Mid-term Evaluation of the UNDP-GEF Project "Armenia – Improving the Energy Efficiency of Municipal Heating and Hot Water Supply"

Heat meter installed at the entrance to an apartment in
Avan district of Yerevan, as part of heating trials in 3 buildings

Prepared by: Grant Ballard-Tremeer

Last edited: 17 September 2008

Status: Final

ecoharmony.com

✉ PO Box 900, London, Bromley, BR1 9FF, United Kingdom
☎ +44-20 7193 3699
🖷 +44-870 137 2360 and +44-70 9236 7695
🖰 info@ecoharmony.com

This evaluation of the UNDP-GEF project “Armenia – Improving the Energy Efficiency of Municipal Heating and Hot Water Supply” (UNDP/GEF/00035799) took place between 1 May and 9 June 2008.

The evaluation has been carried out for the Armenian Office of the United National Development Programme (under contract SSA 2008-0110) by Dr Grant Ballard-Tremeer (grant@ecoharmony.com), Eco Ltd, with the support of local UNDP and project staff.

Contents

Contents i

Executive Summary ii

Introduction 1

I. The project and its development context 2
- Background 2
- Project outcomes and objectives 3
- Key stakeholders and beneficiaries for the project outcomes 4
- The development context 5

II. Findings and Conclusions 9
- A. Project formulation (relevance & design) 9
  - Relevance to local and national development priorities 9
  - Relevance to target groups 9
  - Project design 12
- B. Implementation 15
  - Implementation approach and management arrangements 15
  - Stakeholder participation 17
  - Monitoring and evaluation 17
  - Financial Planning 19
  - Project effectiveness 21
- C. Results 27
  - Impact 27
  - Sustainability and replicability 28
  - Contribution to capacity development 29
- D. Overall rating of project 30

III. Recommendations 31

IV. Lessons Learned 33

Annex 1: Evaluation terms of reference 34

Annex 2: List of interviews 44

Annex 3: List of main documentation reviewed 46

Annex 4: Comparison of changes to key indicators 48

Executive Summary

Background

The development of the UNDP-GEF project Full Scale Project "Armenia – Improving the Energy Efficiency of Municipal Heating and Hot Water Supply" (project number UNDP/GEF/00035799) started in 1998. The project, with a 2.95 million USD grant from GEF, started in 21 January 2005 and is due to close on 20 January 2009. The project aims to reduce greenhouse gas (GHG) emissions from heat and hot water supply services in Armenian cities and to lay the foundation for the sustainable development of these supplies by overcoming market barriers. The project consists of four components addressing 1) the role of condominiums in collectively organizing and managing heat and hot water supply services at the building level, 2) support to restructuring and capacity building of the existing district companies to improve both their service quality and operational efficiency, 3) support new service providers to commercially run and market their businesses, and to structure financing for the required investments in areas that do not sustain the centralized district heating services, and 4) use the results, experiences and lessons learned. Given the collapse of the remaining district heating networks just before the project started the second component was changed towards the end of 2005 to focus on building capacities in municipalities

Project relevance

From the perspective of needs and priorities at the household, municipal and national government level the *overall* project aim "to improve access to sustainable heat and hot water services" is highly relevant. From the perspective of national government and line ministries, interviews generally supported the view that the project activities are perceived as relevant and important, although competing sectors such as power and gas appear to have received significantly more attention from government than the heating sector over the past years. The project formulation has a high level of local ownership, and its origins are clearly visible with national and sectoral priorities and development plans. Stakeholder participation in the design stages of the project appears to have been good.

The project appears to have filled an important gap in policy and legislation development in the heating sector, being instrumental in the development of CHP legislation together with the Ministry of Energy, Public Services Regulatory Commission, and being requested to develop a concept of a Heating Law by the Board of Trustees of R2E2.

Performance and Results

To achieve the development goal to "lay the institutional and financial foundation for and to remove other key barriers to the sustainable development of the heat and hot water supply services" the project has objectives consisting of barrier removal and capacity building for apartment owner associations,

municipalities, and energy service providers. Based on the information gathered in the interviews, and the results of the activities completed to date, positive progress is visible in achieving all of these objectives. While progress has been slow in realizing on-the-ground investments, the project appears to be entering a critical period in the coming half-year when significant progress could be made. Should this be successful, the project will easily meet CO_{2eq} and co-financing (leverage) targets.

Management arrangements and financial planning

The heating market in Armenia is highly dynamic as has been described earlier. Adaptive management has thus been necessary, and the project team has adapted plans and activities well. There is evidence of significant adaptive management, especially in adapting outputs and activities to meet better the market needs. Comprehensive and realistic work plans have been routinely developed and implementation monitored by the Project Manager. The adjustments made to the project design during its implementation are reflected in the revised logical frameworks and annual work plans.

Costs were managed using standard UNDP rules and procedures. At the time of the evaluation field visit, after approximately 3.5 years of implementation (according to the official start marked by the signing of the Project Document) only 1.2 million USD has been allocated, which is approximately 41% of the allocated project budget. The evaluator does not see the fact that disbursement is below expectations negatively. Annual audits did not highlight any substantial issues, and the management team has addressed issues raised.

Main recommendations in summary

- The main directions of the project should be maintained with a number of minor reorientations on activities and approaches.
- The 'heat law' is of primary importance, and should receive the majority of policy development effort, with the activities on other legislative issues being addressed as and when opportunities arise.
- Delivery of successful pilot projects (in particularly opportunities like Avan and Davidashend) should be given a high priority.
- The project team should try to forge alliances with all government stakeholders to explain the arguments for a concerted effort to address heating and hot water supply – from fuel security, economic, health, safely, and environmental points.
- The sustainability strategy needs urgent attention.
- Efforts should be made to reduce the bureaucratic burdens imposed by the UNDP country office
- The project is at a critical stage where if policy barriers are removed through the project efforts the market could take off in a substantial way. Fortunately, since sufficient budget clearly exists, the project duration should be extended for at least an additional two years.

Introduction

This evaluation report contains the mid-term evaluation of the UNDP-GEF Full Scale Project "Armenia – Improving the Energy Efficiency of Municipal Heating and Hot Water Supply" (project number UNDP/GEF/00035799).

The evaluation was carried out by Grant Ballard-Tremeer of Eco, a UK based consultant firm with the support of the Project Manager and other project staff. A visit was made to Armenia by the international evaluation expert, following a review of the available project documentation at the consultant's home office, from 5 and 10 May 2008 and interviews with relevant project stakeholders, including municipal representatives, project beneficiaries, implementing agency, project executing agency, project staff. The Terms of Reference for the assignment are given in Annex 1.

This mid-term evaluation aims to contribute to ensuring proper documentation of lessons learned by assessing the relevance of the project, project performance (progress in terms of effectiveness, efficiency and timeliness), management arrangements focused on project implementation, and overall success of the project with regard to impact, sustainability, and contribution to capacity development, and makes recommendations for further development of the project.

The approach used for the evaluation was based on the results-oriented 'outcome evaluation' approach within the framework of Results Based Management. This approach generally covers a set of related projects, programmes and strategies intended to bring about outcomes[1]. In this case, the focus of the review was a single project. The evaluation thus focuses more on the UNDP contribution to the outcome through the project outputs, and possible improvements that could be made to increase the performance of delivery of outputs and ultimately the desired outcomes.

Details of the people interviewed and the documents reviewed are given in the lists in annex 3 and 4. Local operational and technical project staff as well as the UNDP project staff in Armenia gave excellent support during the evaluation.

[1] An outcome evaluation focuses on the 'developmental changes between the completion of outputs and the achievement of impact' (the outcomes), and encompasses efforts of partners working on the same issues. The evaluation assesses how and why outcomes are or are not achieved within a given context, and the role that UNDP has played in bringing these about. Outcome evaluations also help to clarify underlying factors affecting the situation, highlight unintended consequences, recommend actions to improve performance in future programming, and generate lessons learned.

I. The project and its development context

Background

1. The objective of the UNDP/GEF Project: Armenia – Improving the Energy Efficiency of Municipal Heating and Hot Water Supply, is to reduce greenhouse gas (GHG) emissions from heat and hot water supply services in Armenian cities and to lay the foundation for the sustainable development of these supplies.

2. To achieve this objective, the project was originally structured around 4 immediate objectives[2]:
   - strengthening the role of condominiums in collectively organizing and managing heat and hot water supply services at the building level;
   - supporting the restructuring and capacity building of the existing district companies to improve both their service quality and operational efficiency;
   - supporting the emerging new service providers in offering their services to the condominiums (or other management bodies of multi-apartment buildings) and structuring financing for the investments needed and;
   - utilizing the results, experiences and lessons learned for advancing the sustainable development of the heat and hot water services in Armenia with a specific emphasis on the GHG emission reduction aspects.

3. The proposed capacity building and other technical assistance activities were envisaged to complement and to be implemented in close co-operation with the activities of a number of other donors including the World Bank/IDA funded Urban Heating Project (10 million USD), the Government of Netherlands funded Industrial District Heating Development (0.6 million USD) and USAID funded activities (7 million USD).

4. The executing agency of the project is the Armenian Ministry of Nature Protection, which is also hosting the core project management and implementation team, as in-kind co-financing to project activities (0.2 million USD).

5. The development of the project started in 1998, with GEF pipeline entry on 1 July 1998 and PDF-B approval on 28 July 1998. It was accepted into the GEF Work Programme in 2003, and the project document was CEO endorsed on 5 April 2004. UNDP-GEF approval took place on 21 January 2005. The four-year project is due to close on 20 January 2009. The GEF grant is 2.95 million USD.

[2] The second component was adjusted during project launch. See paragraph 9 below.

Project outcomes and objectives

6. The overall development goal of the project (the project outcome for GEF) according to the Project Document is to "reduce the greenhouse gas (GHG) emissions resulting from the current heat and hot water supply practices in Armenian cities by laying the foundation for the sustainable development of heat and hot water supply services in these cities while taking into account global environmental impacts". The UNDP outcome, given in the project document, is "Access to sustainable energy services is increased."

7. According to the Project Document, the barriers being addressed by this project include:
   - A weak institutional, legal and regulatory framework that does not allow or encourage the existing municipal DH companies to develop their heat and hot water supply services on a commercial basis and to open the market for private investors and new service providers;
   - Lack of capacity, incentives and concrete implementation plans for restructuring and commercialization / privatization of the existing DH companies so as to improve the efficiency of their operations and to leverage financing for the priority investments needed, including the introduction of a consumption based metering and billing system and new alternative systems and technologies for DH and hot water supply;
   - Lack of tradition, experience and capacity of apartment owners to organize and improve the efficiency and quality of the heat and hot water supply services collectively at the building level; and,
   - The lack of capacity and experience of the emerging, new service providers to develop "bankable" investment proposals, to structure financing for the projects and, as needed, to manage the commercially sustainable operation of the companies otherwise. They also do not possess any knowledge of new alternative decentralized energy efficient heating and hot water supply systems.

