

Task 2.4 : Elaboration of SEAP's in learning territory Energy Baseline and SEAP

Deliverable 2.2

Partners involved	Vasile Alecsandri University of Bacau
Persons involved for this report	Liliana Topliceanu
Version	V1
Date of version	04.04.2015



TABLE OF CONTENTS:

1 SUMMARY DESCRIPTION 3

2 OVERVIEW OF TASK 5

3 ENERGY AND GHG EMISSION BASELINE 5

3.1 DATA COLLECTION : METHODS AND SOURCES USED 5

3.2 DATA ANALYSIS 9

3.3 APPLICATION OF THE METHODOLOGY ERROR! BOOKMARK NOT DEFINED.

3.4 CALCULATION OF EMISSIONS, RESULTS ERROR! BOOKMARK NOT DEFINED.

4 COMMENTS 10

5 ANNEXES ERROR! BOOKMARK NOT DEFINED.

5.1 LIST OF DOCUMENTS RELATED SELECTION OF ACTIONS ERROR! BOOKMARK NOT DEFINED.

6 PROGRAMMED SCHEDULE ERROR! BOOKMARK NOT DEFINED.

1 Summary Description

Most of the communities involved in this project are located in the eastern part of Bacau County. They are small communities, with small budgets. The total number of inhabitants in their corresponding area is around 38 488. More information on the territories of these communities can be found in Table 1.



Fig.1 The rural communities participating in the project - underlined on the map of Bacau County.

It is important to note that the territory involved in the project is part of the poorest area in Romania: without national railways or roads, without tourist attractions and - more important – the industry is missing almost completely. The main occupation of the inhabitants is agriculture and animal husbandry. Only a small part of them have jobs in Bacau city.



Rural community	Colonesti	DealuMoriei	Horgesti	Izvoru Berheciului	Odobesti	Oncesti	Plopana	Prajesti	Stanisesti	Slanic Moldova	Ungureni	Vultureni	Total
Surface (ha):	4468,36	7047	5470	5755	5397	4747	5773	2300	6230	11413	8638,45	7281	74519,81
land within the built-up area (ha):	366,69	426	248	404	533	419	344,33	325	510	391	480,22	453	4936,24
land outside (ha):	4101,67	6621	5222	5351	4864	4328	5428,67	975	5720	11022	8158,23	6828	68601,57
Population:	2176	3137	5023	1720	2527	1702	3262	2636	4745	5430	3745	2385	38488
Households :	958	1108	1558	836	950	725	1325	971	1860	1600	1099	920	13910
Dwellings :	881	1313	1562	824	945	703	1296	971	1598	2000	1259	1044	14396
Kindergartens:	3	4	4	4	3	3	5	1	6	3	7	2	45
Schools:	6	3	5	5	3	5	5	2	9	3	7	8	61
Localities in administration	Colonești	Dealu Morii	Horgești	Izvorul Berheciului	Odobești,	Oncești	Plopana	Prăjești	Stănișești		Ungureni	Vultureni,	
	Zăpodia	Banca	Sohodor	Obîrșia	Tisa-Silvestri	Bărboasa	Fundu Tutovei		Slobozia	Cerdac	Zlătari	Năzărioaia	
	Călini	Bălănești	Mărașu	Baimac,	Ciuturești	Dealu Perjului	Ițcani		Slobozia Nouă	Cireșoiaia	Bibirești	Dădești	
	Spria	Blaga	Recea	Pădureni	Bălușa	Onceștii Vechi	Budești		Balotești		Tocilosa	Lichitiseni	
	Satu Nou	Boboș	Galeri	Antohești		Satu Nou	Rusenii de Sus		Benești		Gârla	Bosia	
	Valea Mare	Bodeasa	Răcătău	Oțelești		Tarnița	Rusenii Razeși		Crăiești		Anei	Țigănești	
		Bostănești	Bazga	Făgheni		Taula	Straminoasa		Belciuneasa		Botești	Valea Lupului	
		Calapodești							Văleni		Viforeni	Reprivat	
		Căuia							Gorghești		Bărtășești	Tomozia	
		Dorofei										Godineștii de Jos	
		Ghionoiaia										Godineștii de Sus	
		Grădești										Medeleni	
		Negulești										Valea Salciei,	
		Tăvădărești										Valea Merilor	
											Ghilăvești		
											Dorneni		
Total	6	14	7	7	4	7	7	1	9	2	9	16	89

