

## INTERNAL BANK REPORT

## World Bank - Grant Reporting and Monitoring (GRM) System

TF052429 - GEF3 MSP-HUNGARY:REHABILITATION AND EXPANSION OF SMALL HYDRO-PLANS ON THE RIVER RABA PROJECT  
 GEFIA - GEF-IBRD AS IMPLEMENTING AGENCY

Task Team Leader: 00000052119 - Helmut Schreiber  
 Approving Manager: 00000050905 - Sumter Lee Travers

Summary Information			
TF Status	ACTN	Orig. Grant Amount	405,000.00
Recipient Country	Hungary	Grant Amount	405,000.00
Executed By	Recipient	Outstanding Commitments	0.00
Managing Unit	1887 - ECSIE	Cumulative Disbursements	405,000.00 as of 06/30/2006
Grant Start Date / Closing Date	07/21/2003 to 06/30/2006	Disbursed 07/21/2003 to 06/30/2006	405,000.00
Program Manager	Samuel G. Wedderburn	Donor	TF602001 - MULTIPLE DONORS

This GRM report includes the following sections: Overview, Components, Outcome, Execution, Program(), ICM, Processing, Attached Documents, Disbursements, Internal Comments.

## OVERVIEW

## a) Overall Assessments and Ratings

## Grant Objectives :

The objective of the Project is to contribute to increases in the utilization of renewable energy in Hungary and demonstrate the possibility of operating small hydro-plants under economic conditions, provided environmental benefits are monetized through grant support.

The Project PCN suggested:

Project Rationale and Objectives:

- (i) Reduce carbon emissions through increasing the renewable energy share of the country's grid mix; and
- (ii) Demonstrate the commercial viability of small hydro-plant investments, provided that environmental benefits have been monetized.

## Overall progress from 07/21/2003 to 06/30/2006 with regard to :

## Achieving Grant Objectives :

**Rating : Highly Satisfactory** ( Previously Rated Highly Satisfactory on 06/30/2005 )

Comment :

The project objectives (increases in the utilization of renewable energy in Hungary and the demonstration of the possibility of operating small hydro-plants under economic conditions) have been fully met in that the reconstruction and the capacity additions under the project have been completed as planned and the utilization of renewable energy has increased.

## Overall progress from 07/21/2003 to 06/30/2006 with regard to :

## Implementation of Grant Financed Activities :

**Rating : Highly Satisfactory** (Previously Rated Highly Satisfactory on 06/30/2005 )

Comment :

Grant implementation took place largely as planned, no substantial delays have occurred. Cost under-runs were recorded for the Körmend plant, which the owners rehabilitated to a large extent with own labor and equipment (civil works). On the other hand, Csörötnek experienced a serious cost overrun.

The capital cost estimates for the Csörötnek component at the time of appraisal were optimistic. The experience with the largely self-executed civil works at Körmend and highly favorable equipment costs caused the estimates for Csörötnek to be on the low side. Moreover, several additional or

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unforeseen civil works (bypass channel rehabilitation, excavation at the site of the old weir, much more extensive civil works at the old power house, and repairs at the tie-in of the new weir into the old dam) caused civil works to soar. At the same time, equipment prices went up considerably as small hydro plants throughout central Europe started to be undertaken. For example the generators and transmissions for the old turbines increased by almost 40% over estimate, whereas the new turbine with transmission and generator went up by 64%. Expressed in HUF, the overall price increase was 71%. Due to the devaluation of the US Dollar during the period, the increase expressed in US Dollars was even 90%! Thus, financing of the Csörötnek component had to increase by 71% expressed in local currency (HUF) or 90% expressed in US Dollars.

The increase in total financing from appraisal to actual is about 57%. This is lower than the cost overrun for Csörötnek due to the impact of the cost under-run in Körmend.

