



Mid-term Evaluation

of the UNDP-GEF project

“Integrated Approach to Wood Waste Combustion for Heat Production in Poland”
(POL/01/G35/A/1G/99)

An evaluation carried out on behalf of the
United Nations Development Programme

by
Eco Ltd

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This evaluation of the UNDP-GEF project “Integrated Approach to Wood Waste Combustion for Heat Production in Poland” (project number POL/01/G35/A/1G/99) was carried out between 26 and 30 April 2004.

The project has been conducted for the Poland office of the United National Development Programme by Dr Grant Ballard-Tremeer (grant@ecoharmony.com), Eco Ltd with the assistance of local UNDP and project staff.

Contents

Contents	1
Introduction	3
Executive Summary.....	4
I. The Development Context	5
Background.....	5
Project outcomes and objectives.....	5
Key stakeholders and beneficiaries for this outcome	6
II. Findings and Conclusions	7
A. Relevance and status of the outcomes	7
B. Factors affecting the outcomes	8
C. UNDP contributions to the outcome through outputs.....	9
Project relevance and design	9
Performance	11
Management arrangements	14
Overall success.....	15
D. UNDP common rating system	17
III. Recommendations	18
IV. Lessons Learned	19
Appendix 1: Terms of Reference.....	20
Appendix 2: List of interviews	22
Appendix 3: List of Main Documentation Reviewed.....	23

Introduction

This evaluation report contains a mid-term evaluation of the UNDP-GEF Medium Scale project “Integrated Approach to Wood Waste Combustion for Heat Production in Poland”, project number POL/01/G35/A/1G/99.

The evaluation was carried out by Grant Ballard-Tremeer of Eco, a UK based consultant firm. A visit was made to Poland by the international consultant between 26 and 30 April 2004 and interviews with relevant project stakeholders, including governmental representatives, municipal representatives, individual project beneficiaries, implementing agency, project executing agency, project staff and others were made. The Terms of Reference for the assignment are given in Appendix 1. The Mid-Term Evaluation took place at the same time as a Specially Managed Project Review for GEF conducted by Alain Lafontaine (Canadian company “baastel”) and Lily Hale (Operations Coordinator, GEF Secretariat).

This mid-term evaluation aims to contribute to effective project implementation and 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. The evaluation assessed project synergies with other similar projects, evaluated the efficiency, relevance and sustainability of the financial instrument set up within the project, including its potential impact on leveraging co-financing, 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 outcomes¹. 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 appendix 2 and 3. The national implementing agency the “Polish Environmental Partnership Foundation”, and the UNDP-GEF project staff in Warszawa 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.

Executive Summary

Background

The UNDP-GEF Medium Scale project “Integrated Approach to Wood Waste Combustion for Heat Production in Poland”, project number POL/01/G35/A/1G/99 seeks to foster the development of markets for wood waste-based (biomass) energy production as a renewable substitute for fossil fuels. The project focus is on the creation of an Inter-Municipal Public-Private Partnership Company in the partner municipalities of Jordanów and Bystra-Sidzina in south Poland. The project seeks to demonstrate how an integrated approach, combining fuel conversion with demand side energy efficiency can be replicated on a wider scale in Poland. The project is implemented by the Polish Environmental Partnership Foundation and executed by the Ministry of Environment, Department of Environmental Protection Instruments.

Project relevance

The project originally aimed to reduce barriers to the creation of a biomass market in Poland. In the time since the original concept was proposed and the project started it appears that a biomass market has to some extent developed. While this certainly reduces the relevance of the overall project purpose, a more detailed analysis of the (potential) contributions of the project at local, national and global levels shows that the project remains highly relevant to local and national development priorities. There is also growing interest to harness the strengths and financial resources of the private sector in the delivery of public services through the use of public-private partnerships. This is one of the main contributions of the project and is highly relevant to national circumstances. Of equal value is the idea that Demand Side Management (DSM) and Renewable Energy *together* will enhance the environmental and economic impacts, optimise the use of wood waste, and reduce overall costs. This integrated approach to renewable energy is unusual world-wide and this project *could potentially* make a valuable contribution to approaches to sustainable energy.

Performance

The project initially experienced significant delays in starting and these delays have had a significant impact on the delivery of project outputs and mean that implementation is far behind schedule. In the light of the delays experienced, and personal / political difficulties, the recent developments mark a significant achievement. If the project implementation goes according to schedule in the coming months, the greenhouse gas emission reductions will exceed those described in the project document.

Management arrangements

Throughout the period of project implementation the Environmental Partnership has worked effectively to (re)establish relationships, maintain community support, assist municipalities to negotiate their position firmly, and move project activities forward. It is the opinion of the evaluator that they are to be highly commended for these efforts. There are many benefits to having a non-energy non-technology implementing agency for this project where a market is already developing and technical demonstration has already been achieved. The role of the UNDP however has not been as good as it could have been, and a more proactive approach is recommended for the future.

Main recommendations

- UNDP needs to give greater attention to the development of the project in the time remaining than has been the case since the project started. UNDP could make better use of its advocacy strength at high levels of government and society to ensure that the project develops on-target and in a timely way.
- Attention should be given to ensuring that project results on both Public-Private Partnership *and* Integrated DSM and Renewable Energy elements are sustained and replicated. Currently the interest and focus is on the Public Private Partnership aspects, but a champion of the ‘Energy message’ appears to be missing.
- The impact of the project on capacity building has to date been limited mostly to the direct project stakeholder. The capacities of local authorities to participate in public-private partnerships as strong / equal partners appears to be a barrier to replication. It seems vital that the Environmental Partnership is able to secure funding to (continue to) work on building local authority capacity in this area.

I. The Development Context

Background

1. The United Nations Development Programme (UNDP) has been working in Poland since 1990. In the environmental sector, all UNDP support has taken place with support of the Global Environment Facility (GEF), and Poland was one of the first countries to begin implementation of the GEF Small Grants Programme. In view of Poland's accession to the EU in May 2004, UNDP will phase out its core assistance to Poland by the end of 2005.
2. Funding from the Global Environment Facility (GEF) supports the "Integrated Approach to Wood Waste Combustion for Heat Production in Poland" project. Project preparation started conceptually in January 1997. The preparatory project (PDF-A) started in February 1999, with the project entering the GEF work programme in March 2001. The Project Document POL/01/G35/A/1G/99 was signed on 21 June 2002.
3. The project execution agency is the Ministry of Environment, Department of Investments and Technology Development (now called the Department of Environmental Protection Instruments), and the project's implementing agency is the independent non-governmental organisation the Polish Environmental Partnership Foundation which was established in 1997 to support sustainable development at a local / community level throughout Poland.