Despite the fact that some Romanian towns joined to the Covenant of Mayors during the last years, this organization and its demands were not known very well, especially in the Eastern part of the country (where the main activities of the project have been implemented). For this reason, after the initial enthusiasm, several meetings were necessary in order to explain what CoM is. We also explained why is important for a community to be part of the CoM, to have a SEAP, and in what manner this SEAP can generate development and welfare for the population.

As a result, the twelve rural communities jointly signed the CoM agreement, under the name “Bacau County for CoM” (the adhesion type was “joint SEAP Option 2”, version dedicated to the group of small communities). The event took place on 26th of February, 2013, with the support of Vasile Alecsandri University of Bacau. The submission of the documents to the CoM office was also done by Vasile Alecsandri University of Bacau, since the mayors were not experienced enough in working online.

2 Overview of the task

The next steps were the realization of BEI and SEAP. These were very difficult stages. The collection of the information concerning the CO₂ emissions was the first barrier. UBC team members had to move to the communities, to collect information from the mayors’ offices and directly from the inhabitants. Although the people were very willing to help, their lack of knowledge have barred them be useful.

The development of the SEAP and BEI has been done with the support of the guide provided by the Covenant of Mayors. These two activities were developed almost simultaneously. Each visit in the villages was an opportunity - not only to collect information about the GHG emission but also to discuss about the future intention of the communities, in the area of RES and energy efficiency.

3 Energy and GHG emission baseline

3.1 Data collection: methods and sources used

The year chosen as baseline was 2011, year for which documents were available. Different types of sources were used in order to prepare a good and accurate situation of energy consumption and GHG. Firstly, we have used the data provided by the Statistics Department of Bacau County. Considering that the area involved in the project is the poorest and less industrialized area of Bacau County, these data were corrected using: information from energy suppliers, data supplied by the municipalities on the energy consumption of public buildings, data collected in the field, from the inhabitants.

The following categories were analyzed:

COMMUNITIES (IEE/11/014/SI2.616363)

- Buildings, equipments, facilities and industries:
 - Municipal buildings, equipments, facilities
 - Tertiary (non municipal) buildings
 - Residential buildings
 - Municipal public lighting
 - Industry
- Transport:
 - Municipal fleet
 - Public transport
 - Private and commercial transport

The results obtained are presented in tables A and B.

A. Final energy consumption

Category	FINAL ENERGY CONSUMPTION [MWh]															Total
	Electricity	Heat/cold	Fossil fuels								Renewable energies					
			Natural gas	Liquid gas	Heating Oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	
BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES:																
Municipal buildings, equipment/facilities	1650		500											5700		7850
Tertiary (non municipal) buildings, equipment/facilities	970		4750			1200	4800							2300		14020
Residential buildings	16000		14300	2000										42000		74300
Municipal public lighting	2130															2130
Industries (excluding industries involved in the EU Emission trading scheme - ETS)	1250		450			16000	8000	800	200							26700
Subtotal buildings, equipments/facilities and industries	22000		20000	2000		17200	12800	800	200					50000		125000
TRANSPORT:																
Municipal fleet						2300	340									2640
Public transport					0	0	0									0
Private and commercial transport				2300		17600	1460									21360
Subtotal transport				2300		19900	1800									24000
Total																149000

