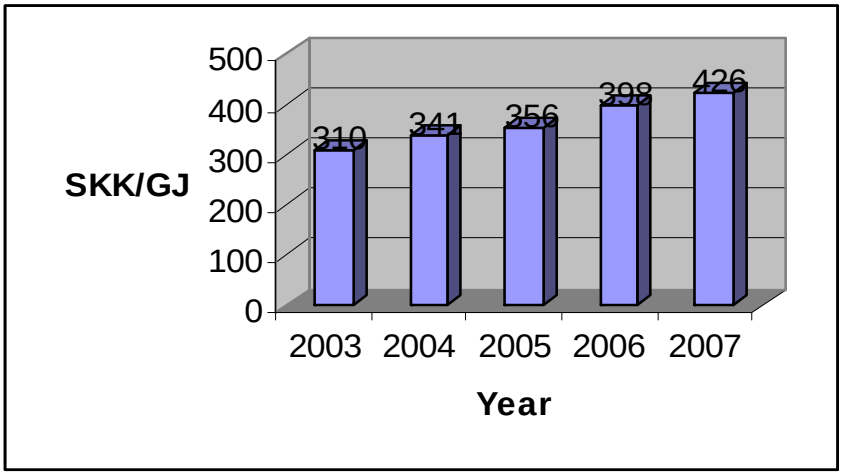
Table 6: The heat price development since 2003 in Slovakia

	Price excl. VAT in SKK/GJ						
Point of supply	**2003**	**2004**	**2005**	**01/2006**	**10/2006**	**2006**	**01/2007**
CHP Plants	**261**	**269**	**279**	**312**	**329**	**319**	**321**
Central Heat sources	**310**	**315**	**329**	**385**	**398**	**390**	**398**
Primary distribution system	**361**	**365**	**382**	**458**	**468**	**462**	**465**
Heat exchanger station	**412**	**421**	**442**	**495**	**509**	**495**	**527**
Secondary distribution system	**414**	**429**	**443**	**508**	**520**	**512**	**528**
Block boiler houses	**397**	**417**	**421**	**495**	**503**	**497**	**497**
Heat supply system	**403**	**423**	**452**	**528**	**543**	**531**	**540**
Boiler houses in the consuming premises	**387**	**382**	**438**	**533**	**546**	**541**	**562**
Prices for final consumers	**398**	**399**	**443**	**526**	**539**	**531**	**542**
Prices for final consumers with VAT	**454***	**475**	**527**	**626**	**641**	**632**	**645**

*** 14% VAT**

Source: BIOMASA Annual Report 2006

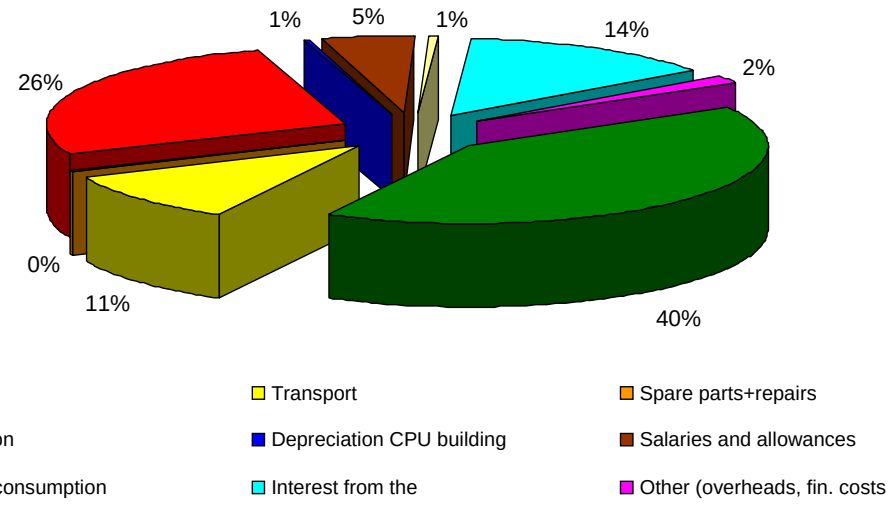
Graph 5: Evolution of heat price for BIOMASA member 2003-2007



Source: BIOMASA, 2007.

Furthermore, the current price charged for heat to BIOMASA members, is still well below BIOMASA heat production costs as described in detail below in Graph 6 and Table 7, suggesting there is room to further adjust this price and still offer a competitive solution for members.

Graph 6: Costs for heat production in 2006 for BIOMASA



Source: BIOMASA, November 2007

Table 7: Real costs for heat production in 2006

Item	Sk	Euro (37,5 Sk in 2006)	%
Fuel	14 447 833	385 275	41
Transport costs	3 753 776	100 100	11
Spare parts+repairs	129 417	3 451	0
Depreciation	9 319 882	248 530	26
Depreciation – CPU building (part)	186 453	4 972	1
Personnel costs and allovances	1 735 879	46 290	5
Electricity consumption	187 784	5 007	1
Interests	4 831 066	128 828	14
Other (overheads, fin. costs...)	635 195	16 938	2
Total	***35 227 285***	***939 391***	***100***

Amount of heat production GJ:	**58 066 GJ**
Costs for 1 GJ:	**607 Sk = 16,18 Euro**

Source: BIOMASA, November 2007

As can be seen above, the real costs for heat production for BIOMASA are quite high. This situation is in fact recognized by BIOMASA management, at the time of the evaluation mission, plans were being made to have a decision at the October BIOMASA board meeting to further increase the price

of heat to members by 10% as of January 2008.

Another factor that could clearly affect positively the cash flow situation would be an increased used of heat by members. Indeed, as mentioned before, the pellet boilers operate in most cases below capacity. A more efficient use of boilers would reduce the unit production cost of BIOMASA and positively affect the bottom line. However, the evaluator's interviews with institutional representatives and mayors, suggest that this increase in used capacity will take some years to materialize as it will essentially depend on the connection of additional buildings and facility to the boiler grids, which is capital intensive, in a context of scarce capital and competing priorities.

On the basis of the analysis provided above on sustainability, it is the evaluator's assessment that the project performance wit respect to **sustainability still has a way to go and is therefore rated as marginally satisfactory**

HS	S	MS	U	N/A
		X		

Overall Conclusion
Overall, the project performance was satisfactory and the initiative can be considered a success story by UNDP and GEF in bringing about market change in favor of biomass energy production and use in Slovakia.

The project was relevant to the priorities and challenges faced by Slovakia in energy production and in environmental management. However, in retrospect, the design of the project could have been more robust to include a separate high level policy dialogue component to ensure that adequate market incentives are in place at the national level to support the efforts in production and awareness raising by BIOMASA. Project management was generally efficient, and the significant efforts of the project team to manage a complex implementation set up with numerous partners and co-financiers must be commanded. In terms of resource use, nine months after project end, a number of boiler installations proved oversized in view of actual needs of members, despite BIOMASA efforts to avoid such a situation through its pilot phase resizing exercise. This tends to suggest that consumption estimates from members at the preparation stage were not as reliable as expected. This in turn, had a negative impact on cash flow management and the unit cost associated with the reduction of CO_2 emissions.

In terms of effectiveness, the project performed extremely well overall in achieving its expected results. Impacts in terms of CO_2 reduction are also notable as are some of the economic impacts generated by the BIOMASA operation. The project in fact catalyzed market transformation for biomass in Slovakia, not a small feat for a single intervention, and others are now following suit in the biomass market in the country. However the speeding up and scaling up of the market transformation process for biomass in Slovakia will largely be dependent in the years to come on the emergence of a more enabling policy environment for alternative energy sources to natural gas in Slovakia. In addition, to ensure that the results and global environmental impacts from the project are sustained through continued and financially viable operations at BIOMASA, and that pellet remains a credible energy source in the national market, special attention will have to be given to resolving the current cash flow situation of the association. Efforts are already underway but more will need to be done in that respect.