8. To overcome these barriers the UNDP-GEF project was designed with four main project components. These aim to:
   - strengthen the role of condominiums in collectively organizing and managing heat and hot water supply services at the building level (Component 1);
   - support restructuring and capacity building of the existing district companies to improve both their service quality and operational efficiency (Component 2);
   - support the new decentralized service providers to commercially run and market their businesses, and to structure financing for the required investments in areas that do not sustain the centralized district heating services (Component 3); and,
   - use the results, experiences and lessons learned for advancing the sustainable development of the heat and hot water services in Armenia with a specific emphasis on the GHG emission reduction aspects (Component 4).

9. Given the collapse of the remaining district heating networks between 2003 when the project was approved and January 2005 when the project started and the leasing of heating substations and small boiler houses by local authorities to the private sector, the second component was changed, towards the end of 2005, to: "Building the capacity of the local municipalities to effectively manage the remaining assets of the former district heating systems and to facilitate the restoration of the central water heating and hot water supply services to their population by socially, economically, financially and environmentally acceptable means.", with two new outputs:
   - Output 2.1: Municipal strategies to improve the heat and hot water supply services to the population.
   - Output 2.2: Strengthened capacity of the municipalities to manage the remaining assets of the former DH systems and to facilitate the further development of the heat and hot water supply services.

   These new outputs replace outputs 2.1 to 2.4 given in the project document which covered strategic support for district heating companies (2.1), improved legal and regulatory frameworks (2.2), consumption based metering and billing (2.3) and capacity building for (existing) district heating companies (2.4).

10. A large number of outputs and activities were planned under these four components. For each component, an output addressing the legal, regulatory and policy frameworks was included (Output 1.1 for condominiums, Output 3.1 for heat service restructuring, and Output 4.2 for norms and enforcement mechanisms to support sustainable forest use). Other outputs aimed to build capacity (Output 1.2 on capacity in condominiums / consumer associations, Output 2.2 for municipal management of assets, and Output 3.2 on project development and finance capacities), and to create and strengthen knowledge assets (Output 2.1 on strategic planning, Output 3.3 on equipment certification systems, Output 4.1 on GHG emission reduction monitoring, and Outputs 4.3 and 4.4 on collecting and communicating lessons learnt).

Key stakeholders and beneficiaries for the project outcomes

11. The project document identifies the following stakeholders for both the UNDP and the GEF outcomes:
   - Government Ministries, including
     - The Ministry of Nature Protection (Project Executing Agency and UNFCCC Focal Point).
     - The Ministry of Finance and Economy as the responsible agency for implementation of the Heating Strategy of RA.

  - The Ministry of Energy for promotion of energy conservation and renewable energy development, adoption of standards and certification procedures.
  - The Ministry of Trade and Economic Development in supporting new service providers in the heating sector and promoting local manufacturers.
  - The Ministry of Territorial Administration and Regional Governors' Offices (Yerevan City Municipality) for developing and implementing pilot projects.
  - The Ministry of Urban Development for supporting the development and strengthening of multi-apartment building management bodies.
- The National Assembly of Armenia for improving legal and regulatory framework aimed at strengthening the role of the condominium and promoting the implementation of energy efficiency measures in district heating.
- The Public Services Regulatory Commission.

12. The following cooperation partners are also listed in the project document:
    - Condominiums
    - Local civil society organizations
    - District heating and energy service companies
    - The mass media to develop public awareness campaigns

The development context

13. During the Soviet era 55% of apartments in Armenia were heated through district heating systems covering over 30% of housing stock and 90% of apartment buildings[3]. Armenian district heating systems included both heat-only boilers and combined heat and power plants.

14. In the early 1990s, following the collapse of the Soviet Union, district heating coverage decreased by over 75% (see Figure 1 below). This was primarily a result of the economic blockade imposed by Azerbaijan and Turkey in the conflict over the Nagorno-Karabakh, and exacerbated by sabotage and separatist strife in Georgia in 1993 that disrupted the remaining gas supply route. As a result the government was forced to ration heat and electricity, primary fuel and electricity prices rose substantially, equipment and O&M costs increased, the socio-economic well being of the population fell, and the heat service fee collection rate dropped to around 20% of supplied heat (Ghukasyan & Pasoyan, 2007).

[3] Ghukasyan A & Pasoyan A (2007) *Armenian Urban Heating Policy Assessment*, Alliance to Save Energy, Yerevan.

15. An "Urban Heating Strategy" was prepared and was adopted by the government in September 2002 (Decree 1384 N). The strategy development process was lead by the Ministry of Finance and Economy with support from the World Bank and others and foresaw three phases:
    - *Year 1-2: "Survival"* – keeping the existing centralized heating systems operational with minimum investments and taking the first measures to develop and test more sustainable approaches.
    - *Year 3-5: "Recovery"* — developing and starting the implementation of those heating options considered as the most feasible (Project Immediate Object 2).
    - *Year 6-25: "Growth"* – attracting investments for the rehabilitation of centralized heat supply systems and/or more decentralized options, depending on their technical and financial feasibility in each city and city district concerned (Project Immediate Object 3).

    The strategy aimed for:
    - Full commercialisation of heat supply activities (without public subsidies and cross subsidies);
    - Complete cost recovery from fees;
    - Formation of a competitive heating market and application of contemporary heating technologies; and
    - Gradual reduction of public management in the heating market (heating tariff liberalization and the elimination of construction and operation licensing procedures).

16. Despite the strategy a second sharp decline in district heating took place during in the early 2000s when the remaining district heating area decreased by a further factor of 8 (by 2005 only an eighth of the area covered in 1998 was still supplied by district heating) – see Figure 1 below. Even further declines were experienced during the 2006-7 heating season (Ghukasyan & Pasoyan 2007).

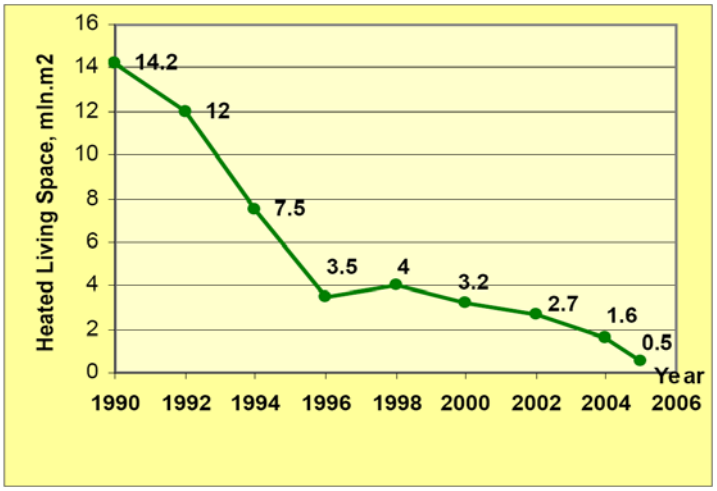

Figure 1: Decline of District Heating coverage from 1990 to 2005 (from Ghukasyan & Pasoyan 2007)

The first phase of the Urban Heating Strategy – Survival – was not achieved. This decline took place during the course of project preparation, and by January 2005 when the UNDP-GEF project started virtually no district heating remained.

17. During the second period of rapid decline in district heating, in the first half of the 2000s, GDP growth has been in double digits, with industry and the service sector seeing the highest levels of growth. During this period significant restructuring of the power sector took place that according to a 2005-6 study by the World Bank was considered to be highly successful[4]. Part of this success has been credited to the arrangement of billing, with "the utility ... offering more continuous supply to apartment blocks whose residents could organize themselves to pay their bills", and "The relocation of meters from apartments to public areas ... [proving] an essential first step in tackling the high commercial losses and low collections that lay at the heart of the power sector's problems." (Sargsyan et al 2006, p4).

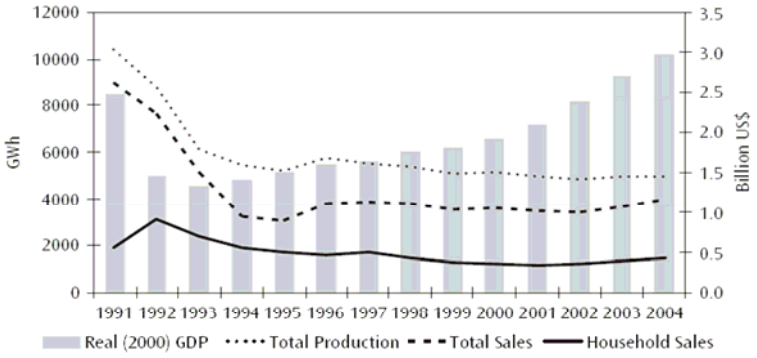

Figure 2: Electricity Sales and Production in Armenia Compared to GDP (from Sargsyan et al 2006)

18. There have been rapid changes in natural gas use in households since the year 2000. According to the 2001 integrated household survey central heating was used by 9.7% of urban households and 1.2% of rural households, and households without central heating, used wood (56.5%), electricity (17.9%), and gas (7.2%). Initially with natural gas supplied from Russia at well below market prices, and more recently with government subsidies, natural gas has been seen as an attractive heating option. According to a survey commissioned by the R2E2 Fund[5], by the time of the 2006-7 heating season the main energy type used in households was natural gas, with the share of households primarily using gas having increased dramatically, and a decrease in heating from wood. In 2006-7 53% of households used natural gas, 34.6% used electricity, and 9.8 used wood. Electricity was the main secondary heating option. Since apartment-level heating is in use, most households do not

[4] Sargsyan G, Balabanyan A, Hankinson D 2006 *From Crisis to Stability in the Armenian Power Sector Lessons Learned from Armenia's Energy Reform Experience*, World Bank Working Paper No. 74, Washington DC.

[5] EDRC 2007, *Assessment of Heat Supply and Heating Options in Urban Areas of Armenia*, Paper 08(07) Yerevan.

heat all rooms (according to the survey, on average, 60% of the household's area is heated). Most telling, satisfaction with heating is low: only 14% of households reported that they were fully satisfied with the heating of their apartment in 2006-7, and 43% reported that they were completely dissatisfied. Reasons for apartment-level gas heater preference were highest on affordability (57%).

19. In April 2006 the price of Russian gas more than doubled, with the government opting to subsidize prices for imported gas so as to soften the burden placed on private consumers and companies. About USD 190 million (from the 2006 sale of Unit No. 5 of the Hrazdan Thermal Power Plant) was allocated to cover the subsidy for three years. However in April 2008, in his first press conference as prime minister, Tigran Sarkisian announced that the government would lift natural gas subsidies from 1 May (a year ahead of schedule), meaning retail gas prices increased from 59 drams per cubic meter (about 19 US cents) to 84 drams (about 27 US cents). The reason given was that "an unprecedented growth in gas consumption meant that just under USD 2 million from [the subsidy] amount remained by the beginning of this year." And "as a result, the compensation was to have been discontinued in January, but on [then] Prime Minister Serzh Sarkisian's immediate instruction, measures were taken to ensure the continuation of the compensation until the end of the heating season"[6].

