GEF EO Terminal Evaluation Review Form

1. PROJECT DATA				
			Review date:	March 2011
GEF Project ID:	2490 MSP		at endorsement (Million US$)	at completion (Million US$)
IA/EA Project ID:	84688	**GEF financing:**	972,920	972,920
Project Name:	Renewable Energy from Agricultural Wastes (REAW)	IA/EA own:	1,434,950	783,230
Country:	Moldova	Government:	0.0	0.0
		Other*:	219,388	61,071
		Total Cofinancing	1,654,338	844,301
Operational Program:	OP#6 Renewable Energies	**Total Project Cost:**	2,627,258	1,817,221
IA	World Bank	Dates		
Partners involved:	Consolidated Agricultural Project Management Unit (CAPMU)	Effectiveness/ Prodoc Signature (i.e. date project began)		June 2005
		Closing Date	Proposed: May 2008	Actual: May 2008
TER Prepared by: Oreste Maia-Andrade	TER peer reviewed by:	Duration between effectiveness date and original closing (in months): 36 months	Duration between effectiveness date and actual closing (in months): 36 months	Difference between original and actual closing (in months): 0 month
Author of TE: Sandra Broka		TE completion date: June 2008	TE submission date to GEF EO: August 2010	Difference between TE completion and submission date (in months): 22 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 AND KEY FINDINGS

Please refer to document GEF Office of Evaluation Guidelines for terminal evaluation reviews for further definitions of the ratings.

Performance Dimension	Last PIR	IA Terminal Evaluation	IA Evaluation Office evaluations or reviews	GEF EO
2.1a Project outcomes	S	S	N/A	S
2.1b Sustainability of Outcomes	N/A	Moderate	N/A	ML
2.1c Monitoring and evaluation	S	U/A	N/A	MS
2.1d Quality of implementation and Execution	N/A	N/A	N/A	S
2.1e Quality of the evaluation report	N/A	N/A	N/A	MS

2.2 Should the terminal evaluation report for this project be considered a good practice? Why?

Yes, the TE might be considered a good practice. However, some points should be pondered:

- The TE does not explain the reasons for the cofinancing having been lower than expected.
- The document does not provide much information about country ownership.
- Although M&E plan implementation is reported to have accomplished all its activities, the TE does not provide detailed information about it.

2.3 Are there any evaluation findings that require follow-up, such as corruption, reallocation of GEF funds, mismanagement, etc.?

A reallocation of funds was made:

- According to the TE, "a reallocation was made in the total amount of US$ 22,469 from Category (2) "Consultants"' services, including training and audit" to Category (1) "Goods".
- The TE explains that "the reallocation of proceeds stemmed from the need to design and pilot a boiler cleaning mechanism, to speed up the boiler cleaning in order to reduce the heating losses."

3. PROJECT OBJECTIVES

3.1 Project Objectives

a. What were the Global Environmental Objectives of the project? Were there any changes during implementation?

According to the PAD submitted for CEO Endorsement:

- "The main objective is to overcome barriers to the update of biomass technologies *by providing examples* of best practice (demonstration plants) in the use of biomass fuelled energy systems as a viable alternative to gas, oil and coal and as a sustainable means of addressing the energy supply problems facing rural communities and agro-enterprises. Demonstration systems would be of a size, scale and cost appropriate for wide replication in rural areas. This would be supported by access to information, technical support and a fund to cover the incremental capital cost in installation of biomass-fuelled systems."
- According to the TE, "In practical terms, the Project was to pilot the use of biomass-fuelled boilers in 8 – 10 selected sites as a viable alternative to gas, oil and coal, and as a sustainable means of addressing the energy supply problems faced by the country. The use of this technology was also to improve energy efficiency in heating systems, reduce greenhouse gas emissions by replacing fossil fuels, and decrease environmental pollution from unwanted biomass otherwise being burnt in the fields."

The Project objectives were not changed during implementation.

b. What were the Development Objectives of the project? Were there any changes during implementation? (describe and insert tick in appropriate box below, if yes at what level was the change approved (GEFSEC, IA or EA)?)

