

GEF EO Terminal Evaluation Review Form

1. PROJECT DATA				
		Review date:		
GEF Project ID:	914		<u>at endorsement</u> (Million US\$)	<u>at completion (Million US\$)</u>
IA/EA Project ID:	1291	GEF financing:	0.75	0.75
Project Name:	Economic and Cost-effective Use of Wood Waste for Municipal Heating Systems	IA/EA own:	2.73	0.24
Country:	Latvia	Government:		0.86
		Other*:		Private: 1.7 Municipalities: 0.95
		Total Cofinancing	2.73	3.75
Operational Program:	5	Total Project Cost:	3.48	4.50
IA	UNDP	<u>Dates</u>		
Partners involved:		Work Program date		NA
		CEO Endorsement		7-Dec-00
		Effectiveness/ Prodoc Signature (i.e. date project began)		2-Mar-01
		Closing Date	Proposed: 31-Dec-03 Revised1: 1-May-04 Revised 2: 31-Dec-04 Revised 3: 30-June-04	Actual: Project still being completed when TE submitted
Prepared by: Divya Nair	Reviewed by:	Duration between effectiveness date and original closing:	Duration between effectiveness date and actual closing: NA	Difference between original and actual closing: NA
Author of TE:	Ms. Stephanie Hodge, UN Policy Advisor and InfoSab Ltd.	TE completion date: 06/01/2005	TE submission date to GEF OME: 01/30/2007	Difference between TE completion and submission date: 19 months

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

2. SUMMARY OF PROJECT RATINGS

Please refer to document "GEF Office of Evaluation Guidelines for the verification and review of terminal evaluations" for further definitions of the ratings.

	Last PIR	IA Terminal Evaluation	Other IA evaluations if applicable (e.g. IEG)	GEF EO
2.1 Project outcomes	NA	S	NA	S
2.2 Project sustainability	N/A	S	NA	S
2.3 Monitoring and evaluation	NA	NA	NA	S
2.4 Quality of the evaluation report	N/A	N/A	NA	S

Should this terminal evaluation report be considered a good practice? Why?

No. The TE included a comprehensive desk study, development and dissemination of two questionnaires, a technical evaluation, and data compilation and a week-long consultation process. The TE also refers to and uses the GEF M&E Guidelines (March 2005). It is very detailed, and is accompanied by a number of supporting documents such as Survey results, detailed logical framework etc (it has an Appendix of 26 documents). However, while the information provided is comprehensive, the ratings in the TE do not reflect this information.

Is there a follow up issue mentioned in the TE such as corruption, reallocation of GEF funds, etc.? No

3. PROJECT OBJECTIVES AND ACTUAL OUTCOMES

3.1 Project Objectives

- **What were the Global Environmental Objectives of the project? Were there any changes during implementation?**

“To decrease Latvia’s emissions of greenhouse gases and to support the development of the capacity in the local municipalities to provide commercially efficient and environmentally friendly heating to residents.”

No change in objectives.

(Project Document, as quoted in the TE, and Appendix 11- Logical Framework; mentioned in all the PIRs)

- **What were the Development Objectives of the project? Were there any changes during implementation?**

The main project objectives as mentioned in the Project Brief were:

- Promotion of the use of wood waste by removing/reducing barriers that currently hamper the substitution of imported heavy fuel oil (mazut) with local sustainably-produced wood waste for municipal heating systems¹;
- Promotion of the development and implementation of commercially viable municipal heating system that includes generation, transmission and distribution in the municipality of Ludza; and
- Assist in removing/reducing technical, legislative, institutional/organizational, economic, information and financial barriers related to the replication of a pilot project in 4 - 6 additional municipalities in Latvia.

This project was designed with two immediate objectives:

1. Establishment and enhancement of financially and environmentally sustainable energy companies throughout Latvia

- Indicator 1: CO₂ emissions are reduced by direct reductions in the use of heavy fuel oil (mazut) by 80% (from 3600 t/y) at the end of the project in Ludza municipality – baseline- in year 0- 14000 CO₂ emissions.
- Indicator 2: Further CO₂ emissions reduced after replication in 4 - 6 other municipalities, reaching an estimated reduction of 750,000 tons over a 10-year period.