## **b) Grant follow-up and structure**

### **Description of Grant :**

The Project consists of the rehabilitation/expansion of the hydro power plants Körmend and Csörötnek on the Raba River as follows:

- (a) Körmend rehabilitation/expansion includes the rehabilitation of its weir, the clearing and rehabilitation of the access channel, provision of a new grate and grate cleaning machine, the refurbishment of existing turbines, and construction of a fish ladder, at a total estimated cost of US\$745,000. This component has been completed ahead of time, except for the fish ladder, and is operational since late 2002.
- (b) Csörötnek rehabilitation/expansion includes the complete rebuilding of the weir, the clearing and rehabilitation of the access channel, provision of a new grate and grate cleaning machine, the refurbishment of existing turbines, a new turbine in the new weir, and construction of a fish ladder, at a total estimated cost of US\$1.5 million. This component has become operational in early 2005.

### **Expected follow up (if any) :**

### **Comment on follow up :**

An important element in the project sponsor's strategy to demonstrate the advantages of hydro-plants and to disseminate the findings of the Project is Ikervár small-hydro information center at Vizeromu Kft.'s headquarters. This facility has undergone some refurbishment but has been funded separately from the project and has not been included in the incremental cost calculation, as it contributes no direct GHG emission reductions. Ikervár represents an important component, which links the individual production units for purposes of public relations, dissemination of Project findings and facilitation of Project replicability.

The approach to replicability has been based on expected visits by potential project developers to the Ikervár small-hydro information center and on news disseminated in the media about the success of plant rehabilitation.

**End Date of Last Site Visit :** 05/27/2005

### **Restructuring of Grant :**

None

## **c) Critical Issues and Pending Actions for Management Attention**

There are currently no issues and actions for Management attention.

## **COMPONENTS**

### **a) Output and Implementation by Component**

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## 01. KOERMEND

Implementation Rating : **Highly Satisfactory** (Previously Rated Highly Satisfactory on 06/30/2005)  
 Status : Completed  
 Planned Output : CO2 Reductions  
 Actual Output : Envisaged CO2 reductions achieved

## 02. CSOROTNEK

Implementation Rating : **Highly Satisfactory** (Previously Rated Highly Satisfactory on 06/30/2005)  
 Status : Under Implementation  
 Planned Output : CO2 Reductions  
 Actual Output : Under implementation

**b) Comments on component implementation ratings**

None

**c) Additional comment on planned and actual output**

planned output:  
 Körmend component

The plant had been expected to produce 1.98 GWh electricity per year on the basis of calculations at project appraisal. This renewable electricity had been expected to displace an equal amount of grid based generation (60% coal, 30% gas, 10% nuclear) resulting in the reduction of CO2 emissions in an amount of 47,484 MT over 25 years.

Csörötnek component

The plant had been expected to produce 3.52 GWh electricity per year on the basis of calculations at project appraisal. This renewable electricity had been expected to displace an equal amount of grid-based generation (60% coal, 30% gas, 10% nuclear) resulting in the reduction of CO2 emissions in an amount of 84,416 MT over 25 years.

actual output:  
 Körmend component

In 2003, which was considered to be a dry year, the plant produced 1.92 GWh electricity, which is slightly below projections. In 2004, which had more rain, total production was 2.77 GWh. This means that the actual performance of the plant in this year has surpassed appraisal estimates by about 25%.

Csörötnek component

Current re-assessment of generation potential has shown that the plant could produce electricity in a yearly amount of over 4 GWh, mainly due to the lowering of the suction pipes at the old power house and resulting higher water drop.

**OUTCOME****a) Comments on outcome achieved from 07/21/2003 to 06/30/2006**

None

**b) Grant outcome indicators**

Grant outcome indicators are listed below.

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## 01. REDUCTION OF GHG EMISSIONS

Baseline Value : 5.2 KT OF CO2 REDUCTION / YEAR

Date :

Progress to Date :

Date :

Target Value :

Date :

**EXECUTION****a) Bank project related to the grant**

Project ID / Name : P075042 - SMALL HYDRO (GEF MED SZ)

Project Status : Lending

Global Focal Area : Climate change

Product Line : GM - GEF Medium Sized Program

**b) Implementing agency and contact details**

Agency : VIZEROMU KFT

Contact : LUDWIG BRAML

Address : IKERVAR, HUNGARY

Phone : +49 / 175 / 245-4188

Email : BRAML-GMACH@T-ONLINE.DE

Website :