According to the PAD submitted for CEO Endorsement, the project consisted of the following components:

- Part A: Biomass Energy Demonstration Units: (i) Provision of technical assistance to prepare technical specifications for the installation of demonstration sites through stakeholder consultation; (ii) supply and installation of boilers plants on a turn-key basis; and (iii) training and capacity building in the operation and maintenance of equipment.
- Part B: Biomass production and Fuel Cycle Support: (i) Provision of technical assistance to prepare technical specifications for biomass bale production equipment purchase and establishment of adequate storage facility; (ii) provision of co-financing grants to enterprises willing to invest into biomass bale supply system; and (iii) provision of technical assistance and capacity building for all engaged stakeholders in developing sustainable biomass supply systems, including contracting arrangements, technical specifications, quality insurance, and training.
- Part C: Public Awareness, Outreach and Dissemination, and Information Barriers Removal: Provision of technical assistance to launch an intensive public information campaign in order to increase awareness of the rural population regarding usage of renewable energy and biomass in the country by using the local mass-media, regional and site workshops, seminars, panel discussions and providing a telephone hotline for this purpose.
- Part D: Project Management, Monitoring and Evaluation, and Audit

The project components were not changed during implementation.

Overall Environmental Objectives	Project Development Objectives	Project Components	Any other (specify)
N/A	N/A	N/A	N/A

c. If yes, tick applicable reasons for the change (in global environmental objectives and/or development objectives)

Original objectives	Exogenous conditions changed,	Project was restructured	Project was restructured	Any other (specify)

not sufficiently articulated	due to which a change in objectives was needed	because original objectives were over ambitious	because of lack of progress	
N/A	N/A	N/A	N/A	N/A

4. GEF EVALUATION OFFICE ASSESSMENT OF OUTCOMES AND SUSTAINABILITY

4.1.1 Outcomes (Relevance can receive either a satisfactory rating or a unsatisfactory rating. For effectiveness and cost efficiency a six point scale 6= HS to 1 = HU will be used)

a. Relevance **Rating: 5**

Satisfactory:

- According to the TE, with regard to relevance for the Bank, "the Project provides a valuable contribution to the current debate on Climate Change, which is one of the most important priorities for the Bank not just in ECA Region, but also globally. The Project was designed at the outset of the Climate Change debate in the Bank, thus providing an innovative, easily replicable tool for emission reductions and slowing of Climate Change globally." With regard to relevance for the country, "in the ECA Region, Moldova is at the forefront of Climate Change debate, and it is also one of the poorest countries. Therefore, the introduction of new technologies by demonstration of carbon-neutral heating systems, which allows for operating cost savings, in particular for the public sector, and reduction of the carbon emissions, was a very important Project for Moldova."
- Considering the valuable importance of the Project both for the Bank and Moldova, as well as with regard to operational program on the promotion of renewable energies and in terms of climate change mitigation, its relevance is rated as satisfactory.

b. Effectiveness **Rating: 5**

Satisfactory:

The TE analyzes Effectiveness with regard to the *Achievement of Component Outputs:*

- *Part A: Biomass Energy Demonstration Units* (Component Costs US$ 826,801, of which GEF US$ 587,365, and Government Co-financing of US$ 239,435): (i) Eleven biomass boilers (ranging from 80 kW to 600kW) with a total capacity of 2,720 kW were supplied and installed in public buildings (mostly schools and kindergartens) in selected rural communities on a turn-key basis. (ii) Two local producers of biomass heating systems were identified and received manufacturing licenses, and the boilers were licensed for use in Moldova. (iii) Boiler cleaning mechanism designed. (iv) Demonstration unit staff is trained on maintenance and operation of the installations.
- *Part B: Biomass Production and Fuel Cycle Support* (Component Costs US$ 646,232, of which GEF US$ 120,132, and Government Co-financing of US$ 526,100): (i) Provided technical assistance in the preparation of a technical specification for biomass bale production equipment and grant funding for the purchase of the equipment. (ii) Provided technical assistance and capacity building for all engaged stakeholders in developing sustainable biomass supply systems, including contracting arrangements, technical specifications, quality insurance, and training.
- *Part C: Public Awareness, Outreach and Dissemination, and Information Barriers Removal* (Component Costs US$ 126,431, of which GEF US$ 118,529, and Government Co-financing of US$ 7,902) The project has ensured a number of information dissemination and promotional activities: (i) Ran a series of seminars for local authority representatives and directors of schools, kindergartens and other public offices with a total outreach of about 350 persons; (ii) Produced and broadcasted four audio ads (2 social, on environment efficiency and 2 on economic efficiency in Romanian and Russian), four video ads (2 social, on environment efficiency and 2 on economic efficiency in Romanian and Russian), and a short documentary movie (15-20 min.); (iii) Designed and published information leaflets (20,000 copies) and promotional materials (calendars, handouts and brochures) for a wide dissemination; (iv) Participated in several thematic exhibitions to disseminate the information about the biomass boilers. (v) Developed and published 550 copies of a book "Biomass and Its Utilization for Energy Purposes" (in Romanian), which will be sent to local authorities, the National Agricultural Training and Consultancy Agency (ACSA), the Carbon Finance Unit (under the Ministry of Ecology), libraries and other organizations, which would be effective in disseminating the findings of the book to a broader audience; (vi) Developed a website www.biomass.md, which contains information on biomass boilers and use of biomass as an alternative fuel.
- *Part D: Project Management, Monitoring and Evaluation and Audit* (Component Costs US$ 156,687, of which GEF US$ 146,894, and Government Co-financing of US$ 9,793): The Project Implementation Unit (CAPMU) ensured smooth implementation of the project activities, monitored achievement of the objectives and ascertained compliance with the Bank's safeguard policies (financial management).

