

WASTE MASTER PLAN IMPLEMENTATION IN CARAS SEVERIN COUNTY; CASE STUDY: ANINA CITY

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Abstract

For complying with national and European legislation on waste management in Caras-Severin county is necessary to implement an integrated waste management system. Investments provided by the project are: Centre for Integrated Waste Management in Lupac - Ecological sorting Deposit plant (34,000 t/year) and biological mecano simple treatment plant (64.000 t/year), three transfer stations in cities Otelu Roșu, Pojejena and Bozovici, closure and rehabilitation of rural deposits (69) and city deposits (8), collection and transportation equipment supply, etc. The implementation of the project requires the existence of an institutional structure at county level: Intercommunity Development Association establishment, Project Implementation Unit, to ensure the implementation of its activities. The total project is funded by the POS, state and local budget, and is about 1.863.980.700 lei, with the implementation period of 2012-2015.

For waste collection are set out seven collection areas, Anina is ascribed to collection Zone 1 Lupac, and the selective waste collection and transport will be done by local operator. The waste will be transported directly to the Integrated Waste Management Center in Lupac, at a distance of about 40 km.

Key words: waste management, transfer stations, institutional framework, landfill, sorting station, biological treatment station.

INTRODUCTION

To achieve the strategic objectives and targets of the EU Accession Treaty and waste management plans it is required to implement a integrated waste management system in Caras-Severin county. The current waste management system in Caras-Severin has the following deficiencies:

- does not ensure compliance with European and national legislation in the field;
- storage in irregular deposits has a negative impact on the environment (soil, water, air);
- there are not enough facilities for selective waste collection;
- untreated biodegradable waste disposed in irregular deposits represent a threat to the environment through the production of leachate and biogas;

- very low rate of waste recycling;
- low awareness of population in waste collection;
- selective collection covers a small area (generally in urban and rural institutions);
- obsolete and insufficient equipment;
- limited local expertise in the management and monitoring of salubrity services due to: insufficient specialized personnel, including key areas such as: public procurement project management; and lack of local strategies and long term sustainable development.

The conclusion is that the current waste management system in Caras-Severin County is deficient and does not ensure compliance with national and European legislation.

To solve these problems, the integrated waste management system in Caras-Severin (SMID) is a necessity in order to achieve the targets set by European and national legislation, to ensure the sustainable development of local communities and improve people's living conditions.

MATERIAL AND METHOD

The institutions with responsibilities in waste management field at national, county and local level are shown in Fig. 1:

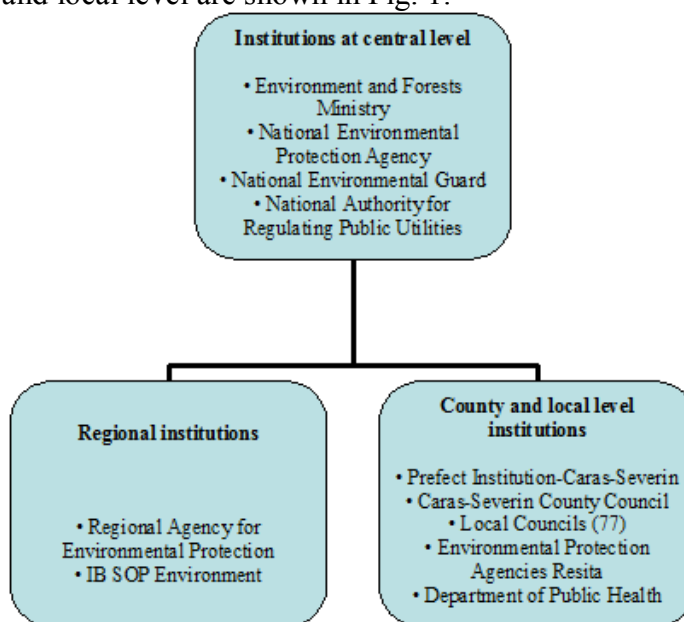


Fig. 1 Institutions with responsibilities in waste management

Caras-Severin belongs to Development Region 5 West, with an area of 8519.76 km² (26.59% surface area) and a population of 317,674 inhabitants, of which 56% live in urban areas and 44% in rural areas. Major

population settlements peculiarities in the county is the low population density, 37.4 inhabitants/km², with high degree of dissipation of settlements due to the predominantly mountainous terrain (65.4%).

