

GEF EO Terminal Evaluation Review Form

1. PROJECT DATA				
		Review date:		
GEF Project ID:	280		<u>at endorsement</u> (Million US\$)	<u>at completion</u> (Million US\$)
IA/EA Project ID:	55	GEF financing:	2.74	2.74
Project Name:	Reduction of Methane Emissions and Utilization of Municipal Waste for Energy in Amman	IA/EA own:	0.00	0.00
Country:	Jordan	Government:	1.32	1.32
		Other*:	1.50	1.50
		Total Cofinancing	2.82	2.82
Operational Program:	OP 6: Promoting adoption of renewable energy by removing barriers and reducing implementation costs.	Total Project Cost:	5.56	5.56
IA	UNDP	<u>Dates</u>		
Partners involved:	Government of Jordan, through the Ministry of Planning	Effectiveness/ Prodoc Signature (i.e. date project began)		August 1997
		Closing Date	Proposed: August 2000	Actual: March 2007
Prepared by: Neeraj Negi	Reviewed by:	Duration between effectiveness date and original closing (in months): 36 months	Duration between effectiveness date and actual closing (in months): 115 months	Difference between original and actual closing (in months): 79 months
Author of TE: Remi Rijs, Abu Hijleh, Ammar Al-Azzeh & Ad Dankers		TE completion date: October 2007	TE submission date to GEF EO: April 2008	Difference between TE completion and submission date (in months): Six 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*	—	MU
2.1b Sustainability of Outcomes	N/A	MS*	—	MU
2.1c Monitoring and evaluation	NA	S*	—	MS
2.1d Quality of implementation and Execution	NA	NA	NA	MU
2.1e Quality of the evaluation report	N/A	N/A	HS	MS

* On a 4 point scale: HS; S; MS; U.

2.2 Should the terminal evaluation report for this project be considered a good practice? Why?
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No. The terminal evaluation does not provide information on actual expenditure and cofinancing. The rating methodologies used in terminal evaluation are not consistent with the GEF guidelines. Due to time limitations the terminal evaluation did not assess the efficacy of the outreach activities. The IA should have allocated adequate time so that this was adequately addressed in the report.

The report provides insightful information on project design and on weakness in project management. It distills important lessons from the project experience.

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

No such instances have been noted in the terminal evaluation.

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 project appraisal document the objective of the project is:

“To reduce biodegradable waste accumulation in Jordan, thereby improving Jordan’s environment and reducing global emissions of green house gases (Ch4 and CO2) while at the same time reducing the dependency of oil imports. The overall objective will be reached by introducing biogas technology. Combined with the introduction of a new environmentally friendly technology a capacity training program will ensure the project sustainability.”

As per the information provided in the terminal evaluation report, there were no changes in the global environmental objectives of the project during project implementation.

b. What were the Development Objectives of the project? Were there any changes during implementation?

The project appraisal document and the PIR 2002 list following as the development objectives of the project:

- “An overall controlled treatment of 18,300 tones of municipal waste per year, subsequently reducing methane (CH4) emissions into the atmosphere by 1,540 tones annually as well as a reduction of CO2 emissions by 5,950 tones annually through the utilization of the methane content of the biogas produced from the waste for replacement of fossil fuel.”
- “An improved basis for an enabling environment which lends itself to institutional security for the demonstration biogas plant and to national planning for bioenergy in Jordan.”
- “An enhanced capability of the Jordanian people to manage and convert their municipal waste to energy in a sustainable manner in order to prevent rapid landfill growth and greenhouse gas emissions and to reduce the dependency on oil imports for energy production.”

According to the terminal evaluation report there has been no change in the development objectives of the project during implementation.

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: S

The objectives of the project are relevant to the GEF Operational Program 6, which aims at promoting adoption of renewable energy by removing barriers and reducing implementation costs.

b. Effectiveness

Rating: MU

According to the terminal evaluation, although almost all of the planned activities and components have been accomplished by the project they do not reinforce and add to the gains made by the other components. Further, at a higher level there was a weak stakeholder commitment and coordination due to which the project did not make strategic gains in terms of influencing policy making. At a lower level, most of the expectations from the project were accomplished. However, a significant part of these gains may not be directly attributed to the project.