5 LESSONS LEARNED

In view of the analysis provided above, this evaluation process has brought forth the following lessons learned that can be applied to other GEF initiatives sharing some of the same objectives:

- When designing an initiative aimed at market transformation, plans must ensure that adequate resources and appropriate institutional structures are set up to promote cooperation and high level dialogue on enabling policies to complement actions on the ground;

- To ensure the most cost effective approach to green house gas reductions in energy conversion schemes meant to be financially viable, adequate and independent attention must be given to the process of consumption and capacity estimates;

- Actual demonstration sites, on the ground, are the best showcase to incite replication by other actors;

- The coupling of pellet production and development of a local/national base market for pellet distribution and consumption to kick start the market transformation process is a strategy that can clearly facilitate the market transformation process and its continued development.

- In designing and implementing a market based initiative targeting development and operation in a market not yet mature such as biomass, adequate provisions must be made to ensure continued support through the first few years of plant and business operation, to allow for adjustments of the business model to the early bumps, and to support the move in the enterprise culture from one of development to one of management.

- In an initiative dealing with market transformation processes, it is crucial to pay adequate attention to continuous risk management, given the erratic nature of such processes.

- In order to provide reliable data on CO_2 emission reductions for GEF projects, adequate baseline and monitoring and reporting systems must be systematized.

6 RECOMMENDATIONS

For UNDP in the future

- Future initiatives in market transformation for biomass energy production and consumption in Slovakia should focus on the policy environment to create the enabling environment required at the national level.
- Other similar initiatives in the region should build on the lessons learned from this successful pilot experiment in Slovakia

To ensure a sustainable future for BIOMASA and sustained global environmental benefits from this project

- Subsidies for heat prices for BIOMASA members should be further reduced to help improve the cash flow situation at BIOMASA and thus improve its prospects for sustainability in view of the volatile market it operates in at the moment.
- Further efforts should be encouraged to promote pellet boiler grid connection from the BIOMASA association members to raise the efficiency of the installed boilers and raise revenues from heat production at BIOMASA and therefore assist in loan repayment. UNDP could play a role in linking up with BIOMASA and with individual municipalities to try to leverage EU structural funds for such connections;
- UNDP should look at the possibility of assisting BIOMASA, perhaps via other partners, in

setting up an emergency line of credit to help it weather wide fluctuations in the price for pellets in its first few years of full operation, so that it capitalize on seasonal price fluctuations rather than be a victim of them.

- In parallel to these other measures, special attention should be paid to identifying the most cost-effective way of expanding BIOMASA pellet storage capacity which is at present impeding efficient production at the CPU.

ANNEX I – TORS

TERMS OF REFERENCE

for Project Final Evaluation
of UNDP/GEF Project

Project Title: **Reducing Greenhouse Gas Emissions through the Use of Biomass Energy in Northwest Slovakia**

Functional Title: Consultant for Independent Evaluation

Duration: Estimated **12 days** total working time over the period of:
15 July – 15 October 2007

Terms of Payment: Lump sum payable upon satisfactory completion and approval by UNDP of all deliverables, including the Evaluation report

Travel costs: The costs of in-country mission(s) of the consultant are to be included in the lump sum.

1. PURPOSE OF THE EVALUATION

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

a) promote accountability for the achievement of GEF objectives through the assessment of results, effectiveness, processes and performance of the partners involved in GEF activities. GEF results will be monitored and evaluated for their contribution to global environmental benefits; and
b) promote learning, feedback and knowledge sharing on results and lessons learned among the GEF and its partners, as basis for decision-making on policies, strategies, program management, and projects and to improve knowledge and performance.

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

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

The Final Evaluation is intended to assess the relevance, performance and success of the project. It looks at signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global and national environmental goals.

The Final Evaluation also identifies/documents lessons learned and makes recommendations that project partners and stakeholders might use to improve the design and implementation of other related projects and programs.

The Final Evaluation will feed into management and decision making processes of GEF, UNDP, Slovak Government and national stakeholders.

2. PROJECT DESCRIPTION

3.1.1.1.1 In years 2003 - 2006 UNDP implemented the GEF funded medium-sized project titled Reducing Greenhouse Gas Emissions through the Use of Biomass Energy in Northwest Slovakia.

The objective of the project was to reduce greenhouse gas emissions through promoting the adoption of renewable energy sources, specifically biomass.

The project supported the creation of a sustainable market of biomass energy for heat generation in Northwest Slovakia. The Project focused on:

(7) construction of a Central Processing Unit (CPU) for wood pellet production from wood waste residues;
(8) reconstruction of the 44 boiler rooms in schools and public buildings; and,
(9) replacement of the existing coal/coke boilers with pellet boilers, in order to provide a replicable, economically viable and environmentally friendly source of heat.

The most important factor and impulse for creation and development of market with wood pellets heating in Slovakia was the project of BIOMASA Association. The intention was not only to build up the pellet factory and export whole production, but to sell them in Slovakia with the aim to establish pellet market and to start pellet heating business as such in Slovakia. The first consumers for pellets were boiler rooms in schools and other public buildings reconstructed from fossil fuels also within the project. BIOMASA is also operating these boilers and sells the heat. In this way, the pellet production and consumption was integrated into one unit and the sufficient base of the first consumers has been created.

The project is also the first example of wood energy contracting project for public buildings implemented in Slovakia. It shows the way of a good choice for end-users in order to avoid initial investment costs, operational problems with the "new" fuel and no problems with heat supply.
Important part of the project was the introduction of new, competitive fuel to the fossil fuels in Slovakia and increasing the awareness in the field of alternative energy sources in Slovakia.

Implementing Agency, BIOMASA Association, in close cooperation with its members, other municipalities and project's donors gradually implemented all planned actions within the Project. The majority of activities were done by BIOMASA and its management, but they had to be supported by actions of municipalities and other buildings owners, where biomass boilers were installed. Their responsibilities were reconstruction works in boiler room buildings, dismantling existing system, preparation of building for technology installation (ensured by BIOMASA), some energy efficiency measures (as heating system regulation and reconstruction), grids and heat distribution system for each individual boiler room.

Project created the real market with wood pellets in Slovakia, promoted biomass and considerably contributed to development of biomass heating in Slovakia. Pellet production in 2006 reached 10 000 tons, plan for 2007 is the full production, 12 000 tons.

44 modern pellet automatic boilers (from 7 kW to 2,5 MW) with the total capacity of 13 MW replaced in total 100 obsolete inefficient boilers (with capacity of 29 MW) in 54 old coal/coke boiler rooms. In many buildings energy efficiency measures, modernization and regulations of heating systems were realized, new heating operational regulations were introduced and many beneficiaries noticed better heating quality in buildings (very welcomed especially in schools and kindergartens). It has also decreased heating costs of many end users.

The direct and indirect reduction of CO_2 is 20 000 tons annually. Project strengthened the local economics as it has created a lot of contracts with local companies (raw material, construction, technology, services), new biomass fuels producers as well as new pellets consumers. It is helping also on expansion of business and supporting services for renewable energy and energy efficiency, strengthening companies assembling and projecting RES (biomass) systems through experiences gained in the project implementation. It also developed basis for accession of boilers/ stoves producers and sellers to the Slovak market due to increased demand.

Project gives example of strong partnership building and cooperation of a wide range of participants (municipalities, NGOs, health institutions, state administration, etc.). The project has created 33 jobs and it considerably contributes to the regional development.

The designed total project budget was 8,5 M USD, including 973.500 USD GEF funding. Originally, (in project Document) the financial sources were planned to be composed by GEF grant, Ministry of Environment grant, loan of Prva komunalna banka (later Dexia banka Slovensko a.s.) and own sources of BIOMASA and its members. The costs covered by individual donors and financial were different, KKA covered only part of costs (15 %) related to boiler rooms reconstruction, LIFE covered 30 % of investment, non-investment, management and dissemination cost of BIOMASA, Loan of Dexia has been used for investment in CPU and boiler rooms.

After PD's signature the project received financial contribution from EU Program LIFE III - Environment and Austrian Environmental fund managed by Kommunalkredit Public Consulting. Also the bank loan increased.

At the end of the project the total budget disbursed will be over 12 M USD due to increased amount of municipal and private sector investment as well as new grants received. All of these additional sources covered the higher investment project costs and drop-out of GEF sources due to extreme exchange rates changes from the project planning phase to the end of its implementation.