Administrative the county includes 8 cities/towns and 69 communes with a total of 285 villages. Regarding the existing waste infrastructure, the situation is as follows:

- Collection and transport of waste is currently sorting and transfer station in Resita;
- In July 2009 have been closed and rehabilitated landfill waste of 69 rural communes;
- all the communes (69) are served by of sanitation services;
- The rate of access to sanitation service is 100% in urban areas and 99% in rural areas;
- For three cities (Băile Herculane, Caransebeș, Oravița) and 23 communes with PHARE projects were established waste operators: Ecological Văliug Ltd Ecological Oravița Ltd and Ecologica Băile Herculane Ltd; collecting and transporting waste from all subordinated localities;
- It is not practice selective waste collection, except for areas covered by the companies established by PHARE;
- waste is collected and transported to mixed system warehouses;
- Collection is generally from household to household with a different pace from one place to another; private operators (16) have established special collection points recyclable waste (paper, cardboard, plastic and metal and glass, WEEE, etc.) while creating a market for recyclables;
- No sorting and transfer stations, except those built by PHARE projects: Oravița Herculane Văliug;
- equipment for waste collection and transport are insufficient and outdated;
- There are 5 recycler companies, but is missing separate collection of recyclables;
- There are no facilities for sorting, except for some small manual sorting stations (Oravița and Băile Herculane) for recovery of metals, paper, cardboard and plastics, covering only about 16% of the county population;
- No waste composting facility and no organized system of biodegradable waste at the county level, the waste collected were stored in closed urban and rural non-compliant deposits. Urban deposits to be rehabilitated under the project SMID CS are: Băile Herculane, Caransebeș and Reșița - suspended in 2009, Anina, Bocșa

and Oțelu Roșu - suspended in 2011, Moldova Nouă and Oravița - suspended in 2012;

In conclusion, specific targets for recovery and waste recycling, according to national and European legislation and strategic objectives set out in the waste management plans (NWMP, PRGD, PJGD) can only be achieved by implementing an integrated waste management system, focusing on their selective collection.

Proposed investments by SIMD project funded by the POS, ensure the following objectives:

- Expansion of selective collection system in urban and rural areas;
- Modernization of collection and transport equipment;
- Improved waste management system by constructing three transfer stations in cities Oțelu Roșu, Pojejena and Bozovici and an integrated waste management center in Lupac - ecological sorting deposit plant (34,000 t/year) and biological mecono simple treatment plant (64.000 t/year);
- controlled waste storage.

The entire built infrastructure will become public domain of Caras-Severin county. SIMD project took into account the main strategic documents at national, regional and local levels: National Waste Management Plan (NWMP), Regional Waste Management Plan (PRGD) County Waste Management Plan (PJGD), POS environment. Waste collection are provided seven collection areas, shown in fig. 2.

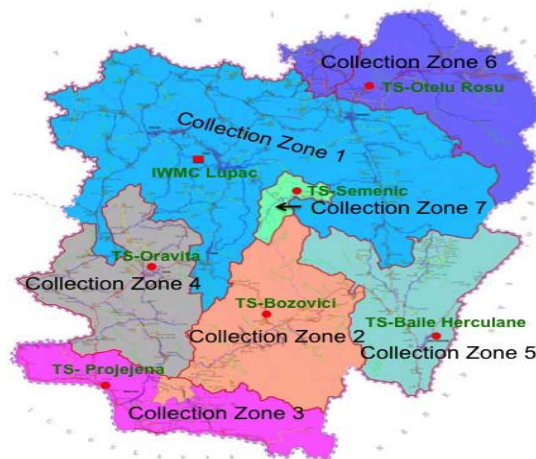


Fig. 2 Waste collection zone in Caras-Severin county

Anina is ascribed to Zone 1 Lupac city, with the waste to be transported directly to the Integrated Waste Management Center in Lupac, at a distance of about 40 km (by Resita).

Collection, including selective waste collection will be done by local operator and it will use two waste bins collection system.

Also, transport of waste, including waste will be achieved by selective local operator which the City Hall of Anina will contract. The main problems sorting, collection, storage and exploitation of domestic and industrial waste in the locality Anina are:

- delays in implementing the project "Integrated Solid Waste Management in Caras-Severin," which will solve the problems of waste management in the area;
- waste storage warehouse work areas was stopped in 2012 and will begin work on urban landfill closure, made in the project "Integrated Solid Waste Management in Caras-Severin";
- waste collection equipment insufficiency;
- low level of environmental awareness, the importance of selective waste collection, tendency of locals and tourists in transit in the area to throw at random packings and other readily degradable household waste on the communication paths, forests, beds of watercourses;
- lack of environmental sanctioning measures, uncontrolled waste deposits on the river banks, roadsides;
- large areas of built-up area is occupied by industrial and urban waste dumps, to be rehabilitated.

The amount of collected waste sources is estimated to be about 19,000 tons/year. In fig. 3. are shown the recycling percentages.

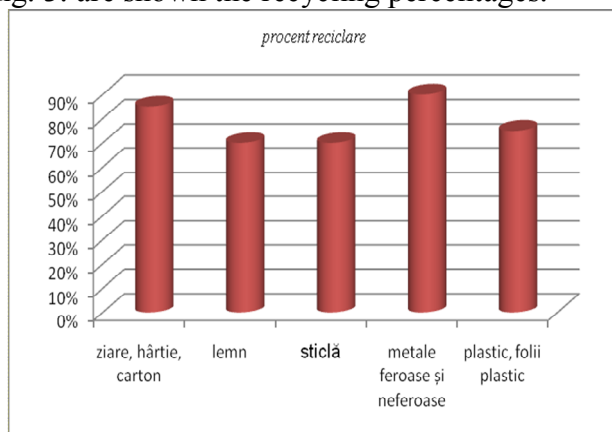


Fig. 3 Annual renewable waste recycling

Regarding waste treatment, the main objective is to reduce the amount of biodegradable waste from landfill. This specific target for 2016 is treating 41,000 tonnes of biodegradable waste.