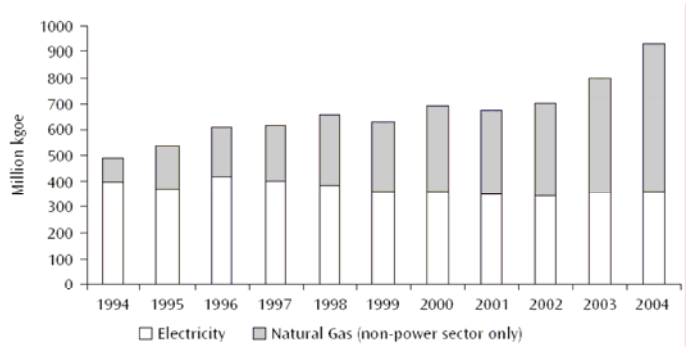

Figure 3: 'Evidence' (indications) of Substitution to Natural Gas (from Sargsyan et al 2006)

20. The development of policy and legislation took a back seat to campaigning for the presidential elections of February 2008, and following a change of government and rearrangement of Ministries, policy development has not yet picked up speed. This is relevant to the project's intentions and actions to support legislative, institutional and policy frameworks for heat and hot water supply.

[6] http://www.eurasianet.org/departments/insight/articles/eav042408.shtml, accessed June 2008

II. Findings and Conclusions

21. The discussion that follows covers the current status of the project outcomes, and reviews key factors that affect the achievement of the project outcomes.

A. Project formulation (relevance & design)

Relevance to local and national development priorities

22. From the perspective of needs and priorities at the household, municipal and national government level the *overall* project aim "to improve access to sustainable heat and hot water services" is highly relevant. This is illustrated in three key areas: rapid changes during the course of the project in the way households heat their homes; the somewhat ambiguous role of local authorities in the provision of heating to households and the management of municipal heating assets, and ongoing government interest to address policy and legislation in the heating sector. This is exemplified in the continuing support of the project steering committee and a specific request to the project management by the Board of Trustees of the government's R2E2 fund (responsible for the implementation of the Urban Heating Strategy) in early 2007 to support the development of a Heat Law.

23. The project formulation has a high level of local ownership, and its origins are clearly visible with national and sectoral priorities and development plans. The project aim is fully in line with the government's 2002 Urban Heating Strategy and subsequent legislation including:
    - "Energy Saving and Renewable Energy Law", 9 November 2004.
    - "Amendments to the Law on Energy", 25 November 2003.
    - Order on "Transfer of Property to Yerevan Municipality", dated 21 August 2003.
    - Order on "Amendments to Government Order on Leasing of Heat Supply Facilities", dated 13 May 2004.
    - "Strategy for the Development of the Energy Sector within the Context of the Development of the Republic of Armenia", dated 29 June 2005.
    - Order No. 509-N on Pilot Projects of Heat Supply System Rehabilitation with Implementation of Heat and Power Cogeneration Units, dated 13 April 2006.

Relevance to target groups

24. Stakeholder participation in the design stages of the project appears to have been good with an active role being taken by the Ministry of Nature Protection as executing agency and input from the Ministry of Energy, Ministry of Urban Development and Yerevan Municipality in the project preparation.

25. Consultation with donors active in the heating sector was also significant during project preparation. The initial project preparation delays have been attributed in part to the efforts of the executing agency and the UNDP to ensure coordination with donors, especially the World Bank, USAID, and the government of the Netherlands.

26. The overall project aims are generally relevant to local development priorities of national and local authorities as has been described above. From the perspective of national government and line ministries, interviews generally supported the view that the project activities are perceived as relevant and important, although competing sectors such as power and gas appear to have received significantly more attention from government than the heating sector over the past years.

27. Competing priorities are also apparent at the local authority level with municipalities choosing to abdicate responsibility for heat supply in many cases. In the absence of a 'heat law' that gives clear responsibility to municipalities in heat and hot water supply, project relevance is reduced. Despite this it is evident that local authorities are interested to benefit from the project and are involved in most of the demonstration projects being developed.

28. Considering project components, component 1 aimed to "strengthen the role of condominiums in collectively organizing and managing heat and hot water supply services at the building level". In the project document this was justified by four arguments as listed below (some commentary is given following each argument in the list below):
    - "Signing the contract with a condominium would reduce the risk of the commercial service providers and is likely to enforce a stricter payment discipline since in the case of non-payment the whole building can be disconnected." – as has been mentioned in paragraph 17 above this approach was credited with some of the success of the Armenian power sector restructuring, with the incentive of 'a more continuous supply to apartment blocks whose residents could organize themselves'.
    - "The introduction of a consumption based metering and billing system and signing a contract at the building level will be considerable easier and cheaper for the service providers than doing it separately for each apartment." – indeed assuming that the existing system was being used this would be cheaper. However where the system is no longer in use and some apartment owners have installed their own heating, and many have removed the 'risers', the cost saving and ease of use is significantly reduced or even eliminated.
    - "Many measures to improve the overall energy efficiency of the buildings such as repair of the windows and corridor doors, improved insulation etc. will only be feasible through a collective action." – this is indeed the case, and applies to all communal services, big and small (such as cleaning the entrance corridors).

- "By effectively organizing themselves, the residents will have an option to make their own investments (e.g. on a mini DH network or building boiler or energy efficient heating and hot water supply systems) thereby providing a feasible alternative for the individual use of electricity or wood fuel or enforcing the other potential service providers to improve the efficiency of their operations, should they wish to keep up with the competition." – this argument is less convincing since the costs and effort needed in most (almost call) cases *far* exceed the capacity of apartment owners.

Developments since the project started appear to indicate that although condominium management could play an important role in building level management and, for example, collection of payments for heating (as was successfully implemented in the power sector, and in other countries), once the central heating collapsed condominiums became less relevant as a route to addressing heating and hot water supply. This conclusion is logical since building-level associations are poorly funded, are made up of people with very different income levels, do not have viable access to investment capital (and governments should – most do – guard against the idea of using homes as co-lateral for risky shared investments) and are largely volunteer led.

With more wealthy owners and those with particular initiative frequently being early adopters of individual apartment-level gas boilers the necessary leadership, financing and capacity to organize heat and hot water supply collectively is unlikely to exist. The interview with the potential investor in the Avan district of Yerevan where, in the demonstration buildings new heating circuits are installed in apartments only for those that want central heating (with new risers installed (alongside the new gas pipes) in the stairwell), confirmed this: in the opinion of the interviewees a housing association was useful in terms of information flow, but not as a planning body.

Figure 4: Pictures from Avan district of Yerevan, May 2008. a) Multi-apartment panel building with exhaust chimney from gas heater installed in one apartment (not financed by the project!), b) New 'risers' installed in stairwell with meter and start of network, c) New radiator in apartment, d) New 'riser' ready to accept connection if the apartment owner decides to join the scheme (photographs Grant Ballard-Tremeer).

29. The project appears to have filled an important gap in policy and legislation development in the heating sector, being instrumental in the development of CHP legislation together with the Public Services Regulatory Commission, and being requested to develop a concept Heating Law by the Board of Trustees of R2E2.

30. The relevance of Municipal Heat Supply Master Plans / Strategies and related capacity building (project component 2), in the absence of supportive legislation, is currently dependent on the long-term vision of mayors and local authorities. While therefore not immediately relevant to municipalities such planning approaches are highly relevant at a national level and are justified by their demonstration value. It is clear that current problems of heat supply in Armenia can be solved only by a long-term investment strategy at a local authority level. The building of capacity of local authorities to manage district-heating assets is highly relevant.

31. Support to 'emerging new service providers' under component 3 is highly relevant.

32. Component 4, focusing on learning lessons and disseminating them is clearly important to maximize long-term value from the project. Output 4.2 on 'Norms and enforce mechanisms for preventing the unsustainable use of forest resources as wood fuel' has become less relevant since the project was approved: as reported in paragraph 18 above there appears to have been a complete shift in the use of wood for heating – from approximately 56% wood and 7% gas in 2001 to 10% wood and 53% natural gas in 2006-7. While sustainable management of forest resources continues to be an issue in Armenia, its relevance for this project is now low.

33. *Rating of stakeholder participation:* Based on available information on the processes followed during the project preparation an objective assessment of information dissemination, consultation, and "stakeholder" participation in design stages cannot be adequately made. However given the progress of project implementation and positive assessments from interviewees, stakeholder participation appears to have been adequate.

    Rating: Satisfactory

Project design

34. The project document identifies institutional, legal and regulatory frameworks for district heating development, lack of capacity, incentives and plans for commercialising / privatising district heating, lack of tradition, experience and capacity of apartment owners, and lack of capacity to

finance and manage private heat service companies. The institutional, legal and regulatory barriers identified in the project document have been definitively confirmed during project implementation.

35. The barriers, however, relating to the condominium associations and their role in organising heat supply are possibly less important at the present time than reflected in the project design time when many apartment owners have already arranged gas heating as has been argued in paragraph 28 above. As per the project strategy (Indicator for Immediate Objective 1, which addresses the role of condominiums and consumer associations) "Signed contracts, within the condominium as well as between the service providers and condominiums for the provision of heat and hot water supply services", contracts between condominium associations and owners and service providers have not proven to be the primary route for service providers entering the market, and based on interviews in Avan did not appear to be necessary apart from as an information / marketing tool.

36. Reviewing the other barriers it is apparent that they were highly appropriate at the start of the project and remain appropriate now.

37. The project document includes a reasonably detailed Project Planning Matrix (logframe) which was adapted towards the end of 2005 to meet changed market conditions. An analysis of this structure, based on the experiences of project implementation, shows that the intervention logic is good.

38. The assumptions given in the Project Planning Matrix underline the primary importance of successfully addressing the legal, regulatory and institutional barriers. This has been borne out in project implementation where the lack of progress on addressing some of these barriers has limited the successful implementation of other activities.

39. The Project Planning Matrix contains insufficiently defined objectively verifiable indicators, as was pointed out at the time of STAP review. A Monitoring and Evaluation Plan was developed as a response and added in Annex E of the project document. The indicators given in the Monitoring and Evaluation Plan contain adequate detail for the desired Quality, Quantity and Timeframe, for the given Outputs, but do not provide this for the "intermediate objective" or "development goal" levels of the project logic. The fact that the Monitoring & Evaluation Plan has not been used in project implementation and new indicators (and/or targets) used in APR/PIRs and the Standard Progress Report is discussed in paragraph 69 below.

40. In terms of targets the 'development goal' target of "10 million USD worth of additional investments" is very modest given the size of necessary investments in the heating sector. The project planning matrix includes a total of 5 top level indicators. From a design perspective the indicators given at the level of development goal are usually at a higher level and with longer time horizons than the

project, and not a collection of 'objective level' indicators. Not all indicators at this level reflect this practice.

41. The risk of a lack of ongoing commitment and political will by the government is certainly a real risk and it remains so – unlike in the power sector where the government has made significant reforms, important barriers in the legislative and institutional foundations in the heating sector remain to be addressed. There is, for example, currently no state authority with a responsibility for the heat sector.

42. Overall the project document is clear and realistic to enable effective and efficient implementation.

43. Apart from the option of establishing advisory centres related to capacity building for condominiums there is no *explicit* provision in the *original design* of the project for sustainability of project activities (eg. no institutionalization of capacity building)[7]. Sustainability for the project as implemented is discussed in the section "Sustainability and replicability" starting at paragraph 85 below.