¹ Barriers include those of a policy and regulatory nature (no policy context/regulatory framework existing to facilitate the introduction and dissemination of commercially viable municipal heating systems), management nature (lack of skills and experience with municipality-based management of energy technology systems), informative nature (limited knowledge on how to set up and operate municipal heating systems in a business-like manner, limited information on lessons learned elsewhere) and others. (TE)

2. Support to conditions necessary for strengthening the institutional framework required to secure sustainable biomass use for municipal heating systems.

Changes according to TE

- No change was made to the goals, objectives, outcomes or log frame of the project. Changes were made by adding additional activities as recommended by the Mid-term Review (PIR 2005, TE pp33)
- Two new **results/activities** were introduced during revision: 1) creation of support mechanisms for low - income population, and 2) conditions for the implementation of a National Strategy for district heating systems involving biomass combustion and other renewable sources.
- The original **beneficiaries** included the Municipality of Ludza and its inhabitants, the Ministry of Environmental Protection and Regional Development, the equity stakeholders of *Ludza Bio-Enerģija* and similar companies that were to be supported in four other municipalities, and the local and global environment. This group was expanded in 2003 to include 8 additional municipalities, rural schools, hospitals and municipal public buildings, and a broader populace.

3.2 Outcomes and Impacts

- **What major project outcomes and impacts are described in the TE?**

1. As per the TE (pp 35), the project achieved following outcomes and impacts.

- **Indicator 1-** CO₂ emissions have been reduced by direct reductions in the use of heavy fuel oil (mazut) by 80% (from 3600 t/y to 720 t/y) by the end of the Ludza municipality pilot project. **Baseline:** Year 0: 14,000 tons of CO₂ emissions. **Fully met:** 100% reduction in the use of heavy fuel oil (mazut) in the heating system of Ludza by 2003, resulting in an annual reduction of 11,200 tons of CO₂ emissions in Ludza municipality.
- **Indicator 2 -** CO₂ emissions further reduced by an estimated 750 000 tons over a 10-year period after Project replication in other municipalities. The original Project proposed replication in 4 - 6 additional municipalities, reducing CO₂ emissions by more than 100 000 tons during a 10 year period in each municipality. Most of the additional municipalities hosted small populations. The amount of avoided CO₂ emissions in these additional municipalities will be approximately 18 250 tons over a 10 year period.
- Project activities such as public consultations, soft assistance, PR campaigns, media attention, seminars, and study tours have facilitated awareness. Adaptive project management, as directed by UNDP and the Project Management team, was the appropriate response to the rapidly changing political and economic conditions in Latvia.
- However, activities developed later in the Project that were intended to drive this process (i.e. the development of a precondition document for a national strategy and action plan concerning wood waste use in district heating, market survey on wood waste, etc) were not effectively integrated into national planning. The action plan was not completed and other activities (market survey and precondition document concerning national strategy concerning renewable energy) had not been adequately promoted within the relevant government departments in order to sufficiently influence policies and regulatory frameworks.

4. GEF EVALUATION OFFICE ASSESSMENT

4.1.1 Outcomes (use a six point scale 6= HS to 1 = HU)

A Relevance

Rating: S

This project falls under OP 5: *Removal of Barriers to Energy Efficiency and Energy Conservation*.

This project meets all the elements included in the country's energy policy and is expected to assist the Government of Latvia to meet its obligations under the UNFCCC of achieving 8% GHG emission reductions of 1990 levels by the year 2010.(Project Brief, pp7)

B Effectiveness

Rating: S

Given the project's high level of achievement with respect to objective 1, its relatively small size (a medium-sized-project) and its partial success with objective 2, a "Satisfactory" rating is considered appropriate.