Romania's policy concerns the regionalization of sanitation services, in this regard in 2009 was established the Intercommunity Development

Association "Caras-Severin Waste INTERCOM" (ADI Intercom) with the following members: Caras-Severin County Council, Local Councils of the 8 municipalities and cities and local councils of all communes (69).

Ecological deposit will be made of two cells - phase of the first cell surface will be about 32,885 square meters with a capacity around 495,938 m³, of which 431,250 m³ storage volume. The slope of the basin is 33% and is uniform across the surface of the first cell, the estimated life of approximately 6.5 years.

The total capacity of the ecological deposit will be of 2,335 million m³, and the storage period of 32 years. The components are: the main storage, drainage system and leachate collection and leachate treatment plant with two steps.

The total project value is about 1.863.980.700 lei, and is funded by the POS, state and local budget, and is with the implementation period of 2012-2015.

In figure 4 are presented the annual storage capacity of transfer stations.

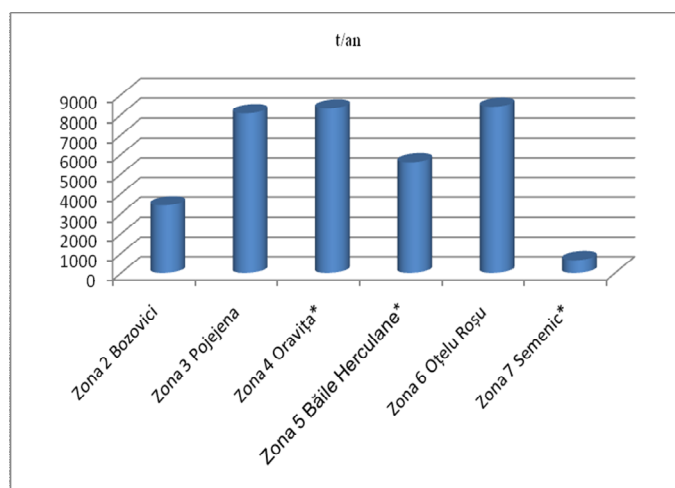


Fig. 4 Storage capacities of transfer stations in Caras-Severin

Currently, there are 15 salubrity operators, of which seven private and eight public. The purpose of the integrated waste management system is to ensure an integrated approach at the county level, improving quality and ensuring homogeneity sanitation and compliance with national and European legislation. The procedure for awarding contracts for the operation of facilities (3 transfer stations) and transport waste from the central warehouse CMID will be organized by the Caras-Severin Council.

Setting tariffs for 2015 will follow the development of the annual plan charges so that the rates for urban areas to be less than 9.61 lei/capita/month or 7.19 lei/capita/month for rural areas. Proposed payment

mechanism must cover operating and maintenance costs for collection, transport, processing, sorting, storage.

Future rates will take into account the affordability of population: 1.8% of income of the poorest tenth part. One of the main deficiencies of the project is the low percentage of collection rates, especially in rural areas.

Public awareness is needed out all of the project phases, SMID will introduce new waste management practices: management technologies, a new financial framework and new roles and responsibilities in institutional terms.

RESULTS AND DISSCUSIONS

Currently SMID in Caras-Severin is implemented as it follows:

- of the 12 procurement contracts provided: 5 work contracts, 5 service contracts, 2 contracts for equipment supply; so far, have been completed 5 service contracts and work contracts;
- Procurement of work and the contract for the CMID Lupac construction was completed in June 2014 for a period of 12 months;
- awarding tenders for works in closing irregular urban deposits and building transfer stations are completed;
- Tenders for the construction of access roads and the provision of containers and landfill equipment to be started after completion of the 3 work contracts.

The institutional framework in the Caras-Severin is functional, the main requirements of the regionalization process have been met:

- Establish Intercom IDAs ADI;
- Establishment of Project Implementation Unit;
- Signing Position Paper for the project.

CONCLUSIONS

The main goal of ecological deposit closure is to minimize water seepage into waste and therefore reduce the amount of leachate generated.

The conclusion is that an integrated approach at the county level is an effective and sustainable waste management that can provide specific targets for recovery and recycling, established by national and European legislation and improve salubrity services.

REFERENCES

1. National Waste Management Plan (NWMP);
2. Regional Waste Management Plan (PRGD);
3. County Waste Management Plan (PJGD);

4. Sectoral Operational Programme Environment;
5. Intercommunity Development Association Caras Severin Informations;
6. Caras-Severin County Concil -informations;
7. Institutional Analysis for the "integrated waste management system in Caras-Severin"
8. Financing contract nr. 128521/19.03.2012 signed between the Environment and Forests Ministry and the Caras-Severin Council;
9. Technical Memorandum to obtain environmental approval for the project "Integrated Waste Management System in Caras-Severin";
10. The tender documentation for construction works contract Integrated Waste Management Centre in Caras-Severin within the "integrated waste management system in Caras-Severin".