44. The management arrangements given in the project document are clear and appropriate. This certainly helps to maximize the chances of project success. In particular the use of an International Technical Advisor to support project implementation and the project management 'as needed' follows best practice from other projects in the wider region.

45. Explicitly in the project document, evaluations and project reports are described as the main route to replication at a national and regional level. This does not seem to be adequate for national replication since evaluations are generally internal, and reports not influential. However the implicit strategy in the project design, addressing legal, institutional and regulatory barriers, and assuming that the barriers can successfully be addressed in the project period provides a sound basis for national replication.

46. The UNDP clearly has a comparative advantage as GEF Implementing Agency for this project given the need to focus on legal, institutional and regulatory barriers, and capacity development.

[7] It should be noted that the project document gives this as an option, with no mention of the centre(s) being self-sustaining. However in the 5 November 2005 revision of the Project Planning Matrix the indicator "the established institutional support and financing mechanisms continue to operate on a self-sustaining basis" was added. While this is both a logical and sound idea, apart from the legislative work, no other project activities explicitly support the ambition of creating these mechanisms to be self-sustaining.

47. The project design takes the formation of linkages between other projects and donors seriously. The long development phase was primarily resulting from the need to synchronize the project with the development of the other heat sector related initiatives in Armenia and, in particular, the WB Urban Heating project with the envisaged cofinancing opportunities. Better links to the Ministry of Energy could have improved project effectiveness, although they have preferred to delegate this to the Ministry of Nature Protection.

48. Overall rating of Conceptualization/Design: *Satisfactory*

B. Implementation

Implementation approach and management arrangements

49. There is evidence that the logical framework was used as a management tool during project implementation, and the project team was fully familiar with the logical framework given in the project document, and revised versions produced by the International Technical Advisor. Implemented activities conform well to those given in the project planning revisions.

50. The heating market in Armenia is highly dynamic as has been described earlier. Adaptive management has thus been necessary, and the project team has adapted plans and activities well. There is evidence of significant adaptive management, especially in adapting outputs and activities to meet better the market needs. Comprehensive and realistic work plans have been routinely developed and implementation monitored by the Project Manager. The adjustments made to the project design during its implementation are reflected in the revised logical frameworks and annual work plans.

51. Most project materials are available in electronic format, and electronic information technologies, in particular email have been a key tool to support implementation, participation and monitoring of the project.

52. Throughout the project the Project Manager has been actively involved in setting the direction of the project and ensuring effective delivery. 'Ownership' of the project by the project team is clearly evident.

53. The project implementation mechanisms outlined in the project document have been closely followed, and the project has been implemented according to plan. Since the project management team is located within the Climate Change Information Centre, established in 1997, within the

Ministry of Nature Protection it benefits from a strategic location and the implementation of related activities.

54. Although the project team is large, 20 people including national experts on longer-term contracts, it appears to be effective, and appropriately staffed, with a high level of technical competence and motivation to achieve the objectives of the project. This motivation appears to be attributable to the positive management approach of the project manager. The continuity offered by longer-term contracts for a range of technical experts is fully justified given the longer-term market development efforts that the project team is implementing.

55. Encouragingly, the representation of women in the project team is over 50%, including the project manager.

56. The communication between the different teams of the project is well organised. The level of cooperation of the teams in the implementation of the tasks also appears to be good. The information dissemination within the project team is going partly on the basis of meetings and partly directly between the partners who collaborate.

57. Despite the benefits of longer-term contracts mentioned above all project staff are on a maximum of 1-year contracts, with annual contract extensions. While this complies with the UNDP Corporate Service Contract guidelines used by UNDP Armenia, where service contracts are issued for a minimum period of 6 months, renewable, but not more than 12 months at a time, the process of extending the contracts and in some cases re-tendering them is stressful and administratively burdensome. It does not appear to happen in many other UNDP country offices.

58. The International Technical Advisor (ITA) played a highly significant role in the project, and annual discussions between the ITA and the project management appear to have been crucial to guide the ongoing directions of the project.

59. The National Project Coordinator has taken an active interest in the project, is fully informed, and appears to be fully engaged in ensuring that the project achieves its objectives.

60. The Steering Committee has played a positive supportive although fairly minor role in the project. It appears to have served an important function of keeping diverse stakeholders engaged in the development of the project.

61. The idea that the Advisory Centre (or Centres) could become self-supporting through revenue from end-users (condominiums) during the course of the project is highly unrealistic without supportive

policy, and the products offered were not oriented around commercial products that other customers might want to pay for. In most countries of the world, such energy efficiency centres are at best partially state funded, and the chances for end-users to pay for advisory services in the current Armenian context is highly remote, even if the Centre were to offer a wide range of services beyond the heating sector (as it probably should given the market size), and the legal framework is substantially adjusted (without a system of incentive payment to condominium to make use of such centres). Potential paying customers to consider if one were developing a business plan would be international donors, the 'new' energy service companies, municipalities, or national government (even if services are still directed to condominiums, although the benefits of this are questionable).

62. Overall rating of Implementation Approach: *Highly satisfactory*

Stakeholder participation

63. All stakeholders interviewed found the project to be "useful" and were enthusiastic about it.

64. The communication with the Steering Committee, the Project Management and UNDP-GEF is operating without any problems. The recommendations and suggestions of these and stakeholders are regularly built in the development of the project.

65. There is a positive and effective relationship between the project management unit and the Ministry of Nature Protection, who are providing office space for the project in the Climate Change Information Centre. Productive working relationships with many other stakeholders, in particular the World Bank and the R2E2 fund, the USAID and Alliance to Save Energy (before USAID halted funding), the Yerevan Municipality, and the Public Services Regulatory Commission. Without doubt these alliances, in particular the one with the Regulatory Commission, have contributed to effective implementation and achievement of project objectives. Given the importance of the Ministries of Energy and Finance & Economy, stronger engagement with these stakeholders could be valuable.

66. Overall rating of Stakeholder Participation: *Highly Satisfactory*

Monitoring and evaluation

67. Quarterly progress reports and workplans were prepared by the Project Manager and approved by the National Project Coordinator and UNDP, and this appears to have been satisfactory. The National Project Coordinator and project manager clearly have a good grasp of the local project constraints and appears to have guided the project effectively within these limitations.

68. The International Technical Advisor has played a valuable part in monitoring project progress and in directing and redirecting the efforts of the project team to achieve the intended results. These have included very detailed reviews of progress are part of the development of annual 'consolidated project workplans'.

69. The project is being tracked against an increasingly confusing set of indicators, and there appears to be some blurring of the logical structure. The Project Planning Matrix (logframe) given in the Project Document was revised during the first visit of the International Technical Advisor. The new version dated 5 November 2005 contained a number of revised indicators. The revised logframe contained a total of 14 Outcome (goal) and Objective level indicators. The 2005-6 PIR cut this down to a total of 7 indicators, and targets were added for the objective level indicators. In the 2006-7 PIR an additional indicator was added, making a total of 8. The Annual Work Plan (AWP) for 2007 contains contains 11, and the AWP for 2008 has 12 indicators at the *objective* level (the AWPs do not include outcome level indicators).

70. Considering indicators at the outcome / development goal level, the PIRs for 2005-6 retain only 2 of the originally proposed indicators – those related to investments 'leveraged' and GHG emission reductions. This rationalization is logical and may serve to focus the project on delivering concrete impacts.

71. An overview of changes at the objective level is given in Annex 4. While some of this is cosmetic, others are materially different. Of main concern is the dropping of an indicator tracking municipal involvement in heating development in PIR 2006-7 and the AWP 2008 under Objective 2. While municipal interest is currently low, they are key strategic stakeholders. Furthermore, the most recent workplan retains Outputs under Objective 2 targeting municipalities, and the logical structure is thus broken (the outputs no longer contribute to the objective 2 indicator). Finally the enhancement of capacity of (private sector) energy service providers (now added as the Objective 2 indicator) is already covered under Objective 3.

72. Overall rating of Monitoring and Evaluation: *Satisfactory*

Financial Planning

73. Costs were managed using standard UNDP rules and procedures. Based on a review of Audit Reports the project is being soundly managed. The 2007 and 2006 audits highlighted a number of minor issues relating to write-off of aged assets, booking dates of odd items around the closing of books, etc. and the management team appears to have addressed all issues raised.

74. At the time of the evaluation field visit, after approximately 3.5 years of implementation only 1.2 million USD has been allocated, which is approximately 41% of the allocated project budget.

75. Project expenditure by project component is available from the UNDP Atlas system, and is shown cumulatively in the figure below for each year since the project started. Following a slow start in the first year, expenditure has increased substantially. Significant resources however are likely to remain at the planned project close of 20 January 2009.

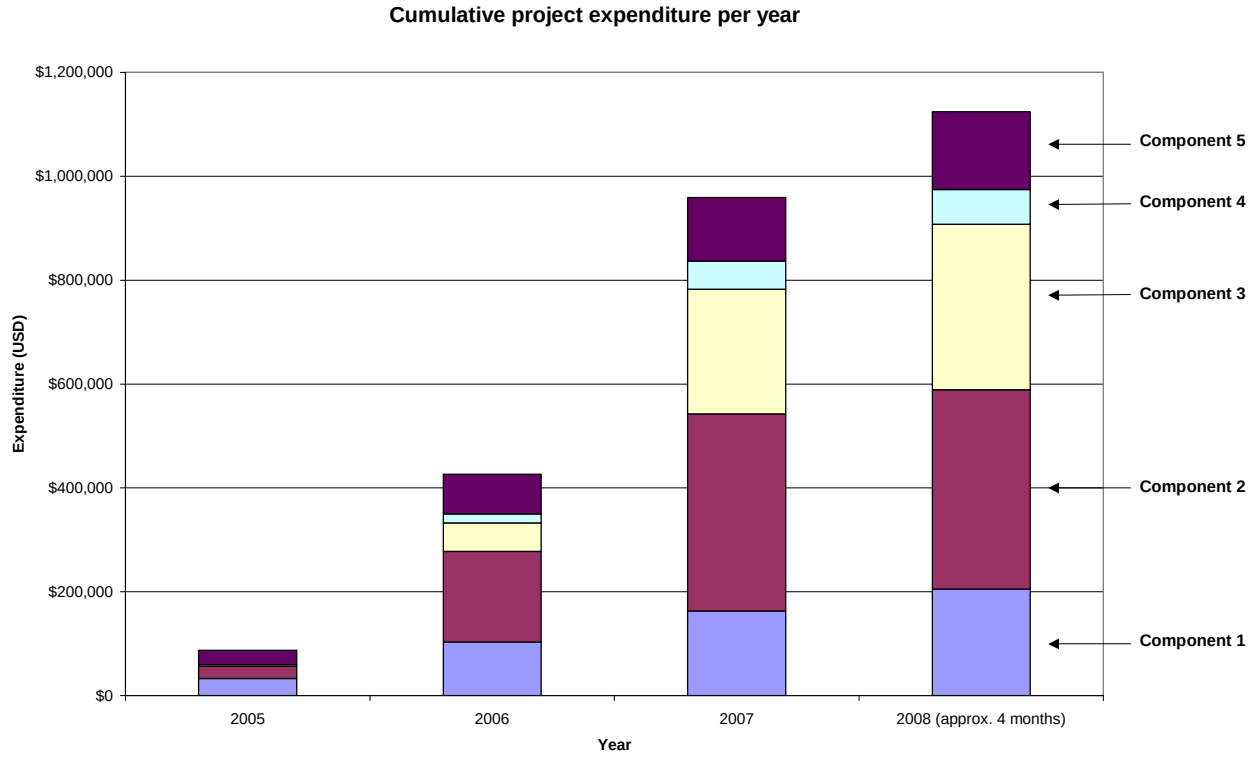

Figure 5: Cumulative project expenditure per year and by project component[8]

[8] Component 5 is 'project management' according to the categories used in Atlas.