- Considering that effectiveness was analyzed in detail, per component in the TE, and all components were fulfilled commensurately with expected outcomes, effectiveness is rated as satisfactory.

c. Efficiency (cost-effectiveness) **Rating: 5**

Satisfactory:

- According to the TE, "all Trust Fund activities had been implemented by the end of the Project. Largely the activities were performed timely, with the exception of the identification and tender of the first local boiler maker, in order to start the manufacturing of the boilers locally and reduce the manufacturing costs. As a result the project experienced a delay of about 6 months between the import and installation of the first boiler and the start of manufacturing of the boilers locally. The Project did not exceed its overall costs. A small reallocation was required to finish the boiler installation works (contracted in local currency), mostly due to the weakening of the dollar. The key economic and financial benefits were achieved at the beneficiary level, and are significant."
- Since the project has been fully, timely and efficiently implemented, with positive impact at the beneficiary level, while experiencing multiple changes in the project staff on both sides, efficiency is rated as satisfactory.

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= Likely (no or negligible risk); 3= Moderately Likely (low risk); 2= Moderately Unlikely (substantial risks) to 1= Unlikely (High risk)). The ratings should be given taking into account both the probability of a risk materializing and the anticipated magnitude of its effect on the continuance of project benefits.

a. Financial resources **Rating: 3**

Moderately Likely:

- The Project has not yet led to any follow-up activities stemming directly from the results of this pilot. However, the Project team has held discussions, and will continue to work on pursuing grant funding for scaling up the use of biomass boilers in the public buildings in rural communities (in the context of the on-going CDCF Project on Public Heating Systems in Moldova's Rural Communities, which was prepared together with this MSP and scales up use of biomass boilers). Discussions have been held with the representatives of the Swedish International Development Agency (SIDA) and the Government of Japan, and this follow-up work will continue.
- Considering that no results were achieved through these discussions, sustainability of financial resources is moderately likely.

b. Socio political **Rating: 3**

Moderately Likely:

- According to the TE, with regard to the Overall Risk to Development Outcome, the sustainability aspect should be separated for private and public sectors.
- For the private sector, the expected sustainability is considered high by the TE. Possibilities for use of such biomass boilers is wide – business purposes (heating of offices, greenhouses, etc), and also heating of residential buildings. With the increase in the boiler production volume and improved efficiency of the design achieved by one of the local boiler makers, the price of the boilers (in particular, the small boilers), is within reach of many potential private sector users.
- For the public sector, where social benefits for local communities would also be achieved, as already mentioned above, the sustainability is burdened by the very high investment costs and financial restrictions placed on local authorities. Sustainability of the outcomes here depend on availability of grant funding (which the project team continues to seek), thus it is rated low by the TE. However, once the initial investment has been made through grant and/or some other available funding, the operation of the biomass boilers is cheaper, thus increasing the sustainability of this type of heating.
- Considering these differences of sustainability regarding the private and the public sector, overall sustainability is moderately likely.

c. Institutional framework and governance **Rating: N/A**

Not Applicable:

- Promoting institutional framework and governance with regard to REAW was not an objective (neither a

component activity) of this particular MSP. However, lack of an institutional framework diminishes the Project's environmental sustainability, particularly regarding the excessively bureaucratic public sector in Moldova. For this reason, future MSPs could and should include institutional and legal goals/components in that regard, as they might represent a good opportunity for further promotion of renewable energies.

d. Environmental **Rating: 3**

Moderately Likely:

- Considering the satisfactory achievement of project outcomes – demonstrated social and economic benefits of renewable energy, including decreased operating costs. Eight agro-enterprises engaged in contractual relationships with the beneficiary local authorities. Emission reduction amounting to 1,561 tons of CO_2 achieved at the Project sites – as well as to the high replicability of these outcomes, especially by the private sector, environmental sustainability would be likely.
- However, lack of an institutional framework, although it was not (but could and should have been) a project objective/component, diminishes the Project's environmental sustainability, particularly regarding the excessively bureaucratic public sector in Moldova. Therefore, environmental sustainability is rated no higher than moderately likely.

