

ASPECTS REGARDING THE NATIONAL STRATEGY OF SUSTAINABLE DEVELOPMENT IN REGION 5 WEST ROMANIA.

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Abstract: In 2005, after a long debate, the European Committee has adopted a revised proposal of the Goteborg Strategy from the year 2001. As a result of this process, the European Union Council has adopted on June 9th 2006 the Renewed Strategy of Sustainable Development for an extended Europe. To achieve these goals four key objectives were identified: - Environment protection, through measures that will allow separation of economical growth from negative impact over the environment; - Equity and social cohesion respecting fundamental rights, cultural diversity, chance equality and fighting any type discrimination; - Economical prosperity, promoting knowledge, innovation and competitive to assure high life standards and abundant and well paid jobs; - Fulfilling international responsibility of UE promoting democratic institution for peace, security and freedom, principles and practices for sustainable development all over the world. In the context of the decisions made by the European Union Council, the national Strategy seeks achieving the following strategically objectives on short, medium and long term: Horizon 2013: organically integration of the principles and practices on sustainable development in the Romanian ensemble of programs and regulation as European Union member. Horizon 2020: reaching the actual medium level of European Union countries regarding the main indicators of sustainable development. Horizon 2030: significant approaching to that year medium level of the European Union members by Romania regarding

the sustainable development directives. For each one of this period of 7 years and the appropriated horizons are settled and debated a series of situations with practical objectives among the most important, are: - Climatic changes and clean energy; - Sustainable transport; - Production and sustainable consumption; - Conservation and management of natural resources; - Public health; - Social inclusion, demography and migration; - Rural development, agriculture and fishing. The aim of this paper is to establish how are this objectives reached and what measures are used to reached the established Horizons in the Region 5 West Romania. Region 5 Vest is located in the western part of Romania at the Hungarian and Serbia&Muntenegru border and it contains four counties: Arad, Caraș-Severin, Hunedoara and Timiș. Region 5 Vest has the following extreme points: the southern extremity of the region is located in the Berzasca locality, Caraș-Severin - 44°35'12" Nordic latitude, the northern extremity in Berechuiu locality, Arad - 46°38' Nordic latitude, the western extremity in Beba Veche locality, Timiș - 20°15' easterly longitude, and the southern extremity near the Petroșani locality, Hunedoara - 23° easterly longitude. The region has a surface that totalize 32.034 km², representing 13,44% of Roamanian territory. Timiș County is as surface the largest in our country (3,65% of national territory), while Caraș-Severin county is in third place (3,56% of national territory), Arad county, is the sixth (3,25% of national territory) and Hunedoara county occupies 2,96% from our country territory.

Key words: sustainable development, environment protection.

INTRODUCTION

In the context of the decisions made by the European Union Council, the National Strategy of Sustainable Development seeks achieving the following strategically objectives on short, medium and long term:

Horizon 2013: organically integration of the principles and practices on sustainable development in the Romanian ensemble of programs and regulation as European Union member.

Horizon 2020: reaching the actual medium level of European Union countries regarding the main indicators of sustainable development.

Horizon 2030: significant approaching to that year medium level of the European Union members by Romania regarding the sustainable development directives.

For each one of this period of 7 years and the appropriated horizons are settled and debated a series of situations with practical objectives among the most important, are:

1. Climatic changes and clean energy
2. Sustainable transport
3. Production and sustainable consumption
4. Conservation and management of natural resources
5. Public health
6. Social inclusion, demography and migration
7. Rural development, agriculture and fishing.

The aim of this paper is to establish how are this objectives reached and what measures are used to reached the established Horizons in the Region 5 West Romania. Mainly the paper will focus on objective 1 and 4 regarding Climatic changes and clean energy and Conservation and management of natural resources

MATERIAL AND METHODES

Region 5 Vest is located in the western part of Romania at the Hungarian and Serbia&Muntenegru border and it contains four counties: Arad, Caraş-Severin, Hunedoara and Timiș. Region 5 Vest has the following extreme points: the southern extremity of the region is located in the Berzasca locality, Caraş-Severin - 44°35'12" Nordic latitude, the northern extremity in Berechiu locality, Arad - 46°38' Nordic latitude, the western extremity in Beba Veche locality, Timiș - 20°15' easterly longitude, and the southern extremity near the Petroșani locality, Hunedoara - 23° easterly longitude.