76. Contracting and procurement has been challenging throughout the project and appears to stem from unusually bureaucratic, slow and burdensome procedures being insisted upon by the UNDP. In part this can be blamed for the very slow project start-up with the project manager only recruited in June 2005, and most project staff being recruited in November 2005. The fact that the mid-term evaluation is taking place 3.5 years into a 4 year project may also be indicative.

The overly bureaucratic approaches appear to be having a significant and detrimental effect on project delivery, in particular the requirement to rehire all project staff annually, and sometimes more frequently. This demoralizes staff and makes it difficult to retain qualified personnel.

Nowhere is this more evident than in the efforts to establish an Advisory Centre under component 1 of the project. To date there have been 6 contracts with the selected service provider as follows:

- 25 November 2005 to 25 February 2006 (3 months)
- 1 March 2006 to 31 March 2006 (1 month)
- 1 April 2006 to 20 September 2006 (6 months), extension of previous 1-month contract
- 1 October 2006 to 21 March 2007 (6 months)
- 1 May 2007 to 30 July 2007 (3 months)
- 1 October 2007 to 31 March 2008 (6 months)

The services are currently being re-tendered. Additionally it appears that some of these contract were issued well into the contract period or even after it was complete (contract for March 2006 was ready for signature on 19 May 2006, the contract for the October 2006 period was ready on 12 December 2006, and the contract for the 1 May 2007 period was ready on 7 August 2007).

With no possibility to build up continuity this contracting process has been highly disruptive in terms of project strategy (the Advisory Centre could not operate effectively or become self-sufficient) and a significant waste of time and effort for all concerned. The re-contracting process has clearly:

- Demoralized staff
- Occupied a significant amount of time which could have been used practically
- Made long-term strategy development of the centre virtually impossible

These and other experiences with procurement and recruitment suggests that specific attention during further project implementation needs to be placed on efforts to facilitate timely procurement, which are open and transparent but with minimum bureaucracy. Procurement approaches for this and similar projects should be developed which allow long-term and efficient delivery of project objectives in a sustainable fashion. Many other UNDP country offices appear able to make multi-year contracts as needed, and with quicker turn-around times.

77. Realized co-financing has been estimated and reported in the 2007 PIR. The basis for these estimates is unclear, although they appear to be realistic.

78. According to the project brief co-financing was to come from the World Bank (10 million USD), USAID (7 million USD), The Government of the Netherlands (0.57 million USD), and the Government of Armenia (0.20 million USD in-kind). The World Bank co-financing is proceeding and can be counted as co-financing through co-operation with the R2E2 fund. The USAID programme was halted in due November 2006 with only a minor portion of the funds committed (1 million USD as estimated in the 2007 PIR). The funding from the Netherlands was committed as was planned (and spent before the UNDP-GEF project started) – the project itself was largely unsuccessful with the UNDP-GEF project carrying out a "Study on Restoration of 'Jrashat 92' Boiler House Operation for the Heating Season of 2005/2006". Support for the Government of Armenia has proceeded along planned lines so presumably can be counted as realized.

79. A small amount of co-financing has been made available by the Czech government to support Czech consultant costs and the organisation of a study tour for equipment certification activities (output 3.3).

80. Despite the shortfall in the co-financing with the demise of the USAID project, private sector co-financing, if even a small proportion of the demonstration projects are successful, will more than compensate (the Avan project investment is currently approximately 21 million USD).

Project effectiveness

81. Progress in project implementation against outcomes and activities is shown in the following table. While the project is 'mid-term' and activities are underway current trends and indications are reflected in the table and have been used to reach a considered judgement in terms of 'rating'.

GOAL, OUTCOMES & OUTPUTS[9]	INDICATORS[10]	STATUS	RATING[11]
Development Goal: To lay the institutional and financial foundation for and to remove other key barriers to the sustainable development of the heat and hot water supply services in Armenia, thereby reducing their GHG emissions and improving their quality and affordability to the customers.	Recommended legal and regulatory improvements adopted to support sustainable heat sector development.	Legislation on CHP adopted, Heat Law concept under discussion, not adopted	S
	The established institutional support and financing mechanisms continue to operate on a self-sustaining basis.	Current prospects for self-sustaining institutional and financial mechanisms are doubtful, especially in absence of primary legislation	U
	The number of condominiums initiating collective measures to improve their heat and hot water supply is increasing.	Does appear to be increasing slowly but with questionable attribution to project activities. Legislative barriers continue to block progress in this regard	S
	An increasing number of commercial service providers will make contracts with the buildings to supply them with heat and/or hot water, thereby replacing the extensive use of wood fuel and electricity with environmentally more sustainable alternatives (such as small gas boilers and mini-DH networks).	Number is increasing and trend likely to continue and accelerate. Positive impacts include displacement of wood and electricity.	S
	At least USD 10 million worth of additional investments leveraged for restoring the heat and hot water supply services on the basis of energy efficient central water heating systems, thereby reducing the current use of electricity and fuel wood for heating purposes	If planned commercial investments go ahead this target will easily be exceeded.	HS
	Cumulative GHG reduction of 0,7	Assuming all pipeline investments go	HS

[9] According to the OECD-DAC "Glossary of Key Terms in Evaluation and Results Based Management", outcomes are the likely or achieved short-term and medium term effects of an intervention's outputs, outputs are the products, capital goods and services, which result from a development intervention, and activities are actions taken or work performed through which inputs, such as funds, technical assistance and other types of resources are mobilized to produce specific outputs.

[10] The goal, outcomes and outputs, as well as indicators are taken from the revised Project Planning Matrix of 5 November 2005.

[11] The following ratings have been used: HS - Highly Satisfactory; S - Satisfactory; MS - Marginally Satisfactory; MU – Marginally Unsatisfactory; and U – Unsatisfactory

[12] The IC matrix given in the project document clarifies that this target is cumulative over 20 years, not 'cumulative reductions by the end of project'

GOAL, OUTCOMES & OUTPUTS[9]	INDICATORS[10]	STATUS	RATING[11]
	million tons of CO_2 by the end of the project, compared to the set baseline. The specific GHG emissions of heating and hot water supply per unit of heat and hot water delivered show a decreasing trend. [In PIR 2005-6 and PIR 2006-7 only these two last indicators are retained]	ahead the emission reductions will be approximately 140 thousand tonnes CO_2 per year. 20-year cumulative reductions would potentially reach 2.8 million tonnes[12]. At least 25% of this is appears realistically achievable.	
Immediate Objective 1 Strengthening the role of the condominiums or other forms of consumer associations in organizing and managing the heat and hot water supply services collectively at the building level.	Signed contracts, within the condominium as well as between the service providers and condominiums for the provision of heat and hot water supply services [PIR 2005-6 and 2006-7 adds a target of 80 to this indicator]	Contracts between condominium associations and owners and service providers have not proven to be the main mechanism for heat delivery. 373 contracts between services companies and consumers in 2 demo projects have been signed.	S
Output 1.1 Improved legal and regulatory framework to strengthen the role of the condominiums and to allow them to present themselves as credible, legally and financially responsible counterparts for the commercial service providers	Recommendations for the legal and regulatory changes to strengthen the role of the condominiums in organizing and procuring heat and hot water supply services finalized and discussed with the relevant Government counterparts and, as applicable, adopted.	Recommendations have been made and discussions held, but not adopted. These issues have proved to be highly complex with multiple interested stakeholders and differing interests.	S
Output 1.2 Strengthened capacity of the condominiums to manage their operations and to organize the heat and hot water supply services collectively at the building level	Adequate advisory services available for the targeted condominiums. Condominiums effectively managing their operations, including the organization of the heat and hot water supply	Advisory centre was intermittently operating but currently closed With district heating effectively stopped, restoring heating is beyond the capability of most condominiums	US US
Immediate Objective 2: Building the capacity of the local municipalities to effectively manage the remaining assets of the former district heating systems and to facilitate the restoration of the central water heating and hot water supply services to their population by socially, economically, financially and environmentally acceptable	The number of municipalities adopting a realistic and sustainable strategy for improving the heat and hot water supply services for their residents [A target of 10 was added in PIR 2005-6] [The indicator was modified in PIR 2006-7 to "Enhanced capacity of companies to manage their operations and to leverage	Heat supply plans in the form of (pre-) feasibility studies have been developed for 6 locations. Recommendations have been adopted into the Yerevan Master Plan.	S

GOAL, OUTCOMES & OUTPUTS[9]	INDICATORS[10]	STATUS	RATING[11]
means.	financing for the investments needed"[13]]		
	The number of sites for restoring the heat and hot water supply services under construction [A target of 10 was added in PIR 2005-6, and the indicator wording slightly changed in PIR 2006-7]	Construction is underway in 3 sites: Avan, Spitak and Gyumri	S
	[Only these two indicators were retained in PIR 2005-6. A target of 10 was added at that time]		
	The number of citizens having access to restored central water heating and hot water supply services.	Approximately 600 apartments are covered by current construction. With an average of 4 citizens per apartment this would reach 2400 citizens	S
Output 2.1 Municipal strategies to improve the heat and hot water supply services to the population.	The implementation strategies finalized and adopted	Recommendations were included in the Yerevan masterplan. In the absence of supportive legislation other municipalities are unlikely to adopt heating strategies formally	S
Output 2.2 Strengthened capacity of the municipalities to manage the remaining assets of the former DH systems and to facilitate the further development of the heat and hot water supply services.	The number of sites for restoring the heat and hot water supply services under construction	As reported for the objective indicators, construction is underway in 3 sites	S
	The number of citizens having access to restored central water heating and hot water supply services.	Approximately 2400 citizens will be reached in the 3 demonstration sites	S
Immediate Objective 3: Supporting the emerging new service providers in offering their services to the condominiums and structuring financing for the investments needed	Projects worth at least USD 5 million under implementation.	Counting only the demonstration project in Avan (full value of about 21mUSD), project value is roughly 300,000 USD	HS
	Commercial sustainability of at least 5 companies established	Sustainability cannot yet be judged.	-
	[These indicators were removed in the PIR 2005-6 and replaced with "the number of companies capacitated by the project to increase their business in the provision of energy services"[14] with a target of 20. The indicator was further changed in PIR 2006-7 to "Contracts for heat supply	373 contracts between services companies and consumers in 2 demo projects have been signed.	S

[13] Without further specification, this indicator is not objectively verifiable. It also does not reflect the intentions of this component which in both the project document and the revised Project Planning Matrix of November 2005 focuses on municipalities. The outputs under this objective also focus on municipalities not companies.