- According to the TE, there appears consensus that due to 'successful demonstration' in the municipalities and active participation in the Project Steering Committee (PSC) meetings there is increased awareness of wood waste use. The project has also achieved national recognition through the continuous media coverage throughout its implementation, due to the problems in Ludza and to the active public awareness campaign. Government representatives were the direct recipients of many of capacity building workshops and study tours sponsored by the project:
 - The **amount of reduced CO₂ emissions** in 8 municipalities is 1825 t/year, though in Ludza it was 11 200 t/year. Corresponding reduction of the carbon equivalent is 562 and 2628 t/year respectively. The estimated costs of CO₂ reduction on average in 8 municipalities are 577 USD/t of CO₂ reduced but in Ludza – 259 USD/t of CO₂ reduced. The estimated costs of carbon equivalent reduction on average in 8 municipalities are 2059 USD/t of carbon equivalent reduced but in Ludza – 1103 USD/t of carbon equivalent reduced.
- According to the TE (pp25) improvement of the billing and heat meter systems increased residential and municipal trust of wood waste heating plants because heating costs could be accurately measured. The TE anticipates that this should eventually result in higher heating bill payment rates. The public awareness campaigns are also supposed to have this effect.
- However, according to the TE, there has been limited influence on policy, regulatory frameworks and planning because of unforeseen events. LIDA, the agency charged with the responsibility to implement these activities has been restructured. Outputs were subsequently not sufficiently promoted and did not have an impact on the outcome goal. Currently, the main output the national strategy has become obsolete.

C Efficiency (cost-effectiveness)

Rating: MS

- Four annual financial audits were conducted over the life of the project by independent auditors (Arthur Andersen Ltd. in 2001, KPMG Latvia Ltd. in 2002 and 2004, and Ernst & Young Baltic Ltd. in 2003). The audits included assessments of financial operations and controls, management structure, equipment use and control as well as monitoring, evaluation and reporting. As noted in audit reports, the rate of delivery for approved budgetary expenditures was very low from 2001 - 2003 (6% for 2001 and 2002, 41% for 2003). In 2004, the rate of delivery for approved budgetary expenditures was 76%. According to officially set standards detailed in the audit reports, the rate of delivery should not have been less than 72%.

- As per the TE, **cost effectiveness** analysis of wood biomass in heat production as compared with alternatives is not possible through most of Latvia because only one season of data has been collected from most municipalities. In Ludza, where five seasons of data are available, the switch from mazut to wood biomass in 1999 reduced user tariffs from 23.70 LVL/MWh (1999/2000) to 18.05 LVL/MWh (2003/2004).
- According to the TE, the cost-effectiveness analysis must include the following elements, which are currently not included: (a) the finances disbursed in Ludza and other 8 municipalities were not used only for the reconstruction of boiler houses and new boilers but also for other needs related to heat production, such as dismantling of old boiler houses, connection of the public buildings (schools etc.) to the boiler house and partial reconstruction of heating pipelines . (b) The reason for high costs of the reduction of carbon equivalent is that all 8 municipalities and their boiler houses reconstructed in the project are comparatively small - total capacity installed in 8 boilers is 6.64 MW - the reconstruction of small boiler houses is not as cost-effective as the reconstruction of boilers with higher capacity. (c) The cost-effectiveness in the case of this project should ideally include social aspect too such as the 9 schools and other administrative institutions connected to the heating grids; 5000 people receive heating services from a new boiler house in Ludza municipality; in other 8 municipalities, more than 50,000 inhabitants will be affected by improvement of local heating services.
- Finally, **the project has been delayed by 1.5 years**, and the following three project activities were still pending completion as of end of June 2005: Pilot project on billing system implementation in Balvi; Television series concerning alternative energy with a companion DVD (a compilation of the series), and a publication on renewable energy and energy efficiency mechanisms; Long-term training program on the administration of Municipal Heating systems

4.1.2 Impacts

The TE notes that, in terms of socio-economic benefits, heating system planning is usually conducted over a ten to twelve year Project period. Thus, it is expected that the Project results and impacts in terms of cost efficiency, individual savings and wealth generation for the poor, will be manifest in 10-12 years if sustained and properly supported. (TE, pp40) Information disaggregated by household income does not appear to be available via the current M&E system. However, it seems that TE has not explored the issue of savings properly because savings in terms of lower tariffs are likely to be measurable immediately.