**c) Implementation performance ratings from 07/21/2003 to 06/30/2006 with regard to :****Project Management :** Highly Satisfactory (Previously Rated Highly Satisfactory on 06/30/2005)

Brief Comment :

ACCORDING TO SCHEDULE

**Financial Management :** Highly Satisfactory (Previously Rated Highly Satisfactory on 06/30/2005)

Brief Comment :

AS ENVISAGED

**Counterpart Funding :** Highly Satisfactory (Previously Rated Highly Satisfactory on 06/30/2005)

Brief Comment :

COUNTERPART FUNDING RECEIVED FROM OTHER DONORS

**Procurement :** Highly Satisfactory (Previously Rated Highly Satisfactory on 06/30/2005)

Brief Comment :

AS PLANNED

**Monitoring and Evaluation :** Highly Satisfactory (Previously Rated Highly Satisfactory on 06/30/2005)

Brief Comment :

AS ENVISAGED

**Additional Comments on Implementation Performance :**

The project was completed with Highly Satisfactory rating in the Development Objective (DO) and with Highly Satisfactory rating in Implementation Progress (IP) categories

## PROGRAM ( GEFIA )

### Program Specific Ratings

1. Please rate public involvement Highly Satisfactory
2. Please rate government commitment Highly Satisfactory
3. Please rate safeguard performance Satisfactory
4. Please rate arrangements for sustainability Highly Satisfactory

### Program Specific Questions

1. Please comment on additional resources leveraged

There was a considerable leveraging effect, as the project has been supported in parallel by Hungarian and Austrian funds. The USD 405,000 GEF grant has leveraged USD 301,840 of national government support (Szechenyi Plan) and a grant of USD 392,102 from the Austrian government. These two sources cover about 20% of total financing needs.

## ICM - IMPLEMENTATION COMPLETION MEMORANDUM

### a) Outcome of completed , grant financed activities

#### Outcome with regard to development / strengthening of institutions: Rated Not Applicable

Comment :

The grant did not aim at the development/strengthening of institutions.

#### Outcome with regard to mobilization of other resources: Rated Substantial

Comment :

There was a considerable leveraging effect, as the project has been supported in parallel by Hungarian and Austrian funds. The USD 405,000 GEF grant has leveraged USD 301,840 of national government support (Szechenyi Plan) and a grant of USD 392,102 from the Austrian government. These two sources cover about 20% of total financing needs.

#### Outcome with regard to knowledge exchange : Rated Substantial

Comment :

An important element in the project sponsor's strategy to demonstrate the advantages of hydro-plants and to disseminate the findings of the Project is the Ikervár small-hydro information center at Vizeromu Kft.'s headquarters. This facility has undergone some refurbishment but has been funded separately from the project and has not been included in the incremental cost calculation, as it contributes no direct GHG emission reductions. Ikervár represents an important component, which links the individual production units for purposes of public relations, dissemination of Project findings and facilitation of Project replicability.

#### Outcome with regard to client policy / program implementation : Rated Substantial

Comment :

The Government continues supporting renewable energies through imposing mandatory buyback of renewable electricity. The weighted average price for all renewable electricity - according to the latest decree - is 22.46 HUF/kWh. This is an increase of 29% since the appraisal.

### b) Overall Assessments and Lessons Learned

#### Main lessons learned :

- " The project has met its objectives: current re-assessment of projected CO2 reductions over 25 years are 159,240 tons, compared to the appraisal estimate of 131,900 tons.
- " The positive effect of rebuilding the Csörötnek weir on flood protection was eminently established during the substantial flood of August 2005.
- " The Government continues supporting renewable energies through imposing mandatory buyback of renewable electricity. The weighted average price for all renewable electricity - according to the latest decree - is 22.46 HUF/kWh. This is an increase of 29% since the appraisal.
- " Cost under-runs were recorded for the Körmend plant, which the owners rehabilitated to a large extent with own labor and equipment (civil works). On the other hand, Csörötnek experienced a serious cost overrun, with details elaborated in the AM and PCR.
- " Despite the cost overrun, the financial position of the company, which financed the overrun largely out of own cash-generation, remains

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sound. The projections for Csörötnek, show a reasonable return too, as (a) the unit revenue increased, (b) the capacity could be increased due to certain technical improvements.