[14] Without further specification, this indicator is not objectively verifiable.

[15] This indicator effectively duplicates part of indicator under objective 1.

GOAL, OUTCOMES & OUTPUTS[9]	INDICATORS[10]	STATUS	RATING[11]
	concluded between the new service providers and the clients" with a target of 20[15]]		
Output 3.1 Improved legal and regulatory framework to encourage the new, decentralized service providers to enter the heat and hot water supply market based on the use of mini DH grids or gas fired building boilers in the areas that can currently not served by or are otherwise not viable for centralized DH services	Recommendations for the legal and regulatory changes to encourage the new, decentralized service providers to enter the heat and hot water supply market finalized and discussed with the relevant Government counterparts and, as applicable, adopted.	Project was instrumental in the development and adoption of CHP feed-in tariffs, which has had a significant positive impact on involvement of service providers. Recommendations for revising other legal and regulatory frameworks including gas tariffs for boiler-houses prepared but not adopted.	HS
Output 3.2 Strengthened capacity of the emerging, new service providers to develop "bankable" investment proposals, to structure financing for the projects and, as needed, to manage the commercially sustainable operation of the companies otherwise.	Number of approved applications and/or signed contracts with the targeted clients to develop the heat and hot water supply services in multi-apartment residential buildings. Number of sites under construction.	373 contracts between services companies and consumers in 2 demo projects have been signed. Construction is underway in 3 sites As reported for indicators under objective 2 construction is underway in 3 sites	S S
Output 3.3 A certification system for qualified service and equipment providers.	The certification system developed and adopted.	Work on this output currently underway, but focused on households not heat system supply	S
Immediate Objective 4 Utilizing the results, experiences and lessons learnt for advancing the sustainable development of the heat and hot water services in Armenia with a specific emphasis on the GHG reduction aspects.	Final project report documenting the results, experiences and lessons learned. [PIR 2005-6 removed this indicator and PIR 2006-7 restored it. A target of 1 final report was given] Expressions of interests to replicate the project activities at the national and regional level. [PIR 2006-7 added a target of 10]	Not yet due National replication is not effectively tracked by expressions of interest Regional replication unlikely before the project is further developed	- -
Output 4.1 A system for monitoring the GHG emission reductions of the proposed pilot/demonstration projects and assessment of GHG removal as a result of the avoided deforestation.	The GHG emission monitoring protocol developed The operating personnel of the projects trained for compiling the information needed The GHG emission removal as a result of the avoided deforestation assessed	A desk-based GHG process and review has been developed Meters have been installed in all demonstration projects locations, and data provided to the project GHG emissions have been estimated based on a desk analysis. It does not cover avoided deforestation. This is arguably of low priority since wood use is now below 10% nationally.	S S S
Output 4.2 Norms and enforce mechanisms for	Norms for defining the amounts of sustainable use of forest wood	A TOR was developed and sent to the Ministry of Agriculture, awaiting	S

GOAL, OUTCOMES & OUTPUTS[9]	INDICATORS[10]	STATUS	RATING[11]
preventing the unsustainable use of forest resources as wood fuel.	developed and adopted. The possible enforcement mechanisms evaluated, developed and adopted.	response. Overall the value of this activity is questionable.	
Output 4.3 Compilations, evaluations and analyses of experiences and lessons learned under the project.	Finalized project monitoring and evaluation reports.	A lessons learnt report is currently under development	S
Output 4.4 Project results, experiences and lessons learned disseminated at the national and regional level.	Workshops and other public outreach activities organised at the national and regional level to discuss and disseminate the project results, conclusions and recommendations.	Regular promotion of the project has taken place locally and at international fora. An up to date and informative website has been maintained in Armenian and English	HS

C. Results

Impact

82. To achieve the development goal to "lay the institutional and financial foundation for and to remove other key barriers to the sustainable development of the heat and hot water supply services" the project has objectives consisting of barrier removal and capacity building for apartment owner associations, municipalities, and energy service providers. Based on the information gathered in the interviews, and the results of the activities completed to date, positive progress is visible in achieving all of these objectives. While progress has been slow in realizing on-the-ground investments, the project appears to be entering a critical period in the coming half-year when significant progress could be made.

83. The project's overall environmental goal was "...to reduce the GHG emissions of Armenia resulting from the current heat and hot water supply practices.", with a direct cumulative 20-year emission reduction of 0.7 million tonnes CO_{2eq}. According to a review of the potential emission reductions from all the possible demonstration projects within the project, carried out by project experts in 2007, potential annual emission reductions from projects receiving project support (legal and commercial advice) are given in the table below:

Location	Reduction (tCO_{2eq} / year)	Planned / Realized completion date	20-year lifetime reductions
The Avan, Yerevan	34,000	Pilot: 3 buildings (Jan 2008) + 4 buildings (Nov 2008)	680,000
The Davidashen, Yerevan	34,000		680,000
Yerebuni, Yerevan	21,000		420,000
Shengavit, Yerevan	37,500		750,000
Sevan	9,000	Pilot: Dec 2008	180,000
Gyumri	70	Full operation from Nov 2008	1,400
Spitak	40	Full operation by Oct 2008	800
Kajaran	3,500		70,000
Total	**~140,000**		**~2,800,000**

Assuming all pipeline investments go ahead the emission reductions will be approximately 140 thousand tonnes CO_{2eq} per year. Twenty-year cumulative reductions would potentially reach 2.8 million tonnes. The project target of 0.7 million tonnes reduction is 25% of this, and appears to be achievable within the project scope.

84. Attainment of Outcomes/ Achievement of objectives (R): *Satisfactory*

Sustainability and replicability

85. The project's overall *static sustainability* (referring to the continuous flow of the same benefits to the same target groups) appears to be assured if the investments proceed as planned and capacities of the private investors is sufficient to sustain the businesses in a supportive legislative environment.

86. The *dynamic sustainability* (in which the use and / or adaptation of the project results by the same or other target groups takes place) requires further attention:

87. Through the project's success in the development of legislation on preferential CHP feed-in tariffs there is now greater private sector interest in investing in commercially viable power and heat supply projects, and this bodes well for future investments in heat supply. A number of other legislative barriers exist, such as VAT levels on natural gas for district heating, which if successfully addressed will further ensure investment finance is available. Considering financial resources for municipalities or for support services for condominium owners associations, in the absence of appropriate legislation (which may be provided by the heat law), financial sustainability does not exist, and replication throughout the country will be limited.

88. A high level of project ownership within the Ministry of Nature Protection is evident, and there is clear understanding and support for the long-term objectives of the project within the Ministry. However, political will elsewhere appears to be less in evidence, and there is no other government champion with a clear responsibility for the heat sector. The R2E2 Fund management arguably is taking a somewhat neutral stand politically while providing funding for apartment-level boilers, thus undermining restoration of district level heating.

Contribution to capacity development

89. The impact of the project on capacity building has to date been limited mostly to the direct project stakeholders. The capacity development work with both apartment owner associations and with municipalities has been somewhat limited since their incentive to participate is lacking in the absence of supportive policies and legislation. Capacity building targeting the 'new energy service providers', the subject of Objective 3, has mostly taken place in the context of interactions between the companies and the project experts, and, while somewhat limited in reach, appears to be highly effective.

D. Overall rating of project

90. The project as a whole is both highly relevant, has a generally sound project design, and is being implemented effectively, with most outputs rated as satisfactory in terms of effectiveness. The overall project is thus rated as *satisfactory*.

III. Recommendations

91. It is recommended that the main directions of the project should be maintained with a number of minor reorientations on activities and approaches.

92. Since the policy and legislative frameworks are so crucial to overall project success, and still, as at the time of project design, represent the main barriers to be addressed, ongoing efforts should be made to move the policy agenda forward. The 'heat law' is of primary importance in this regard, and should receive the majority of effort, with the activities on other legislative issues being addressed as and when opportunities arise. Thus, it is recommended that policy work around condominium associations be given a low priority at the present time (with the project team perhaps merely monitoring conditions) unless circumstances change and opportunities arise. The work on forest management standards should be entirely dropped.

93. The advisory centre has not worked (partly due to UNDP bureaucracy which destroyed necessary continuity and stability, as well a lack of policies which could incentivise stakeholders to make use of these services). It is recommended that, in the absence of legislative development, the contractor be used as needed as a project expert on retainer (for arranging and carrying out surveys for example), and that the advisory centre idea be revived once the legal frameworks develop sufficiently.

94. Support to development of heating strategies should continue to attempt to engage with municipalities when opportunities arise. With successful development of a heat law including municipal obligations the project can then reengage rapidly with municipalities and give a higher priority to capacity building.

95. Delivery of successful pilot projects (in particularly opportunities like Avan and Davidashend) should be given a high priority. This is likely to include supporting the Yerevan municipality to reinvigorate or tender the Davidashend concession. Concrete success in on the ground projects will enhance the policy work and give a stimulus to both municipalities and the population.

96. Given the importance of the Ministries of Energy and Finance & Economy, stronger engagement with these stakeholders could be valuable. In any case the project team should try to forge alliances with all government stakeholders to explain the arguments for a concerted effort to address heating and hot water supply – from fuel security, economic, health, safely, and environmental points.

97. The sustainability strategy needs urgent attention: how will the project ensure that 1) there is a government champion to take forward the issues when the project finishes, 2) the project benefits

continue to be realized and grow after the end of the project. While appropriate legislation and institutional structures will largely address this, attention should be given to ensuring that services such as 'advisory support', and technical support to municipalities and private investors (and potentially to condominium associations) have a suitable 'home'.

98. Efforts should be made to reduce the bureaucratic burdens imposed by UNDP, and to develop procurement processes which can allow for long-term hiring of project staff, international experts and local experts / organisations where necessary since current processes are demotivating staff, making difficulties in retaining qualified personnel, wasting substantial time, and disrupting the project strategy/vision. Potentially some high level discussion is needed, since most UNDP country offices manage to reduce these barriers. Tendering and retendering services such as the Advisory Centre is simply unacceptable and is stifling the project and wasting huge amounts of money and human resources.

99. The project is at a critical stage where if policy barriers are removed through the project efforts the market could take off in a substantial way. It would be a great pity if the project came to an end in the middle of these developments and the opportunity were lost. Since sufficient budget clearly exists, the project duration should thus be extended for at least an additional two years, and budgets planned accordingly.

IV. Lessons Learned

100. The project team (and especially the project manager) has established essential alliances with key stakeholders. These are clearly valuable for the achievement of the project aims – a good example being the co-operation with the Public Services Regulatory Commission. Such alliances are crucial when achieving project objectives requires a high level of co-operation.

101. Projects need to be able to adapt to changing market conditions rapidly in new markets such as in Armenia. With district heating collapsing during project preparation and a huge shift in heating practices (from approximately 56% wood and 7% gas in 2001 to 10% wood and 53% natural gas in 2006-7) during the project, a high degree of flexibility and agility is necessary. The value of revisiting the project logic and questioning assumptions and approaches is of great benefit.