Project outcomes and objectives

4. The overall development goal of the project (the project outcome for GEF) is "to reduce greenhouse gas emissions in the energy sector by reducing barriers to the market for biomass energy". According to the most recent country programme, the project contributes to the strategic objective "ensuring environmental sustainability" (objective 2 from the UNDP Country programme document for Poland, 2004-2005), SRF Goal "G3 Environment", Sub/goal / Strategic Area of Support "G3-SG 2, SAS 1 Regional cooperation and coordination in natural resources management and sustainable development". The intended UNDP outcome is "Improved measures to combat climate change and protect biodiversity through increased involvement of local governments, civil society, NGOs and corporate sector".
5. These goals / outcomes are to be achieved through this project by addressing institutional, financial, and information / awareness barriers to the creation of a biomass energy market. Direct emission reductions as a direct result of the project were estimated in the Project Document at up to 74 000 tonnes of CO₂ over the 20-year lifetime of the investment projects (under the 30% reduction of energy use through DSM measures scenario).
6. The barriers being addressed by this project, as described in the Project Document include:
 - *Supply orientation of heat companies aiming to maximize sales:* Heat companies are traditionally supply-oriented and aim to maximize their sales. As a rule they are not interested in (and often are opposed to) improving the thermal parameters of their customers' buildings. Consequently, given the limited potential of biomass resources in a given area, the CO₂ elimination potential that would result from fuel conversion is reduced.
 - *Inter-municipal co-operation needed to use biomass resources optimally:* The greatest potential of wood waste use for energy production exists in joint action of several neighbouring municipalities, which may enable them optimally to allocate biomass resources. At the same time, no experience or tradition exists of inter-municipal co-operation in this area in Poland.
 - *Competition:* Aggressive marketing of gas and oil offering attractive terms of delivery and payments means that municipalities opt for these fuels rather than biomass. A comparable in-country capacity to promote biomass equipment does not exist.

Mid-term Evaluation – UNDP-GEF Biomass Project Poland

- *Difficulty to finance biomass projects:* It can be difficult to finance biomass projects, because investors and developers lack knowledge about project-specific economics and available sources of financing.
7. To overcome these barriers to biomass energy the UNDP/GEF project was designed with two main objectives:
- Create an example of an inter-municipal, and public-private partnership company to manage biomass energy resources at the local level in integrated and optimal manner.
 - Increase the use of wood waste produced locally and sustainably as a fuel for space heating in order to eliminate the existing solid fuel boilers powered by coal in Poland
8. From those objectives, there were several proposed project elements (outputs):
- Creation of an Inter-Municipal Public-Private-Partnership
 - Development and signing of long-term wood-waste purchase and heat purchase contracts
 - Integrated Approach to Fuel-Switching implemented
 - Information Campaign Promoting Biomass Energy
 - Development of Marketing Plan and Project Pipeline

Key stakeholders and beneficiaries for this outcome

9. Key stakeholders for both the UNDP and the GEF *outcomes* include:
- Local authorities (responsible for delivery of heat and other services to consumers)
 - Government ministries, in particular
 - Ministry of Environment (responsible for Renewable Energy Policy)
 - Ministry of Economy (responsible for Energy Policy)
 - Office for Housing and Urban Development,
 - Ministry of Agriculture and Rural Development (responsible for Forestry Policy)
 - Energy companies (power sector in generation, transmission, and distribution; and heat supply and distribution)
 - Oil, Coal and Gas industries (competitors)
 - Wood / biomass industries (using wood resources and producing and using wood-waste)
 - EcoFund (GEF Operational Focal Point), established by the Ministry of Finance to manage the Polish debt for environment swap
 - The National Fund for Environmental Protection and Water Management
 - The Voivodship Funds
 - Civil society and NGOs
 - Corporate sector (equipment suppliers, services providers)
 - Heat and power consumers
10. The most important direct beneficiary of the project will be local communities for which the use of the locally produced wood waste will constitute an additional source of income and who will also benefit from the improved quality of the local environment – through eliminating coal combustion for heating, leading to better air quality, eliminating dumping of wood-waste in unauthorised sites, thereby reducing soil and water pollution.
11. There are many stakeholders that benefit from this project more indirectly. These include relevant Ministries of the Government that have their own priorities reflected within the project. In particular, this includes the Ministry of Environment since the project is to effect important GHG emissions reductions and be part of the Government’s climate change strategy. Other Government stakeholders include the Ministry of Interior, since it works directly with municipalities. The project will bring direct benefits to the Hungarian population. GHG emissions and air pollution will be reduced as a result of the improvement in energy efficiency in Hungarian municipalities and public sector institutions.

II. Findings and Conclusions

12. The discussion that follows covers the current status of the project outcomes, and reviews key factors which affect the achievement of the project outcomes. However, since this evaluation focuses on possible mid-term adjustments to the project outputs and implementation the main findings address the UNDP project contributions to achieving the outcomes through outputs. These are discussed in section C below.

A. Relevance and status of the outcomes

13. The intended outcomes on which this project focuses are:
- To reduce greenhouse gas emissions in the energy sector by reducing barriers to the market for biomass energy (GEF Development Goal)
 - Improved measures to combat climate change ... through increased involvement of local governments, civil society, NGOs and corporate sector (UNDP SRF)