The geographical scope of the project was the Northwest Slovakia, Žilina and Trencin Regions, but some boiler rooms sites were also in Eastern Slovakia. With the BIOMASA member, Kosice Self-governmental Region, the project has been enlarged also to the East Slovakia, with a great potential for biomass heating development. (List of project sites and Map of location are attached in Annex 4).

The direct beneficiaries of the project were the municipalities, which are the owners of the schools and public buildings.

The Ministry of Environment was the Executing Agency. The Executing agency appointed a National Project Director (NPD). The Project Implementing Agency was the BIOMASA Association, which is an association of 19 municipalities, Kosice Selfgoverning Region, 2 health centres, 2 professional

schools and 1 NGO in the region.

The Project Steering Committee was composed of NPD – Executing Agency, GEF OFP, Representative of BIOMASA Association, Project Manager, representatives of Slovak Energy Agency, Dexia banka Slovensko, a.s., and UNDP RC Bratislava. The Project Steering Committee was the main decision-making body of the project.

Except this, also Advisory committee was established, in order to provide outside advice and guidance of the project. The Advisory committee was composed of representatives of following institutions: Ministry of Environment, BIOMASA Association, UNDP Regional Center (RC) Bratislava, Dexia banka Slovensko, a.s., Slovak Environment Agency, Slovak Energy Agency, Ministry of Construction and Regional Development, Ministry of Education, Ministry of Health, Regional Energy Management Agency, technical University in Zvolen, University in Zilina, Trencin Selfgovernmental Region, Kosice Selfgovernmental Region and DEPA. The Project was also regularly monitored by BIOMASA member meetings.

The Project's organigram is in the Annex 4. Additional information can be found also at www.biomasa.sk.

3. EVALUATION AUDIENCE

This Final Evaluation of the UNDP/GEF Project is initiated by UNDP as the GEF Implementing Agency. It aims to provide managers (at the Ministry of Environment, BIOMASA Association, UNDP-Slovakia Project Office and UNDP-GEF levels) with strategy and policy options for more effectively and efficiently design and implement projects, for sustainability of the project's results and for replicating the results. It also provides the basis for learning and accountability for managers and stakeholders.

4. EVALUATION OBJECTIVES AND SCOPE

The objective of the Evaluation is to assess the achievement of project objective, the affecting factors, the broader project impact and the contribution to the general goal/strategy, and the project partnership strategy.

The Evaluation will focus on the following aspects:

- Project design and its relevance in relation to:
  a) *Development priorities* at the national level;
  b) *Stakeholders* – assess if the specific needs were met;
  c) *Country ownership / drivenness* – participation and commitments of government, local authorities, public services, utilities, residents;
  d) *UNDP mission to promote sustainable human development (SHD)* by assisting the country to build its capacities in the focal area of environmental protection and management;

- Performance - look at the progress that has been made by the project relative to the achievement of its objective and outcomes;
  d) *Effectiveness* - extent to which the project has achieved its objectives and the desired outcomes, and the overall contribution of the project to national strategic objectives;
  e) *Efficiency* - assess efficiency against overall impact of the project for better projection of achievements and benefits resulting from project resources, including an assessment of the different implementation modalities and the cost effectiveness of the utilisation of GEF resources and actual co-financing for the achievement of project results;
  f) *Timeliness* of results,

- Management arrangements focused on project implementation:
  c) *General implementation and management* - evaluate the adequacy of the project, implementation structure, including the effectiveness of the Project Steering Committee, partnership strategy and stakeholder involvement from the aspect of compliance to UNDP/GEF requirements and also from the perspective of "good practice model" that could be used for replication
  d) *Financial accountability* – extent to which the sound financial management has been an integral part of achieving project results, with particular reference to adequate reporting, identification of problems and adjustment of activities, budgets and inputs
  e) *Monitoring and evaluation on project level* – assess the adoption of the monitoring and evaluation system during the project implementation, and its internalization by competent authorities and service providers after the completion of the project; focusing to relevance of the performance indicators, that are:
     - Specific: The system captures the essence of the desired result by clearly and directly relating to achieving an objective and only that objective.
     - Measurable: The monitoring system and indicators are unambiguously specified so that all parties agree on what it covers and there are practical ways to measure it.
     - Achievable and Attributable: The system identifies what changes are anticipated as a result of the intervention and whether the result(s) are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.
     - Relevant and Realistic: The system establishes levels of performance that are likely to be achieved in a practical manner, and that reflect the expectations of stakeholders.
     - Time-bound, Timely, Trackable and Targeted: The system allows progress to be tracked in a cost-effective manner at desired frequency for a set period, with clear identification of particular stakeholders group to be impacted by the project.

- Overall success of the project with regard to the following criteria:
  f) *Impact* - assessment of the results with reference to the development objectives of the project and the achievement of global environmental goals, positive or negative, intended or unintended changes brought about by the project intervention, (number of households benefiting, number of areas with the new technology in place, level of sensitization and awareness about the technology; any change at the policy level that contributes to sustainability of the tested model, impact in private/ public and/ or at individual levels);
  e) *Global environmental benefits* - reductions in carbon dioxide emissions and other green house emissions.
  g) *Sustainability* - assessment of the prospects for benefits/activities continuing after the end of the project, *static sustainability* which refers to the continuous flow of the same benefits to the same target groups; *dynamic sustainability* use and/or adaptation of the projects' results by

original target groups and/or other target groups;

h) *Contribution to capacity development* - extent to which the project has empowered target groups and have made possible for the government and local institutions (municipalities) to use the positive experiences; ownership of projects' results;

i) *Replication* – analysis of replication potential of the project positive results in country and in the region, outlining of possible funding sources; replication to date without direct intervention of the project;

j) *Synergies* with other similar projects, funded by the government or other donors.

In addition to a descriptive assessment, all criteria should be rated using the following divisions: Highly Satisfactory, Satisfactory, Marginally Satisfactory, Unsatisfactory with an explanation of the rating.

Issues of special consideration:

The Evaluation Report will present the reduction of CO_2 emissions. Consultant should evaluate/ validate the financial viability and the savings of the investments made by this project. S/He shall confirm and quantify cost reductions of users by switching to biomass. S/He is also expected to analyze the profitability of the pelleting system, and the prospects for sustainability; ie future orders and price. The evaluation should be fully supported by financial and measurement data.

Special attention shall be paid to the impact of the project to the Slovak biomass market in relation to sustainable use of biomass for heating and hot water preparation. The Evaluation Report will present recommendations on all levels (national, regional, local) for further development of pellet market in Slovakia to increase the share of pellets sold in Slovakia.

For future development support in the region, UNDP is especially interested in the assessment of the support model applied in the project, its implications for the long-term impact and sustainability of the project results.

The Evaluation Report will present recommendations and lessons of broader applicability for follow-up and future support of UNDP and/or the Government, highlighting the best and worst practices in addressing issues relating to the evaluation scope.

5. EVALUATION METHODOLOGY

An outline of an evaluation approach is provided below; however it should be made clear that the evaluator is responsible for revising the approach as necessary. Any changes should be in-line with international criteria and professional norms and standards (as adopted by the UN Evaluation Group – Annex 3). They must be also cleared by UNDP before being applied by the evaluation team.

The evaluation must provide evidence-based information that is credible, reliable and useful. It must be easily understood by project partners and applicable to the remaining period of project duration.

The evaluation should provide as much gender disaggregated data as possible.

The evaluation will take place mainly in the field. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with the government counterparts, the members of the project team, the National Project Director from the Ministry of Environment, the partners and sub-contractors, and direct beneficiaries.

The evaluator is expected to consult all relevant sources of information, such as the project document, project reports – incl. Annual Reports, project budget revisions, progress reports, project files, national strategic and legal documents, and any other material that s/he may consider useful for evidence based assessment.

The evaluator is expected to use interviews as a means of collecting data on the relevance, performance and success of the project. S/He is also expected to visit the project sites.

The methodology to be used by the evaluation team should be presented in the report in detail. It shall include information on:

- Documentation reviewed;
- Interviews;
- Field visits;
- Questionnaires;
- Participatory techniques and other approaches for the gathering and analysis of data.

Although the mission should feel free to discuss with the authorities concerned, all matters relevant to its assignment, it is not authorized to make any commitment or statement on behalf of UNDP or GEF or the project management.

