

Report on BACID Activity

Waste Management – Case Study Analysis, Evaluation and Financing Possibilities

18. - 20. September 2017, Novi Sad

SA Consulting GmbH in cooperation with the Regional Agency for Development SME Alma Mons Novi Sad and the Transport and Logistics Cluster Vojvodina worked during a three-day event intensively with participants on the topic: 'Waste Management – Case Study Analysis, Evaluation and Financing Possibilities.' The event was carried out in the period from 18. to 20. September 2017, at the office of Alma Mons in Novi Sad. In total the event had 12 participants over 3 days.

For details on the Agenda please refer to Annex 1 to this Report. A list of participants is attached as Annex 2 to this Report.

Our local partners organised the event according to our agreement and worked with us together with the participants.

Introduction speeches at the beginning of the event have been given by Milica Vracaric, CEO of Alma Mons, Mr. Milan Vucinic from the Transport Cluster of Vojvodina and Mr. Gerhard Sabathiel from SA Group.

The event was organised in the way of a mixture of lessons and discussions on the one hand and work on concrete projects of the participants on the other. The presentations covered the following topics:

- Regional Development
- Waste Management in Serbia
- Financing Municipal Development
- PPP Introduction
- PPP Modelling

For details to the presentation material please refer to Annex 3-7 to this Report

Introduction – Waste Management in Serbia and Vojvodina

The National Waste Management Strategy (NWMS, 2003) in Serbia is the first fundamental document in the creation of conditions for a sustainable waste management approach on a national level in Serbia. According to requirements of the NWMS, the establishment of regions consisting of several municipalities for integrated waste management is defined as waste management solution.

A Special focus of our discussion was given to Vojvodina and especially the Backa Region. The current situation in others regions in AP Vojvodina is more or less the same.

A regulation on establishing the plan for the reduction of packaging waste for the period from 2010 to 2014 has been adopted, following the adoption of laws on waste management. In addition, the updated National Waste Management Strategy (NWMS) was adopted in 2010. The NWMS provides guidance on the implementation of waste legislation. It establishes systems for the management of specific waste streams. However, one of the key obstacles for the achievement of NWMS goals is the lack of clear plans of waste management on regional and local levels.

Waste volume in the Republic of Serbia is hard to estimate. The main reason is lack of information on qualitative and quantitative data. It is estimated that only ca. 60% of municipal solid waste is collected. An typical Serbian resident generates approximately 318 kg of waste per annum which is much lower than the European average.

Waste management companies have the duty of waste collection and its transport to the disposal site, but usually do not perform any measuring procedure of waste quantities and qualities.

In the Western Backa Region the only method of waste management is disposal. Waste is disposed on municipal disposal sites in many cases without proper erection, management and oversight. On the territory of the observed region, there is no sanitary municipal waste disposal site. The characteristics of the disposal sites in the region are: the majority of the disposal sites are placed very close to the settlements; the measurements or rough selection of waste materials is not performed on any of them; the majority of disposal sites is not fenced and there is no protection service; they do not possess facilities for the collection of landfill gasses and waters etc.

In order to establish the functional system of the organized waste collection and transport in the region it is necessary to replace the obsolete vehicles with new ones. The new vehicles should be compatible with the system of collection and suited for the waste collection.

In order to solve the problem of the distance of specific municipality centres from the location of the regional landfill and to minimize the cost of waste transport it is necessary to construct transfer stations in some of the municipalities. SNWMS (2003) foresees the construction of transfer stations on the locations that are more than 20 km away from the regional landfill. The location “Rancevo” (7 km away from the town of Sombor) was selected for the construction of the regional landfill through the analyses of the macrolocations suitable for the development of the regional sanitary landfill.

Based on the previously mentioned parameters, research of the area of the region, it was concluded that the optimum solution in the envisaged region is to construct three transfer stations: waste reload and transport from the municipality of Kula (46 km away from the regional landfill), municipality of Odzaci (37 km away from the regional landfill) and the municipality of Bac (56 km away from the regional landfill).

It is recommendable to implement both primary and secondary recycling in the region.

Actual Waste Management Projects

Before talking about concrete projects we discussed about general issues and opportunities for waste management across whole Vojvodina. In the introduction part we described already the current situation in the Republic of Serbia, particularly in AP Vojvodina and with focus on the Western Backa region. The following shall give an oversight of waste management projects discussed with the participants:

For the North Backa region the most relevant, and most important waste management project is located in Subotica. The construction of a regional landfill began in the middle of last year with the aim to be completed in 2017.