Relevance

14. Poland's strategic objective in the renewable energy sector is to increase the share of energy from renewable sources to 7.5% of total primary energy in 2010 to 14% in 2020. These targets are political objectives, with the 2020 conforming to current EU targets.
15. Based on an analysis conducted by the Ministry of Environment, and presented in "Development Strategy of Renewable Energy Sector", adopted by the Council of Ministers on 5 September 2000, and Parliament on 23 August 2001 (document number 2215), Poland's strategy will mainly focus on the utilisation of biomass resources. This is based on both current levels of use and the technical potential.
16. Poland has fully participated in the global climate change deliberations and is a signatory to the Kyoto Protocol. Poland is an Annex 1 country, meaning that it has to achieve a GHG emissions target by 2008-2012 of 6 per cent from its base period. The use of renewables and improved energy efficiency are seen as important elements in the climate change strategy as reflected in the third national communication to the UNFCCC.
17. It is the energy sector which contributes mostly to aggregate emissions of greenhouse gases, and which includes emission from fuel combustion and fugitive emission from fuels (Figures 3.5. and 3.6). The energy sector accounted in 1988 for 87.1% of total emissions, falling to 84.6% in 1999. The importance of the other sources is comparatively insignificant with Agriculture accounting for 7% of total emissions in 1999.
18. Direct reference to greenhouse gas emissions is included in legal provisions laying down the principles for energy management and energy resource saving, as well as those supporting the increase in the use of renewable energy sources. Making use of a 'renewable obligations' approach, and based on an order of the Minister of Economy of 15 December 2000, power distribution companies are required to raise gradually the rate of energy originated from renewable energy sources in the Polish energy balance from 2.4% in 2001 up-to 7.5% in 2010.
19. All of these aspects demonstrate that renewable energy, energy efficiency and greenhouse gas reductions are high priorities for Poland and that this project is relevant to the country and to municipalities.

Status of outcomes

20. In 2001, renewable energy sources accounted for 2.4% of total primary energy in Poland, with biomass contributing over 90% of this (6.5GW installed capacity). There were an estimated 150 wood-fired boilers over 500 kW capacity, and 110 000 small boilers below 500 kW capacity. It is to be expected that the majority of these are very small, old, manual and inefficient.

Mid-term Evaluation – UNDP-GEF Biomass Project Poland

21. The evaluator consulted a wide range of sources to try to identify the quantitative and qualitative baseline and current status (2004) of biomass energy and greenhouse gas emission reductions. These sources included the original project document, Poland's Third National Communication to the UNFCCC, and national statistical sources. Discussions with Government officials confirmed that quantitative data on the (changes in the) biomass energy use in district heating is currently unavailable. However interviews confirmed that biomass markets have developed significantly since 2001, and this is confirmed by a number of market signals, including:
- a) EkoFundusz and the National Fund have discontinued extending grants to pellet plants given their high profitability
 - b) A Polish Biomass Chamber of Commerce was established on 26 February 2004 with 170 (mostly commercial) co-founders.
 - c) Prices for biomass fuels are increasing due to demand, in particular the co-firing of biomass in Polish power stations. In the words of one interviewee there has been an 'explosion in demand for biomass fuel'

In view of these developments, it appears that some barriers to the market development for biomass have been to some extent already overcome.

22. The project itself has, as yet, had no impact on reductions in greenhouse gases and consequently the GEF outcome. With the investment phase soon to be realised and in view of the pipeline of new projects soon to be developed, this appears soon to change.

B. Factors affecting the outcomes

23. The outcomes are affected by the following factors:

General

24. The *price of energy* (gas, oil, and electricity) strongly affects the interest of municipalities in biomass energy and energy saving. In Poland ongoing price reforms, and removal of (cross) subsidies means that most of the consumers are currently paying close to the true costs of energy. In some cases this has meant price increases by an order of magnitude. Rising energy costs means that there is growing interest in energy saving within municipalities. This positively impacts on the project outcomes.
25. *Supportive Polish energy policies* mean that incentives exist for the energy sector in general and municipalities to consider renewable energy and energy saving, and make appropriate investments. At a municipal level, this is reflected in the requirement for local authorities to develop land use plans, energy (supply) plans and environmental programmes. This has had positive impact on the project outcomes and has facilitated progress towards achievement of these outcomes. In addition to the establishment of Renewable Obligations on distribution companies, to assist consumers to cope with significant price increases for heating, the Polish Parliament established a Thermal Modernization Fund to promote energy savings in 1998.
26. *Availability of financing* in municipalities (own resources, access to credit, access to third party financing) for renewable energy and energy saving measures strongly affects the project outcomes. While a number of support mechanisms are in place, the financial situation in Polish municipalities (in particular the small and medium sized municipalities) appears to be getting worse. This means that municipalities use scarce resources in other sectors such as water and waste. This has a negative impact on achievement of the project outcomes, and impedes project progress.
27. *Growing demand for energy services* (more and improved services) in municipalities and end-users (for example increased levels of public lighting), means that, even if energy efficient investments are made, overall greenhouse gas emissions may continue to increase. This factor has a negative impact on greenhouse gas emission aspects of the project outcome.

Mid-term Evaluation – UNDP-GEF Biomass Project Poland

Project specific

28. *Greater awareness* of the potential for biomass energy and a growing number of examples throughout the country has had a positive impact on the outcomes.
29. *Skill and capacity levels* in municipalities for the monitoring of energy consumption, and the ability to identify, develop and implement biomass energy and energy saving investments are important factors in the achievement of the project outcomes. This is particularly acute in small and medium sized municipalities where dedicated energy managers seldom exist, and general technical or accounting staff handles energy matters.

C. UNDP contributions to the outcome through outputs

Project relevance and design

30. The project originally aimed to reduce barriers to the creation of a biomass market in Poland. In the time since the original concept was proposed and the project started it appears that a biomass market has to some extent developed (as has been argued in paragraph 21 above). While this certainly reduces the relevance of the overall project purpose, a more detailed analysis of the (potential) contributions of the project at local, national and global levels shows that the project remains highly relevant to local and national development priorities as described below.

Local and national development priorities

31. This project addresses a high developmental priority within the communities of Jordanow and Bystra-Sidzina. At the local level there is a pressing need on one hand to deal with the large quantities of sawdust and other wood waste which is dumped in unauthorized sites leading to soil pollution, visual pollution, fire hazards, and pollution of local streams, with reductions in fish numbers, and on the other to reduce air pollution in the form of particulates and sulphur dioxide from the use of coal. Beyond obvious impacts on health, these sources of pollution have a negative impact on tourism. The pollution caused by dumping of wood waste is clearly visible in the photo below, taken during the evaluation.