The Evaluator should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

6. DELIVERABLES

The output of the mission will be the Evaluation Report in English. The length of the Report should not exceed 30 pages in total (not including the annexes).

Initial draft of the Evaluation Report will be circulated for comments to UNDP, the National Project Director, and the Project Manager. After incorporation of comments, the Evaluation Report will be finalized. If any discrepancies have emerged between impressions and findings of the evaluation team and the aforementioned parties, these should be explained in an annex attached to the final report.

One mission to Slovakia to Kysukcý Lieskovec, the PCU site, and selected project sites in Žilina region will be conducted.

The Evaluation Report template is attached in Annex 1 of this TOR. The Evaluation Report will follow at minimum the GEF requirements (Annex 1a).

7. TIMING AND DURATION

The total duration of the evaluation will be **12 days** within the period of **15 July – 15 October 2007,** according to the following plan:

Preparation (home office – during period 15-31 July):
- Collection of and acquaintance with the project document and other relevant materials with information about the project;
- Familiarization with relevant policy framework in Slovakia;
- Development of methodological instruments for the evaluation;
- Set up the mission dates and detailed mission programme preparation in cooperation with the Project manager. The Project manager will organize the schedule of the mission and will arrange transportation to the consultant; will arrange for translation/interpretation when necessary
- Communication with the PMU to clarify matters

Mission to Slovakia (5 working days 1August – 10 September):
- briefing with the PMU
- visits to project site(s)
- meeting with the National Project Director and stakeholder groups

Elaboration of the draft report (home office - till 20 September):
- Additional desk review
- Completing of the draft report
- Presentation of draft report for comments and suggestions
- additional information and further clarification with UNDP, project management and project staff;

Elaboration of the final report (home office till 15 October):
- Incorporation of comments and additional findings into the draft report
- Finalization of the report

The draft Evaluation report shall be submitted to UNDP for review within 10 working days after the mission. UNDP and the stakeholders will submit comments and suggestions within 5 working days after receiving the draft.

The finalised Evaluation Report shall be submitted latest on 15 October 2007.

8. REQUIRED QUALIFICATION

- University degree in business, economics or energy/environment related issues;
- Recent experience with result-based management evaluation methodologies;
- Recent experience in evaluation of international donor driven projects;
- Recent experience in managing/developing biomass projects in CEE
- Extensive experience with bio-energy planning, biomass logistics
- Experience in developing feasibility studies and marketing plans in the field of bio-energy

- Work experience in relevant areas for at least 8 years;
- Conceptual thinking and analytical skills;
- Project evaluation experiences within United Nations system will be considered an asset;
- Excellent English communication skills;
- Computer literacy;

9 APPLICATION PROCESS

Applicants are requested to send in **electronic versions**:

1. current and complete C.V. in English with indication of the e-mail and phone contact
2. price offer indicating the itemized costs (daily fee and estimated travel costs) and the total cost of the assignment.

by **6 July 2007, 17.00** to:

Ms. Klára Tóthová
Environmental Officer
Country Support Team
UNDP, Europe and the CIS
Bratislava Regional Centre
Grosslingova 35
811 09 Bratislava
klara.tothova@undp.org

Due to the large number of applicants, UNDP regrets that it is unable to inform unsuccessful candidates about the outcome or status of the recruitment process.

UNDP is an equal opportunity employer and all qualified candidates are encouraged to apply.

10 ANNEXES

Annex 1	Evaluation Report template
Annex 1a	Evaluation Report: Sample Outline – Minimum GEF Requirements
Annex 1b	Explanation on Terminology Provided in the GEF Guidelines to Terminal Evaluations
Annex 2	Ethical Code of Conduct for UNDP Evaluations
Annex 3	UNEG Norms and Standards for Evaluation
Annex 4	List of pilot projects sites

3.2 ANNEX 1

3.3

3.4 *EVALUATION REPORT*

Description of the report

The evaluation report is the key product of the evaluation process. Its purpose is to provide a transparent basis for accountability for results, for decision-making on policies and programmes,, for learning, for drawing lessons and for improvement..

A good evaluation report must be guided by the criteria of utility, credibility, and relevance/appropriateness as defined below.

Utility: An evaluation report is useful when the report is:

- ♣ complete in providing information on the context for the evaluation to allow reader to decide on the value it will derive from the evaluation (i.e evaluability assessment, stakeholder involvement, evaluator or institutional credibility, alignment of evaluators with national institutions, bases for interpretation, budget, timing, national involvement and alignment).
- ♣ the presentation of the evaluation process and findings are completed and well structured to provide ease in accessing information needed for decision-making, for assessing how justified conclusions are based on the linkages among the parts of the report
- ♣ the recommendations are clear and actionable
- ♣ information is provided on expected plans for follow-through with the evaluation by key stakeholders

Credibility: An evaluation report is credible when there is professional rigor for objectivity, validity and reliability of the procedures and instruments used.

- ♣ evaluators are competent professionals and valid in the yes of the users/stakeholders
- ♣ there is accuracy and validity (programme content and contextual factors, instruments, information coverage/sampling, external validity or linkage with other development findings)
- ♣ there is reliability or consistency in the information provided
- ♣ the bases for making judgments are transparent and based on negotiated agreements

Relevance, appropriateness and added-value: A report is relevant, appropriate and adds value when information provided addressed a need and is not duplicative, addresses priority or strategic information needs, and is appropriate given institutional goals and filters, and that the conduct is aligned with national systems or lenses.

- ♣ the purpose and incentives for use are clear
- ♣ there is alignment with national and government demands
- ♣ harmonization and coherence within UN
- ♣ organizational lens: human development, human rights
- ♣ addresses organizational mandate
- ♣ advances knowledge or priorities for development (equity, capacity, cooperation and others) and global environmental benefits

The primary responsibility for preparing the evaluation report rests with the individual evaluator resp. leader of the evaluation team. Those who commission the evaluation and those who are actually

evaluated can also contribute with their inputs. Particularly, they should be involved in reviewing the draft report to check if there are any relevant factual errors or omissions, and to highlight any interpretation of the findings that they consider as incorrect. The evaluators should accept changes related to factual errors, but, in safeguarding the principle of independence, they should be free to draw their own conclusions from the findings.

To ensure compliance with the criteria noted, a quality assurance and enhancement system at country level needs to be established and made operational.

The following passage provides for each criterion, performance indicators which would provide the basis for assessing report quality in an objective and reliable manner.

3.5 EVALUATION REPORT QUALITY CRITERIA

1. Utility – Enhancing use and impact of information provided

1.1 The title page and opening pages provide key basic contextual information

- ♣ Title of the evaluation that includes a clear reference to the project / programme being evaluated
- ♣ Links to the evaluation plan (with information on strategic value, national involvement and alignment, timing, resources and financing)
- ♣ Links to UNDAF Outcomes and MYFF Goals
- ♣ Geographical coverage of the evaluation
- ♣ Name and organization of the evaluators and information in annex for assessment of competence and trustworthiness
- ♣ Name of the commissioning organization (e.g. UNDP country office X)
- ♣ Date when the evaluation report is completed
- ♣ Expected actions from the evaluation and dates for action
- ♣ Dates for stakeholder meetings and status of meetings
- ♣ Name of UNDP contact point for the evaluation (e.g. programme officer, evaluation specialist or focal point)

1.2 For a joint evaluation or for the evaluation of a joint programme, the roles and contributions of the different UN organizations or other partners, are clearly described. The report should describe who is involved, their roles and their contributions to the subject being evaluated, including:

- ♣ financial and in-kind contributions such as technical assistance, training and logistic support;
- ♣ participation and staff time;
- ♣ leadership advocacy and lobbying;

1.3 For a country-led joint evaluation, the framework for the leadership, governance, conduct, use and capacity development are clearly described and norms and standards for the evaluation are delineated if necessary.

1.4 The information in the report is complete, well structured and well presented. The report should provide information on

- ♣ the purpose of the evaluation;

- exactly what was evaluated;
- how the evaluation was designed and conducted;
- what evidence was used in the evaluation;
- what conclusions were drawn;
- what recommendations were made;
- what lessons were distilled.