" The Project has been reviewed by local representatives of Bankwatch Network and WWF during a site visit within one of the preparatory missions in May 2002. While neither the representative of Bankwatch, nor that of WWF raised objections to proceeding with the project at that time, the project team's impression of their endorsement and support of the project has lately proved to be false. Recently, Bankwatch Network and WWF have requested GEF to correct the files so that it would no longer appear as if these NGOs were supporters of the project. Steps are currently being taken to resolve this issue that has resulted from obvious miscommunication.

**Main recommendations to stakeholders :**

If stakeholders are interested in small hydropower projects the GEF MSP facility is not the most suitable instrument of support.

**Main recommendations to bank management :**

The time for preparation of MSP is often excessive. It might be more appropriate to use the GEF full size project facility for energy sector operations. For small hydropower projects the level of scrutiny of environmental impact issues would benefit from simplification.

**Assessment of bank performance : Rated Moderately Satisfactory**

Comment :

Time and funds spent on project preparation indicate that the World Bank might consider further streamlining procedures for MSPs.

**Assessment of cost effectiveness : Rated Satisfactory**

Comment :

Cost effectiveness for this kind of projects is best illustrated by the CO2 unit abatement cost. This has increased from \$2.53 at the time of appraisal to \$9.38 at present. This is due to the increases in capital and operating costs of the project, whereas the increase in unit revenues is not taken into account in the calculation of the incremental costs. As a result, the incremental cost per ton of CO2 reduction rises. While this is not a very attractive number, it still remains below \$10 per ton which today is the going rate in many carbon financed projects.

**Assessment of sustainability (likelihood of): Rated Likely**

Comment :

The approach taken to assess project sustainability at appraisal was the assessment of the ability of the project to serve debt. This assumed:

- (i) successful project implementation (good project management, timely availability of financing, no cost-overruns, no unexpected technological risks);
  - (ii) successful physical operation following implementation (reliable river flow and resulting production, no floods, adequate maintenance);
  - (iii) successful financial performance following implementation (guaranteed government electricity buyback rate continued, able management).
- Throughout project implementation the project sponsor has demonstrated that it possesses all the competencies necessary to manage a project of this scale and to operate hydro power plants of this size. There were no significant unexpected technological risks. Cost-overruns have remained manageable. Sources to finance excess contingency and unexpected items have been made available to secure smooth implementation with only minor delays. Actual results show that output estimates have been conservative. Actual production by the whole project is about 10% higher than appraisal estimates. There is all evidence that the Government is committed to continue its guaranteed electricity buyback policy in support of renewable energies.

**Assessment of replicability: Rated Likely**

Comment :

The approach to replicability has been based on expected visits by potential project developers to the Ikervár small-hydro information center and on news disseminated in the media about the success of plant rehabilitation.

Currently there are at least three small-hydro projects under consideration in Hungary, all in a capacity range of 1.5-2.0 MW each. One, on the river Raba at Nick, is already under preparation, while licenses have been issued for another two plants (one on the river Körös at Gyomaendr?d and another on the river Hernád at Hernadszurdoki).

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**PROCESSING****a) Manager's comments on this GRM report :**

None

**b) GRM report history - Requested on 06/22/2006 , Due On 07/31/2006**

Action	Name	Status	Date
Submitted for Approval	Helmut Schreiber	Submitted	07/31/2006
Approved by Manager	Sumter Lee Travers	Approved	07/31/2006

**DOCUMENTS ATTACHED**

None

**DISBURSEMENTS****Disbursement Summary in USD**

Date From	Date To	Planned Cumulative	Planned Period	Actual Cumulative	Actual Period
07/01/2003	12/31/2003			120,000.00	120,000.00
01/01/2004	06/30/2004			345,823.00	225,823.00
07/01/2004	12/31/2004			405,000.00	59,177.00
01/01/2005	06/30/2005			405,000.00	
07/01/2005	12/31/2005			405,000.00	
01/01/2006	06/30/2006			405,000.00	

**INTERNAL COMMENTS**

None