All activities under the biogas component have been executed successfully. The achievements in terms of net electricity generated (5840 MWh per year compared to the expected 5550 MWh) and avoided CO2 equivalent emissions due to methane capture (31000 tonnes per year compared to the expected 40,000 tonnes) were close to the targeted

performance. However, a significant part of these gains were made because of capture of landfill gas for electricity generation. Covering the Ruseifah landfill site was done by Greater Amman Municipality and, although the process of implementing this intervention may have been accelerated due to the GEF project, the intervention itself would have been accomplished without this project. Thus, these gains could be only partially attributed to the GEF project.

The technological, institutional and commercial basis for Jordan Biogas Company (JBC), which was established as part of this project, is still weak. The biogas plant is yet to become profitable limiting its efficacy as demonstration initiative. This has primarily been due to its inability to find steady supply of adequate suitable organic waste. The project has also not been able to meet its target of replicating by establishing five biogas plants. Thus, the demonstrated replication of the project intervention has been negligible.

The project has been effective in creating training and research capacity within the Jordan University of Science and Technology (JUST). The university has integrated biogas technology in three different courses for under graduate students and a biogas laboratory has also been established.

c. Efficiency (cost-effectiveness)

Rating: MU

Even though the project spent about 0.24 million in preparing the project, it did not conduct comprehensive feasibility studies to assess the viability of the promoted technologies, during project preparation technological risks were not taken into account. For example, the promoted technology, although successful in European conditions, had not been tried in a developing country context where the characteristics of organic-waste are considerably different. The supply of organic waste for the biogas plant is a third of prior estimates. The risk in terms of access to adequate residue for bio-digestion could have been addressed by opting for a smaller capacity digester (instead of the 2000 cubic meter digester used for the plant) – this would have helped save GEF resources. Further, the fertilizer produced from the process was not of the expected quality due to the high residual salinity. Profitability of the enterprise as estimated in the project appraisal document was not achieved. The project appraisal document estimated that the enterprise will earn US \$ 75,000 in net profits annually. This expectation was not met and the project has not been able to operate profitably. These factors weaken the business case of the demonstration activity. It is unlikely that the biogas company will sustain without continued support.

The project was completed after a delay of about seven and a half years and even then had not been able to accomplish some of the expected outcomes.

4.1.2 Impacts

According to the terminal evaluation the project has contributed to putting waste management on the national agenda. It reports that the Jordanian authorities are now more aware about alternatives to open landfill. It notes that the project has contributed towards inducing a transition in Amman towards more advanced waste management. On the flip side the expected changes in the policy regime that would have promoted renewable energy have not taken place.

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: MU

According to the terminal evaluation the Jordan Biogas Company does not generate the necessary resources to secure its future operations. Without external support it may not become a sustainable business enterprise.

b. Socio political

Rating: MU

Although the government did participate in the project and it did provide in-kind co-financing in form of staff for project execution, its support on other aspects is missing. The evidence provided in the terminal evaluation also suggests that the involved ministries have not actively interacted with the project to create conditions for replication of the activities promoted by the project.

c. Institutional framework and governance

Rating: MU

Jordan Biogas Company (JBC) was created as a joint venture between Greater Amman Municipality and Central Electrical Generation Company (CEGCO). The terminal evaluation suggests that the both the partners did not assimilate the full scope of the biogas project. The project also did not build on this alliance to facilitate replication.

d. Environmental

Rating: L

There seem to be negligible environmental risk.

e. Technological

Rating: MU

Based on the evidence provided in the terminal evaluation report it could be said that the technologies promoted by the project are not locally suited. The residue available for bio-digestion is of poor quality making production of biogas and quality fertilizer difficult. The risks to sustenance of the promoted technologies are significant.

