

Title: Waste management curricula development based on the enhancement of public-private partnership

Acronym: WaMPPP

The Waste Management Strategy in Republic of Serbia represents the basic document that provides conditions for rational and sustainable waste management in the Republic of Serbia. It is logical to expect that the same should be supported by a larger number of implementation plans for the management of various waste streams (biodegradable, packaging, etc.). Determination of economic instruments and financial mechanisms is necessary to ensure a system for domestic and foreign investment in the long term sustainable activities. It should be emphasized that the strategy considers the need for institutional strengthening, development of legislation-by implementing regulations at all levels, education of the entire population as well as the educational profile that will deal with the problem of waste management and the development of public awareness, which at this point in the Republic of Serbia is not the case.

The official policy of the Republic of Serbia's is joining to EU. For that reason, all waste management systems must include the main requirements of EU directives in that field. Two key requirements are: the waste can be deposited without the previous treatment, and the second requirement is that the amount of biodegradable waste must be reduced in the next period compared to the amount that was deposited in 1996. These two requirements are critical and are incorporated in the introduction of all parts of plan in Serbia.

According to statistics, less than 60% of Serbia's population was covered by organized waste collection. Now, that number increased to 72 percent, and authorities expect to achieve by the end of the year the percentage of planned National Waste Management Strategy of 75 percent.

It should be noted that in the Republic of Serbia there is an actual Waste Management Act (2009) which is clearly defines local and regional waste management plans. This law has provided an opportunity to somewhat initiate an economic development in economically less developed regions of Serbia.

The network of recycling centers in Republic of Serbia is in expanding. The ambitious plan has been made during 2012, by which more than thirty recycling centers will open in Serbia in addition to the seventeen existing.

However, the need to point out that most of the center of the above mentioned, deals exclusively with the selection of secondary waste, while the primary waste selection is applied only in few places like Indjija, Uzice, and Zajecar.

Further suffice is to point out that according to official data in Republic of Serbia there are only seven authorized institutions that have examination of the waste. The Group for the recycling waste and scrap metal (the biggest in this sector) has 63 registered legal entities, which in comparison to the examples of

good practice in the region is not enough. So far, in Serbia permits for waste management (collection, transport, treatment, storage and disposal), received over 1000 operators.

The reasons are manifold, and a good part of the responsibility lies with insufficient coverage of the area within the higher education system.

The contribution of higher education in this area cannot be considered adequate. A careful analysis of the results of accreditation in previous period indicates that in the Republic of Serbia in the higher education system, there is no accredited programs for waste management, and not even one module. The area of waste management is covered with maximal three to four subjects including compulsory subjects that appear in the field of recycling technology. In the sector of vocational education this area is covered within the 12 study programs in the field of environmental protection at twelve institutions. Within the mentioned study programs the waste management area is covered by the maximum of three courses.

This situation in this area seeks adequate reaction, because capacities in every aspect are not nearly utilized in accordance with the possibilities.

Definitely, higher education needs to assume its role and that the transfer of knowledge and technology on the one hand and raising broader social consciousness with others, improve the situation in this area.

Through capacity building in the area of higher education, the three institutions of higher education vocational orientation: the college of applied technical sciences Nis, the College of applied technical sciences in Arandjelovac and College of applied technical sciences Novi Sad with the Faculty of occupational safety Nis, in the coming period will jointly reform the existing and accredit new curricula in the first and second degree studies in the field of waste management and develop a procedures for the productive waste management (modules at first level of study, a new curricula at the second cycle). The objectives of the new study programs will be in accordance with the conditions improve in this area and will be aimed at implementing new methods, or securing the effective transfer of knowledge, skills and technologies in this area

Curriculum will be based on examples of good practice in higher educational institutions in countries in the region that have evident successes in this area. Teaching materials will respond with actualities in this area and will be followed by modern IT learning implementation methods.

It will also launch a unique web portal that will follow the current events in this area and that will be directed to rise a general awareness of the population about the importance of improving the situation in this area and professional or economic population. That would lead to the goal, improvement of technical and technological solutions and their faster involvement in economic processes. Also, the modern database will be developed with an overview of the software environment, technical solutions, and review of the situation in terms of primary selection of waste per region in Serbia.

The aim of the said database will be encouraging local governments to actively approach to the fulfillment of its obligations defined by strategy.

Special attention will be paid, to the creation of new programs of practical training employees in this field through courses, seminars and lectures. The aim is to increase their productivity and prepare for the introduction of new technical and technological solutions. In addition to the special attention devoted to primary and secondary schools through interesting and educational lectures and workshops, to acquire basic knowledge and habits early to recognize the recyclable waste and carry out primary selection of household waste. Also, marginalized populations will be touched by the collector of secondary raw materials with the aim of the rise of their consciousness about importance and possibilities.

Also, improvement in this area requires more professional and academic support to economic entities which would be realized through the establishment of centers for waste management and testing in Nis, Novi Sad and Arandelovac. These centers would be able to perform an appropriate measurement and testing in accordance with standards.

Finally, special attention should be devoted to cooperation and the development of partnerships with businesses associates through: creating an efficient model of professional practice based on the dual model of education, further application of knowledge and skills and joint appearances to third parties should be used for the enhancement the partnership between public and private sector.

Based on the above we can define the following:

General Goal: improvements in the field of waste management through the development of partnership of high education and the economy in terms of allowing you to accelerate the transfer of knowledge, competencies and technologies through the development of modern curriculum based on real needs for a competent workforce for the development of society, the region and the reduction of poverty.

Specific objectives: Improving cooperation and implementation of technical and technology solutions through the modernization of the teaching process, developing and modernization curricula, the application of ICT technologies, increasing the level of IT literacy in this area, and creating opportunities for professional development of employees. Developing training materials for the work force in waste management sector in Serbia and region, Creating a sustainable model of professional practice through the development of higher education.