102. The use of an International Technical Advisor to support project implementation and the project management 'as needed' is a highly effective approach, and follows best practice from other projects in the wider region.

103. Monitoring frameworks should be kept simple, with a minimum number of good quality indicators (specifying Quantity, Quality and Timeframe) and targeting desired impacts. Overcomplicated monitoring frameworks will not be used. Similarly changing indicators annually confuses evaluation processes, and does not support the logical integrity of the project.

104. Policy development work requires prior and ongoing government willingness to address policy issues: where government are keen to develop policies on a particular subject, the project can effectively assist, but where this willingness does not exist, significant ground work, and patience, may be needed to lay the foundations for future policy development. Most policies need a champion (such as the Regulatory Commission for the CHP law).

105. Where governments are not already intending to develop policies and legislation, projects cannot guarantee to produce results.

106. The timing of policy and legislation development cannot be programmed into a project workplan. However rewards from addressing these can be significant.

Annex 1: Evaluation terms of reference

TERMS OF REFERENCE

for UNDP/GEF Project Mid-term Evaluation

Project Title: **Armenia – Improving the Energy Efficiency of Municipal Heating and Hot Water Supply**

Functional Title: Consultant for Independent Evaluation

Duration: Estimated 15 days in total (including a mission to Armenia and the required desk work before and after the mission within the period of:
April 7, 2008 - June 9, 2008.

Terms of Payment: Payable upon satisfactory completion and approval by UNDP of all deliverables, including the Evaluation report based on daily consultancy fee.

Travel costs: The costs of in-country mission(s) of the consultant: economy class air ticket and DSA according to the itinerary for the period of the mission will be covered by UNDP from the project budget.

1. PURPOSE OF THE EVALUATION

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

a) promote accountability for the achievement of GEF objectives through the assessment of results, effectiveness, processes and performance of the partners involved in GEF activities. GEF results will be monitored and evaluated for their contribution to global environmental benefits; and

b) promote learning, feedback and knowledge sharing on results and lessons learned among the GEF and its partners, as basis for decision-making on policies, strategies, program management, and projects and to improve knowledge and performance.

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

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

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

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

2. PROJECT DESCRIPTION

The objective of the UNDP/GEF Project: Armenia – Improving the Energy Efficiency of Municipal Heating and Hot Water Supply, is to reduce greenhouse gas (GHG) emissions from and to lay the foundation for the sustainable development of heat and hot water supply services in Armenian cities. To achieve this objective, the project was originally structured around 4 immediate objectives: (i) strengthening the role of condominiums in collectively organizing and managing heat and hot water supply services at the building level; (ii) supporting the restructuring and capacity building of the existing district companies to improve both their service quality and operational efficiency; (iii) supporting the emerging new service providers in offering their services to the condominiums (or other management bodies of multi-apartment buildings) and structuring financing for the investments needed and; (iv) utilizing the results, experiences and lessons learned for advancing the sustainable development of the heat and hot water services in Armenia with a specific emphasis on the GHG emission reduction aspects. The proposed capacity building and other technical assistance activities were envisaged to complement and to be implemented in close co-operation with the activities of the other donors including the World Bank/IDA funded Urban Heating Project, the Government of Netherlands funded Industrial District Heating Development and others.

The project has a long history, as the development of it started already in 1998, was accepted into the GEF Work Program in 2003 and was finally started in January of 2005. The long development phase was primarily resulting from the need to synchronize the project with the development of the other heat sector related initiatives in Armenia and, in particular, the WB Urban Heating project with the envisaged cofinancing opportunities. Since the initiation of the original project idea, the Armenian heating sector has continued to go through major changes, including the stop of all the remaining centralized district heating systems in areas that were still in operation at the project development stage. Therefore, there has been a need for a strong adaptive management approach to respond to the rapidly changing circumstances. The adjustments made into the project design during its implementation are reflected in the revised logical frameworks and annual work plans.

The executing agency of the project is the Armenian Ministry of Nature Protection, which is also hosting the core project management and implementation team.

3. EVALUATION AUDIENCE

This Mid-term Evaluation is initiated by UNDP as the GEF Implementing Agency. It aims to provide to the entities and persons engaged in the management of the project (at the level of the executing agency, project management team, UNDP CO and UNDP/GEF) a strategy and policy options for achieving the project's expected results in more effective and efficient way and for replicating the results. It also provides the basis for learning and accountability for managers and stakeholders.

4. EVALUATION OBJECTIVES AND SCOPE

The overall purpose of the evaluation is to measure the effectiveness and efficiency of project activities in relation to the stated objective and outcomes so far, and, as applicable, produce recommendations on how to improve the management and the implementation of the project until its completion. It provides an opportunity to assess early signs of project success and failure and, as applicable, prompt necessary adjustments.

The Mid-term Evaluation serves as an agent of change and plays a critical role in supporting accountability. Its main objectives are:

(i) To strengthen the adaptive management and monitoring functions of the project;
(ii) To ensure accountability for the achievement of the GEF objective;
(iii) To enhance organizational and development learning; and
(iv) To enable informed decision-making;

Particular emphasis should be placed on the current project results and the possibility of meeting the project objectives in the given timeframe, taking into consideration the progress and the evaluated effectiviness of the project implementation arrangements so far. More specifically, the evaluation should assess:

Project concept and design

The evaluators will assess the project concept and design. He/she should review the problem addressed by the project and the project strategy, encompassing an assessment of the appropriateness of the objectives, planned outputs, activities and inputs, as well as the amendments done or planned on them during the project implementation. The executing modality and managerial arrangements should also be judged. The evaluator will assess the achievement of indicators and review the work plan, planned duration and budget of the project.

Implementation

The evaluation will assess the implementation of the project in terms of quality and timeliness of the required inputs and the applicability, efficiency and effectiveness of the activities carried out, including the procurement of the required staff and other resources and procedures followed on that. As a part of this, the effectiveness of management as well as the quality and timeliness of monitoring and required backstopping by all the key parties influencing the project implementation should be evaluated. The asssesment should also include the project team's use of adaptive management in project implementation.

Project outputs, outcomes and impact

The evaluation will assess the outputs, outcomes and impact achieved by the project as well as the likely sustainability of project results. This should encompass an assessment of achievement of the immediate objectives and the contribution to attaining the overall objective of the project. The evaluation should also assess the extent to which the implementation of the project has been inclusive of relevant stakeholders and has been able to create collaboration between different partners. The evaluation will also examine presence of significant unexpected effects both of beneficial or detrimental character.

More specifically, the Evaluation will focus on the following aspects:

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

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

- **Management arrangements** focused on project implementation:
  a) *General implementation and management* - evaluate the adequacy of the project,

implementation structure, including effectiveness of Project Steering Committee, partnership strategy and stakeholder involvement from the aspect of compliance to UNDP/GEF requirements and also from the perspective of "good practice model" that could be used for replication

b) *Financial accountability* – extent to which the sound financial management has been an integral part of achieving project results, with particular reference to adequate reporting, identification of problems and adjustment of activities, budgets and inputs.

c) *Monitoring and evaluation on project level* – assess the adoption of monitoring and evaluation system during the project implementation, and its internalization by competent authorities and service providers after the completion of the project; focusing on the relevance and applicability of the performance indicators to the specific nature of the project that are:
   - Specific: The system captures the essence of the desired result by clearly and directly relating to achieving an objective and only that objective;
   - Measurable: The monitoring system and indicators are unambiguously specified so that all parties agree on what it covers and there are practical ways to measure it;
   - Achievable and Attributable: The system identifies what changes are anticipated as a result of the intervention and whether the result(s) are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention;
   - Relevant and Realistic: The system establishes levels of performance that are likely to be achieved in a practical manner, and that reflect the expectations of stakeholders; and
   - Time-bound, Timely, Trackable and Targeted: The system allows progress to be tracked in a cost-effective manner at desired frequency for a set period, with clear identification of particular stakeholders group to be impacted by the project.

.

- **<u>Overall success</u>** of the project with regard to the following criteria:

a) *Impact* - assessment of the results with reference to the development objectives of the project and the achievement of global environmental goals, positive or negative, intended or unintended changes brought about by the project intervention, (number of households benefiting, number of areas with the new technology in place, level of sensitization and awareness about the technology; any change at the policy level that contributes to sustainability of the tested model, impact in private/ public and/ or at individual levels);

b) *Global environmental benefits* - reductions in carbon dioxide emissions and other greenhouse gas emissions.

c) *Sustainability* - assessment of the prospects for benefits/activities continuing after the end of the project, *static sustainability* which refers to the continuous flow of the same benefits to the same target groups; *dynamic sustainability* use and/or adaptation of the projects' results by original target groups and/or other target groups;

d) *Contribution to capacity development* - extent to which the project has empowered target groups and have made possible for the government and local institutions (municipalities) to use the positive experiences; ownership of projects' results;
e) *Replication* – analysis of replication potential of the project positive results in country and in the region, outlining possible funding sources; replication to date without direct intervention of the project;
f) *Synergies* with other similar projects, funded by the government or other donors.

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

Expected technical assessment and measurement:

The Evaluation Report will assess the validity of the proposed technical approaches and their foreseen impact in facilitating sustainable development of the heat and hot water supply in Armenian communities for now and for the future (taking into account the expected changes in the overall economic development, commodity prices etc.), including an assessment of the related GHG emission reduction potential. The evaluation shall be supported by the required technical, financial and, as applicable, measurement data by the project team.

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

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

5. EVALUATION METHODOLOGY

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

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

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

The evaluation will take place mainly in the field. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with the key government counterparts such as the National Project Director and members of the Project Steering Committee, the core Project Management and Implementation Team and representatives of the final beneficiaries.

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

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

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

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

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

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

6. DELIVERABLES

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

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

One mission to Yerevan, Armenia and, as needed, other selected project sites in Armenia will be conducted.

The structure of the Evaluation Report shall follow the template presented in Annex I of this TOR.

7. TIMING AND DURATION

The total duration of the evaluation will be **15 days within the period** April 7, 2008 - June 9, 2008. according to the following plan:

Preparation (home office – April 7- 22):

- Collection of and acquaintance with the project document and other relevant materials with information about the project;
- Familiarization with relevant policy framework in Armenia;
- Design the detailed evaluation scope and methodology (including the methods for data collection and analysis);
- Set up the mission dates and detailed mission programme preparation in cooperation with the Project manager. The Project manager will organize the schedule of the mission and will arrange transportation for the consultant; will arrange for translation/interpretation when necessary
- Communication with the project staff to clarify matters

Mission to Armenia (6 full working days+ the travel days during April 23- May 8):

- briefing by the PMU
- review and collection of required additional reports and other materials in writing
- meetings with the National Project Director, Steering Committee members, local UNDP office and representatives of other stakeholders
- visits to project site(s), as needed.