The regional landfill facility for the city of Subotica and the municipalities of Bačka Topola, Mali Iđoš, Senta, Kanjiža, Ada and Novi Kneževac in northwestern Serbia was created as a response to increasing amounts of waste and the need to comply with national and European rules. In 2008 the company Regionalna deponija d.o.o. was founded. The implementation of the project is in line with standards of the European Union and the National Waste Management Strategy for 2010-2019.

Total value of the project is EUR 24 millions. The EU is supporting it through IPA funds, amounting to EUR 20.15 million. This support is focused on building of infrastructure and strengthening the capacity of regional businesses and local public utility companies. The Government of Serbia participates with EUR 3.2 million through the Ministry of Agriculture and Environmental Protection. It finances the procurement of waste collection vehicles, containers and cans. Finally, EUR 1 million will be allocated from the budget of the City of Subotica and six municipalities to build recycling yards and connect to the local infrastructure.

The complex of the regional landfill is built by the Italian company Ibi, Set from Šabac and Instel inženjering from Novi Sad. The deadline for completion of the landfill is the beginning of next year, but the contractors submitted a request for extension already.

For the North Banat region the most important landfill is located in Kikinda. This is a new landfill constructed based on European Union Environmental standards.

For the South Banat region at the moment there are no comparable specific activities according to waste management. There are some landfills, but based on old technology with no preselection, separation and recycling enterprises.

In the Srem region the Regional Waste Management Center Indjija was established pursuant to the Law on Waste Management stipulating the obligation of municipalities to dispose waste in regional landfills.

The project for waste management and construction of a new Regional Sanitary Landfill - Indjija includes seven municipalities Indjia, Stara Pazova, Ruma, Sid, Irig, Pecinci and Sremski Karlovci.

The total population of the Waste Management Region is 250 000 (Indjija - 49,000 inhabitants; Stara Pazova - 67,800 inhabitants; Ruma - 55,754 inhabitants; Sid - 35,500 inhabitants; Irig - 11,100 inhabitants; Pecinci – 20,300 inhabitants and Sremski Karlovci - 9,500 inhabitants). Contracts have been signed with seven municipalities for disposal of waste at the Regional Sanitary Landfill – Indjija.

Indjija Municipality by mutual consent of other six municipalities of the Waste Management Region formed a Public Utility Company (PUC) for waste collection and disposal and landfill maintenance “INGRIN” Indjija. PUC “INGRIN” Indjija will manage the construction and operate the future Regional Sanitary Landfill. The Indjija Municipality is 100% shareholder of PUC "Ingrin".

A land lot designated for the construction of the Regional Sanitary Landfill for disposal of municipal waste is owned and located in the Indjija Municipality, between Beska and Novi Karlovci, 8 km north-east from of Indjija in the vicinity of highway E-75 Belgrade – Novi Sad. The size of land lot for constructing the Regional Sanitary Landfill is 26.75 hectares. The distance of other six municipalities from the landfill is: Stara Pazova - 18 km; Ruma - 32 km; Irig - 27 km, Sid - 94 km, Sremski Karlovci -26 km: Pećinci - 31 km.

The total estimated capacity of the landfill (compacted waste plus inert material) is 2,723,827m³. Based on the estimated volume of municipal waste generated in the region (currently around 100,000 tons per year) and based on designed capacity of the Regional Sanitary Landfill in Indjija, its anticipated life span is 26 years. The construction will be implemented in 6 phases.

The total estimated initial investment to complete the construction of Phase I and to provide equipment for the Regional Sanitary Landfill, including the separation line and composting facility, amounts to EUR 11.74 million (1.45 million for the first phase of the landfill body, 7.01 million for infrastructure, installations, property and equipment,

2.94 million for the land, E 340 000 for project management, design, supervision, and contingency).

For construction of the remaining five phases, the closing of the old landfills, the replacement of vehicles and upgrading of the separation line, an additional investment of EUR 12.9 million is needed. This investment will be implemented over a period of 20 years. The total investment for the Regional Sanitary Landfill project is around EUR 24.6 million.

It is also planned to develop an Integrated Sustainable Solid Waste Management system for the Zrenjanin region. The Project includes the construction of a regional sanitary landfill, a composting facility together with a transfer station and local recycling centers as well as the closure and rehabilitation of selected existing waste disposal sites.