It should contain the following sections:

- Title Page
- List of acronyms and abbreviations
- Table of contents, including list of annexes
- Executive Summary
- Introduction: background and context of the programme/project
- Description of the program/project – its logic theory, results framework and external factors likely to affect success
- Purpose of the evaluation
- Key questions and scope of the evaluation with information on limitations and de-limitations
- Approach and methodology
- A comparison of the project's financial plan (financing and co-financing) with actual disbursement
- Findings
- Summary and explanation of findings and interpretations
- Conclusions
- Recommendations
- Lessons,, generalizations, alternatives
- Annexes

1.5 The report should be clear and easy to read with complementary graphics to enhance understanding

- The report should apply a plain, non-specialist language.
- Graphics, tables and illustrations should be used, when applicable, to enhance the presentation of information.
- The report should not exceed 50 pages, excluding annexes.
- In the case of an outcome evaluation, the related projects should be listed in the annex, including timelines, implementation arrangements and budgets.

1.6 The executive summary of the report should be brief (maximum 2 pages) and contains key information needed by decision-makers. It should contain:

- Brief description of the programme
- Evaluation purpose, questions and scope of evaluation.
- Key findings
- Conclusions
- Key recommendations
- The executive summary should not include information that is not mentioned and substantiated in the main report.

1.7 The recommendations are relevant and realistic, with clear priorities for action.

- ♣ Recommendations should emerge logically from the evaluation's findings and conclusions.
- ♣ Recommendations should be relevant to the purpose of the evaluation and decisions to be made based on he evaluation
- ♣ Recommendation should be formulated in a clear and concise manner and be prioritized to the extent possible.

2. Credibility - accuracy, reliability, and objectivity

2.1. **The subject or programme being evaluated is clearly and accurately described**

- ♣ **The goals and objectives of the programme/subject are clearly described and the performance indicators presented**
- ♣ **The conceptual linkages or logic theory among programme strategy, the outputs and the outcomes should be described, explaining their relation to national priorities and goals.**
- ♣ **The context in which the programme existed is described so its likely influences in the program can be identified**
- ♣ **The level of implementation of the programme and major divergences between the original implementation plan or approach should be described and explained.**
- ♣ **The recipient / intended beneficiaries, the stake holders, the cost and the financing of the programmes/projects should be described.**

2.2. **The report provides a clear explanation of the scope of the evaluation**

- ♣ The objectives, scope and coverage of the evaluation should be explicit and its limitations should also be acknowledged.
- ♣ The original evaluation questions from the TORs should be made explicit as well as those that were added subsequently or during the evaluation and their rationale provided
- ♣ The results of an evaluability assessment is noted for its effects on defining the scope of the evaluation.(evaluability is the extent to which *there is clarity in the intent of the subject to be evaluated, sufficient measurable indicators, assessable reliable information sources and no major factor hindering an impartial evaluation process*[33]*.)*

2.3. **The methodology is fully described for its role in ensuring the validity and reliability of the evaluation**

Any description of the methodology should include the following in addressing the questions of the evaluation:

- ♣ The universe of data needed to answer the questions and the sources of this data
- ♣ The sampling procedure applied to ensure representativeness in collecting information from these sources (area and population to be represented, rationale for selection, mechanics of selection, numbers selected out of potential subjects, limitations to sampling)
- ♣ Procedures applied (including triangulation) to ensure the accuracy and reliability of the information collected

[33] Norms for Evaluation in the United Nations System, para 7.2.

- ♣ Bases for making judgments and interpretation of the findings including performance indicators or levels of statistical significance as warranted by available data.
- ♣ description of procedures for quantitative and qualitative analyses
- ♣ innovations in methodological approach and added vale e to development evaluation
- ♣ How the evaluation addressed equity in its design and in the provision of differentiated information to guide policies and programmes
- ♣ how a human development and human rights perspective provided a lens for the evaluation and influenced the scope of the evaluation

2.4. The findings of the evaluation address the following in response to the key questions of the evaluation.

- ♣ cost efficiency, relevance,
- ♣ UNDP partnership strategy and the extent to which it contributed to greater effectiveness
- ♣ external factors influencing progress towards the outcome,
- ♣ UNDP contribution to capacity development and institutional strengthening.

Conclusions are firmly based on evidence and analysis.

- ♣ **Conclusions are the judgment made by the evaluators. They should not repeat the findings but address the key issues that can be abstracted from them.**
- ♣ Conclusions are made based on the an agreed basis for making judgments of value of worth relative to relevance, effectiveness, efficiency, sustainability
- ♣ Conclusions must focus on issues of significance to the subject being evaluated, determined by the evaluation objectives and the key evaluation questions.

Annexes are complete and relevant

- ♣ the original Terms of Reference for the evaluation
- ♣ details on the project/programme and its context in development
- ♣ details of data and analyses
- ♣ data collection instruments (copies of questionnaires, surveys, interview notes, etc.);
- ♣ evaluation plan

Relevance and Added Value

3.1. The purpose and context of the evaluation are described

- ♣ The reason(s) why the evaluation is being conducted should be explicitly stated.
- ♣ The justification for conducting the evaluation at this point in time should be summarised.
- ♣ Who requires the evaluative information should be made clear.
- ♣ The description of context should provide an understanding of the geographic, socioeconomic, political and cultural settings in which the evaluation took place

3.2. The report includes an assessment of the extent to which issues of equity and gender I particular, and human rights considerations are incorporated in the project or programme

The evaluation report should include a description of, *inter alia*:

- how a human development and human rights perspective was adopted in design, implementation and monitoring of the projects or programme being evaluated
- how issues of equity, marginalized, vulnerable and hard-to-reach groups were addressed in design, implementation and monitoring of the projects or programme being evaluated
- How the evaluation addressed equity in its design and in the provision of differentiated information to guide policies and programmes
- How the evaluation used the human development and human rights lens in its defining the scope of the evaluation and in the methodology used

3.3 The report presents information on its relationship with other associated evaluations and indicates its added value to already existing information

Annex 1a

EVALUATION REPORT: SAMPLE OUTLINE
Minimum GEF requirements[1]

Executive summary
- ♣ Brief description of project
- ♣ Context and purpose of the evaluation
- ♣ Main conclusions, recommendations and lessons learned

Introduction
- ♣ Purpose of the evaluation
- ♣ Key issues addressed
- ♣ Methodology of the evaluation
- ♣ Structure of the evaluation

The project(s) and its development context
- ♣ Project start and its duration
- ♣ Problems that the project seek to address
- ♣ Immediate and development objectives of the project
- ♣ Main stakeholders
- ♣ Results expected

Findings and Conclusions
(In addition to a descriptive assessment, all criteria marked with (*) should be rated[34])

- θ **Project formulation**

Implementation approach (*)(i)
Analysis of LFA (Project logic /strategy; Indicators)
Lessons from other relevant projects (e.g., same focal area) incorporated into project implementation
Country ownership/Driveness
Stakeholder participation (*)
Replication approach
Cost-effectiveness
UNDP comparative advantage
Linkages between project and other interventions within the sector
Management arrangements

- θ **Implementation**

Implementation approach (*)(ii)
The logical framework used during implementation as a management and M&E tool
Effective partnerships arrangements established for implementation of the project with relevant stakeholders involved in the country/region
Feedback from M&E activities used for adaptive management
- ♣ Financial Planning
- ♣ Monitoring and evaluation (*)

[1] Please refer to GEF guidelines for explanation of Terminology
[34] The ratings will be: Highly Satisfactory, Satisfactory, Marginally Satisfactory, Unsatisfactory

- ♣ Execution and implementation modalities
- ♣ Management by the UNDP country office
- ♣ Coordination and operational issues

- θ **Results**
  - ♣ Attainment of objectives (*)
  - ♣ Sustainability (*)
  - ♣ Contribution to upgrading skills of the national staff

Recommendations

- ♣ Corrective actions for the design, implementation, monitoring and evaluation of the project
- ♣ Actions to follow up or reinforce initial benefits from the project
- ♣ Proposals for future directions underlining main objectives

Lessons learned

- ♣ Best and worst practices in addressing issues relating to relevance, performance and success

Annexes

- ♣ TOR
- ♣ Itinerary
- ♣ List of persons interviewed
- ♣ Summary of field visits
- ♣ List of documents reviewed
- ♣ Questionnaire used and summary of results

Annex 1b

Explanation on Terminology Provided in the GEF Guidelines to Terminal Evaluations

Implementation Approach includes an analysis of the project's logical framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management.

