METHODOLOGY FOR ESTABLISHMENT OF AN INTEGRATED AND FINANCIALLY SELF SUSTAINABLE WASTE MANAGEMENT SYSTEM - THE CASE STUDY OF PELAGONIJA, SOUTHWEST, VARDAR AND SKOPJE REGIONS

C. Tsompanidis[1], T. Lolos[1], E. Ieremiadi[1]

[1] ENVIROPLAN S.A., 23 Perikleous & Iras street, Gerakas, Athens, 15344, Greece

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Email: ct@enviroplan.gr

The objective of this paper is to present the activities and steps of an EU funded, 24-month long project undertaken in four regions of F.Y.R.O.M. (Pelagonija, Southwest, Vardar and Skopje) aimed at establishing of an integrated and financially self-sustainable waste management system in each region, as well as to present the basic results and proposals regarding the integrated solid waste management system in those regions. Specifically, the Project was conceived to prepare all stages of establishment of such a system at a planning level, thus facilitating these four regions to start construction and subsequently operation of the facilities and provision of the services enabling the whole system to function in a self-sustainable manner, in accordance with the national and EU standards and legislation.

The project activities consisted of elaboration of the following documents: regional waste management plans, strategic environmental assessments for the regional waste management plans, feasibility studies, cost-benefit analyses, environmental impact assessment studies, detailed designs for the works, needs assessments, market surveys and technical specifications for the equipment and tender dossiers. They are based on previous knowledge and experience of European countries which are at a more advanced stage of waste management, as well as on the country-specific current state. In order to develop optimal solutions, economic, environmental, social and legislative frameworks were considered at every step of implementation of these activities. The preparation of the documentation included various desktop and field researches with two main objectives set ahead:

1. Establishment of a most appropriate integrated WM system, i.e.
    a. Introduction of a two-bin collection system (recyclable waste bin and residual waste bin);
    b. Construction of a modern central WM facility (including landfill for residual waste and other treatment facilities, such as MBT plant, composting facility, WWTP, etc.);
    c. Construction of transfer stations;
    d. Supply of collection and transport equipment;
    e. Development of regional institutional set-up with two main bodies: inter-municipal waste management boards and inter-municipal waste management enterprises.
2. Bringing the obsolete and environmentally harmful practices to an end, including closure and rehabilitation of non-regulated landfills and numerous dumpsites scattered all around the regions.

Special focus was given to stakeholder involvement, implemented across all activities, such as preparation of visibility and communication documents, organizing meetings, workshops, conferences, public consultation events and study tours, as well as raising awareness campaigns (through street surveys, visibility materials, media coverage, etc.)

The basic results concerning integrated solid waste management system for each one of the regions which studied are presented in the following table.

Table 1. Selected Integrated Solid Waste Management System in 4 regions.

Regions	**Pelagonija**	**Vardar**	**Southwest**	**Skopje**
Waste Collection	Two Bin collection system (*Recyclable Waste Bin* and *Residual Waste Bin*)	Two Bin collection system (*Recyclable Waste Bin* and *Residual Waste Bin*)	Two Bin collection system (*Recyclable Waste Bin* and *Residual Waste Bin*)	Two Bin collection system (*Recyclable Waste Bin* and *Residual Waste Bin*)
Green Points	√	√	√	√
Home Composting	√	√	√	√
Residual Waste Bin Treatment	MBT with anaerobic digestion followed by aerobic composting	MBS (Biostabilization)	MBT with anaerobic digestion followed by aerobic composting	MBT with biodrying
Recyclable waste bin treatment	MRF	MRF	MRF	MRF
Green waste treatment	Aerobic Composting	Aerobic Composting	Aerobic Composting	Aerobic Composting
Landfill	√	√	√	√