

## PREFACE

Generation of liquid and solid waste is an unavoidable consequence of any human life-sustaining or economic activity. The problems that waste causes, and especially economic utilisation of waste or reduction of its negative impact on the environment, have become an important issue all over the world. According to the regulations binding in the European Union, waste should be mainly recycled or utilised. The least desirable solution is the disposal of waste on landfills. When waste facilities (landfills or wastewater treatment plants) are inappropriately located, constructed or maintained, they often have an adverse influence on the environment. Among the most severe problems is the migration of pollutants from waste to surface and subsurface water, which is the main source of potable water for people. The problem of water contamination should be treated as a priority because water resources, once contaminated, will take many years to be purified and, in many cases, cannot be successfully treated.

The rapidly increasing amounts of produced waste and stricter regulations on the environmental conservation mean that the processes of wastewater treatment or waste utilisation need to be improved. It is now a general tendency all over Europe to produce composts from sewage sludge and municipal waste, because these two types of waste are a source of mineral and organic substances, which are valuable for soil fertility. It is obvious that this tendency will also feature more strongly in Poland. However, both types of biowaste create a series of problems related to potential contamination of the environment. Sewage sludge from WTPs in small towns and villages has better properties as fertilizer and is much safer for the environment than waste treated in large urban agglomerations, especially the ones in industrial regions. Similar problems arise with respect to composted unsegregated municipal waste. Although both types of waste have many positive attributes, in Poland composted waste is not readily used for soil fertilization. The concern such waste use raises is to some extent justifiable because this type of waste is often characterised by levels of toxic substances that exceed the norms. The value of sewage sludge or soil waste composts is deteriorated mainly by the presence of heavy metals and such xenobiotics as PAHs, PCBs or alcylophenol derivatives. The permissible level of some xenobiotics in soil, e.g. trace elements, is strictly defined and any excess over the threshold limit is dangerous to biological life. Therefore, it is most recommendable to undertake research on suitability of composted waste for fertilization, land reclamation or regeneration of soils in environmentally degraded areas. An important component of the research on possible environmental utilisation of composts produced from sewage sludge or solid waste is monitoring, consisting of quality checks based on analyses of the content of these compost constituents, and xenobiotics in particular, which can migrate to ground and surface water.

The present monograph contains the results of studies on utilisation or environmental use of various types of waste. Both positive and negative aspects of waste influence on the environment have been raised and discussed.

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