Some elements of an effective implementation approach may include:

- ♣ The logical framework used during implementation as a management and M&E tool
- ♣ Effective partnerships arrangements established for implementation of the project with relevant stakeholders involved in the country/region
- ♣ Lessons from other relevant projects (e.g., same focal area) incorporated into project implementation
- ♣ Feedback from M&E activities used for adaptive management.

Country Ownership/Driveness is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements where applicable. Project Concept has its origin within the national sectoral and development plans

Some elements of effective country ownership/driveness may include:

- ♣ 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 official, 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
- ♣ Project's collaboration with industry associations

Stakeholder Participation/Public Involvement consists of three related and often overlapping processes: information dissemination, consultation, and "stakeholder" participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the GEF-financed project. The term also applies to those potentially adversely affected by a project.

Examples of effective public involvement include:

Information dissemination

- ♣ Implementation of appropriate outreach/public awareness campaigns

<u>Consultation and stakeholder participation</u>

- ♣ Consulting and making use of the skills, experiences and knowledge of NGOs, community and local groups, the private and public sectors, and academic institutions in the design, implementation, and evaluation of project activities

<u>Stakeholder participation</u>

- ♣ Project institutional networks well placed within the overall national or community organizational structures, for example, by building on the local decision making structures, incorporating local

knowledge, and devolving project management responsibilities to the local organizations or communities as the project approaches closure

- ♣ Building partnerships among different project stakeholders
- ♣ Fulfilment of commitments to local stakeholders and stakeholders considered to be adequately involved.

Sustainability measures the extent to which benefits continue, within or outside the project domain, from a particular project or program after GEF assistance/external assistance has come to an end. Relevant factors to improve the sustainability of project outcomes include:

- ♣ Development and implementation of a sustainability strategy**.**
- ♣ Establishment of the financial and economic instruments and mechanisms to ensure the ongoing flow of benefits once the GEF assistance ends (from the public and private sectors, income generating activities, and market transformations to promote the project's objectives).
- ♣ Development of suitable organizational arrangements by public and/or private sector**.**
- ♣ Development of policy and regulatory frameworks that further the project objectives**.**
- ♣ Incorporation of environmental and ecological factors affecting future flow of benefits.
- ♣ Development of appropriate institutional capacity (systems, structures, staff, expertise, etc.) **.**
- ♣ Identification and involvement of champions (i.e. individuals in government and civil society who can promote sustainability of project outcomes)**.**
- ♣ Achieving social sustainability, for example, by mainstreaming project activities into the economy or community production activities**.**
- ♣ Achieving stakeholders consensus regarding courses of action on project activities.

Replication approach, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Examples of replication approaches include:

- ♣ Knowledge transfer (i.e., dissemination of lessons through project result documents, training workshops, information exchange, a national and regional forum, etc).
- ♣ Expansion of demonstration projects.
- ♣ Capacity building and training of individuals, and institutions to expand the project's achievements in the country or other regions.
- ♣ Use of project-trained individuals, institutions or companies to replicate the project's outcomes in other regions.

Financial Planning includes actual project cost by activity, financial management (including disbursement issues), and co-financing. If a financial audit has been conducted the major findings should be presented in the TE.

Effective financial plans include:

- ♣ Identification of potential sources of co-financing as well as leveraged and associated financing[35].

[35] Please refer to Council documents on co-financing for definitions, such as GEF/C.20/6. The following page presents a table to be used for reporting co-financing.

- Strong financial controls, including reporting, and planning that allow the project management to make informed decisions regarding the budget at any time, allows for a proper and timely flow of funds, and for the payment of satisfactory project deliverables
- Due diligence due diligence in the management of funds and financial audits.

Co financing includes: Grants, Loans/Concessional (compared to market rate), Credits, Equity investments, In-kind support, other contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries. Please refer to Council documents on co-financing for definitions, such as GEF/C.20/6.

Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.

Cost-effectiveness assesses the achievement of the environmental and developmental objectives as well as the project's outputs in relation to the inputs, costs, and implementing time. It also examines the project's compliance with the application of the incremental cost concept. Cost-effective factors 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 completed the planned activities and met or exceeded the expected outcomes in terms of achievement of Global Environmental and Development Objectives according to schedule, and as cost-effective as initially planned.
- The project used either a benchmark approach or a comparison approach (did not exceed the costs levels of similar projects in similar contexts)

Monitoring & Evaluation. Monitoring is the periodic oversight of a process, or the implementation of an activity, which seeks to establish the extent to which inputs, work schedules, other required actions and outputs are proceeding according to plan, so that timely action can be taken to correct the deficiencies detected. Evaluation is a process by which program inputs, activities and results are analyzed and judged explicitly against benchmarks or baseline conditions using performance indicators. This will allow project managers and planners to make decisions based on the evidence of information on the project implementation stage, performance indicators, level of funding still available, etc, building on the project's logical framework.

Monitoring and Evaluation includes activities to measure the project's achievements such as identification of performance indicators, measurement procedures, and determination of baseline conditions. Projects are required to implement plans for monitoring and evaluation with adequate funding and appropriate staff and include activities such as description of data sources and methods for data collection, collection of baseline data, and stakeholder participation. Given the long-term nature of many GEF projects, projects are also encouraged to include long-term monitoring plans that are sustainable after project completion.

3.6 ANNEX 2

3.7

3.8 ETHICAL CODE OF CONDUCT FOR UNDP EVALUATIONS

3.9

Evaluations of UNDP-supported activities need to be independent, impartial and rigorous. Each evaluation should clearly contribute to learning and accountability. Hence evaluators must have personal and professional integrity and be guided by propriety in the conduct o their business.

Evaluators:

Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded

Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.

Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and: respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.

Evaluations sometimes uncover evidence of wrongdoing. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.

Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.

Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study limitations, findings and recommendations.

Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Annex 3

UNEG NORMS AND STANDARDS FOR EVALUATION

(separate file)

Annex 4

RECONSTRUCTED HEATING SYSTEMS IN NORTHWEST SLOVAKIA

List of sites with project interventions:

