

Slovakia Biomass Study Tour

Name of the tour : Biomass Bystricko Project



Lubietova: Primary school. Installed output of biomass boiler: 200 kW

Contact person : Emil Bedi, fae@inforse.org

Knowledge offered for the participants of the tour: Information on successfully implemented technical project based on substitution of old coal heating facilities with the 21 biomass (waste wood) boilers in 8 villages of Banska Bystrica region. The project was financed from EU structural funds and the operation (heating) of facilities started in October 2010.

Facilities to see: Biomass heating plants in two villages included in the project (preferably Čierny Balog and Lubietova*)

More information on the project: see below description

Discussion: with Emil Bedi (FAE Slovakia and Inforse Europe), Juraj Zamkovsky* (CEPA) and other persons involved in project preparation and realisation.

Date of the tour: Upon request

* facilities are subjects for potential change.

Biomass Bystricko project - Example of successful project financed from EU SF

By Emil Bedi, INFORSE-Europe

Slovak NGO CEPA (Friends of the Earth Slovakia) based in Ponicka Huta (Central Slovakia) successfully implemented technical project on substitution of old coal heating facilities with the 21 biomass (waste wood) boilers in 8 villages of Banska Bystrica region. The project was financed from EU structural funds and the operation (heating) of facilities started in October 2010. The implementation of the project was done in co-operation with the local municipalities which are the main beneficiaries of the project.

3.1. Development of the project

CEPA decided to develop the project with their own resources (staff and funding). Preparation started in the year 2003, the final approval by the governmental agency responsible for EU structural funds (SF) was signed in 2009 and the operation of facilities started in 2010. The EU SF covered 95% of the 7 mill EUR project costs and the rest came from own resources of municipalities or bank loans. There were more than 6 years of struggling to overcome the technical, administrative and legal problems related to this project. During this time the EU SF rules and subsequently national rules for SF utilisation have been changed. It was necessary to rewrite the project according to the new guidelines (in 2007) despite the fact that the project was approved in previous programming period but no funding was allocated for it.

Milestones of the project development or six years of struggling:

Preparation phase of the project

- 2003: Idea + initial project outline
Developing contacts (municipalities, technical assist.)
- 2004: Outline of technical design and preliminary analyses.
Building regional partnership.
Identifying financial scheme.
- 2005: Establishing of a new legal entity (non-profit, public) called Bioenergia Bystricko consisting of NGO CEPA and 8 municipalities.
Searching funds for project implementation.
- 2006: Project preparation and application for EU SF funding.
Project approved, but no money assigned. Project was put into "pipeline" by the Ministry of Environment.
- 2007: New rules of EU SF for the period 2007-2013, new application needed.
Rewriting of the project proposal.

2008: Slovak Operation Plan approved by the European Commission. New round of EU SF was opened.

2009: Waiting for the „Call for Application“.

Sending application and final approval of the project by the governmental authority.
Signing the contract and starting the realisation of the project.

