

The institution	Name: Institute of Environmental Engineering of the Polish Academy of Sciences
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Is interested in the **participation in a project** that will be prepared and submitted in the following **Area** of the **Thematic Priority 6 Environment** from the Specific Work Programme Cooperation:

Specific Programme	Cooperation
Thematic Priority	6 - ENVIRONMENT (INCLUDING CLIMATE CHANGE)
Activity (number & title from the Work Programme)	6.1. 6.2. -Sustainable management of resources. 6.3. - Environmental technologists
Sub-priority (number & title from the Work Programme)	6.1.1- Pressures on environment and climate. 6.1.2 -Environment and health 6.2.1 - Conservation and sustainable management of natural and man-made resources and biodiversity 6.3.1 - Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment
Area (number & title from the Work Programme)	6.1.1.2 - Emissions and pressures: Natural and anthropogenic 6.1.2.1 - Health effects of exposure to environmental stressors 6.2.1.2 - Water resources 6.3.1.1 - Water 6.3.1.2 - Soil 6.3.1.3 - Waste
Call (number & title from the Work Programme)	ENV.2007.1.1.2.1. Megacities, air quality and climate. ENV.2007.1.2.1.1. Indoor air pollution in Europe: an emerging environmental issue. ENV.2007.2.1.2.1. Assessing the ecological status of water bodies ENV.2007.3.1.1.1. Innovative technologies and services for sustainable water use in industries. ENV.2007.3.1.2.2. Development of technologies and tools for soil contamination assessment and site characterisation, towards sustainable remediation. ENV.2007.3.1.3.1. Development of integrated waste management technologies for maximising material and energy recovery/ recycling of the organic (humid) fraction of municipal solid waste.

Short description of the organization expertise relevant to the topic (e.g. staff, areas of expertise and research)

The scientific outcome of the Institute during its history comprised ca 2900 publications, including 75 monographs and books. The average annual number of publications accounts for 100 - 150, including 3 - 5 monographs and books. During 40 years the Institute promoted 110 scientists to Ph.D. degree in Environmental Engineering, not only from its own staff, but also from other institutes, universities and the industry, both from Poland and also from abroad (for example, from the USA and Greece). 20 scientists from the Institute received their D.Sc. (Dr. habil.) degrees and the titles of a professor.

Currently the Institute employs 68 persons, including 25 scientists (4 professors).

Besides of its basic research activities, the Institute provides also a vast number of applied expert studies for the industrial customers. Since its foundation, the Institute cooperated with more than 500 organizations from the industry, the public administration, or other business companies.

In particular, the research topics cover the following areas:

1. development of technologies, instruments and equipment for environmental protection;
2. environmental impact assessment of the industry and transport;
3. development of guidelines for restructuring and modernization of industrial enterprises in compliance with the environmental protection requirements;
4. assessment of conditions to be fulfilled to meet the limits of acceptable pollutants emission;
5. evaluation of soil, water and plants contamination;
6. development of viable preventive and remediation measures;
7. other problems of the environmental engineering and bioengineering.

Research activities

- mechanics and physico-chemistry of pollutant generation and identification of its origin,
- transport and transformation of pollutants in the environment,
- methods of particulate matter and gaseous air pollutants' emission control,
- methods of pollutants removal from waste gases,
- viable methods of wastewater treatment and water purification for industrial, agricultural and recreational purposes,
- assessment, prevention and control of non-point sources of contamination impact on the terrestrial and aquatic environment,
- impact of environmental pollutants on the soil and plants,
- industrial and municipal waste recycling, utilization and management,
- reclamation of solid waste dumping sites and areas degraded by industry,
- studies on environmental contamination pathways,
- comprehensive assessment of industrial impact on the environment,
- assessment of transportation means and infrastructure on the environment, including highways;
- ecological effects of energy conservation.