Mid-term Evaluation – UNDP-GEF Biomass Project Poland

32. The local authorities also have obligations to ensure economic development within their communities, to create jobs and increase business opportunities. This project, which promises to add 20-30 direct job opportunities in fuel supply, processing and heat production, and improve economic prospects of small wood-processing companies through additional income from selling wood-waste is seen as an important contributor to this developmental priority.
33. On a national scale, Poland has introduced a renewable obligation, as well as other legislation to support a significant increase in renewable energy, and most of this is to come from biomass sources, as has been described in paragraph 15 above.
34. There is also growing interest to harness the strengths and financial resources of the private sector in the delivery of public services through the use of public-private partnerships. This interest reflects the attempt to optimise the use of public money, and deal effectively with the challenges of service provision within a liberalized market. For the government, which is currently finalising an act on public-private partnerships, and as an example to local authorities through the efforts to form a public-private partnership, this project is highly relevant.

Target groups

35. For local authorities, which have the obligation to provide reliable public services at an affordable price, and have the challenge of investing in infrastructure with very limited resources, this project has clear relevance and value.
36. For the Ministry of Environment, which is seeking the most cost effective ways to meet renewable energy targets, and at the same time improve and protect local environments (dealing with wood waste), the project should be seen as highly relevant. Again, it appears that it is the public-private partnership aspect which is particularly innovative and relevant for the Ministry.
37. The private sector is also interested in public-private partnership as a means to expanding their business opportunities, reducing project risks, and potentially reducing costs through (possibly indirect) access to EU structural funds. In this context the project appears highly relevant.

Project design

38. While the overall project purpose – to reduce barriers to the creation of a biomass market – is less relevant today than it was when originally proposed, the project still makes a number of highly significant contributions to sustainable development. The value of exploring the use of public-private partnerships in the delivery of renewable energy for heating has already been discussed above. Of equal value is the project premise that Demand Side Management (DSM) and Renewable Energy *together* will enhance the environmental and economic impacts, optimise the use of wood waste, and reduce overall costs. This integrated approach to renewable energy is still unusual world-wide and this project *could potentially* make a valuable contribution to approaches to sustainable energy delivery. In the terminology of Amory Lovins of the Rocky Mountain Institute (pioneer and evangelist for these type of integrated approaches), DSM and renewable energy brought together as a package allows one to ‘tunnel through the cost barrier’.
39. Unfortunately a number of other project design issues appear to jeopardise the demonstration value of this integrated approach. In particular the project involves the installation of a new district-heating network in Jordanow, which significantly increases the project cost. Since the installation of a new network is fairly insensitive to size (and are usually over-dimensioned to allow for future growth) the DSM measures have a reduced impact on the overall project costs, and have probably contributed to a reduced financial performance, rather than an improved one. Since currently about 33% of heated floor area is supplied with district heating, it seems certain that the most cost effective ‘interventions’ will first be in locations with existing networks.
40. The project design aims to provide an example of best practice, yet, possibly in an attempt to do everything in one project the implementation appears unnecessarily complicated. Currently the project is working to:

Mid-term Evaluation – UNDP-GEF Biomass Project Poland

- a) Develop a public private partnership
- b) Involve more than one municipality (an *inter-municipal* public private partnership)
- c) Develop a wood fuel collection system involving many small wood-waste producers (over 400)
- d) Develop a new network with the related challenges of determining the load (heat demand)
- e) Combine DSM and energy efficiency.

It goes perhaps without saying that with all eyes focused on a project which should demonstrate best practice but is as complex as this, there is a significant risk that the result will not one of best practice.

41. A project design in which almost all outputs and activities depend on one condition being met, or one demonstration project working, with factors which itself lies outside the control of the project, is inherently risky.
42. The location selected for the project is exceptional in a number of respects:
- a) As argued above, the installation of a new district heating network is unlikely to be replicated in a commercial setting in the majority of cases for some years to come
 - b) There are a significant number of small wood-processing companies in the areas (more than 400)
 - c) There is a visible problem with the illegal dumping of wood waste.

These factors detract from the value of the project as a demonstration of commercial biomass district heating, since (local authority) visitors to the site may well think that the project would not work in their own circumstances since these conditions are far from typical.

43. Output 2 on “developing appropriate long-term wood-waste purchase and heat purchase contracts” appears in reality not to be as critical as originally perceived. As expressed by a number of interviewees, the contracts are not very exceptional, and the responsibility for these contracts lies in the hands of the new public-private partnership, and will benefit from the experience of the private partner. This may be the case – it is difficult for an external review to assess in the limited time available – but it may be useful for the project implementer to commission a small review of available options for wood-waste supply and heat purchase contracts so that best practice may be selected for particular local circumstances. The project document mentions that wood-purchase contracts are to be of an exclusive nature (why?), and heat purchase contracts ‘pay or take’. While pay or take contracts certainly reduce heat supply risks, they do not usually encourage energy efficient behaviour. The key in fuel supply is unlikely to be whether it is exclusive or not, but definitions of fuel quality, cleanliness and heat value. Some additional investigation may be justified.
44. Returning to the design aspects of the wood-waste and heat purchase contracts, it is questionable (possibly only in retrospect) whether lack of these was really a barrier to the development of a biomass market in Poland.
45. A review of the project indicators shows that there are gaps at the outcome and objective level (this makes it hard to monitor progress in achieving these results). The result of this is that the implementation of the project can tend to become activity based rather than results based (ie. one can ‘win all the battles but loose the war’). In spite of this shortcoming, discussions with the project implementing agency indicated that they appear to have the overall aim in mind during implementation.

Performance

46. The project initially experienced significant delays – it was over 1 year between approval of the project brief (March 2001), and the signing of the project document (June 2002), and almost one more year before real progress could be made on the investment and public-private partnership components of the project (May 2003). These delays have had a significant impact on the delivery of project outputs and mean that implementation is far behind schedule.

Mid-term Evaluation – UNDP-GEF Biomass Project Poland

47. Progress in project implementation against objectives, outputs, and activities is shown in the following table (note that the objectives, outputs and activities given here are taken from the UNDP/GEF Project Implementation Report (PIR) for 2003, and they are slightly different from the original project document).