4.3 Catalytic role

a.. Production of a public good
The project has led to establishment of a biogas company that is producing electricity through use of methane harvested through land fill methane capture and biogas production. This has led to reduction in carbon emissions.
b.. Demonstration
The project has not been successful in demonstrating economic viability of the promoted approach.
c.. Replication
Although one of the explicit purposes of the project was to promote replication of project intervention across Jordan. This has not happened.
d.. Scaling up

4.4 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? 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?
Based on the information provided in the terminal evaluation report, the reported cofinancing was essential to achievement of the GEF objectives. The terminal evaluation does not provide information on the extent promised cofinancing materialized. However, based on the information provided in the Project Implementation Report (PIR) for 2007 it could be said that there was no difference between the expected and materialized cofinancing.
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 project was completed after a delay of 79 months. According to the terminal evaluation the project preparation process, institutional arrangements within the project, and negotiations with stakeholders was unsatisfactory leading to delay. There is disconnect between the completion date noted in the terminal evaluation and as has been reported by the implementing agency through the PIR. The terminal evaluation reports that the "project was closed on December 26 2005; for several reasons, the final evaluation could not be arranged for until mid-2007." The PIR 2007, however, notes that the project was operationally closed in March 2007. Further, a review of the preceding PIRs shows that between 2005 and 2007 only US \$ 0.13 m (3% of the total) was spent. The explanation provided in the PIRs suggests that this was done to spend the remaining grant amount on awareness building and outreach activities. The excessive delay in project completion has had a negative impact on the cost effectiveness of the project.
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.
Based on the information provided in the terminal evaluation it appears that other than the in-kind contribution in form of project staff, overall the government support for the project was missing. As a result the market incentives and enabling conditions that could have facilitated replication of the intervention promoted by the project did not materialize. This has increased the risks to sustainability of the project outcomes.

4.5 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): MS
The project appraisal document does not include a separate logical framework of the project to summarize the project design. However, the key constituents of the logical framework such as objectives, indicators, targets and means of verification are weaved in the narrative of the document (section D). Although section F of the document lists some of the risks, it does not cover all the key risks relevant to this project. The project appraisal includes a fairly detailed work plan where in the temporal sequence of various project activities have been detailed. Section H of the document specifies the reporting, review and evaluation arrangements for the project. It provisions for a mid term review, tripartite review meetings, and six monthly progress reports by the administrative director of the project to the UNDP. The M&E plan also allocates a separate budget for M&E.	
b. M&E plan Implementation	Rating (six point scale): MS
According to the terminal evaluation, the project design was redrafted in 2004 using the logical framework approach in order to distinguish the separate objective-outcome-output levels in line with the new APR/PIR formats for annual reporting. According to the evaluation, some of the indicators included in the revised logical framework were not suitable for assessing performance. As a result the evaluation does not assess performance on some of the evaluation criteria specified in the logical framework of the project.	
The terminal evaluation informs that filing of the reports was not up to the expected standards. The mid term review of	

the project was completed in 2002 and it provided inputs for improving project performance. Although the terminal evaluation does not explicitly address it, the data presented in the terminal evaluation report suggests that the performance on key indicators was tracked.
b.1 Was sufficient funding provided for M&E in the budget included in the project document? Unable to assess
b.2a Was sufficient and timely funding provided for M&E during project implementation? Unable to assess
b.2b To what extent did the project monitoring system provided real time feed back? Was the information that was provided used effectively? What factors affected the use of information provided by the project monitoring system? The project monitoring system through PIRs and through the mid term review provided timely feed back. However, based on the information provided in the terminal evaluation, it could be said that due to major design flaws and lack of adequate support from the host government the corrective measures could not gain traction. Further, the tripartite review meetings were not conducted regularly.
b.3 Can the project M&E system (or an aspect of the project M&E system) be considered a good practice? If so, explain why. The M&E system may not be considered a good practice. Although overall quality of M&E is in a satisfactory range, it does not count as a good practice due to instances of wrong indicators, poor reporting and irregularity of the tripartite review meetings.

4.6 Assessment of Quality of Implementation and Execution

a. Overall Quality of Implementation and Execution (on a six point scale): MU
b. Overall Quality of Implementation – for IA (on a six point scale): MU 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. The terminal evaluation points out several weaknesses in the design of the project. The critical weaknesses include absence of linkages between different components of the project; poor institutional set-up of the project; oversized biogas plant than that was economically feasible; and, an invalid assumption that the composition of the organic waste produced in Jordan is similar to that in Europe. According to the terminal evaluation notes that project faced excessive delays in completion of project activities and that the implementing agency had not negotiated and coordinated the project with the executing partners. The tripartite meetings were not held regularly during the later years of project implementation. While terminal evaluation does credit the implementing agency for making efforts to speedup the project implementation, its efforts did not lead to timely execution of the project. The terminal evaluation also comments that the filing system of the implementing agency was weak and many important documents pertaining to this project were not readily available.
c. Quality of Execution – for Executing Agencies¹ (rating on a 6 point scale) UA
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. The terminal evaluation does not address the performance of the executing agencies in detail. It does note that project execution was affected by its poor organization. There was no overall project managing director. There was lack of common understanding on the roles and responsibilities of the partner institution. This led to delays in execution of project activities. A reason for many slow downs also had to do with UNDP accepting the in kind cofinancing for the project in form of deputation of the staff for the project from respective government agencies.