4.3 Assessment of processes and factors affecting attainment of project outcomes and sustainability.

a. Co-financing. To what extent was the reported cofinancing (or proposed cofinancing) essential to achievement of GEF objectives? Were components supported by cofinancing well integrated into the project? 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? If it did, then in what ways and through what causal linkages?

The TE does not mention anything directly related to the importance of cofinancing, but from the numbers is inferable that:

- The cofinancing reported in the TE was half-way below expectations in the Project Brief (from US$ 1.654.338 down to US$ 844.301), regarding both recipient and financial intermediaries' co-financing.

b. Delays. If there were delays in project implementation and completion, then what were the reasons for it? Did the delay affect the project's outcomes and/or sustainability? If it did, then in what ways and through what causal linkages?

The TE has only a small mention to a delay:

- This Project is a rare example in its Cohort of a timely conclusion, without any extension. According to the TE, in its evaluation of Project efficiency, "all Trust Fund activities had been implemented by the end of the Project. Largely the activities were performed timely, with the exception of the identification and tender of the first local boiler maker, in order to start the manufacturing of the boilers locally and reduce the manufacturing costs. As a result the project experienced a delay of about 6 months between the import and installation of the first boiler and the start of manufacturing of the boilers locally."
- Considering the project termination in time, this delay did not compromise project efficiency.

c. Country Ownership. Assess the extent to which country ownership has affected project outcomes and sustainability? Describe the ways in which it affected outcomes and sustainability highlighting the causal links.

The TE has not much information about country ownership, but it mentions that:

- "Switching of the heating systems in the public sector buildings in Moldova is complicated due to the lack of funding from the central and/or local governments for these purposes (although the search for donor funding is continued). The private sector in Moldova has already started using these new technologies, and the rate of adoption is expected to increase." This information suggests that bureaucratic obstacles prevent governmental facilities to adopt the new technologies, but the private sector tends to follow the international trend.

The Project Brief provides more detailed and specific information regarding country ownership, suggesting a significant involvement of national institutions: According to the document:

a) Country Eligibility: Moldova has ratified the United Nations Framework Convention on Climate Change (UNFCCC) on June 9, 1995 and the Kyoto Protocol to UNFCCC on April 22, 2003. Moldova is a developing country and meets all the eligible criteria to receive funding through financial mechanism in accordance with COP's decisions.
b) Country Drivenness: The project will support ongoing efforts of Moldova to reduce and mitigate greenhouse

gas emissions. As a developing country and a party to the Framework Convention on Climate Change and Kyoto Protocol Moldova has undertaken the commitment to contribute, as far as possible, to the international efforts to moderate the anthropogenic impact on global climate. In this respect, activities in various areas were implemented: preparation of greenhouse inventory, estimation of different sector's vulnerability to climate change, development of action for abatement and adaptation to climate change, reported the First National Communication under the United Nations Framework Convention on Climate Change in 2000, as well as education, training and awareness building among the population, especially the younger generation.

c) According to the TE, "the necessity of developing the use of renewable energy is reflected in various priorities, strategies, action-plans and analyses including: The Government Decision On the Use of the Renewable Energy Resources; Interim Economic Growth and Poverty Reduction Strategy ; Strategy for Agricultural and Rural Development; National Environmental Action Plan; National Communication on Greenhouse Gas Emissions Abatement; Energy Strategy and Indicative Action Plan to 2010; The National Program of energy conservation 2003-2010; The National Strategic Action Program for Environmental Protection 1995-2020, 1995 (NSAPEP); The Comprehensive Long–Term Program for Environmental Protection and Rational Use of Natural Resources in the Republic of Moldova 1987-2005."

d) To the TE, "these national priorities, action plans, and programs have set the stage for an implementation program in the upgrade of energy systems, energy conservation and the inclusion of renewable energy into development programs. Specific development of the institutional, legal and regulatory framework within the Heat Sector has resulted in the elaboration of a Heat Strategy, approved by the Government, and a Heat Law. The goal of the act is to establish a legal framework that will increase the efficiency of the supply and use of thermal supply systems, promote effective competition in the heat market and stimulate the usage of renewable energy as effective alternative to imported fuels. The Ministry of Energy has also developed a strategy for the decentralization of heat systems in settlements / towns (including specific economic and technical analyses) which also opens opportunities to install new energy systems on renewable basis for decentralized heating system on local public facilities."