Objectives and Outputs	Status
Objective 1. Create an example of an inter-municipal and public-private partnership company to manage biomass energy resources at the local level in integrated and optimal manner	
Output 1.1 Inter-Municipal Public-Private Partnership Company in Jordanów-Sidzina area	The Inter-Municipal Public-Private Partnership “Biomasa BSK” was established on 13 September 2003 signed by the Mayor of Jordanów and Voigt of Bystra-Sidzina Municipality. Bio-Energia ESP (the private sector partner) has yet to join pending final agreement on financing and of supervisory body.
Output 1.2 Long-Term Wood Waste Purchase and Heat Sale Contracts and other Actions	A Cooperation Agreement signed between the project implementer and Bio-Energia ESP, specifies responsibility for ensuring fuel supply and heat sales are to be arranged through the Public Private Partnership (therefore main responsibility lies with Biomasa BSK). Letters of intent for the purchase of heat have been negotiated by Biomasa BSJ with assistance of the project implementation team in January 2004.
Output 1.3 Securing the Stable Development of the Wood Waste Market (not in original project document)	Local authorities have prepared relevant administrative and enforcement arrangements to ensure wood waste generated in the area is available to the project and not disposed of illegally. A wood-waste storage areas has been identified and a marketing and education program targeting local wood working workshops and companies is being prepared by the local authorities with support from the Implementing Agency. A detailed analysis of the available wood waste covering 470 sources has been carried out in late 2003.
Output 1.4 Integrated Approach to Fuel Conversion Combined with Monitoring and Assessment of the Environmental Impact	The Polish Foundation for Energy Efficiency (FEWE) has carried out detailed audits in 42 buildings and has identified the most cost-effective measures for DSM. On 3 March 2004 the contract with FEWE for the preparation of specifications and installation works was signed. Tendering for installation of measure is due to start in May 2004. Implementation of the project, including a pellet production unit, district heating network, and 4 small boilers with mini-grids is due to start in June 2004 if co-financing is forthcoming.

Mid-term Evaluation – UNDP-GEF Biomass Project Poland

Objective 2. Increase the use of wood waste produced locally and sustainably as a fuel for space heating in order to eliminate the existing solid fuel boilers powered by coal in Poland.

<p>Output 2.1 Information Campaign Promoting Biomass Energy</p>	<p>Support has been given to the AGH University of Science and Technology (this is the new name for the Faculty of Fuels and Energy at the University of Mining and Metallurgy (UMM) as it was named in the Project Document), for the Establishment of an Information Centre. There appears to be very little co-operation or connection between this information centre and other project activities.</p> <p>The project implementation agency has proceeded with other information and awareness raising activities including:</p> <ul style="list-style-type: none"> • A local schools campaign in which scholars have participated in the development of the DSM activities in their school, through curricula, competition and quiz. • Presentations have been made and articles published. • Support to foundation of The Polish Chamber of Biomass on 26th February 2004, and agreement to provide assistance with the development of the organisations website, due to be launched shortly.
<p>Output 2.2 Development of Marketing Plan and Project Pipeline</p>	<p>Following agreement at the steering committee on project selection criteria, a draft marketing plan for the development of the pipeline of projects has been completed, along with relevant application forms and announcements for inviting local governments to prepare new projects for inclusion in the Project portfolio. An innovative flow-chart showing the possible development and decision tree for public-private partnerships has been developed.</p>

48. In the light of the delays experienced, and personal / political difficulties (described briefly under management arrangements below), the recent developments mark a significant achievement. The project manager and implementation team appear to have laid the foundations for rapid project development during the first year.
49. If the project implementation goes according to schedule in the coming months, the greenhouse gas emission reductions will exceed those described in the project document.

Management arrangements

50. Some of the key reasons for the delays in signing of the project document (over 1 year from project approval) and in project implementation (also almost one year before the two key elements of public-private partnership and investment) are given below:
- The selection of the Executing Agency was a long a complex process during which a number of potential government organisations were approached. Since most perceived additional responsibility and tasks without benefits (no budgets or activities were allocated to the Executing Agency).
 - Eventually the Ministry of Environment took on the responsibility of Executing Agency (the project certainly is highly relevant to their core business). This took place in the midst of elections, which caused further (compounded) delays.
 - A ‘Screening Evaluation Mission’ from UNDP, concluded that the project proposer, FEWE Krakow, did not have the necessary management capacity to implement the project. Internal disagreements between FEWE Krakow and FEWE Katowice appear to have isolated the Krakow office on project implementation issues.
 - ESP was then proposed as Implementing Agency. This commercial partner however refused to be Implementing Agency unless the Government would guarantee them a 10% ROI from the project. The Ministry of Environment naturally refused to do this. ESP therefore withdrew from the project.
 - The ‘Environmental Partnership’ was then approached and accepted in 2002. Since ESP withdrew, co-financing was reduced with respect to the original project brief.
 - The Implementing Agency was then faced with the situation where they had no more documentation than the Project Document, since the feasibility study carried out by ESP during the PDF-A phase of the project was claimed as the property of ESP.
 - Almost a whole year of negotiations to purchase or redo the feasibility study then followed. In May 2003 ESP rejoined the project as private investor as was originally envisioned.
51. The key lessons to be learned from the above process appear to be:
- The executing agency needs to see a clear benefit to themselves for taking on the responsibility of the position. Project designs in which they have direct (paid) activities to implement (as subcontractor), and which clearly help them fulfil their mission would overcome this barrier. This approach has been successfully taken in UNDP/GEF projects in other countries.
 - Ownership of results of activities under PDF funding should be agreed up-front and established in contracts.
 - A project design in which significant costs (such as the feasibility study for the investment) do not need to be carried out under PDF-A funding (which generally amounts to little more than 25 000 USD), would help to avoid this problem. A competitive phase during project execution – with the project focused on support to the creation of market-based financing instruments would help to alleviate this pressure. This however is somewhat contrary to GEF expectations since (the private sector) co-financing under such circumstances (where feasibility studies are yet to be undertaken) will be nothing more than an intention. While this approach would perhaps shift a little more risk in the direction of the GEF (since co-financing may not be forthcoming), this approach would be more compatible with market stimulation approaches, and more realistic in terms of what can be done within the scope of limited PDF support.
52. Throughout the period of project implementation the Environmental Partnership has worked effectively to (re)establish relationships, maintain community support, assist municipalities to negotiate their position firmly, and move project activities forward. It is the opinion of the evaluator that they are to be highly commended for these efforts.
53. The reporting and communication quality of the project manager is good.
54. The project document proposed an implementation team of 7 people, which was reduced to 3 during implementation, which appears more appropriate. The staff members are appropriately experienced for their tasks and appear motivated to achieve the objectives of the project. While there is no technical (biomass energy) expert in the project team, an analysis of the work done by subcontractors shows that the technical

Mid-term Evaluation – UNDP-GEF Biomass Project Poland

quality of the advice and consequently of project activities is high, and the inputs of FEWE and Bio-Energia ESP appear to be technically sound (this conclusion is based only on a rapid review of project reports). Since Bio-Energia ESP is planning to invest fairly significantly and will thus want to be sure of its investment risk this reduces technical risk for the whole project.