4.2 Likelihood of sustainability. Using the following sustainability criteria, include an assessment of **risks** to sustainability of project outcomes and impacts based on the information presented in the TE. Use a four point scale (4= no or negligible risk to 1= High risk)

A Financial resources

Rating: ML

- There appear to be numerous sources of future funding: The Latvian Environmental Investment Fund provided co-funding in the form of loans to the eight newly selected municipalities that demonstrated interest in the project initiative and activities. Nine municipalities (one later refused), in cooperation with LEIF, planned investments of more than \$1.12 million US during 2004. The State Investment Programme also finances heating infrastructure, for which municipalities can apply. Financing from European Regional Development Fund will soon become available as an open call for project bids, administered by the Central Finance and Contract Agency, was issued in 2005. (TE, pp27)
- An issue of potential concern relates to the short operating life of the wood waste boilers. Boilers can currently be expected to operate for eight years, while the loan repayment schedule is often 12 years. Not only does the municipality run the risk of paying for the boiler after it ceases operation, but it may

also be faced with the additional cost of replacing the boiler, which may require additional loans. This constitutes a serious sustainability challenge. (TE, pp25)

B Socio political

Rating: ML

- The original heat purchase agreement was disputed and 'technical problems' led to inadequate provision of heat to some rural 'apartment blockhouses.' According to the TE (pp14), these apartment blockhouses were not initial project targets but are unalienable components of the heating service, and "perpetuated a social problem by providing cheap heating through high GHG and particulate emitting coal fired boilers". This triggered animosity between the municipality and *Ludza Bio-Energija*, which culminated in each suing the other in mid 2002. Subsequently, the original project objectives were expanded to include two new components that supported sustainability within the original strategy including the development of support mechanisms for low - income population and conditions for the implementation of a National Strategy for district heating systems were created which involved the evaluation of biomass combustion and other renewable energy sources.
- One of the recommendations stemming from the Mid-Term Evaluation was that greater attention be given to enhance public / stakeholder participation into Project activities. According to the TE and the study of the individual outputs, follow-up activities were designed and a revised Project implementation strategy was applied.
- According to the TE (pp 40), the Project achieved a limited level of social sustainability. For example, Project activities have been integrated into the local economy in Balvi municipality. In many municipalities, the project enabled jobs creation, including wood splitting, technical and management related, among others. Although the Latvian situation has changed radically since the Project was designed, municipal employees and other stakeholders interviewed in Balvi indicated that the Project has provided them with a cost effective housing solution that is beginning to mature and work efficiently. The biggest threat to Project sustainability is related to the implementation of a new heating system that does not address the concerns of end-users, the issue of 'energy efficiency' and housing insulation. The residents were clearly unhappy to pay for what they perceived to be an inadequate service provided by the heating company, whereas much of the problem relates to heat loss due to poor insulation.
- The key stakeholders include 15 municipalities, state institutions, private sector companies, NGOs and civil society. Most of the stakeholders have either actively participated in the conceptualizing, monitoring and implementation and/or view the project positively due to the learning that has occurred. The production and dissemination of PR materials and information generated by the project, which were designed to enhance stakeholder interest and understanding of the project goals, have been rated as highly satisfactory by the TE.

C Institutional framework and governance

Rating: ML

- Consultation and stakeholder participation: UNDP Latvia has fostered relationships between stakeholders in the environmental sector through the facilitation of similar projects. The role of the Project Steering Committee and/or advisory boards are critical, as they provide an opportunity to improve decision making mechanisms and create better links (communication and coordination) between government ministries and with civil society in general (with the inclusion of NGO representatives in project management bodies). (ranked HS by TE)

- The constant restructuring of relevant government departments and Ministries complicated efforts to effectively promote the National Energy Strategy developed during this project and retarded efforts to influence policy and planning. It is unclear how this has changed.
- The TE notes that : In order to ensure long-term Project sustainability and to complement/support project activities related to promoting changed individuals behavior and markets transformation (municipal capacity building, institutional framework development and public education in particular) further assistance will be required from stakeholders in order to address institutional and other gaps identified through this Project. The TE notes that the results demonstrate that renewable energy, environmental protection and energy efficiency issues must be linked in perception, and in decision making goals and strategies. These linkages must also be made more readily available and comprehensible to technical personnel, decision makers, and the general populace in order to establish institutional frameworks for the use of wood biomass heating systems and to promote the use of Renewable energy in Latvia in general. (TE, pp3)

D Environmental**Rating: ML**

It has been noted in PIRs that the capacity of wood biomass resources in Latvia has reached its peak, to reduce risk to environmental sustainability, it is now necessary to consider other sources of renewable energy, other than wood, these would also include the development of technologies for heat and electricity production from biomass, waste, biogas etc.