Compiling and presenting the draft report for review (home office – May 23):

- Additional desk review
- Completing of the draft report
- Presentation of draft report for comments and suggestions
- additional information and further clarification with UNDP, project management and project staff;

Report finalization (home office - June 9):

- Incorporation of comments and additional findings into the draft report
- Finalization of the report

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

The finalized Evaluation Report shall be submitted latest on June 10, 2008.

8. REQUIRED QUALIFICATION

- University degree in technical, economics or energy/environment related issues;
- Work experience in relevant areas for at least 8 years, including;
  - o familiarity with the common problems and recognized expertise in the field of developing the heat and hot water supply systems and services in the countries with the economies in transition;
  - o familiarity with the international best practices and lessons learnt in improving the energy efficiency of the heat and hot water supply and to reduce the related GHG emissions;
  - o experience with financial analysis and financing mechanisms implemented for improving the energy efficiency of the residential sector in the countries with economies in transition.
  - o recent experience with result-based management evaluation methodologies;
  - o recent experience in evaluation of international donor driven projects (project evaluation experiences within United Nations system will be considered an asset);
- Conceptual thinking and analytical skills;
- Excellent English communication skills;
- Knowledge of Armenian and/or Russian language will considered as an asset;
- Computer literacy;

The evaluator must be independent from both the policy-making process and the delivery and management of assistance. Therefore applications will not be considered from evaluators who have had any direct involvement with the design or implementation of the project, or have conflict of interest with project related activities. This may apply equally to evaluators who are associated with organizations, or entities that are, or have been, involved in the delivery of the project. Any previous association with the project, the executing of national implementing Agency or other partners/stakeholders must be disclosed in the application. This applies equally to firms submitting proposals as it does to individual evaluators.

If selected, failure to make the above disclosures will be considered just grounds for immediate contract termination, without recompense. In such circumstances, all notes, reports and other documentation produced by the evaluator will be retained by UNDP.

9 APPLICATION PROCESS

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

1. current and complete C.V. in English with indication of the e-mail and phone contact

2. brief concept paper (no more than 5 pages outlining the approach and methodology you will apply to achieve the assignment)
3. price offer indicating the total cost of the assignment (including the daily fee, per diem and travel costs)

by 5.00 pm of February 27, 2008 to:

Applications can be submitted through http://oc.undp.am/?go=vacancies or communicated directly to naira.olkinian@undp.org

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

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

Annex 2: List of interviews

Project personnel

Diana Harutyunyan, Project Manager

Arusyak Ghukasyan, National expert / task leader on increasing access to energy efficient services

Robert Kharazyan, Team leader / national expert on heat sector rehabilitation policy

Vahan Mardirossian, Monitor / driver

Karapet Martirosyan, Project expert on information communication and technologies

Marina Sargsyan, National expert on energy sector economics

Rubina Stepanyan, Energy efficiency and atmosphere protection UNDP annual work plan associate

Robert Bughdaryan, National expert on heating systems

Svetlana Galoyan, National consultant on institutional aspects of heat supply in multi-apartment buildings

Vahram Jalalyan, National expert on energy efficiency potential assessment

Mikhael Vermishev, National Expert on GHG Mitigation Policies

Steering committee

Dr Simon Papyan, First Deputy Minister, Ministry of Nature Protection of the Republic of Armenia

Dr Aram Gabrielyan, Head of environmental protection department, UNFCCC National Focal Point, Ministry of Nature Protection of the Republic of Armenia

National stakeholders

Ruben Ter-Grigoryan, Chairman of NACO

Tamara Babayan, Director of the Armenia Renewable Resources and Energy Efficiency Fund (R2E2)

Robert Tsovyan, Advisor to the Public Services Regulatory Commission of the Republic of Armenia

Astghine Pasoyan, formerly Senior Program Manager, Alliance to Save Energy (USAID contractor), Municipal Network for Energy Efficiency (MUNEE) Program

Armen Avtandilyan, Chief Engineer, Armroscogeneratsia Ltd

Michael Rustamyan, Financial Director, Armroscogeneratsia Ltd

Artak Simonyan, Boiler House Operator, Armroscogeneratsia Ltd

Nikolay Balyan, Chief of the Area, Armroscogeneratsia Ltd

Gagik Khachatryan, Chief of the Communal Sector Department, Municipality of Yerevan

Hovhannes Nunyan, Deputy Director, "Institutional Buildings Maintenance and Operation" SCJSC, Municipality of Yerevan

Asatour Grigoryan, Director, South Therm Ltd

Ashot Sumbulyan, Energy Engineer, South Therm Ltd

UNDP

Armen Martirosyan, Portfolio analyst, Environmental governance

Astghik Martirosyan, Monitoring and evaluation specialist

International experts

Vesa Rutannen, International technical advisor on energy efficiency in district heating systems (ITA)

Annex 3: List of main documentation reviewed

Alliance to Save Energy (undated) *Armenia: Condominium Status Fact Sheet*, Yerevan

Armenia Poverty Reduction Strategy Paper (2003) Yerevan

EDRC 2007, *Assessment of Heat Supply and Heating Options in Urban Areas of Armenia*, Paper 08(07) Yerevan.

Ghukasyan A & Pasoyan A (2007) *Armenian Urban Heating Policy Assessment*, Alliance to Save Energy, Yerevan.

MUNEE / ASE / USAID (2007) *Development of National Program on Energy Saving and Renewable Energy*, Yerevan

MUNEE / ASE / USAID (2007) *Building Energy Efficiency Market Assessment*, Yerevan

Sargsyan G, Balabanyan A, Hankinson D 2006 *From Crisis to Stability in the Armenian Power Sector Lessons Learned from Armenia's Energy Reform Experience*, World Bank Working Paper No. 74, Washington DC.

World Bank (2007) *Armenia at a Glance*, Washington DC

Project documentation

From the GEF website:
Armenia Full Size Prodoc- 30January2004-020604
CC_-_Armenia_-_Project_Document
CC_-_Armenia_-_Executive_Summary

PIR 2005-6
PIR 2006-7
AWP 2006-7
AWP 2007-8
Standard Progress Report 2007

Project workplans 2005 and 2007
Reports from International Technical Advisor, 2005 and 2007

Project publications

Project website (accessed May-June 2008)

Vermishev M & Jalalyan V (2007) *Assessment of energy efficiency, GHG emissions, and GHG emissions reduction potential in the sector of municipal heat supply in the Republic of Armenia*, project report, Yerevan.

Pilot project summary factsheets in Gyumri, Spitak, Avan, and Solar Water heating in Yerevan

Annex 4: Comparison of changes to key indicators

5-11-2005 revision of logframe	PIR 2005-6	PIR 2006-7	AWP 2007	AWP 2008
		Objective 1		
Signed contracts, within the condominium as well as between the service providers and condominiums for the provision of heat and hot water supply services	Indicator 3: Signed contracts, within the condominium as well as between the service providers and condominiums for the provision of heat and hot water supply service, target 80	Indicator 3: Signed contracts, within the condominium as well as between the service providers and condominiums for the provision of heat and hot water supply service, target 80	Indicator 1: Number of multi-apartment building management bodies consulted through the advisory centres Indicator 2: Number of condominiums able to collectively restore the heat and hot water supply services to their members Indicator 3: Number of legal and regulatory acts promoting energy efficiency developed and/or revised.	Indicator 1: Number of signed contracts within the condominiums, as well as between the service providers and condominiums for the provision of heat and hot water supply services Indicator 2: Number of recommendations for the legal and regulatory changes are finalized and discussed with the relevant Government counterparts and, as applicable, adopted aimed at: 1) strengthening the role of the condominiums in organizing and procuring heat and hot water supply services, and 2) encouraging new energy service providers to enter the heat and hot water supply market Indicator 3: Adequate advisory services available for the targeted condominiums. Condominiums effectively managing their operations, including the organization of the heat and hot water supply

5-11-2005 revision of logframe	PIR 2005-6	PIR 2006-7	AWP 2007	AWP 2008
		Objective 2		
The number of municipalities adopting a realistic and sustainable strategy for improving the heat and hot water supply services for their residents The number of sites for restoring the heat and hot water supply services under construction The number of citizens having access to restored central water heating and hot water supply services.	Indicator 4: The number of municipalities adopting a realistic and sustainable strategy for improving the heat and hot water supply services for their residents. Target 10 Indicator 5: The number of sites for restoring the heat and hot water supply services under construction. Target 10	Enhanced capacity of companies to manage their operations and to leverage financing for the investments needed. Target 10 million USD Indicator 5: The number of concrete investment projects for the restoration of the heat and hot water supply services being developed.	Indicator 4: Number of municipalities adopting a realistic and sustainable strategy for improving the heat and hot water supply services for their residents Indicator 5: Number of sites under construction. Number of citizens having access to restored central heating and hot water supply services.	Indicator 4: Enhanced capacity for the companies to manage their operations and leverage financing for the investments needed Indicator 5: The number of concrete investment projects for the restoration of the heat and hot water supply services being developed. Number of MOUs signed with private companies, amount of the investments done or planned Indicator 6: The number of sites for restoring the heat and hot water supply services under construction. The number of citizens having access to restored central water heating and hot water supply services

5-11-2005 revision of logframe	PIR 2005-6	PIR 2006-7	AWP 2007	AWP 2008
Objective 3				
Projects worth at least USD 5 million under implementation. Commercial sustainability of at least 5 companies established	The number of companies capacitated by the project to increase their business in the provision of energy services. Target 20	Contracts for heat supply concluded between the new service providers and the clients. Target 20	Indicator 6: Number of approved applications and/or signed contracts with the targeted partners to develop heat supply services in multi-apartment residential buildings Indicator 7: Number of bankable investment proposal for local companies prepared	Indicator 7: Number of contracts for heat supply concluded between the new service providers and the clients Indicator 8: Number of approved applications and/or signed contracts with the targeted clients to develop the heat and hot water supply services in multi-apartment residential buildings. Number of sites under construction

5-11-2005 revision of logframe	PIR 2005-6	PIR 2006-7	AWP 2007	AWP 2008
Objective 4				
Final project report documenting the results, experiences and lessons learned. Expressions of interests to replicate the project activities at the national and regional level.	Contacts received to follow-up or replicate the project activities at the national or regional level	Final project report documenting the results, experiences and lessons learned. Target 1 report Expressions of interests to replicate the project activities at the national and regional level. Target 10	Indicator 8: GHG emission reduction Monitoring and Verification Protocol for demo projects developed Indicator 9: Percentage decrease in specific GHG emissions per unit of delivered heat Indicator 10: Number of campaign activities for dissemination of project results implemented and number of campaign materials designed and disseminated. Indicator 11: Number of project evaluation and progress reports prepared and submitted to Government of Armenia, GEF and UNDP	GHG emission reduction Monitoring and Verification Protocol for demo projects developed. Percentage decrease in specific GHG emissions per unit of delivered heat Indicator 10: Number of campaign activities for dissemination of project results implemented and number of campaign materials designed and disseminated. Indicator 11: Number of project evaluation and progress reports prepared and submitted to Government of Armenia, GEF and UNDP Indicator 12: Norms for defining the amount of sustainable use of forest wood developed and adopted. The possible enforcement mechanisms evaluated, developed and adopted