The involved municipalities include the City of Zrenjanin and Municipalities of Secanj, Zitiste, Titel and Kovacica in total representing a population of 193,595 people.

Improvements in the waste management system will contribute to a significant improvement of environmental conditions in the region. It is particularly related to the expected closure of the existing, unregulated dump sites and the introduction of waste segregation practices.

Besides solid waste management the Municipality of Titel has a specific issue with sewage as in most of the area there is no connected sewage system in existence. The municipality has decided to give priority to the construction of a sewage system and only after having solved that issue that will be able to focus specifically on solid waste issues.

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Amount of waste generated

53,842

Amount of waste currently collected

90%

Current recycling rate

None

Project maturity (IFC / World Bank Categories)

STAGE 1 : Concept Development, Site identification

STAGE 2 : Pre-Feasibility Studies

STAGE 3 : Feasibility Studies

STAGE 4 : Permitting / Financing / Contracts

STAGE 5 : Engineering/Construction/Commercial Operation

Existing waste management plan

Regional Waste Management Plan (City of Zrenjanin and Municipalities of Secanj, Zitiste, Titel and Kovacica)

Final disposal today

The official waste disposal site for city Zrenjanin is closed and partially remediated. The current waste disposal site (Sanitary Landfill) is located adjacent to the main former site.

Comments

The proposed project provides an integrated approach to the development of a sustainable regional waste management system prepared with consensus from the beneficiaries and stakeholders and a financial commitment to secure funding for all necessary investment components.

Infrastructure	Stage	Short description	Expected Capex	Expected Capacity
Improving collection	3	Overall the collection system in the region operates reasonably well. However, there is a shortage of modern vehicles and containers, therefore considerable investment is required. Moreover, in order to achieve the requirements of Serbian and EU legislation, it is considered essential to introduce source separation. Source separation should ensure the division of municipal waste into three streams: Dry recyclables, Bio-waste and Residual	10.417.520 €	Waste collection vehicles of 15 m3, 19 m3 and 22 m3 capacity, totalling 28 vehicles 4 waste reception/recycling sites (Kovacica, Secanj, Titel + existing facility in Zitiste) and 3 sites in Zrenjanin
Transfer stations	3	Analysis of the locations and volumes of waste generated indicate that only one transfer station is economically justified : Kovacica, which is the farthest from Zrenjanin and the second largest waste generator. A simple bulking type transfer station facility is required for Kovacica	585.778 €	One Transfer Station in Kovacica
Sorting Centre	3	It is proposed that a dry Materials Reclamation Facility (MRF) is developed on the site of the RWMC to handle the collected dry recyclables in the region. The basis of the central sorting plant/ MRF is as follows: Agricultural / industrial style warehouse building / Covered storage of incoming co-mingled recyclables and sorted materials / Process (Lifts to bag openers; Automated bag splitting; Fines screening and fines silo; Conveyor; One waste stream per sorting operative, Automatic metal (ferrous and nonferrous) removal (magnet, eddy current separators; Sorting cabin; Sorted materials Balers; Residue goes to end of line (i.e. positive sorting)	961.800 €	Recyclables sent for processing at 5 various sized clean Materials Recycling Facilities
Composting facilities	3	The composting facility is to be located on the site of the RWMC at Zrenjanin adjacent to the entrance to the landfill body. In summary the composting facility is designed for 20,000 tonnes per year in a six week indoor composting process, followed by outdoor curing.	2.874.331 €	Compost Plant with capacity of 20,000 tonnes/year
Recyclables processing facilities	3	Sent for regional processing at central clean Materials Recycling Facility (15,00 tonne capacity)	2.969.000 €	clean Materials Recycling Facility (15,00 tonne capacity)
Waste to Energy facilities	3			
Sanitary landfill	3	The only realistic option for the management of residual waste is disposal to landfill. Therefore a conventional sanitary landfill is recommended, based on a total capacity of 1.825 million cubic meters.	6.453.299 €	Regional landfill (based on ~55,000 tonnes/year in 2017)

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Annexes

Annex 1: Agenda of the 3 day seminar/workshop

Annex 2: List of Participants

Annex 3: Overview of Waste Management in Serbia

Annex 4: Regional Development, Status and Drivers

Annex 5: Financing Municipal Development

Annex 6: PPP Introduction

Annex 7: Structuring PPP Models

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Pictures taken during the Event