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

a. M&E design at Entry **Rating (six point scale): 4**

Moderately Satisfactory:

- According to the Project Brief, the following M&E practices would be implemented: Semi-annual reporting, Progress reports; Track of the investment and operation plans for both, the GEF sponsored and the CDM sponsored installations; Bank supervision; Consultant reports; Sector assessments presented; Financial Monitoring Reports (FMR's); Annual Procurement Report (including special procurement supervision for post-review/audits); Annual external audit, provided by an independent expert.
- Considering that M&E plan at entry contained an appropriate data analysis system to monitor results and track progress towards achieving project objectives, but also remarking that a more detailed explanation regarding the use of SMART indicators could have been provided, M&E design is rated as moderately satisfactory.

b. M&E plan Implementation **Rating (six point scale): 4**

Moderately Satisfactory:

- All the TE mentions about M&E is with regard to its fourth project component: "Part D: Project Management, Monitoring and Evaluation and Audit (Component Costs US$ 156,687, of which GEF US$ 146,894, and Government Co-financing of US$ 9,793) The Project Implementation Unit (CAPMU) ensured smooth implementation of the project activities, monitored achievement of the objectives and ascertained compliance with the Bank's safeguard policies (financial management)."
- Considering that M&E at implementation have indeed accomplished all its activities, but remarking that the TE does not provide detailed information about the M&E system, M&E plan implementation is rated as moderately satisfactory.

4.6 Assessment of Quality of Implementation and Execution

a. Overall Quality of Implementation and Execution (on a six point scale): 5

b. Overall Quality of Implementation – for IA (on a six point scale): 5

Briefly describe and assess performance on issues such as quality of the project design, focus on results, adequacy of supervision inputs and processes, quality of risk management, candor and realism in supervision reporting, and

suitability of the chosen executing agencies for project execution.

Satisfactory:

- According to the TE, "the project's technical and institutional design, and the implementation arrangements, including those for procurement and financial management, was appropriate. The respective project requirements were outlined in the MSP Brief and Letter-Agreement in sufficient detail. During supervision, the project experienced three changes in TTLs, which explains some of the gaps in the filing of the supervision reports for the Project (although the second TTL was based in Moldova and followed up on project implementation on regular basis). Yet, the Project was implemented fully and required only one extension of five months. All implementation problems were identified and addressed timely and proactively. Advice to the Recipient and the follow-up on the agreed actions were adequate. The skill mix of the supervising team was adequate, as at all times it included an Environmental Expert. Financial Management supervision was performed regularly, and appropriate procurement-related advice was sought from the Procurement Staff. The Project complied with the applicable Bank's policies and procedures." Considering the positive analysis provided in the TE, and since no major shortcoming was identified in the Bank's performance, implementation with regard to project design, focus on results, adequacy of supervision, and so on, is rated as satisfactory.

c. Quality of Execution – for Executing Agencies[1] (rating on a 6 point scale): 5

Briefly describe and assess performance on issues such as focus on results, adequacy of management inputs and processes, quality of risk management, and candor and realism in reporting by the executive agency.

Satisfactory:

- According to the TE, "the Project was implemented by the Consolidated Agricultural Project Management Unit (CAPMU), which has gained solid experience and expertise through coordinating a number of World Bank projects. At all times CAPMU maintained the staff, skills and resources necessary to ensure successful implementation of the Project. The Project experienced one change in the Project Coordinator. The transfer took place smoothly, as the Assistant to the Project Coordinator became the new Project Coordinator. The technical supervision, procurement and financial management capacity were ensured at all times and adequate."
- Considering that no major shortcoming was identified in the recipient's performance, CAPMU's execution through its experience with Bank's projects and, overall, its focus on results is rated as satisfactory.

5. PROGRESS TOWARDS IMPACT

a. What is the *outlined* outcomes-to-impact pathway?

Briefly describe the logical sequence of means-to-end linkages underlying a project (Outcome to impact pathways are the means-ends relationships between project outcomes and the intended impacts – i.e. the logical results chain of activity, output, outcome and impact)

Activities	Outputs	Outcomes	Intermediary States	Impacts / GEB

[1] Executing Agencies for this section would mean those agencies that are executing the project in the field. For any given project this will exclude Executing Agencies that are implementing the project under expanded opportunities – for projects approved under the expanded opportunities procedure the respective executing agency will be treated as an implementing agency.

To provide technical assistance and capacity building for the preparation of technical specifications, for the installation of demonstration sites through stakeholder consultation, for biomass bale production equipment purchase and establishment of adequate storage facility, for all engaged stakeholders in developing sustainable biomass supply systems, including contracting arrangements, technical specifications, quality insurance, training, operation and maintenance of equipment. To supply and install boilers plants on a turn-key basis; To provide co-financing grants to enterprises willing to invest into biomass bale supply system; To promote awareness raising to launch an intensive public information campaign in order to increase awareness of the rural population regarding usage of renewable energy and biomass in the country by using the local mass-media, regional and site workshops, seminars, panel discussions and providing a telephone hotline for this purpose. To conduct Project Management, Monitoring and Evaluation, and Audit.	Barriers to the update of biomass technologies were overcome through demonstration plants in the use of biomass fuelled energy systems as a viable alternative to gas, oil and coal and as a sustainable means of addressing the energy supply problems facing rural communities and agro-enterprises; The Project piloted the use of biomass-fuelled boilers in selected sites as a viable alternative to gas, oil and coal, and as a sustainable means of addressing the energy supply problems faced by the country;	The adoption rate of biomass heating systems is growing, and the installed boilers are often visited by interested private individuals, local authority and business representatives. The project represents a suitable fuel alternative to reduce Moldova's dependence on external fuel resources. Clear social benefit, through an improvement of the rural population's health, resulting from higher quality and more consistent heating supply and reduced pollution of air.	The Project has not yet led to any follow-up activities stemming directly from the results of this pilot. Lack of Institutional framework with regard to REAW was not an objective (neither a component activity) of this particular MSP, but could increase the Project's environmental sustainability, particularly regarding the excessively bureaucratic public sector in Moldova.	Improved energy efficiency in heating systems; Reduced greenhouse gas emissions by replacing fossil fuels; Decreased environmental pollution from unwanted biomass otherwise being burnt in the fields; Higher quality and more consistent heating supply and reduced pollution of air.

b. What are the actual (*intended or unintended)* impacts of the project?

Based on the assessment of outcomes [4.1.1] explain to what extent the project contributed to or detracted from the path to project impacts and to *impact drivers* (Impact drivers are the ***significant factors*** that, if present, are expected to contribute to the ultimate realization of project impacts and that are within the ability of the project to influence

Considering the assessed outcomes and presented impacts, impact drivers were:

- **Awareness dissemination**: among the project stakeholders, local authorities, rural businesses and larger public of biomass heating systems through a range of dissemination measures as described above in Section C2. Although biomass heating systems are not yet installed on any significant scale, the adoption rate is expected to increase. The installed boilers are often visited by interested private individuals, local authority and business representatives. Dissemination of knowledge also increased local expertise in biomass heating systems. The Project worked with representatives of the scientific community, engineers, NGOs and public and private sector. As a result the knowledge and expertise in biomass-based heating systems has been disseminated.
- **Demonstration of sustainability and profitability of the use of biomass alternatively to coal and gas**: This is particularly important in the context of the country's fuel security. Being fully dependent on imports of gas and coal, the country is concerned about finding suitable fuel alternatives to reduce its dependence on external fuel resources. Such demonstrations also triggered the interest of other donors in the positive social impacts in the communities where the biomass boilers were installed. Two donors, specifically, the Government of Japan and the Swedish International Development Agency (SIDA) are

considering the possibilities to invest in biomass heating systems in rural communities. Also, the banking sector is increasingly looking for opportunities in the field of environment. With the increased awareness of Climate Change issues, environmentally friendly technologies and carbon benefits, the banking sector is increasingly seeking opportunities for involvement. For instance, one of the biomass boiler makers has arranged a loan and leasing product through one of the country's largest banks, to finance purchase of its boilers. The banking sector also financed the purchase of the boiler by the farmer, as mentioned above. As the banking sector becomes increasingly fluent with such products, financing of environmentally friendly technologies is expected to pick up (especially if the carbon benefit is applied).