The region has a surface that totalize 32.034 km², representing 13,44% of Romanian territory. Timiș County is as surface the largest in our country (3,65% of national territory), while Caraş-Severin county is in third place (3,56% of national territory), Arad county, is the sixth (3,25% of national territory) and Hunedoara county occupies 2,96% from our country territory.

RESULTS AND DISCUSSIONS

1. Climatic changes and clean energy

According to the Sustainable Development Strategy of the European Union the general objective of this theme is: *Prevention/limiting antropic climatic changes through green house gas emissions restriction and control and also the negative effect over the environment with special target the human settlement.*

The possibilities to achieve this were established at the spring session of the European Council from 09.03.2007. This are:

- reduction with 20%, until the year 2020, of green house gas emission comparative to the year 1990;
- intensification, also until 2020, with 20% of energy contribution from regenerative sources from the total energetic consumption;
- increasing energetic production efficiency with 20%;
- using partly 10% of biodiesel from the total consumption in transport area.

Within this present objective, promoting clean energy from regenerative sources (solar, eoliană, hydro, bioenergetics, etc.) constitutes an important domain with major importance in the legislative package presented by the European Committee at la 23.01.2008

and also according to the New Energetic Policy of the European Union from 2007, the energy is an essential element of development at the Union level. In the same way it presents a challenge from the energetic sector point of view over the climatic changes, of the dependency growing over the energetic resources import, and also the rising price of energy. It starts with recognition of the fact that the European Union is more and more exposed to the instability of international energetic markets and to the tendencies of monopolization of hydrocarbons reserves by a small group of owners.

For the Horizon 2013 level, the national objective stipulates:

- satisfying the energy requirements of short and medium term;
- creating the premises for the country energetic security according to the demands of a modern economy, in safe and competitive conditions;
- fulfilling the obligations assumed based on the Kyoto Protocol regarding the decreasing with 5% of green house gas emissions;
- promoting and applying measures to adapt at the climatic changes effects and respecting the principles of sustainable development.

In the Region 5 West, the categories of atmospheric pollution sources are basic the same in all the counties: traffic, heavy incinerators and industrial objectives near or on the proximity of habited area, landfills. The weight of these sources in air pollution varies depending on the counties economical background. Usually air pollution is caused with dusts (established as suspensions, PM 10 and residues dusts) with a concentration that in many cases exceeds CMA or VL. The phenomenon is well monitored through sufficient sample points to establish the indicators above. Air pollution due to the traffic has the same cause in all the counties: improper road conditions, insufficient and inefficient salubrity of city roads.

The presence of heavy incinerators, sometimes inside the localities (by ex: Arad, Timișoara) causes atmosphere pollution, because there are not totally equipped with necessary installations to avoid complete emissions of pollutants in the atmosphere.

Through the progressive emissions decreasing programs that were made for each one of these installations, were imposed measures that must be fulfilled in real time in order to keep those installations functional without causing pollution: replacing the gas fitting, desulphurizing of the burning gases, monitoring the SO₂, NO₂ emissions and dusts, etc. another problem is posed by the ash dumps and clay from the thermal power plants, that especially during the summer cause advanced pollution through the dusts resulting high concentrations of suspension and residues powders that exceeds CMA and VL.

The main economic objectives whose activity constitutes possible air pollution in Timiș County are: SC COLTERM SA with the thermal power plants CET South and CET Centre from energetic industry, SC PETROM SA - Timișoara Branch through activities as: raw oil extraction, topping processing, oil products depositing, raw oil treating, making chemical products (SC Detergenți SA, SC Bega Minerale, SC Azur SA, etc), rising pigs inside societies like: Pădureni, Parța, Peciu Nou, Ciacova, Birda, Periam, etc, waste management: municipal and city landfills.

