

## SUMMARY

This technical report includes:

- i. detailed description of the methodology that was developed for the assessment of the household composting process as well as for the evaluation of the quality of the compost that was produced during the pilot implementation of the program in the three Municipalities – partners
- ii. analytical presentation, processing and assessment of the results that were obtained from the laboratory measurements and analyses
- iii. conclusions that were gathered through the analysis and the evaluation of the the results that were obtained.

In particular:

1. The procedure for the collection of the compost samples from the households is presented
2. The methods that were applied for carrying out the measurements and analyses for the determination of:
  - the composition (qualitative and quantitative) of the organic kitchen waste that are used as a substrate for the household composting (determination of the parameters: moisture content, total carbon - % C<sub>org</sub> total organic matter - % OM , total nitrogen - %N και C/N ratio)
  - the main operational parameters of the household composting process (temperature, oxygen and moisture)
  - the quality of the compost that was produced using the composters that were located at the household of the three Municipalities (determination of the parameters: moisture content, % C<sub>org</sub> , pH, %N, C/N, Na, Mg, Ca, K, Cu, Cr, Ni, Zn, Pb and phytotoxicity)
  - the quality of the compost that was produced using the composters that are installed in the laboratory of the Unit of Environmental Science and Technology (determination of the same set of parameters as in the case of the compost that was produced in the households. Additionally, alternative combinations regarding the type and the quantity of additives were examined such as individual use of Greek

zeolite (dosage of 5% and 10% w/w), sawdust (dosage of 5% and 10% w/w), mature compost (dosage of 5% and 10% w/w) and their combinations.

3. The results that were obtained are presented, discussed and assessed in detail and then conclusions are drawn. Synoptically:

Regarding the organic kitchen waste, the results shown that the majority of them are considered as appropriate for use as composting substrate. Nevertheless, some of them have C/N ratio lower than the optimum one. As a result, when these type of waste are used, it is suggested to be used together with materials of higher carbon content.

Concerning the main operational parameters of the household composting process, the results indicated that the temperature which is developed in the copmosters is adequate. Initially, relatively low temperature values are observed which increase during the development of the process, reaching values that are favourable for supporting the composting as well as for elimination of the pathogen microorganisms that may be developed. In addition, in some cases, the moisture content was increased and a small quantity of sawdust was added in order to adjust it at the optimum level. Finally, the oxygen content was efficient for the development and continuation of the favourable aerobic conditions of the process.

The quality of the compost that was produced in the households is high and in accordance to the quality standards that are set for its use. Only in few cases (in the first cycle of the pilot implementation) the quality of the compost was not quite good due to operational problems that were observed during the development of the process (some householders were not familiar with the use of the composter). With the assistance of the members of the working groups, the operational problems were solved and the compost that further produced was of a high quality.

Regarding the compost that was produced using the composters that are located in the Laboratory, the results shown that by using additives (zeolite, sawdust and mature compost) the quality of the product is improved further and the process become more efficient. In addition, from the overall results that were obtained it is concluded that the

optimum combination of additives is 5% zeolite, 5% sawdust and 5% mature compost, since it leads to the optimization of the process and the production of high quality compost (the best results were obtained with the use of the minimum quantities of additives, in combination).