Proposed contribution to the selected Sub-Priority:

Climate change, pollution and risk:

- pressures on environment and climate - pollution in air, soil and water, changes atmospheric and water cycle
- environment and health - interactions of environmental stressors with human health including identification of sources, links to indoor environment, urban environment, car emissions and impact and emerging risk factors,
- natural hazards - integrated hazards and risk assessments for disasters related to climate, forest fires and other related extreme events, develop early warning systems and improve prevention, management strategies,

Sustainable Management of Resources:

- Conservation and sustainable management of natural and man-made resources and biodiversity - waste management and prevention, protection and management of biodiversity, post-industrial zones,

Environmental Technologies:

- environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration for natural and man-made environment - related to water, climate, air, urban and rural environment, soil, waste treatment.
- technology assessment for observation - methods and tools for environmental risk and lifecycle assessment, scientific and technological aspects of a future European environmental technologies verification and testing programme.

Participation in relevant projects (e.g. National Projects, FP5, FP6, INTERREG, LIFE, etc.; acronym & title):

Acronym: MAGPROX

title; Screening and monitoring anthropogenic pollution over central Europe by using magnetic proxies.

Funding Programme: FP5

Acronym: SOWA

Title: Integrated Soil and Water Protection

Funding Programme: FP5

Acronym: E2SP

Title: Environmental Enterprise Service Provider

Funding Programme: e-TEN

Relevant Publications (*Authors, title, editor, year*):

Klejnowski K., Pyta H., Czaplicka M., Distribution of selected PAHs concentration in urban agglomerations of the Silesian voivodship, *Fresenius Environmental Bulletin*, 2002, nr 2, s. 60-66.

Magiera T., Strzyszczyński Z., Kostecki M., Seasonal changes of magnetic susceptibility in sediments from Lake Żywiec (South Poland), *Air Water and Soil Pollution*, 2002, nr 1-4, s. 55-71.

Magiera T., Strzyszczyński Z., Czaplicka M., "Hot spots" on the map of magnetic susceptibility of soils in Poland as potential areas of soil and groundwater contamination /w/ *Tübinger Geowissenschaftliche Arbeiten (TGA)*, D. Halm, P. Grathwohl (eds.), Tübingen, 2003, s. 121-126.

Oleszek-Kudlak S., Grabda M., Czaplicka M., Rosik-Dulewska Cz., Shibata E., Nakamura T., Fate of PCDD/PCDF's during mechanical-biological sludge treatment, *Chemosphere*, vol. 61, 2005, s. 389-397.

Rosik-Dulewska Cz., Environmental impact of sewage sludge application for non-industrial purposes /w/ *Environmental Engineering Studies. Polish research on the way to the EU*, Pawłowski L. (edit.), Kluwer Academic, New York, 2003, s. 259-271.

Rosik-Dulewska Cz., Karwaczyńska U., Dynamic of Changes of Pollution Underground Waters Parameters in Range of Non-Sealed Municipal Landfill Pression, *Polish Journal of Environmental Studies*, 2004, vol. 13, Supplement III, s. 206-214.

Twardowska I., Assessment of pollution potential from solid waste /w/ *Solid Waste: Assessment, Monitoring and Remediation*, Twardowska I. (edit.), Elsevier, Amsterdam, 2003, s. 173-205.

Twardowska I., Schramm K.W. and Berg K., Sewage sludge /w/ *Solid Waste: Assessment, Monitoring and Remediation*, Twardowska I. (edit.), Elsevier, Amsterdam, 2003, s. 239-295.

Twardowska I., Tripathi P.S.M., Singh G., Kyzioł J., Trace elements and their mobility in coal/fly ash from Indian power plants in view of its disposal and bulk use in agriculture /w/ *Chemistry of Trace Elements in Fly Ash*, Sajwan K.S. (edit.), Kluwer Academic, New York, 2003, s. 25-44.

Twardowska I., Stefaniak S., Fly ash as a sealing material for spontaneous combustion and Acid Rock Drainage prevention, /in/ Sajwan K. S., Twardowska I., Punshon T., Alva A. K.: *Coal Combustion Byproducts and Environmental Issues*. Springer, New York, NY, USA, 2005, s. 33-40.

Other relevant information: