THE USV ANNALS OF ECONOMICS AND PUBLIC ADMINISTRATION | VOLUME 12, ISSUE 2(16), 2012

STRATEGIC ORIENTATION OF THE SOLID WASTE MANAGEMENT (CASE STUDY KORCA REGION/ALBANIA)

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Abstract:
Waste management (WM) has more and more become an important issue for the entire world, the waste humans are producing are now almost reaching a breaking-point for what the environment can take. This meaning that it is time to look for an effective management system. Almorza et. al (2002) write that since we live in a world that is more and more increasing its awareness, the waste management question has made many politicians and researchers gain interest. The paper is based on the strategy of integrated and sustainable waste management incorporating waste streams such as municipal, industrial wastes, agriculture wastes, hospital wastes and sludge. Integration refers to all mentioned streams and management at all levels resulting in efficient and transparent system, where there is a clear distinction between legislative and enforcement activities at all managerial levels. This paper focuses primarily in general situation of the solid waste in Albania, in analyze the present situation, problems and difficulties The aim is to provide the sustainable development from a global perspective and to design the Regional Strategy of Solid Waste Management. Region of Korca in Albania is chosen as a case study area to design the regional integrated strategy.

Key words: waste stream management, waste hierarchy, integrated management, sustainable development.

JEL classification: A1; R1

INTRODUCTION

In Albania there is little environmental consciousness, and few effective ecological standards. Uncontrolled fly-tipping of various kinds of waste (household, inert, scrap metal, tires, etc.) remains a common sight in surrounding of dump sites. Some backyard waste dumped in the center of cities and rural areas still exist. As a result of the housing demolition and reconstruction effort, existing fly tips are growing and new ones are building up. Further, household waste continues to be regularly dumped especially in communities with their integrated villages. Due to limited financial possibilities, these areas are without any waste management structure. In order to provide a reliable service to the people and to ensure that the financial resources of the donor community are effectively utilized, it is necessary to change the actual waste management system in short term. The general objective is to move away from the quasi-emergency phase towards a sustainable development process. To finally these actions will also provide the necessary analyses for long-term measures. Successful implementation and measures of new waste management strategies requires a clear action plan and approval by involved institutions and persons.

ECONOMY WITHIN THE WASTE MANAGEMENT AUTHORITY IN REGION KORCA

The Region of Korca stretches in the South-Eastern part of Albania. The Region represents an area of 3.697 km^2. Mountains occupy 58 percent of the areas, 17 percent is occupied by hills and 25 percent by fields. The Region consists of 4 districts (Korca, Kolonja, Devoll, Pogradec). Within these 4 districts are 6 Municipalities (Korca, Maliq, Bilisht, Leskovik, Erseka and Pogradec), 31 Communes and 347 Villages.

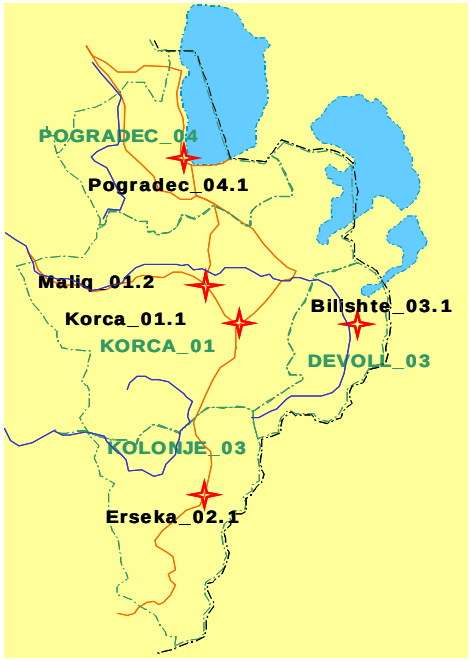

Figure 1- Map of Korca Region
Source: http://www.infoalb.net/01oalbansku/albania-map.jpg

The existing municipal budget for SWM(Solid Waste Management) services is funded through the following sources: i) Central Government (Ministry of Finance and Ministry of Public Service for Dumpsite Operation) ii) Collection Revenues (in some of the waste collection areas not existing) iii) Penalties and fines (still not executed) iv Donations
A missing accounting system prevents a cost center calculation such as costs for primary, secondary waste collection, treatment and disposal. Additionally a gap of inventory list about assets is obvious – therefore it is almost impossible to calculate capital costs. Land costs, values of buildings etc. are not available. Financial gaps are mostly covered by central government's budget.The fee is only collected in cities and the collection rate is below 30%. The collected fees cannot even cover fix- or operation costs at the moment. Only Pogradec has at the moment a overview of a payment structure through an implementation of an electronic accounting system. The following table shows earnings of employees working for the waste management unit in Region Korca

Table 1. Income Structure within Waste Management

	Administration &Technical staff	Technicians	Permanent workers	Temporary workers
Average Salary(LEK)	30.500	23.000	17.000	15.000

The salaries increase yearly by 2% from the primary salaries to compensate the inflation rate. It is obvious that this salary is not sufficient to cover primary costs for living. Therefore most of the employees have additional jobs.

TECHNICAL COMPONENT - WASTE MANAGEMENT

Waste is a serious problem in Region Korca, with long-term impact on environment. Of particular concern are following waste types: municipal, industrial (hazardous and non-hazardous), agriculture, hospital waste. Due to missing minimum standards for site selection actual dumpsites are located on wrong locations with short and long term impacts on the environment. Therefore rehabilitation actions have to be made on these dumpsites to reduce and to prevent impacts on the environment and on the people living close to these hot spots. Municipal Solid Waste generation different studies have based on 0,8 till 0,9 kg/PE/day within urban areas and 0,45 within rural areas.

These figures seem too high. Experience in South East Europe countries show an average rate of waste generation of 0, 65 kg/PE/day in urban and 0,45 in rural areas. According present base line data, 50.150 tons/year of waste is generated in urban and 34.430 tons/year in rural areas.

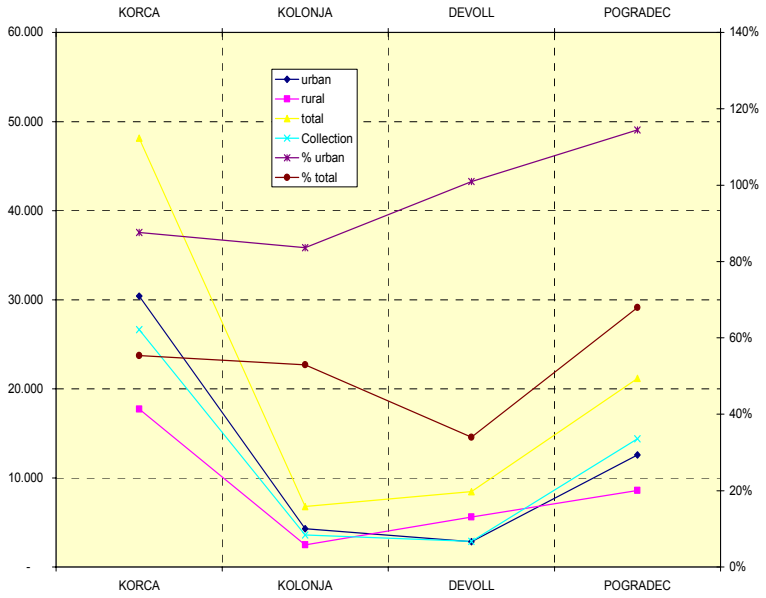

Figure 2.Waste Collection Rate in Urban and Rural Areas

A SUSTAINABLE STRATEGY IS NEEDED TO REALIZE THE AIMS

i) The 'waste hierarchy provides a sensible framework for thinking about how to achieve a better balance between waste minimization, waste prevention reuse and recycling; incineration and landfill;
ii) Measures taken to advance the strategy should take full account of the balance of benefits and costs.
iii) Sustainable waste management is not just a responsibility of government and donors but also of individuals, businesses and other stakeholders.
iv) A conception paper show how these principles can be put into practice. It puts waste reduction, re-use and recycling at the forefront of its reform package together with creating the right environment and new institutional structures to deliver change.

WHAT IS THE PURPOSE OF PREPARING A WASTE MANAGEMENT PLAN?

In short, the main purpose of the planning process is to establish the framework for developing an effective and feasible waste management system, which is socially acceptable, causes minimum harm to the environment and to human health and is in compliance with general development of the territory.

The overall aim of the waste management planning is to promote the development of coherent and appropriate waste planning practices across Albania in accordance with the provisions in the relevant legislation and with good planning practices. The primary target group is the administrative planners preparing waste management plans at region and local (municipality and commune) level; municipalities and waste generators obligated to prepare and issue waste management plans may however also find these guidelines useful. Several other parties such as politicians, contractors, various public organizations and the wider public may also find parts of this

document of particular interest. To regional authorities and local authorities the plan and the planning process is an opportunity to:

i) Evaluate the existing waste management system.

ii) Provide information about waste generation and identify future capacity needs.

iii) To identify the waste problems to be solved and to provide a foundation for a systematic and effective way of solving the problems.

iv) State the objectives and targets of the waste management system.

v) To prioritize restricted financial resources and identify the needs for future funding.

vi) Make sure that the waste management system complies with policies, targets and initiatives at superior levels and in other planning fields.

One of the results of the planning process is first the waste management plan. The plan will function as a structured framework for further in-depth planning of waste treatment and waste prevention for administrative staff and planners. To local authorities and waste generators**,** the regional plans provide a framework for their waste plans and daily waste management. To citizens and enterprises in the territory of concern the preparation of a waste plan provides an opportunity to take part in the planning of the future waste management system, which is also the case of the NGO's whom may contribute significantly to the contents of the plan.

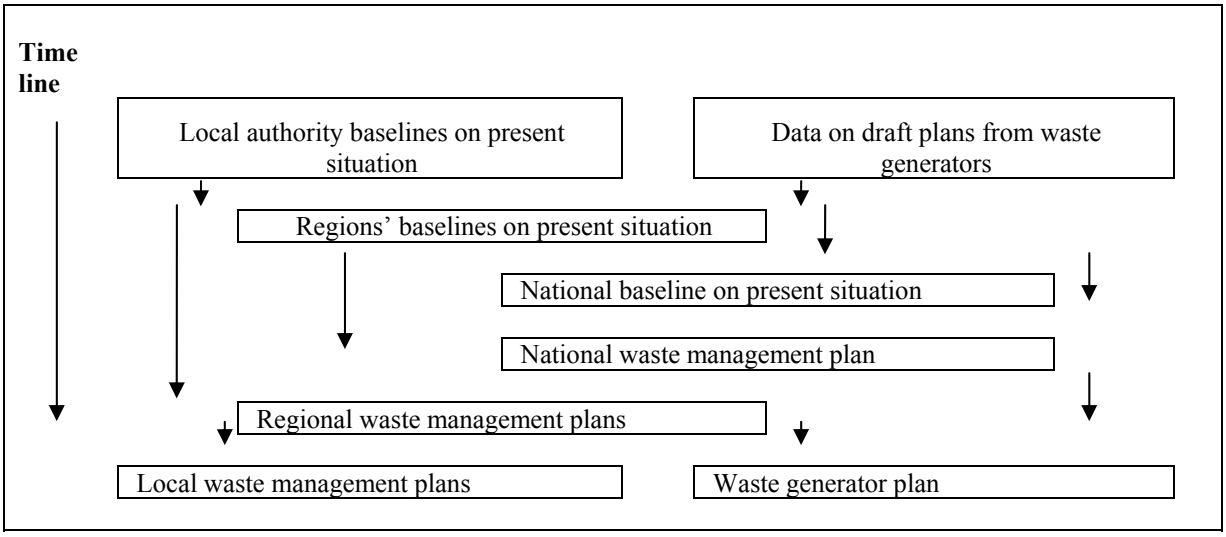

Figure 3. Coordinating the overall process

The figure illustrates a process, which is both bottom-up and top-down. Bottom-up in the sense that authorities at lower levels deliver input to authorities at higher level regarding central aspects of the waste management systems in the territories of concern. Basic descriptions of the systems, waste data, typical problems etc. can be reported bottom-up in order to make a national synthesis and baseline, where from a national planning framework can be prepared. This framework works top-down as authorities at lower level must take into account the decisions made at higher levels. In order to be able to plan the future waste management in the area, it is necessary to have a clear picture of all aspects of the present situation. Therefore, one of the main tasks is to collect all relevant data and information needed for this description. Management – planning and administrative set-up, regulation, monitoring and inspection, reports. Some of the main aspects that

also may be described and analyzed as a part of the baseline description of the present situation in waste management are: Regulatory framework, organizational set-up, service performance, institutional capabilities, and evaluation of the previous plan. Another way to produce information about the present situation in the management of waste is to evaluate the previous waste management plan. An evaluation also helps to integrate previous experiences in the current process of preparing the waste management plan. It should be stated whether the objectives and targets were fulfilled and whether the suitable measures were implemented or not. The objectives, targets and measures from the previous plan should be revised accordingly also taking into account new initiatives etc. Explanations of why targets were not fulfilled or measures not implemented should be given in order to identify deficiencies in the system. The baseline description should end in an identification of the main strengths and weaknesses of the existing situation in the management of waste. Whereas the strengths point to what practices to preserve and enhance, the weaknesses point out where to make improvements of the waste management. Both aspects are important in order to evaluate the present situation in waste management. The description thereby serves as a baseline for the subsequent tasks during the process of preparing the waste management plan.

FORECASTING THE FUTURE OF WASTE GENERATION.

At this stage of preparing the plan a baseline forecast of the future waste generation should be made in order to plan waste management, i.e. to identify the future need for treatment facilities, collection systems etc. and to avoid major environmental impacts. Different factors influence the waste generation and composition, e.g. demographical changes, closing down major industrial production sites, new legislation etc. Some of these factors are external to the region and municipality / commune, i.e. the regions and municipality / commune cannot (or only to some minor extend) influence the development of these factors. In order to assess the impact of the measures included in the plan on the future waste generation the authorities need to know to what extend external factors influence the waste generation. What to forecast? In general, the forecast should provide information on the future generation of waste. Different kind of information may be needed depending on the existing objectives and targets (e.g. it could be appropriate to estimate the amounts of biodegradable waste going to landfills as there is a target about reducing these amounts). This means that it may be appropriate to take into account existing objectives and targets when deciding what to forecast. On the other hand, the forecast may show a need for setting targets in new areas (e.g. if a new production generates wastes not dealt with by existing targets). How to forecast? There is not one method for forecasting waste generation. In short the latest data about waste generation should be used as a baseline for making the forecast and these data should be extrapolated according to the expected changes in the above-mentioned factors. Whereas expected changes in population size and economic performance of the society indicate changes in the total waste amounts, the planned regulatory changes and initiatives and possible technological inventions are more likely to concern the individual wastes and treatment methods. Knowledge of these changes will help to state the presumed development of the individual wastes. As it is impossible to predict the exact changes in the factors influencing waste generation the forecast will be rather uncertain. The aim is to reduce the uncertainty as much as possible. Entities with detailed knowledge about changes in activities that may influence the waste generation could be consulted in order to get their assessment of the future waste generation. That is in particular enterprises producing major amounts of waste or particular wastes, or authorities at lower levels that as a part of their plan preparations also forecast waste generations. If information from waste generators or other authorities is not obtainable the forecast should be based on general information about the development of the above-mentioned factors. When the description of the present waste management situation has been carried out, and possible problems and deficiencies have been identified and the forecast on future waste amounts has been made, it is time for setting up objectives and targets for the future management of waste. Objectives are in this guideline defined as qualitative intentions of “where to go” in the plan period. They clarify the direction of the

development of the waste management system and frame the choice of initiatives both in the long term and in the short term. Targets are defined as measurable quantitative aims specifying the objectives. Objectives and targets are thereby closely related, as a qualitative objective is transformed into one or more quantitative measurable targets. Relevant objectives and targets in other plans as plans at lower authority levels always should comply with plans issued by superior authority levels, objectives and targets in these plans should be identified and adopted by the authorities at lower levels. Compliance with superior plans does, however, not necessarily mean that the lower level plans have to copy targets, objectives and measures formulated by superior authority levels, as these are neither always relevant nor possible to meet at lower levels. On the other hand superior targets may in some cases be too easily met at a lower level and targets that are more ambitious can be set up. If a target is considered impossible to fulfill at a lower level, the plan document should explicitly explain why. Assessment of the different aspects (assessing the economy options, environmental options, social and technical options.) attached to the identified options can lead to decisions on which waste handling should be preferred or which combination of handling methods should be chosen. In order to find out which options should be selected for the final plan, preliminary analyses of the impact on waste generation, environment and economy have to be made. Effective management is necessary to ensure an acceptable level of service for waste management. It must be ensured that: i) The institutional roles and responsibilities are clearly defined ii) Cooperation between authorities is effective iii) Waste management planners are trained. In order to identify whether the targets are fulfilled or will be fulfilled, it is necessary to monitor how the plans are implemented. Monitoring demands: i)Cooperation with state environmental inspectorate ii) Cooperation between municipal /commune and region offices on control with enterprises iii) Continuous registration of waste data as amounts collected, treated etc. iv) Evaluation of the reliability of waste data.