2. Natural resources conservation and management

The main objectives in theme with the term Horizon 2013 imposed also to Romania are:

- improving natural resources management;
- avoiding excessive exploitation;
- recognizing the values from ecosystems services.

Before accomplishing the main objectives, Romania must resolve/accomplish the following specific objectives:

a) improving service quality and population access at the Drinking water supply infrastructure and canalization, with the following commitments and terms (according to the European Directive 2000/60/CE):

- for 263 localities with over 10 000 equivalents habitants until 2015;
- for 2346 localities with population between 2000 and 10 000 equivalents habitants until 2018.

Additionally until 2013 will be applied the Program (approved in 2005) of discharging, emissions and lost of dangerous substances elimination inside the aquatic environment, in order to prevent surface and underground water pollution. To finance these actions between 2008-2013 are foreseen about 3,27 billion euro, until 2015.

b) Developing the integrated management waste systems and reduction of the historic polluted area number in minimum 30 counties until 2015, with the following obligations and assumed terms:

- Fulfilling the transitions periods in order to conform to the EU Directives for the municipally landfills until 2017, temporary depositing of dangerous wastes until 2009 and non-hazardous wastes depositing until 2013, when 177 landfills will have to close their activity (conform/ecologic closing);
- Reducing up to 2,4 mil. Tone of biodegradable deposited wastes from the total annual quantity through compost or biofuel contribution until the year 2013 (implies a lowering of this waste category depositing with 50%);
- Expanding the integrated waste management in rural area implementing collecting services and uncontrolled and inaccurate landfills;
- Accomplishing a recovering degree of useful part for the recycled wastes or energetic capitalization (incineration) up to 60% for paper or board, 22,50% for plastics, 60% for glass, 50% for metal and 15% for wood also until 2013;
- Closing up the improper medical wastes incinerators;
- Reaching up the targets for the year 2015, that sight creation of 30 integrated wastes management systems al regional/national level, closing up 1500 small landfills located in rural areas and 150 landfills from urbane sites, accomplishing 5 pilot projects to rehabilitate the historic damaged sites and assuring improved salubriousness services and management for 8 million habitants.

c) Lowering the negative impact over the environment and decreasing the climatic changes caused by urban heating systems in the most polluted localities until 2015, based on emissions from centralized heating systems reduction inside 8 municipalities with positive consequences on air quality and evolving options studies for another 15 localities, completed with improper cinder landfill and water supply and heating systems rehabilitation.

The budget required to accomplish this objective identified at the year 2004, rises up to 5,2 billion euro between 2007-2013. The cohesion fond of EU will be located at about 230 milion euro, and the national and local contribution is estimated at about 460 milion euro.

d) Biodiversity and natural heritage conservation, supporting the protected area management, including implementing Natura 2000.

e) Reducing the risk of producing natural disaster with effects over the population.

Critical area regarding water pollution in Region 5 West

The quality of surface water inside the Region 5 West was in constant regarding the last years parameters. There is a low cleaning capacity for activities like mining, farming, wood industry. This may led to discharge in emissary of potential pollution elements. Table 1 presents the drinking quality sources from underground and surface water.

For the water sources is required the water quality assurance according to the treatment technology stipulated in the Directive 75/440/EEC respective the HG 100/2002. Also is

required to establish the protection areas according to the stipulation of the Water Law no. 310/2004 and the HG 101/1997 revised.

In order to prevent and ameliorate the industrial pollution Banat Water Branch has applied the following measures:

- countering the water consumption implicating a lowering of the discharged water;
- implementing new investment programs that will use the best available techniques;
- accepting only the investments that applies pre-cleaning or tail water cleaning;
- imposing discharged tail water monitoring;
- applying penalties for exceeding of the maximum admitted concentrations of pollutants in the tail waters;
- closing up the unities that did not respected the conformation steps.

Table 1.