4.3 Catalytic role**a. Production of a public good**

- The new heat meter and billing systems, the successful demonstration of wood waste as a viable energy alternative and a successful PR campaign has increased project momentum during a period when other municipalities are seeking similar solutions for cost efficient heating and electricity. (TE, pp21)
- The potential of knowledge transfer was secured through the Latvian Municipality training centre and the project supported development of a long-term training programme concerning the administration of municipal heating systems. (TE, pp21)
- According to the TE, the geographical dispersion of actively engaged municipalities provides an opportunity to transfer lessons and experiences through daily contact between municipal representatives. (TE, pp21)

b. Demonstration :

- The municipal heating project experienced difficulties from the start, due in part to a project design which relied on a *single demonstration project* in which the key components to be demonstrated and replicated lay outside the control of the project management, and due in part to unavoidable external influences. However, with the agreement on the revised project outputs and activities in March 2003, the project concept, design and institutional arrangements were made appropriate to the local context and relevant to needs in Latvia. The project was appropriately revised to include *demand side management* through efforts to 'connect' energy consumption and costs, and thus ensure the sustainability of the transition to biomass energy. (TE,pp19)
- Knowledge and information was actively shared between the 15 project sites via various training

<p>and other joint activities. A strong municipal information-sharing network had begun to evolve as a result of joint activities and the PR campaign. Municipal stakeholders indicated that the meetings were especially useful for sharing technical and logistical information concerning the new heat meters and billing system. The enhanced flow of information and learning through this dynamic networking also supports the enhanced sustainability of the post-project activities and the likelihood of project replication in other municipalities. (TE, pp23)</p>
<p>c. Replication</p> <ul style="list-style-type: none"> ○ According to the TE, a successful replication strategy <u>within</u> project activities, enabled an additional 14 municipalities to conduct activities that were originally piloted in Ludza municipality ○ The project explicitly budgeted for replication activities: \$325,000 US was earmarked for the Ludza pilot project, \$357,000 US was earmarked for project replication. Replication activities included: development of a supportive policy/regulatory framework, enhancing in-country project development capacity, pipeline of 4-6 investment projects, and establishment of financial and institutional set-up for future investments. (TE, pp29)
<p>d. Scaling up (during project implementation)</p> <ul style="list-style-type: none"> ● The project was initiated in a single municipality, Ludza. After the initial problems at start-up, the project strategy was reconsidered and the Ludza pilot project was then adapted to initiate parallel implementation in five additional municipalities. In early 2003, plans for further investment in Ludza were abandoned and a financing scheme with new partners was developed. Four new municipalities were selected in 2003 (Tukums, Vabole, Jumprava, Balvi). In 2004, eight additional municipalities were selected (Katvari, Lielaucē, Pelēči, Dagda, Šķaune, Lielplatone, Aglona, Viļaka) while an application from Ventspils was refused. By project end, 15 municipalities were involved in project activities. <p>Based on 4.3 (a) and (c) it is likely that further scale up is possible.</p>

4.4 Assessment of the project's monitoring and evaluation system based on the information in the TE

<p>A. M&E design at Entry</p>	<p>Rating (six point scale): S</p>
<ul style="list-style-type: none"> ○ The Project Brief identified a set of comprehensive indicators and targets. ○ The Mid-Term evaluation recommended that in 'to avoid further implementation and assessment difficulties for the project team, new indicators should reflect the desired quantity, quality and timeframe'. The original design did not appear to fit logically with the new project design and some components of the revised project design appeared to have been missing or inadequate. In particular, the flow of activities to outputs and outcomes to immediate objectives was not entirely logical and specific quantifiable and time-bound indicators for some activities and outputs are missing. (TE, pp19) ○ 	
<p>B. M&E plan Implementation</p>	<p>Rating (six point scale): S</p>
<ul style="list-style-type: none"> ○ The project maintained detailed PIRs, and according to the TE, it adhered to the recommendations of the Mid term Review. ○ The project logical framework was designed and included in the original project document (March 2001) as Annex II: 'Project Planning Matrix'. The TE notes that the framework matrix was not 	