5. 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

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.

could have application for other GEF projects

Following lessons are listed in the terminal evaluation:

- UNDP and its partners should carefully institutionalize a project before starting by negotiating it with the stakeholders and agreeing on each other's role, setting up a professional project team and not accepting in kind contribution in form of deputed staff (which compromises the autonomy of the executive structure of the project).
- The hypothesis that bio-digester technology can be applied to centralized processing of large amounts of municipal organic waste, does not hold for a city like Amman. The technology is sensitive to the type and composition of the waste feedstock and a stable supply of high-quality municipal waste is difficult to secure.
- The project partners should effectively use the mid-term evaluation as a reorientation on the propositions and strategy of a project and the underlying assumptions. If things do not work, this should be recognized and dealt with, since valuable project resources may be applied more efficiently elsewhere in the project to achieve the long-term objectives.
- There are risks associated with transfer of technology from a context where it has been successful to an area where such technologies may need further adaption before they become suitable for adoption in other contexts.
- Good filing system is required to ensure continuity in face of changes in staff supervising a project.

b. Briefly describe the recommendations given in the terminal evaluation

Following are the major recommendations are listed in the terminal evaluation:

General Recommendations

- The Greater Amman Municipality could be a strong actor to promote rational waste management in Jordan; Jordan Biogas Company (JBC) can be instrumental in such a replication campaign.
- Municipal and government incentives will be needed to support the long-term exploitation of the Ruseifah biogas plant. Such incentives can reflect the avoided costs related to waste mitigation by JBC, while additional rewards may be applied to sustain electricity generation based on biogas. In a long-term national strategy, such incentives may be recovered by levying waste production and consumption.
- Although fertilizer production is apparently not a viable option, CDM may provide an additional revenue stream for landfill gas, compared to the open landfill baseline.

Recommendations to the Implementing Agency

- Link JBC with other landfill initiatives in Jordan to stimulate replication.
- Explore the possibilities to link JUST university with initiatives in Jordan to apply small bio-digesters for rural families and farmers.

6. QUALITY OF THE TERMINAL EVALUATION REPORT

6.1 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.

None

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.

6.2 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?	S
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 report is internally consistent and evidence is convincing. The report also comprehensively covers the project design related issues. It, however, does not use the GEF guidance on rating performance – the scale used to assess performance is different from that recommended in the GEF terminal evaluation guidelines.	MS
c. To what extent does the report properly assess project sustainability and /or a project exit strategy? The terminal evaluation does not include a separate section on risks to sustainability of outcomes. However, it does discuss these issues in other sections of the report.	MS
d. To what extent are the lessons learned supported by the evidence presented and are they comprehensive? The lessons learned and the recommendations listed in the report are based on the presented evidence. However, some of the recommendations and lessons are merely descriptions of project performance and processes – they do not pin point what could be learned and what needs to be	MS

done.	
<p>e. Does the report include the actual project costs (total and per activity) and actual co-financing used?</p> <p>The report does not provide information on actual project costs and cofinancing.</p>	HU
<p>f. Assess the quality of the reports evaluation of project M&E systems?</p> <p>The report assesses the strengths and weaknesses of the indicators used for performance assessment. It also assesses the efficacy of the mid term reviews and the supervision processes of the implementing agency. It describes in detail the project's apparent weakness in terms of the reporting and filing systems of the project.</p>	MS

<p>7. SOURCES OF INFORMATION FOR THE PRERATATION OF THE TERMINAL EVALUATION REVIEW REPORT EXCLUDING PIRs, TERMINAL EVALUATIONS, PAD.</p>