- **Clear social benefit**: An improvement of the rural population's health was reported in the TE, resulting from higher quality and more consistent heating supply (in particular this refers to children attending the schools and kindergartens where the boilers were installed) and reduced pollution of air, as a result of switching from dirty fuel (coal) to the much cleaner biomass. Although to date the impact is not yet significant, it is expected to increase with the wider adoption of the biomass boilers.

c. Drawing on the assessment of the likelihood of outcome sustainability[4.2], what are the apparent risks to achieved impacts being sustained and likely impacts being achieved?

Considering the assessed likelihood of outcome sustainability, it is inferable from this project that the apparent risks to impacts were:

- **No follow-up activities yet:** The Project has not yet led to any follow-up activities stemming directly from the results of this pilot. Although the Project team has held discussions with the Swedish International Development Agency (SIDA) and the Government of Japan, and will continue to work on pursuing grant funding for scaling up the use of biomass boilers in the public buildings in rural communities, no results were achieved so far through these discussions, leading to a moderately unlikely sustainability of financial resources.
- **Excessive bureaucracy in the public sector**: The TE highlights that the sustainability aspect should be separated for private and public sectors, since for the private sector, the expected sustainability for the private sector is considered high (because of possibilities for use of such biomass boilers with business purposes – heating of offices, greenhouses, residential buildings etc), and for the public sector, where social benefits for local communities would also be achieved, as already mentioned above, the sustainability is burdened by the very high investment costs and financial restrictions placed on local authorities.
- **Lack of Institutional framework**: Although promoting institutional framework and governance with regard to REAW was not an objective (neither a component activity) of this particular MSP, lack of an institutional framework diminishes the Project's environmental sustainability, particularly regarding the excessively bureaucratic public sector in Moldova.

d. **Evidence of Impact**

Question	**Yes**	**No**	**UA**
i. Did the evaluation report on ***stress reduction***[2] at the local level (i.e. at the demonstration-pilot level, etc)?	X		
ii. If yes, describe the evidence that was provided whenever possible quoting quantitative evidence. Also discuss the scope[3] of such reductions given the range of concerns targeted by the project. Yes: • In the selected sites where the Project was piloted, the use of biomass-fuelled boilers was demonstrated to be a viable alternative to gas, oil and coal, and a sustainable means of addressing the energy supply problems faced by the country. Although the potential for stress reduction at the local level is much higher than the actual result, the pilot initiative has obviously led to a certain level of local stress reduction.			
iii. Did the evaluation report stress reduction at the broader systemic level?	X		
iv. If yes, describe the evidence that was provided whenever possible quoting quantitative evidence. Also discuss the scope of such reductions given the range of concerns targeted by the project. Yes: • Also at the potential level, the Project piloted an initiative that might tremendously reduce the emission of greenhouse gases, having obviously contributed for a small reduction of emissions in the implemented sites.			

[2] Stress = Pressure on the environment caused by human activities; Reduction=decrease of this pressure
[3] Scope refers to the broadness of results against original objectives,

v. Did the evaluation report change in the ***environmental status*** at the local level (i.e. at the demonstration - pilot level, etc)		X	
vi. If yes, describe the evidence that was provided whenever possible quoting quantitative evidence. Also discuss the scope of change given the range of concerns targeted by the project.			
vii. Did the evaluation report change in the environmental status at the broader systemic level?		X	
viii. If yes, describe the evidence that was provided whenever possible quoting quantitative evidence. Also discuss the scope of such change given the range of concerns targeted by the project.			
ix. Did the evaluation report change in the socioeconomic status at the local level?	X		
x. If yes, describe the evidence that was provided whenever possible quoting quantitative evidence. Also discuss the scope of change given the range of concerns targeted by the project. Yes: • An improvement of the rural population's health was reported in the TE, resulting from higher quality and more consistent heating supply (in particular this refers to children attending the schools and kindergartens where the boilers were installed) and reduced pollution of air, as a result of switching from dirty fuel (coal) to the much cleaner biomass. Although to date the impact is not yet significant, it is expected to increase with the wider adoption of the biomass boilers.			
xi. Did the evaluation report change in the socio-economic status at the systemic level?		X	
xii. If yes, describe the evidence that was provided whenever possible quoting quantitative evidence. Also discuss the scope of change given the range of concerns targeted by the project.			
xiii. Did the evaluation provide evidence of any negative impacts (on drivers toward the projects intended impact, environmental status, socioeconomic status)? Describe the impacts that were documented and how severe were these impacts? No negative findings were noted in the TE.			
e. Monitoring of impacts			
i. Are arrangements/institutions in place to monitor stress reduction/improvement in the environment and/or socio-economic conditions at the local level after project completion?		X	
ii. Are arrangements/institutions in place to monitor stress reduction/improvement in the environment and/or socio-economic conditions at the systemic level after project completion?		X	