updated, as recommended by the Mid-Term review. As a result, the project outputs and activities frequently did not include useful indicators. The Mid-Term evaluation recommended that in 'to avoid further implementation and assessment difficulties for the project team, new indicators should reflect the desired quantity, quality and timeframe'. (TE, pp19)
C.1 Was sufficient funding provided for M&E in the budget included in the project document? \$68,000 US was earmarked for the UNDP/GEF M&E and office and administrative support – there is no reference to lack of funds according to the TE. The Project Brief had itself anticipated \$15,000.
C.2 Was sufficient and timely funding provided for M&E during project implementation? No information
C.3 Can the project M&E system be considered a good practice? Yes.

4.5 Lessons

Project lessons as described in the TE

What lessons mentioned in the TE that can be considered a good practice or approaches to avoid and could have application for other GEF projects?
The key lesson learned is that local capacity development activities should include the capacity of public officials to work with the private sector. Modifications in the Latvia project have promoted improved awareness of the private sector's role in heat provision and strengthened ability to oversee public interest in municipal services. (PIR 2005)

4.6 Quality of the evaluation report Provide a number rating 1-6 to each criteria based on: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, and Highly Unsatisfactory = 1. Please refer to document "GEF Office of Evaluation Guidelines for the verification and review of terminal evaluations" for further definitions of the ratings.

4.6.1 Comments on the summary of project ratings and terminal evaluation findings from other sources such as GEF EO field visits, etc.
None

4.6.2 Quality of terminal evaluation report	Ratings
A. Does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?	S
B. Is the report internally consistent, is the evidence complete/convincing and are the IA ratings substantiated?	MS
C. Does the report properly assess project sustainability and /or a project exit strategy?	S
D. Are the lessons learned supported by the evidence presented and are they comprehensive?	S
E. Does the report include the actual project costs (total and per activity) and actual co-financing used?	S
F. Does the report present an assessment of project M&E systems?	S

4.6.3 Assessment of processes affected attainment of project outcomes and sustainability.

Co-financing and Project Outcomes & Sustainability. If there was a difference in the level of expected

co-financing and actual co-financing, then what were the reasons for it? Did the extent of materialization of co-financing affect project's outcomes and/or sustainability, and if it did affect outcomes and sustainability then in what ways and through what causal linkage did it affect it?

Actual cofinancing was greater than expected cofinancing and this increased the outcomes and sustainability of the project's results as the project was implemented in more municipalities.

- The project began with a Private, Public Partnership strategy in Ludza. Co-financing was planned between the Dutch company and UNDP in collaboration with the Ludza municipality. Subsequent conflict dictated that the project strategy be changed to focus on building partnership arrangements between municipalities and internal Latvian donors such as the LEIF(TE, pp26) – this appears to have been achieved successfully for 8 municipalities.

Delays and Project Outcomes & Sustainability. If there were delays in project implementation and completion, then what were the reasons responsible for it? Did the delay affect the project's outcomes and/or sustainability, and if it did affect outcomes and sustainability then in what ways and through what causal linkage did it affect it?

The project strategy was revised three times, along with several budget revisions.

- Due to the conflict between the Ludza municipality and *Ludza Bio-Enerģija*, the project schedule was extended until June 2005. The project focus broadened over time, involving 15 municipalities rather than the original 4 to 6 and immediate project objectives were extended and new activities were introduced. The project then advanced quickly, and a project assistant and a PR specialist, working in collaboration with the newly interested municipalities, were hired as project support staff. Project implementation and activities proceeded smoothly from this point until the project conclusion. (TE, pp28) Thus, the delay helped in

4.7 Is a technical assessment of the project impacts described in the TE recommended? Please place an "X" in the appropriate box and explain below.

Yes: ✓	No:
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Explain: it is explained in detail ; in accordance with the revised (March 2005) UNDP/GEF Project Monitoring and Evaluation Policy.

4.8 Sources of information for the preparation of the TE review in addition to the TE (if any)

PIRs 2005, 04, 03, 02 and Project Document (2000)