55. There are many benefits to having a non-energy non-technology implementing agency for this project. This is particularly advantageous for the current situation in Poland where a market is developing and technical demonstration has already been achieved.
56. Good co-operation has been developed during the first two years of the project with the local municipalities, energy experts, financing institutions, NGOs, governmental representatives, and communities. The 'Environmental Partnership' has a sound approach to community interaction and ownership.
57. The communication between the different staff members is well organised. The level of cooperation of staff members appears to be good – this is to be expected from such a small team.
58. The communication with the Steering Committee and the management of the Environmental Partnership appears to be good. The recommendations and suggestions of the steering committee are incorporated into the development of the project.
59. The role of the UNDP however has been far from optimal. This has partly been a result of staff changes (there have been to date three project officers, and a fourth has just started), but difficulties appear to go deeper. The UNDP records appear to be incomplete (a number of documents could not be found), and UNDP input appears to have been almost entirely reactive.
60. Short-term difficulties are being experienced with the ATLAS budget management system introduced world-wide by UNDP. This is starting to have an impact on project implementation, with no payments having been processed to date in 2004. UNDP needs to resolve this issue as a matter of urgency.
61. As the project enters a critical stage with respect to co-financing and realisation of the investment, the UNDP should keep close contact with the implementing agency and work to address any difficulties that may arise rapidly and at an appropriate level of authority. While the UNDP staff member newly responsible for this project appears to be capable, she may lack the necessary authority and experience at critical moments, and UNDP should therefore take careful steps to ensure that strong support is available when needed.

Overall success

62. The project consists of two objectives: "Create an example of an inter-municipal and public-private partnership company to manage biomass energy resources at the local level in integrated and optimal manner" and "Increase the use of wood waste produced locally and sustainably as a fuel for space heating in order to eliminate the existing solid fuel boilers powered by coal in Poland." Up until now the project impact has been limited, but it appears to be entering a critical period in the coming months, when significant progress will be made in both these objectives.
63. The long path of development however should not be overlooked as wasted time. It appears that the implementing agency has gained valuable experience in developing public-private partnerships during this period, and this will be valuable for future replication.
64. The project's *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 the public-private partnership is finally formed with all three parties.

Mid-term Evaluation – UNDP-GEF Biomass Project Poland

65. The *dynamic sustainability* (in which the use and / or adaptation of the project results by the same or other target groups takes place) appears to require further attention. In the understanding of the evaluator this project has a number of replicable elements, mainly these are:
- a) The example of public-private partnership
 - b) The integrated approach of DSM and biomass energy

In-depth discussions with the Environmental Partnership showed that they have a clear vision for disseminating the message / approach of public-private partnerships, although there appears to be only limited activities to do this within the scope of this project (within the 5 projects to be developed as a pipeline, output 5 in the project document). It does seem as if the Partnership has the interest and intent to take this issue forward.

The integrated energy message however appears to be somewhat without a champion since the Environmental Partnership is not energy oriented, and interaction with the 'Information Centre' is very limited.

66. The impact of the project on capacity building has to date been limited mostly to the direct project stakeholder. The capacities of local authorities to participate in public-private partnerships as strong / equal partners appears to be a barrier to replication. It seems vital that the Environmental Partnership is able to secure funding to (continue to) work on building local authority capacity in this area.

D. UNDP common rating system

67. The evaluator has attempted to make use of the UNDP common rating system. Evaluation of the status of objectives is based on subjective assessments, since quantifiable indicators at the objective level were not given in the project document.

Rating outcomes:			
	Positive change	Unchanged	Negative change
Outcome 1: To reduce greenhouse gas emissions in the energy sector by reducing barriers to the market for biomass energy (GEF Development Goal)	X (not a result of project activities)		
Outcome 2: Improved measures to combat climate change ... through increased involvement of local governments, civil society, NGOs and corporate sector (UNDP SRF)	X (not a result of project activities)		
Objectives:			
	Yes (achieved)	Partial (only is two-thirds or more of a quantitative target)	No (not achieved)
Objective 1. Create an example of an inter-municipal and public-private partnership company to manage biomass energy resources at the local level in integrated and optimal manner		X	
Objective 2. Increase the use of wood waste produced locally and sustainably as a fuel for space heating in order to eliminate the existing solid fuel boilers powered by coal in Poland.			X
Rating sustainability:			
The rating system assesses the degree to which progress towards achieving the outcome appears to the evaluator to be sustainable. Sustainability is determined by evidence of local ownership of outcome and systems/institutions in place to carry forward progress in the outcome or cement gains.			
	Sustainable	Too soon to tell or cannot be determined	Unsustainable
Sustainability		X	
Rating relevance:			
The rating system assesses the degree to which an outcome is relevant given a country's development situation and needs. Essentially, it tests the development hypothesis. 'Somewhat' indicates that the outcome is somewhat relevant but perhaps not the best one for addressing the development situation per se.			
	Yes (relevant)	Somewhat	No (not relevant)
Relevance	X		
Rating cost-effectiveness:			
The rating system assesses the degree to which the progress towards—or the achievement of—the outcome is cost-effective, given the financial resources and time invested in the outcome and the degree of change actually achieved. 'Somewhat' indicates that evidence is found that the outcome is somewhat cost-effective but could have been more so.			
	Yes (cost-effective)	Somewhat	No (not cost-effective)
Cost-effectiveness		X	