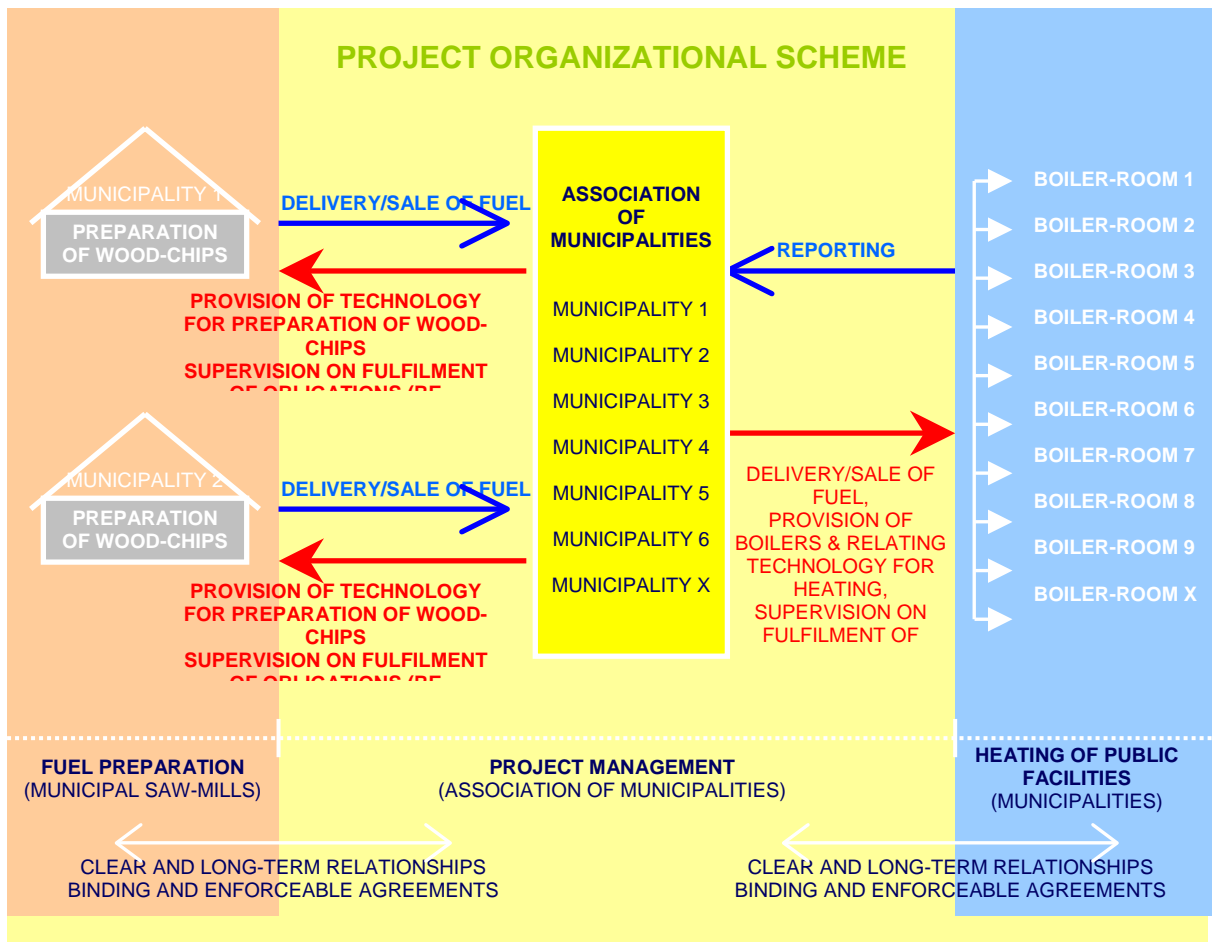
2009: First investment costs used for preparation of realisation project documentation.
Construction of fuel storage facilities.

2010: All facilities were constructed. Biomass heating started in winter (October) 2010.

The aim of the project

- **To replace** old and obsolete heating systems in 32 public buildings in 8 rural villages (Kordiky, Kraliky, Riecka, Tajov, Lubietova, Hiadel, Poniky, Molca, Cierny Balog) in Central Slovakia with modern woodchips-based systems.
Total population in the region: 10 300.
- **To encourage** other rural regions with similar renewable energy potential to use their local resources.





Expected impacts

- **Sustainability:** the project was aimed to enhance economic self-sufficiency of rural areas through the use of local biomass potential for local energy needs.
- **Savings:** municipal expenses for heating of public buildings will decrease and savings will become available for municipal (regional) development.
- **Emissions:** the total CO₂ emissions will be reduced by approximately 8.5 thousand tons in 10 years.
- **Modernization:** Public buildings will be equipped with efficient heating systems. Most of the current boilers and heat distribution systems require serious reconstruction anyway.
- **Follow-up:** the project will test opportunities for its broader introduction to other regions.

3.2. Technical specification of heated facilities

The technical details of installed technologies are described in the following table.