B. CO2 or CO2 equivalent emissions

Category	CO2 emissions [t]/ CO2 equivalent emissions [t]															
	Electricity	Heat/cold	Fossil fuels								Renewable energies				Total	
			Natural gas	Liquid gas	Heating Oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Biofuel	Plant oil	Other biomass	Solar thermal		Geothermal
BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES:																
Municipal buildings, equipment/facilities	1156.65		101										2280			3537.65
Tertiary (non municipal) buildings, equipment/facilities	679.97		959.5			320.4	1281.6						920			4161.47
Residential buildings	11216		2888.6	534									16800			31438.6
Municipal public lighting	1493.13															1493.13
Industries (excluding industries involved in the EU Emission trading scheme - ETS)	876.25		90.9			4272	2136	291.2	72.8							7739.15
Subtotal buildings, equipments/facilities and industries	15422		4040	534		4592.4	3417.6	291.2	72.8				20000			48370
TRANSPORT:																
Municipal fleet						614.1	90.78									704.88
Public transport																0
Private and commercial transport				614.1		4699.2	389.82									5703.12
Subtotal transport				614.1		5313.3	480.6									6408
OTHER:																
Waste management																
Waste water management																

3.1 Data analysis

Using the structure provided by the “Rural friendly SEAP”, developed inside the project (see Annex 1), the following conclusions were obtained.

A. Energy consumption

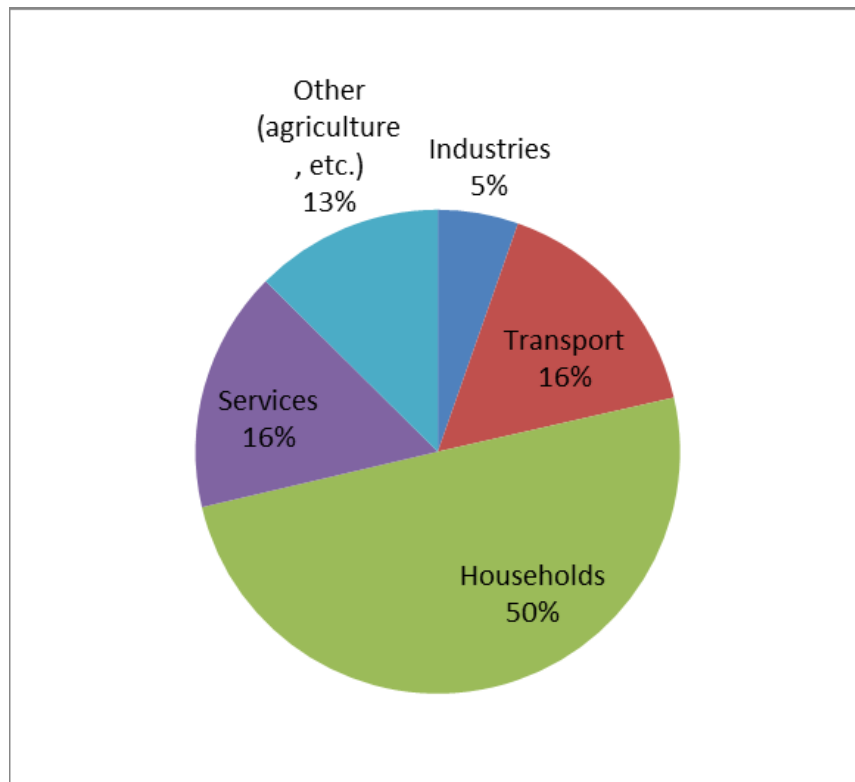


Fig.2 Total energy consumption of the 12 rural communities

Considering the low industrialization degree of these rural communities, most of the energy consumption comes from households. In order to reduce this consumption with 50% (and, implicitly, the CO₂ emissions) the mayors' offices have to run information campaigns for rational use of energy, purchasing of efficient appliances and stimulating the green energy production.

Also can't be neglected the influence of the energy efficiency principles in the case of services and municipal transport. The implementation of intelligent measures in the use of municipal fleets and the replacement of classical lamps with high efficient LED systems for public lightning, can conduct to important energy saving.

B. CO₂ emissions

Analyzing the data regarding the CO₂ emissions, we also observe that most of the emissions are produced by households.

COMMUNITIES (IEE/11/014/SI2.616363)

If the energy consumption in houses represents 50% of the total energy consumption, the CO₂ emission is 57% from the total. The difference comes from the type of heating systems used in the private houses, which are usually traditional stoves.

Considering the target to reduce the CO₂ emission with at least 20% until 2020, strong actions have to be developed in order to replace the traditional stoves with biomass heating centrals, or with heating systems based on gas, in the case of the public buildings.