Drinking water sources

Localities	Water sources		Sanitary protection		Source quality			
	Surface	Depth	Surface.	Depth.	Surface		Depth	
			Yes/No	Yes/No	Chemical	Bacterial	Chemical	Bacterial
					No. analyzes/ improper	No. analyzes/ improper	No. analyzes/ improper	No. analyzes/ improper
Timișoara	Bega River	46 drills	Yes	Yes	136/8	126/0	20/2	20/0
Lugoj	Timiș River	drill adduct	Yes	Yes	108/2	48/0	81/0	36/0
Jimbolia	0	drill adduct		Yes			24/0	24/0
Sanic. Mare	0	drill adduct		Yes			48/0	32/0
Buziaș	0	7 drills		Yes			24/0	16/0
Deta	0	8 drills		Yes			80/7	40/3
Făget	0			Yes			90/0	20/0
Nădrağ	Padeș River		Yes		36/1	16/0		
Tomești	Liman River		Yes		90/3	40/0		
Ciacova		3 drills		Da			4/4	4/0
Gătaia		3 drills		Da			9/9	9/0

Waste management Region 5 West

Wastes composition from Timișoara city and the balanced average value in Timiș County are presented in table 2.

Table 2

Wastes composition from Timișoara city and the balanced average value in Timiș County

Waste composition %	Papers and boards %	Glass %	Metals %	Plastics %	Organically matters %	Others %	Total
Urban area	13	5.99	3.5	16.66	33.79	26.9	100
Rural area	7.5	5	6	19.5	31	31	100
Timișoara	8	3	2.50	5	60	21.5	100

Selective collection is a municipal wastes generation processes where the domestically materials that have a recycling potential are recuperated and recycled.

The composting purposes are:

- Respecting legislation in the recycling-reusable area;
- Reducing wastes deposition;

- Obtaining an improved material that will be utilised in agriculture or land restoration.

In the year 2004 started the wastes selective collection, following a proper plan elaborated by city councils and though selective collection container emplacement. The collection was done by voluntary citizen. In the year 2006 the wastes selective collection was continued by the salubrioness operator in Timișoara.

The deposition of the collected wastes is made in mixed deposits, being accepted the municipal wastes and the production non-hazardous wastes. These deposits are not complying with the environment protection conditions, according with Govern Order no. 349/205 regarding wastes deposition.

The priority objectives of the County Wastes Management Plan are:

- To closed the existent deposits, that are improperly to the emplacement area and to the environment protection;

- To make an ecological deposit on this area;
- To make a unitary system to the municipal wastes management.

The urban wastes quantity has an increasing tendency. This is considering an index of the population's consumption. The increaser of the waste quantities is due to the increase of the consumption, but especially to the salubrioness services extension on the rural areas. It is anticipate that in next 15 years all the populations will benefit by the salubrioness services.

Also it was estimate that will increase the slime quantities that come from the municipal cleaning plants, as a result of the sewer systems extension and existent cleaning plants modernisation.

Regarding the urban wastes composition, it is estimate that will increase the packing wastes (plastics, papers, glasses) and will decrease the biodegradable fraction.

The wastes generation are influenced by a lot of factors:

- Population's incomes evolution;
- Consumer comportment;
- Insertion of the new racing products
- Demographic evolution.

In Region 5 West the population income is very important in the wastes generation. It has a high level, and the urbanization effects generate high quantities of wastes on the number of habitants (rural area habitants generate 0.3-0.4 kg/habitant/day, while in urban area the habitants generate 0.9 kg/habitant/day, according with World Bank studies).

Similarly, the consumer comportment influences the waste generation rate by the alimental consumption that generates more packing wastes. Not in the last, the new packing that are introduced on the market (plastics especially) have a great impact on the environment because these displaced the classic packing (glasses, bags) with poliethyleneterephthalate (PET) bags or boxes. These aspects influenced the wastes quantities and composition.

Other factors included the number of supermarket and the buying capacity increaser.

The demography also influences the wastes generations because the urban habitants generate more wastes then the habitants that live in rural areas. The region's population is in decline becoming more urbanized.

Considering the aspects that were presented, trends is to increase the municipal wastes generation with a rate of 0.8% / year. By applying these increasing index on the wastes quantities it was obtained the municipal solid wastes quantities for the next years.

The values with which will increase the packing wastes was estimated on: 10% / year between 2003 and 2006, 7% / year between 2007 and 2009, 5% / year between 2010 and 2013.