6. LESSONS AND RECOMMENDATIONS

Assess the project lessons and recommendations as described in the TE

a. Briefly describe the key lessons, good practice or approaches mentioned in the terminal evaluation report that could have application for other GEF projects

The Lessons Learned and Recommendations below are mostly intended for the **Donors and Teams** considering similar follow-up operations:

(i) Careful selection of the Project sites. Site selection should be done carefully, as success of the project implementation largely hinges on the suitability of the selected sites. Use of experts (technical, social, environmental) is highly recommended. In order to become a participating local authority, in Moldova's project positive answers were to be obtained to the following key questions: whether the village was not expected to be fully connected to the gas pipeline during the next 3 – 5 years (there is an on-going gasification of the country); the readiness/enthusiasm of the community to participate in the Project; and whether the building was in satisfactory physical condition to retain heat and fully use the benefits of the higher quality heating. To become a straw supplier, the agro-enterprises had to meet the following criteria: have a stable production area of crops/cereals of minimum 300 Ha; have the necessary equipment or be willing to procure it (combine harvesters, tractors and baling equipment); interest in production and supply of biomass; and readiness to sign a long-term straw supply contract with local authorities.

(ii) Contractual arrangements between the local authority and the biomass supplier are critical. A well-constructed contract is needed to ensure a timely and predictable supply, and also to ensure that there are sufficient carry-over stocks. The 2007 drought constrained biomass availability (directly linked to wheat yields) in one of the

Project sites. The contracts contained, in addition to the responsibilities and obligations of both parties, also mutual guarantees for both parties.

(iii) Finished heating system refurbishment in the premises/buildings where the boilers will be installed is a critical pre-condition in order to ensure efficient use of the boilers. In one of the project sites, the director of the school was overoptimistic about receiving the funding for the renovation of the building's heating system, and in the other case the organization refurbishing the heating system in the school did not implement the works according to the design, thus leading to losses of heat. The boilers were installed in these sites, but did not operate for one season due to the issues related to the building heating system refurbishment. The issues were only resolved towards the end of the Project.

(iv) Training/technical assistance to the contract signing parties is very important. Both parties benefit from a reminder on contract sanctity; training should be done for beneficiaries on straw storage, and on straw baling technologies: harvesting with minimal loss, storage and preservation, baling up and preparation for sale, etc, for the straw supplier. Also, the beneficiaries should be explained the impact of the climatic conditions on the quality of the straw (in particular, the moisture content, which makes the bales lighter/heavier than specified), and the heat conversion ratios of the various types of biomass. Regarding the latter, the Project had the following findings:

The following Lesson Learned/Recommendation is for **Governments/Recipients**:

(i) Benefits and incentives to the private and commercial sector need to be considered in order to stimulate investments in carbon-neutral technologies. Such incentives could include tax, carbon values and financing incentives to be available for this market so as to increase affordability and stimulate demand for such technologies.

b. Briefly describe the recommendations given in the terminal evaluation

Recommendations were fused with lessons learned in the TE. See section above.

7. QUALITY OF THE TERMINAL EVALUATION REPORT

7.1 Comments on the summary of project ratings and terminal evaluation findings based on other information sources such as GEF EO field visits, other evaluations, etc.

No others sources were used.

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 terminal evaluations review for further definitions of the ratings. Please briefly explain each rating.

7.2 Quality of the terminal evaluation report	Ratings
a. To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?	5
b. To what extent the report is internally consistent, the evidence is complete/convincing and the IA ratings have been substantiated? Are there any major evidence gaps? The TE does not explain the reasons for the cofinancing having been lower than expected, it does not provide much information about country ownership, and M&E plan implementation.	4
c. To what extent does the report properly assess project sustainability and /or a project exit strategy?	5
d. To what extent are the lessons learned supported by the evidence presented and are they comprehensive?	5
e. Does the report include the actual project costs (total and per activity) and actual co-financing used?	5
f. Assess the quality of the reports evaluation of project M&E systems? Although M&E plan implementation is reported to have accomplished all its activities, the TE does not provide detailed information about the M&E system.	4

8. SOURCES OF INFORMATION FOR THE PRERATATION OF THE TERMINAL EVALUTION REVIEW REPORT EXCLUDING PIRs, TERMINAL EVALUATIONS, PAD.
No other sources were used.