Biomass boiler rooms within BIOMASA Association

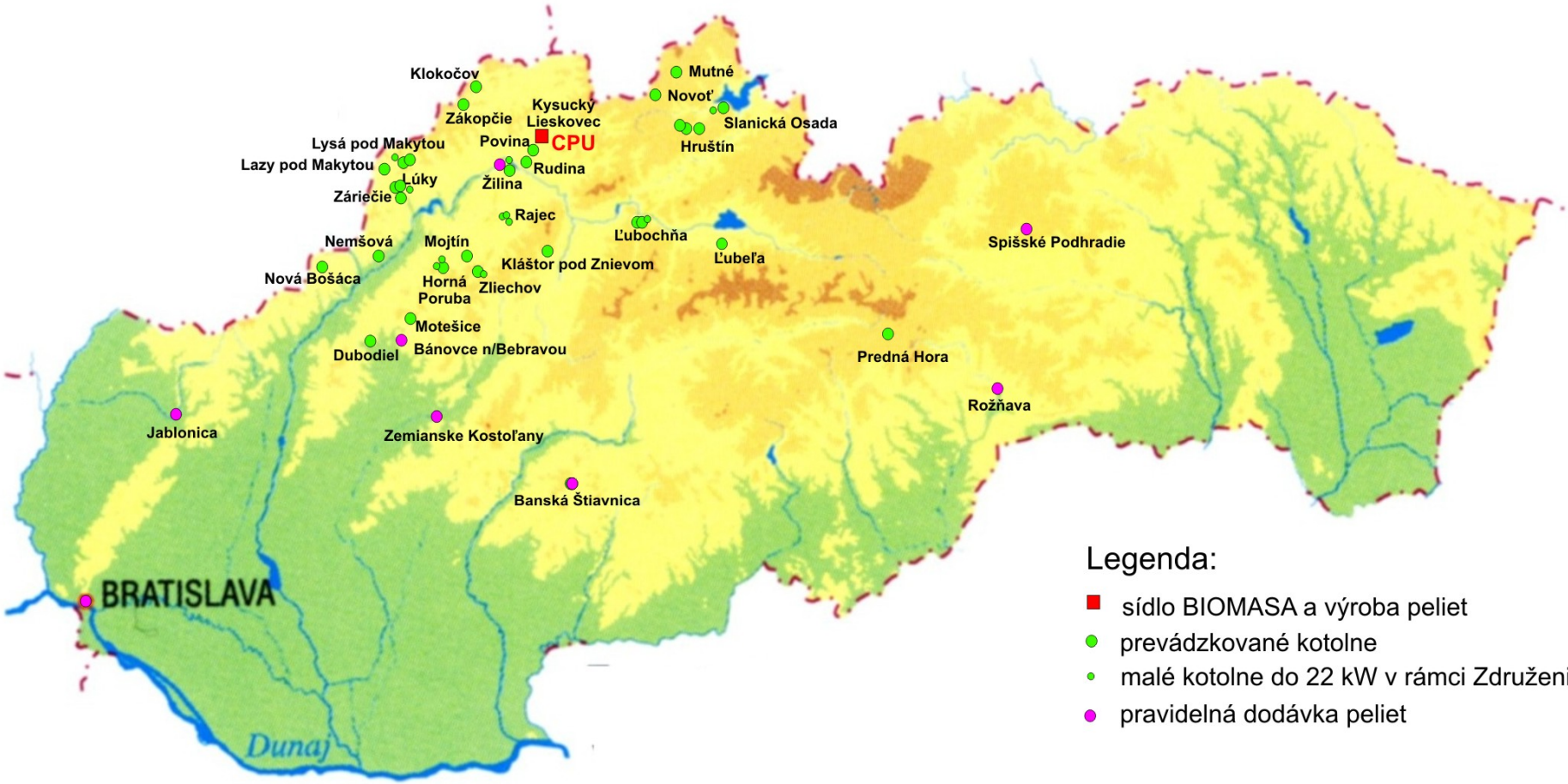
Nr. of new boilers	Location of boiler room	Main Heated buildings	Original replaced boilers and capacity (kW)	Boilers capacity after reconstruction (kW)	In operation since year
1	DUBODIEL	Primary school (PS)	456	300	2004
		House of culture	175	belongs to PS	
2	HORNÁ PORUBA	PS + kindergarten	446	150	2004
3	HRUŠTÍN	PD Zamost.	755	250	2004
4	HRUŠTÍN	PS Výhon	150	90	2005
5	HRUŠTÍN	House of culture	710	90	2005
6	KLOKOČOV	Primary school	660	725	2000
		Block of flats	x	belongs to PS	
		Municipal office, service b.	250	belongs to PS	
7	KYSUCKY LIESKOVEC	offices	x	25	2004
8,9	KLAŠTOR POD ZNIEVOM	Social house	300	50+15	2005
10	LAZY POD MAKYTOU	Primary school	953	425	2005
11	ĽUBEĽA	Primary school	650	275	2006
12, 13	ĽUBOCHNA	NEDI (Fatra)	198	1800+700	2003
		NEDI (Bratislava)	2 000	belongs to Fatra	
		+ 12 other buildings		belongs to Fatra	
		Primary school	965	belongs to Fatra	
		Kindergarten	x	belongs to Fatra	
		Municipal office	63	belongs to Fatra	
14	ĽUBOCHNA	NEDI - workshops, flats	1 000	150	2005
15	LÚKY	Kindergarten	210	130	2000 (silo 2004)
16	LÚKY	Municipal office	290	90	2005
17	LYSÁ POD MAKYTOU	Primary school	452	250	2005
18	LYSÁ POD MAKYTOU	House of culture	368	250	2005
		Municipal office	110	belongs to HC	
19	MOJTÍN	Primary school	594	150	2004
20	MOTEŠICE	House of culture	555	90	2005
21	MÚTNE	Primary school	738	560	2005
		Kindergarten	484	belongs to PS	
		Block of flats	x	belongs to PS	
22, 23	NÁMESTOVO - Slanická Osada	High school	1 920	720+275	2005
24	NEMŠOVÁ	Primary school	1 580	880	2004
25	NOVÁ BOŠÁCA	House of culture	446	425	2005
		Primary school	456	belongs to HC	
		Kindergarten	x	belongs to HC	

Biomass boiler rooms within BIOMASA Association

Nr. of new boilers	Location of boiler room	Main Heated buildings	Original replaced boilers and capacity (kW)	Boilers capacity after reconstruction (kW)	In operation since year
26	NOVOŤ	Primary school	990	725	2004
		Block of flats	x	belongs to PS	
27	POVINA	Primary school	670	250	2005
		Kindergarten	165	belongs to PS	
28, 29	PREDNÁ HORA	Healt Institute	1 800	300+300	2005
30	ROŽŇAVA	High school	2 190	725	2005
31	RUDINA	Primary school	660	220	2005
		Kindergarten	120	belongs to PS	
32	ZÁRIEČIE	Primary school	796	425	2004
		Kindergarten	110	belongs to PS	
33	ZLIECHOV	Primary school	750	150	2004
34	ZÁKOPČIE	Primary school	450	150	2005
35	ZILINA	DIM premises	2 000	725	2005
36	Zilina	TOS Svitavy	275	15	2005
37	Horná Poruba	Private house		15	2005
38	Horná Poruba	Mun office		15	2005
39	Luky	Private house		15	2005
40	Lubochna	Private house		15	2005
41	Lysa pod Makytou	Private house		15	2005
42	Rajec	Private house		15	2005
43	Rajec	Private house		15	2005
44	Rajec	Social house		22	2005
45	Rajec	Private house		7	2005
46	Námestovo	Private house		15	2005
47	Zliechov	Private house		15	2005
			28 910	12 145	