To increase the efficiency of the waste management, both enterprises and the public have important roles. Various initiatives can be taken to raise the awareness about the necessity of proper waste management, and not the least, distribute information about the waste management systems, making it clear and obvious how waste must be collected, stored, transported, recovered or disposed of in the right way. Awareness and information should be part of the plan, and described in details. In practice waste management planning is a continuous process. For practical reasons the planning can however be divided into long-term planning with a time horizon of up till 20 years and short-term planning with a time horizon of up till five years. Long-term planning should ensure that the waste management will be on course for a longer period, and that overall aims are pursued. A central aspect of the long-term planning is to ensure that activities with an implementation horizon longer than 5 years are taken into account and planned in advance. This may especially be the case when planning new major installations, where location, public hearing and consultation with local citizens, environmental impact assessment, design, contracting, construction and testing can exceed 5 years. The long-term part can also state the need for new organizational set-up and it can lay down when information campaigns and other campaigns should be initiated and stipulate initiation of programmers on waste reduction. The short-term part should ensure that the short-term targets and objectives are fulfilled by implementation of the best measures. The short-term part of the plan thereby goes into details about the first five years of the long-term part. It describes the options and specific measures the authority has chosen to realize in order to fulfill the targets and objectives. The parties that are going to be involved in the implementation of the different options should be identified. The plan should state who is primary responsible for the implementation of each measure and the parties to be involved could also be indicated in the plan. Furthermore, a part of the short-term planning is to plan when to implement the measures that among other things depend on their significance for fulfilling the targets and the time needed for further planning and finally implementation of the measure. A waste management system requires substantial funding to secure continuous collection, transportation and treatment of the waste amounts. Separate collection of new waste types may cause new needs for funding. The planned waste management system will most often also imply major investments and recurrent costs to maintain the waste collection

system, transportation etc. The authority should specify the budgeted expenditures and revenues in the field of waste management in the short-term period of the plan distributed on relevant entries. If information is available, other economic aspects of the plan may be considered. As mentioned economic indicators can provide useful information about the economic efficiency and make it possible to compare the costs of different systems. Other calculations may also be of importance to assess the efficiency and performance of the system as well. When the plan has been finalized and disseminated, the implementation of the plan begins. Besides implementing the measures indicated in the action plan, regularly reviews of the implementation and monitoring of the performance of the waste management system is needed if the plan is to be an effective and active instrument in waste management and not just another dusty document on a shelf. The time and activity schedule for the plan provides a framework for the implementation phase as it shows the tasks to be carried out, the persons or organizations responsible for the implementation and a time schedule for the implementation of the initiative. As such implementation is simply about conducting and carrying out the measures in the plan. Implementation is, however, not as simple as that and before carrying out the measures more planning may be needed. Each of the measures can be considered as a task involving planning to some extent, which means that some of the recommendations given in this document also can be applied to more limited planning tasks. Depending on the size and complexity of the task relevant parties for its implementation e.g. have to be pointed out and involved, and terms of reference including time and activity schedules may have to be prepared. Monitoring and review of the waste management performance is an important element in measuring the influence and success of the plan and will ensure that the plan continues to be effective and delivers the improvement in waste management in the area. By monitoring the fulfillment of the objectives and targets during the plan period the effects of the plan and the need for additional initiatives can be assessed. If targets are neither quantified nor measurable, indicators those are able to indicate changes in the subject of concern should be identified and measured. (E.g. a target may be to raise public awareness, but as this is a rather ambiguous target, measures such as percentage of population participating in collection systems or the like may indicate levels of awareness). The developer is obliged to ensure the monitoring and evaluation of the environmental impacts of approved waste management plan or to apply the existing monitoring systems to provide: Systematic monitoring and evaluation of the environmental impacts. Expert comparison of the environmental impacts defined with the real impacts experienced during the plan implementation. According to the legal obligation the developer is also obliged to implement a new mitigation measure if it is proved that the environmental adverse impacts assessed in EIS (Environmental Institution Services) are more significant than it was stated in the EIS. The obligation for the plan developer is to ensure the changes, supplements or rewriting the waste management plan, if necessary. What is very important to keep in mind is that the competent authority to lead the EIA process and to develop the waste management plan is the same; the main review of the plan takes place when preparing a new plan, but regularly, minor reviews should also be carried out during the implementation phase. The plan should nevertheless be revised if radical changes in the waste situation or waste management system occur. Radical changes could be new information about dangerous environmental or health impacts from certain waste types or waste treatment methods. But also if basic assumptions or preconditions for the plan change radically a new plan or amendments to the one in force may have to be prepared.

CONCLUSIONS

To be successful, the strategy needs: i) A stable long term economic and regulatory framework. ii)This should include significant increase in the fee collection rate and financial incentives for households to reduce and recycle waste in a environmental sound manner “polluter pays principal” iii) A package of short to medium term measures to put Albania and its regions on the path to more sustainable waste management including measures to reduce the amount of waste.

iv**)** Investment in recycling infrastructure and support for new alternative waste management technologies → reduction of capital investment (landfill).

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