Municipality and place of the boiler	Boiler output in kW (units)	Heated facilities
Hiadel' , Municipality	85 (1x35 + 1x50)	Municipality
Hiadel' , Primary school	70 (2x35)	School
Králíky , School	180 (1x180)	School, Municipality
Kordíky , Municipality	200	Municipal buildings
Lubietová , Post	400 (2x200)	Post, Municipal buildings
Poniky , School	250 (1x250)	School
Poniky , Kindergarten	250 (1x250)	Kindergarten, Municipal buildings, Nursery
Poniky , Municipal building	70 (2x35)	Municipal building
Riečka School	150 (1x150)	School, Shop, Municipality
Tajov , Fire station	180 (1x180)	Fire station, Library, Municipality
Čierny Balog , Health care center	250 (1x250)	Health care center, Municipality
Čierny Balog , Cultural center	150	Cultural center, restaurant, library
Čierny Balog , Municipal building	35 (1x35)	Municipal building
Čierny Balog , School	800 (2x400)	School
Čierny Balog , Kindergarten	100 (2x50)	Kindergarten
TOTAL	3,17 MW (21 boilers)	

Annual fuel consumption

Total biomass consumption per year is estimated at 2113 tons.

Wood chips	1980 ton
Waste fuel wood	143 ton
Total	2113 ton

Annual heat production in all heating facilities: 19 817 GJ.

Price of the wood fuel was estimated at 17,91 EUR per ton.

Situation before the project realisation

Annual fossil fuel consumption in all facilities

		Unit	Heat value GJ/unit	Heat consumption GJ
Brown coal	1 346,12	ton	15,5	20 865
Hard coal	171,18	ton	28,0	4 793
Coke	66,33	ton	27,0	1 791
Electricity	858,060	MWh	3,6	3 089
Total				30 537

Difference between energy consumption before and after the realisation of project - 10720 GJ/year represents energy savings of 35,1% which resulted from the new and reconstructed technologies.

Beside new boilers the infrastructure of heat transfer and fuel storage and deliveries were also reconstructed or newly built. Better isolation and new pipelines (1 546 meters) were laid down, 4 new storage facilities for wood chips and fuel wood and several temporary storage facilities near the heating plants were build in the framework of this project. One truck, few containers and other devices were also bought.

Outcomes of the project

The project is designed in that way that the heating properties (boilers and infrastructure) are owned by the organisation Bioenergia Bystricko. Heat produced will be consumed by the communities itself. They take the heat according to the contracts on heat delivery. Because Bioenergia Bystricko is non-profit organisation the heat (GJ) will not be charged to the consumers. The total production costs will be divided between communities and charged accordingly.

Total costs of the project: 7 051 966 EUR. EU SF requires the co-funding. In this project - 5% of total costs were provided by the communities from their budgets or bank loans.

3.3. Expected savings

Fuel costs before and after the realisation of the project

	Costs in EUR
Fuel costs before (hard coal, brown coal, coke and electricity)	328 863,41
Fuel costs after (wood chips, waste fuel wood)	106 397,22
Savings	222 466,19

Annual savings of fuel costs for each community will be up to 67,65%. Higher costs for insurance will be compensated by lower costs for repairs and maintenance of the infrastructure.

It is important to note that the costs of savings or price of kWh produced from biomass (when taking into account the total costs of the project) is higher than usual. This is caused by the fact that the project costs include also building infrastructure (pipelines) and other equipment including large vehicles.

Emission reduction

Annual total emission reduction of gaseous effluents will be 51,9 tons of contaminants and 2643,4 tons of greenhouse gases per year for all facilities.



Lubietova : Municipal office + Post office. Installed output of biomass boiler : 200 kW



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4. Conclusion

The Biomass Bystricko project realised in Central Slovakia showed that it is possible to utilise EU Structural funds in environmentally friendly and energy sustainable way by the local NGO. The NGO involvement in utilisation of EU SF in such a broad range is not usual in Slovakia. Nevertheless the experience shows that similar projects can be organised in similar way in many regions of new EU member states. There is a real need for changing energy infrastructure towards more sustainable or renewable energy pathway which is still not

the case in Central and Eastern Europe. The development of RE projects in new EU MS is far from satisfactory and new ideas or ways of funding are urgently needed. It is a pity that the goals set in EU legislation like RE targets will not be met by many new EU MS and all this despite of availability of huge EU funds which can be used this way, but the opportunity is missed, yet.