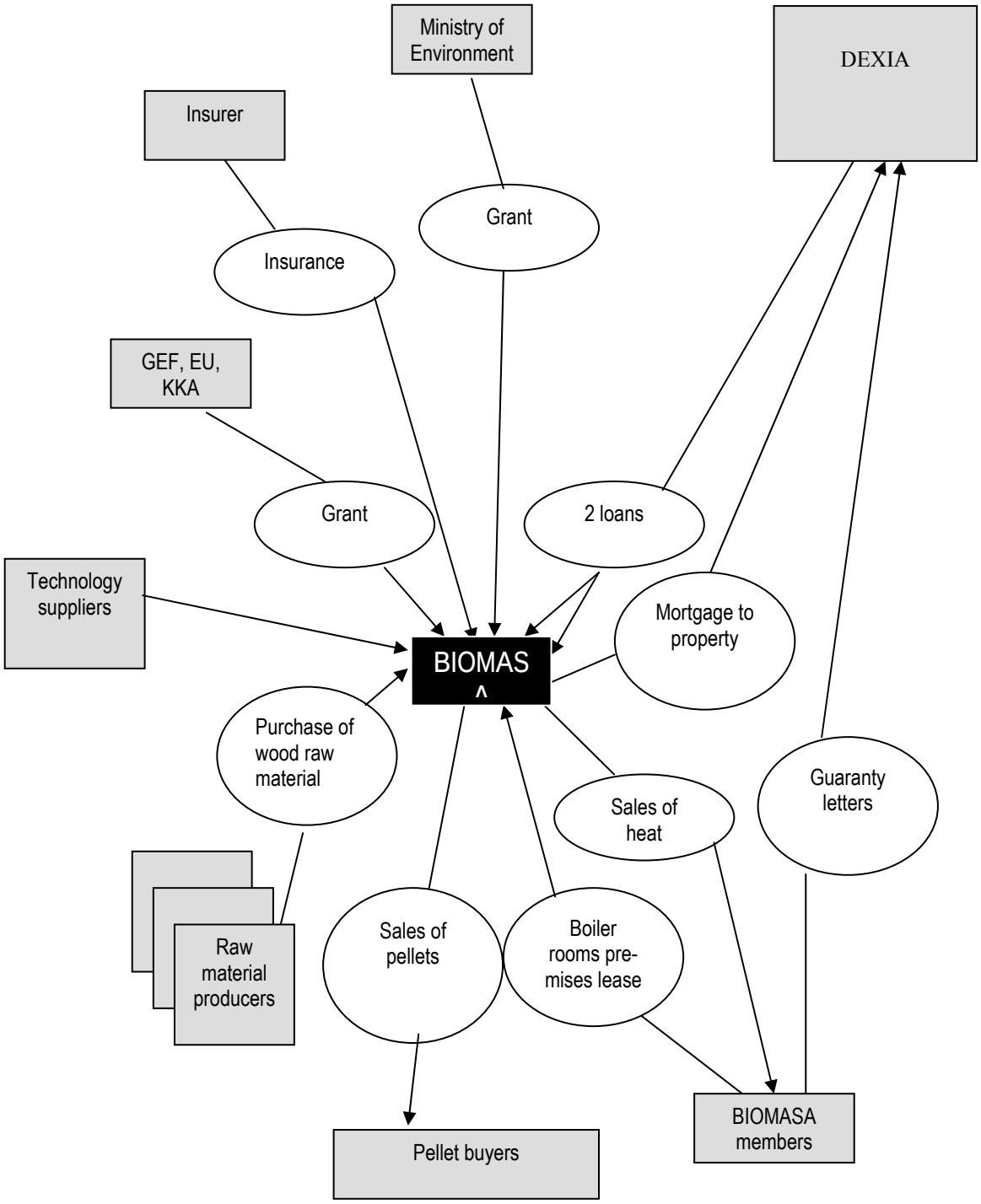
June 2007

LOCATION OF PELLET BOILER ROOMS



LEGEND:
1 – BIOMASA domicile and pellets production
2 – boiler rooms in operation by BIOMASA
3 – small boiler rooms up to 22 kW within Association
4 – regular pellets supply

PROJECT ORGANIGRAM



ANNEX II- LIST OF DOCUMENTS REVIEWED

BIOMASA, Slovakia: Pellets Production Data, according to a survey done in January 2007 by BIOMASA

BIOMASA, Annual Report. 2006.

Dexia Banka Slovensko a.s. Annual Report 2006.

UNDP. Quaterly Progress Report. 3rd Quarter 2003
UNDP. Progress Report. 1st October – 20 November 2003
UNDP. Progress Report. 20 November 2003 – 31st December 2003
UNDP. Progress Report. 1st January – 24th February 2004
UNDP. Progress Report. 25th February – 31st March 2004
UNDP. Progress Report. 1st April – 30th June 2004
UNDP. Progress Report. 1st June – 30 September 2004
UNDP. Progress Report. 1st October – 31st December 2004
UNDP. Progress Report. 1st January – 31st March 2005
UNDP. Progress Report. 1st April - 30th June 2005
UNDP. Activity Report for Projects Realized during the 3rd Quarter 2005. 1st July – 30th September 2005
UNDP. Progress Report. 1st October – 31st December 2005
UNDP. Progress Report for Project Activities Realized During the 1st Term 2006. 1st January – 30th June 2006.
UNDP. Progress Report for Project Activities Realized During the 2nd Term 2006. 1st July – 31st December 2006.
BIOMASA. Association of Legal Entity. Pamphlet. 2005.

… ILUBE: Creating a biomass market in Slovakia. in Life and Energy. page 12. undated

BIOMASA. Hospodarenie BIOMASA, z.p.o. – plan na rok 2007
BIOMASA. Hospodarenie K 31.21.2006
BIOMASA. Plan Hospodarenia Za Rok 2005

UNDP. Minutes of the Meeting. Steering Committee and Tripartite Project Meeting. 17 October 2005.

UNDP. Auditor's Report. Project number: SLO/01/G 35. Reducing Greenhouse Gas Emissions

through the Use of Biomass Energy in Northwest Slovakia, 2003.

UNDP/GEF. Slovak Republic. Project Document. No. SLO/01/G32. 10 March 2000.

UNDP/GEF. Slovak Republic. Project Revision.

UNDP Development Programme. Slovak Republic. Project Budget. 29 June 2006.

Climate Special 2005. Pellets for Slovakia. 2005

…. Nature: Job Potential is high in The Slovak Spectator. Business focus. March 21-27, 2005, page 9.

Marta Durianova. The biomass alternative in The Slovak Spectator, March 2005, page 8.

Project: Reducing Greenhouse Gas Emissions through the Use of Biomass Energy in Northwest Slovakia

Itinerary and list of people interviewed
Final evaluation mission of Alain Lafontaine, Baastel
24 – 28 September 2007

Monday, September 24
Kysucky Lieskovec - Project site

10.00	*Travel from Bratislava to BIOMASA Kysucký Lieskovec (KL)* *Arrival*
10.00 12.00 – 13.00 Afternoon	• welcoming, general information, first meeting with D. Bohunicka and Project Manager, Mr. Zidek • meeting with project manager and Mr. Stano – president of BIOMASA and Mayor of Horna Poruba (obechp@naex.sk) • continuing of discussion – D. Bohunicka, some project team members and review of additional documentations at BIOMASA offices

Tuesday, September 25
Lubochna and Kysucky Lieskovec

8,00 9,00 Afternoon	• Departure from hotel in Zilina • Lubochna, sanatorium NEDI – meeting and visit at boiler room with BIOMASA service man Mr. Vladimir Guzy • Meeting in Municipal office – Mr. Anton Bris – responsible for investments and technics in NEDI and Mr. Peter Davidik - Mayor of Lubochna • In total 14 buildings are heated, among them 3 school pavilions, kindergarten and municipal office under responsibility of the Municipality • visit to sawdust suppliers in Rakova (Mr. Matlak) and Podvysoka (Mrs. Bobkova) in the Kysuce region • Kysucky Lieskovec, BIOMASA - discussion with D. Bohunicka, excursion in pellet production

NEDI – National Endocrinology and Diabetology Institute

Wednesday, September 26
Orava region – site visits

8,00 10,00	• Departure from hotel in Zilina • Vocational and Hotel School in Slanicka Osada (SOU EDUCO NO s.r.o.) - Mr. Karol Kanovsky – director of the school, member of BIOMASA Board of Directors (sou.szsd.slanica@bb.telecom.sk) - meeting with students and teacher - site visit to boiler room in Slanica school – Mr. Jan Zilinec, BIOMASA serviceman for Orava region
Lunch time	• Municipality Hrustin (4 boiler rooms) – Meeting with Mr. Frantisek Skapec – Mayor of Hrustin and site visit with the serviceman to two boiler rooms
16,00	• Kysucky Lieskovec, BIOMASA – discussion with Mr. Pavol Lenhart – boiler rooms operation manager in BIOMASA

Thursday, September 27
Kysucky Lieskovec - Project site, Trencin region - site visits and way to Bratislava

8,30	• Kysucky Lieskovec, BIOMASA - last discussion with the Project manager Mr. Zidek and Ms. Jana Kavcova – pellet production manager
11.30 12,30	• Departure to Zariecie in Puchov region • Visit to primary school heated by biomass in Zariecie – Mr. Stefan Hamsik BIOMASA serviceman for Trencin region • meeting with director of school (Mr. Stefan Huzevka) and short talk to pupils (8th class) in Zariecie school
Afternoon	*Travel* to Bratislava (about 1 - 1,15 hour)

Friday, September 28
Bratislava

8,30 10,30 11.00 12.00 13.00	• Ministry of Environment, Nám. Ľ. Štúra 1 Meeting with Mr. Roderik Klinda – Director of Department of programs and GEF Focal point (klinda.roderik@enviro.gov.sk) (Mr Juraj Gavora – National Project Director has apologized) • Meeting with Mr. Pavol Duman – Director of Innovation department in Slovak Innovation and Energy Agency, Project SC member • Dexia Banka Slovensko, a.s., Obchodná street 1 Meeting with Mr. Vladimir Vacho, Department of project financing in Dexia, Project SC member (vvacho@dexia.sk) • Meeting with Mr. Vendelin Hozzank, Factor? and Director of Herz s.r.o. (Slovak producer and vendor of biomass boilers, Austrian technology) • UNDP Regional Centre, Grösslingova 35 Meeting with Geordie Colville (Regional Environmental Coordinator) and Klara Tothova (CST Environmental Officer)
	Travel to Vienna airport