Environmental Technologies Institute – Research Programmes details

**1. Research of the energy utilization of waste**

This activity focuses on the study of technologies for liquidating non-materially utilisable mixed waste and generating energy from its thermal content, not only via thermic technological processes (incineration, gasification or pyrolysis to generate energy), but also on cold processes – meaning anaerobic processes of fermentation or cofermentation of biodegradable wastes (agricultural, food processing etc.) with other types of waste, especially organic waste which cannot easily be processed in other ways, using the resulting biogases to cogenerate electrical and heat energy.

**2. Research and development of new technologies for the processing of waste products from the energy utilization of waste**

This activity focuses on the study of technologies for the processing and/or liquidation of waste products from the thermal, possibly anaerobic waste processing. This mainly concerns gases (which will thus logically form the centre of attention in this research activity), but also includes solid incineration, pyrolysis and gasification residues and various polluted liquids (e.g. waste water from the wet flue gas cleaning), digestates and odour compounds. This activity will involve the construction of specialist research laboratories equipped with high-powered modern instrumental equipment which will create a high-quality operational and technical laboratory facility enabling the introduction of new progressive research methods and new application technologies. The implementation of this goal will create the necessary conditions to achieve the goals of the research, improving the quality and applicability of the outputs.

**3. Research of environmental impacts of environmental technologies**

This research programme involves the study of the impacts of industrial waste processing technologies on the environment. The activities within this section are directly related to the activities of the project applicant (VŠB-Technical University of Ostrava). The individual activities within this section will focus on the nature of water and air pollution and on the impact of this pollution on the living and non-living environment. The main focus of the research in this section will be on technologies for the processing of non-recyclable waste which offers realistic potential for energy production from its enthalpy. Problems connected with air and water pollution and the negative impacts of industrial waste will be examined comprehensively; this project involves the participation of biologists, chemists and biophysicists. This unique approach will create a theoretical basis for the application of human- and environmentally-friendly technologies.