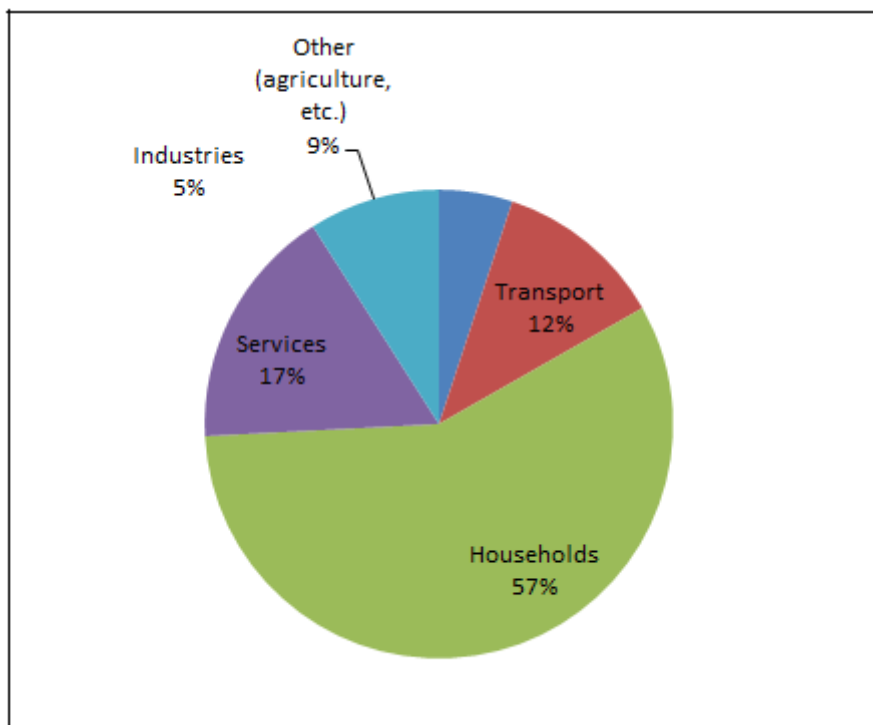


Fig. 3 Distribution of CO₂ emissions

4 Comments, lessons learnt related to the CoM guidelines

The mayors of the rural communities from Bacau County did not know about the CoM until they joined this project. The idea to participate in a European project excited them, but some hesitations appeared when signing the CoM agreement. The reason for this was the possible financial implication. Therefore, several meetings were necessary in order to explain them the importance of a sustainable development strategy.

The realization of BEI and SEAP was quite difficult. Because the lack of activity of the territorial Coordinator, UBC had to work hard to realize the BEI and the SEAP. Moreover, the mayors - although well intentioned - did not have the necessary expertise to help in this endeavor. It is important to underline that “Bacau County for CoM” was the first Romanian group of communities who joined together to the European movement.

COMMUNITIES (IEE/11/014/SI2.616363)

The experience gained during the baseline emission inventory and the SEAP development lead to the following conclusions:

- more awareness activities are needed at regional level (maybe with the support of local action groups) to promote the CoM;
- the BEI and the SEAP need informed and trained people in each group of local communities, in order to develop them and to monitor the progress registered;
- in order to continue to be connected with the CoM, rural communities need an English speaker and basic skills in IT;
- the SEAP developed in the framework of the project is very helpful, but the realities might raise challenges. In order to develop a real SEAP and for the monitoring results concerning the implementation of the actions to be real, it is important that the results of BEI (obtained with this tool) to be adjusted according to the actual case. In the case of the Romanian area involved, the collection of data from territory was necessary, the average of CO₂ emission being under the national scale.
- in order to be accepted by CoM, the BEI and the SEAP were realized using the guide provided by this organization;
- for the future, the implication of mayors' offices is very important. They should consider the following:
 - the most cheaper way to reduce energy consumption is the energy saving ;
 - the small rural communities have to act together for the realization of significant RES projects;
 - the mayors' offices have the main role in the exploitation of RES on the communities' territories;
 - the possibility to access European and national funds is very important, considering the small budgets of the rural communities.

The BEI and the SEAP were approved by the Local Councils of the communities involved and by Bacau County Council.