The accepted composition of the domestically wastes, in 2006 were: 26.5% for papers

and boards; 30% for plastics; 20% for glass; 11.75% for metals; 11.75% for wood.

In table 5 we presents the quantities of municipal biodegradable wastes that will expected in the next years, in tone/year.

In this section we made a quantification of the Region 5 West objectives regarding the quantities of generated wastes. A resume of the municipal solid wastes, of the packing wastes and the biodegradable wastes are presented in table 6.

Table 3

Solid municipal waste quantities generation in Region 5 West

No	Wastes type		Increasing index	2003	2006	2008	2010	2011	2013
1	Mixed wastes	domestically urban	0.80%	132129	139250	141514	142020	143013	143493
		rural	0.80%	37958	36607	37135	36875	37621	37358
2	Similar wastes from trading, industry, institutions		0.80%	51250	52480	53320	54173	54606	55480
3	Voluminous wastes		0.80%	5500	5632	5722	5814	5861	5955
4	Wastes from parks and gardens		0.80%	13000	13312	13525	13742	13852	14074
5	Wastes from markets		0.80%	7000	7168	7283	7400	7460	7580
6	Wastes from streets		0.80%	14500	14848	15086	15327	15450	15697
TOTAL			0.80%	261337	269297	273585	275351	277863	279637

Table 4

The anticipated quantities of domestically wastes in Region 5 West, (tone / year)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Region 5 West	41726	45898	50487	55536	59424	63584	68034	71436	75008	78759	82696
papers and boards	11057	12163	13379	14717	15747	16849	18028	18929	19875	20869	21912
plastics	12518	13770	15147	16662	17828	19076	20411	21432	22504	23629	24810
glass	8345	9179	10097	11107	11885	12717	13607	14287	15001	15751	16538
metals	4903	5393	5932	6525	6982	7471	7994	8394	8814	9255	9718
wood	4903	5393	5932	6525	6982	7471	7994	8394	8814	9255	9718

Table 5

The municipal biodegradable wastes evolution (tone / year)

No	Wastes flood		Biodegradable content	2003	2006	2010	2013	
1	Mixed domestically wastes	Urban area	Only biodegradable	54%	71350	75195	76691	77486
			Papers+wood	14%	18498	19495	19883	20089
		Rural area	Only biodegradable	62%	23534	22696	22863	23162
			Papers+wood	12%	4555	4393	4425	4483
2	Similar wastes from trading, industry, institutions		45%	23062	23616	24378	24966	
3	Wastes from parks and gardens		95%	12350	12646	13055	13370	
4	Wastes from markets		90%	6300	6451	6660	6822	
5	Wastes from streets		20%	2900	2970	3065	3139	
TOTAL					162549	167462	171020	173517

Table 6

Tends and objectives regarding the wastes quantities (%)

Description	2006	2007	2008	2009	2010	2011	2013
% Urban population that are connected to the wastes collection							100
% Rural population that are connected to the wastes collection				90			
The biodegradable fraction reducing					75		50
Packing wastes recycling / incineration with energy recuperation						50	60
Complete recycling of the packing wastes (quantitative):	25						55
Hence papers/boards	15		60				
Hence metals	15		50				
Hence plastics						15	22.5
Hence glass	15						60
Hence wood						15	

Source: National Plan of Wastes Management.

CONCLUSIONS

According to the national objectives Region 5 West can establish her own priorities to win projects and achieve financing necessary for a modern community with a clean environment and beneficiary of a sustainable development.

The most important targets of these purposes are:

1. infrastructure rehabilitation, prior: roads and water supply systems, but also the common transportation vehicles based on clean energy from waste management;

2. ecologic rehabilitation of water courses at least on the routes inside the municipalities;

3. lowering the concrete surfaces, green spaces extension, parks and relaxing area rehabilitation at EU standards;

4. implementing waste integrated management therefore using the following advantages:

- selective collection and recycling;
- composting (organic wastes) and clean energy production;
- eliminating improper landfills.

5. population training towards respect for nature, therefore an ecological education and encouraging positive initiatives of citizens.

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