III. Recommendations

68. Although it seems that long-term wood-waste purchase and heat purchase contracts are not a significant market barrier it may be useful for the project implementer to commission a small review of available options for wood-waste supply and heat purchase contracts so that best practice may be selected for particular local circumstances. While ‘pay or take’ reduce heat supply risks, they do not usually encourage energy efficient behaviour and so may not be in the best interests of the local authorities. The key in fuel supply is unlikely to be whether it is exclusive or not, but definitions of fuel quality, cleanliness and heat value. Some additional investigation may be justified.
69. UNDP needs to give greater attention to the development of the project in the time remaining than has been the case since the project started. UNDP could make better use of its advocacy strength at high levels of government and society to ensure that the project develops on-target and in a timely way. A high priority should be given to ensuring that further difficulties are resolved immediately they appear, and this will require a proactive stance. UNDP should therefore take careful steps to ensure that strong support to project staff is available when needed.
70. UNDP needs to resolve the payment issue (ATLAS) as a matter of urgency.
71. Attention should be given to ensuring that project results on both Public-Private Partnership *and* Integrated DSM and Renewable Energy elements are sustained and replicated. Currently the interest and focus is on the Public Private Partnership aspects, but a champion of the ‘Energy message’ appears to be missing.
72. The impact of the project on capacity building has to date been limited mostly to the direct project stakeholder. The capacities of local authorities to participate in public-private partnerships as strong / equal partners appears to be a barrier to replication. It seems vital that the Environmental Partnership is able to secure funding to (continue to) work on building local authority capacity in this area.

IV. Lessons Learned

73. A good project design – which fits together logically (identifying the links to UNDP overall outcomes, as well as objectives, outputs and activities), identifies risks including the institutional capacity and implementation arrangements of those implementing the project, and which includes objectively measurable indicators – is a vital step towards successful project execution.
74. A project design in which significant costs (such as the feasibility study for the investment) do not need to be carried out under PDF-A funding (which generally amounts to little more than 25 000 USD), would help to avoid this problem. A competitive phase during project execution – with the project focused on support to the creation of market-based financing instruments would help to alleviate this pressure. This however is somewhat contrary to GEF expectations since (the private sector) co-financing under such circumstances (where feasibility studies are yet to be undertaken) will be nothing more than an intention. While this approach would perhaps shift a little more risk in the direction of the GEF (since co-financing may not be forthcoming), this approach would be more compatible with market stimulation approaches, and more realistic in terms of what can be done within the scope of limited PDF support.
75. While it is fairly easy to theorise about the ideal design of a project, it is difficult to design a project that requires significant levels of confirmed co-financing, which does not depend on external assumptions or is sufficiently flexible.
76. The executing agency needs to see a clear benefit to themselves for taking on the responsibility of the position. Project designs in which they have direct (paid) activities to implement (as subcontractor), and which clearly help them fulfil their mission would overcome this barrier. This approach has been successfully taken in UNDP/GEF projects in other countries.
77. Ownership of results of activities under PDF funding should be agreed up-front and established in contracts.
78. A project of this complexity is sure to encounter difficulties no-matter how well designed. Even the best design cannot avoid or anticipate all difficulties. The project management need to keep listening to those involved, stakeholders and beneficiaries and be prepared to adjust and adapt approaches as necessary. Keeping dialogue open, as has been demonstrated by the Environmental Partnership can serve to overcome difficulties and build teamwork and commitment. Misunderstandings and distrust can easily develop in projects involving many stakeholders. Ongoing and persistent communication is the only way to overcome these obstacles.

Appendix 1: Terms of Reference

International Evaluation Expert

Project Title: Integrated Approach to Wood Waste Combustion for Heat Production in Poland

Project Number: POL/01/G35/A/1G/99

INTRODUCTION

The project seeks to foster the development of markets for wood waste-based (biomass) energy production as a renewable substitute for fossil fuels. The project focus is on the creation of an Inter-Municipal Public-Private Partnership Company in the partner municipalities of Jordanów and Bystra-Sidzina in south Poland. The project seeks to demonstrate how an integrated approach, combining fuel conversion with demand side energy efficiency can be replicated on a wider scale in Poland. The project was proposed by the Polish Foundation for Energy Efficiency (FEWE), a non-profit organization established to support activities that promote rational use of energy and to protect the natural environment and initially developed in co-operation with Pumped Storage Power Plants company.

OBJECTIVES OF THE EVALUATION

This is a mid-term evaluation. The overall purpose of the evaluation is to measure the effectiveness and efficiency of project activities in relation to the stated objective so far, and to produce possible recommendations on how to improve the management of the project until the end of it. Particular emphasis should be put on the current project results and the possibility of achieving all the objectives in the given timeframe, taking into consideration the speed, at which the project is proceeding. More specifically, the evaluation should assess:

Project concept and design

The evaluator 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 compared to cost-effective alternatives. The executing modality and managerial arrangements should also be judged. The evaluator will assess the achievement 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 inputs and efficiency and effectiveness of activities carried out. Also, the effectiveness of management as well as the quality and timeliness of monitoring and backstopping by all parties to the project should be evaluated.

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 the 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 to which it has been able to create collaboration between different partners. The evaluation will also examine if the project has had significant unexpected effects, whether of beneficial or detrimental character.

Mid-term Evaluation – UNDP-GEF Biomass Project Poland

EVALUATION PRODUCT

The evaluator will produce an evaluation report with findings, recommendations, lessons learned, and rating on performance. The report should include:

- Strategies for continuing UNDP assistance towards the outcome;
- Recommendations for formulating further assistance in the outcome;
- Lessons learned concerning best and worst practices in producing outputs so far, linking them to outcomes and using partnerships strategically;
- A rating on progress towards outcomes and progress towards outputs;
- Recommendations on how to proceed with the project to attain the outcomes set.

EVALUATION METHODOLOGY

The evaluation will be based on the study of documents and interviews with the key persons involved in the project, i.e. representatives of the implementing agency, UNDP project staff, the Project Coordinator and other involved municipalities, the Steering Committee, as well as other partners, stakeholders and beneficiaries. The evaluator will be provided with basic documentation related to the project, including the project document, summary records of Steering Committee and project reports.

The evaluation will be carried out by the International Consultant with support from local project staff. The consultant shall have prior experience in evaluating similar projects. Former cooperation with GEF is an advantage.

The International Consultant will be responsible for preparing and submitting the evaluation report to UNDP and for leading discussions with counterparts on the introduction of any recommendations.

IMPLEMENTATION ARRANGEMENTS

UNDP will provide the necessary substantive and administrative support. UNDP and the Project Coordinator will provide access to project documents. Upon arrival in Poland the evaluator will be briefed by the respective UNDP Programme Officer. The UNDP Project Coordinator and the Implementing Agency will plan the mission, organize interviews with selected individuals/institutions, as well as provide interpretation and translation when necessary.

The evaluation mission will be conducted in April, with the following steps:

- Desk review - gathering of data, review of documentation (project document, project revisions, reports, and other relevant project documentation);
- Organization of the mission - conducted by the Implementing Agency (scheduling of meetings as agreed with the International Consultant, confirming facilities and logistical arrangements) with the assistance of UNDP;
- Mission to Poland - will be conducted for five days by the International Consultant. Debriefing meetings for the International Expert with UNDP representatives shall be organized on the first and last day of the mission.
- Preparation of the report - the initial findings of the evaluation should be presented as a debriefing to UNDP Poland and the Project Coordinator on the final day of the mission.

TIME FRAME

The evaluation mission will take place from 26 to 30 April. The first draft of the evaluation report shall be submitted by 15 May to allow for comments from UNDP and the Project Director. Upon receipt of these comments, the International Consultant shall submit the final report by 31 May.

The work will require a total of 7 days, comprised of a 5 days visit to Poland and 2 days for preparation and drafting of the report.

Appendix 2: List of interviews

Adam Guła	AGH University of Science and Technology
Adam Tomiczek	President of Polish Biomass Chamber of Commerce
Artur Wyrwa	AGH University of Science and Technology
Aurelisz Kania	Voit of Bystra-Sidzina Municipality
Elżbieta Pietraszko	Ministry of the Environment
Grzegorz Moorthi	Advisor to Bio-Energia ESP
Jacek M.Jaśkiewicz	Ministry of the Environment
Jerzy Luba	President of the Housing co-operative in Jordanów
Kazimiera Czarniak	Chairman of the Jordanów City Council -
Krzysztof Drobny	Bystra-Sidzina Municipality
Maciej J.Sadowski	Institute of Environmental Protection
Maria Kłopocka	Ministry of the Environment
Monika Lesz	Ministry of the Environment, Project Director, Steering Committee
Piotr Tomczyk	AGH University of Science and Technology
Roman Orłowski	President, Bio-Energia ESP
Sławomir Pasierb	President, FEWE Katowice
Stanisław Garlicki	NFOŚiGW
Zbigniew Jędrzejewski	President of the Board of directors in Lemtech Konsulting
Zbigniew Kołat	Mayor of Jordanów

Project implementation staff

Rafał Serafin	Polish Environmental Partnership Foundation, Director
Ziemowit Pochitonow	Polish Environmental Partnership Foundation, Project Manager
Beata Błachut	Biomass Team, Administration and schools awareness programme
Łukasz Barchański	Biomass Team, Financial management

UNDP project staff

Przemysław Czajkowski	Krajowy Koordynator GEF/SGP
Karolina Napieralska	UNDP Project Officer (incoming)
Ewelina Pusz	UNDP Project Officer (outgoing)

Appendix 3: List of Main Documentation Reviewed

Bio-Energia ESP. Analysis of wood waste availability in the area of Jordanow, Toporzysko, Neprawa, Bystra, Sidzina and Osielec.

Budget revision – E.

Faculty of Fuels and Energy. AGH University of Science and Technology. Presentation to the review team. Warsaw.

Gula, Adam and Elzbieta Gula. Integrated approach to wood waste use for space heating in Poland – Some political aspects. 11 March 2003.

Ministry of Environment. Development strategy of renewable energy sector: Presentation of major topics. Adopted by the Parliament of the Republic of Poland on 23 August 2001.

Council of Ministers. The Second National Environmental Policy. Prepared by the Ministry of Environment. Warsaw. December 2000.

Notes from the meeting of the Steering Committee of the Integrated approach to wood waste combustion for heat production in Poland project held on October 29, 2002.

Notes from the meeting of the Steering Committee of the Integrated approach to wood waste combustion for heat production in Poland project held on December 12, 2002.

Notes from the meeting of the Steering Committee of the Integrated approach to wood waste combustion for heat production in Poland project held on October 2, 2003.

Environmental Partnership Foundation. Introducing the Polish Environmental Partnership Foundation. February 2004.

Environmental Partnership Foundation. Partnerstwo. Pamphlet.

Environmental Partnership Foundation. Description of the various project partners.

Pumped-Storage Power Plants Co. Annual report 2002.

Polish Environmental Partnership Foundation. GEF/UNDP Budget components by revisions (k \$). 26 April 2004

Polish Environmental Partnership Foundation. Integrated approach to wood waste combustion for heat production in Poland. Presentation on project.

Polish Environmental Partnership Foundation. Project expenditures (k \$). 26 April 2004

Polish Environmental Partnership Foundation. Wood waste produced locally – threat or opportunity. Presentation prepared by Dr. Ziemowit Pochitonow, Project manager. 11 February 2004.

Presentation. Wood waste market – Balance and Wood waste market - Production

Third national communication to the conference of the parties to the United Nations Framework Convention on Climate Change, Warsaw 2001

UNDP Country programme document for Poland (2004-2005), September 2003

Mid-term Evaluation – UNDP-GEF Biomass Project Poland

UNDP/GEF. Implementation Plan. Updated February 2003.

UNDP/GEF. Inception Report. Project No. POL/01/G35/A/1G/99. 28 February 2003

UNDP/GEF. Medium-Sized Project Brief – Poland.

UNDP/GEF. Project Document POL/01/G35/A/1G/99. Integrated Approach to Wood Waste Combustion for Heat Production in Poland.

UNDP/GEF. Project Implementation Report (PIR) 2003. .

UNDP/GEF. Quarterly Report January-March 2003. Project No.: POL/01/G35/A/1G/99.

UNDP/GEF. Quarterly Report April-June 2003. Project No.: POL/01/G35/A/1G/99.

UNDP/GEF. Quarterly Report July-September 2003. Project No.: POL/01/G35/A/1G/99.

UNDP/GEF. Quarterly Report October-December 2003. Project No.: POL/01/G35/A/1G/99.

United Nations Development Programme & Government of Poland. Project Budget POL/01/G35. 6 August 2003

United Nations Development Programme & Government of Poland. Project Budget POL/01/G35. 20 December 2003