

Letter of intent

Re: Call ERA-NET ERA-MIN: "**Sustainable and responsible supply of primary resources**".

This is to express the willingness of the Główny Instytut Górnictwa (GIG), in English: Central Mining Institute in Katowice, Poland, to participate in the project proposals to be submitted under the above mentioned Call in the following topics:

- A. Exploration**
- B. Extraction**
- C. Mine closure and rehabilitation**
- D. Minerals processing**

GIG, created in 1945, is a Polish governmental research institute involved in problems of mining engineering, safety in mines and environmental protection in the hard coal mining sector. The multidisciplinary activities of the Institute comprise the following fields: • mining engineering, geology and hydrogeology, geophysical engineering, • combating natural and technical hazards in the mining industry, • upgrading and utilization of minerals and reserves, • monitoring and environmental protection in areas of mining exploitation, especially industrial waste management, certification of equipment and materials.

A part of the Institute constitutes the Experimental Mine "Barbara" in Mikolow, established in 1925 - the only one experimental mine in Europe, carrying out researchers relating to coal dust and methane explosion hazards, working also on the solution of mine rescue problems.

Web site: www.gig.eu

GIG has extensive experience of acting as partner and co-ordinator in more than 30 international projects realized during last years. The most important ones are listed below:

Reduction of CO₂ Emission by Means of CO₂ Storage in Coal Seams in the Silesian Col Basin of Poland (Management of GHG emissions) – RECOPOL

Regeneration of European Sites in Cities and Urban Environments - RESCUE

Development and optimisation of efficient systems for the monitoring of gateroad support under the influence of rock stress - MONSUPPORT

CO₂ Geological Storage: Research into Monitoring and Verification Technology - CO₂ ReMoVe

Monitoring and verification of CO₂ storage and ECBM in Poland - MOVECBM

Hydrogen oriented underground coal gasification for Europe - HUGE

Management of Groundwater at Industrially Contaminated Areas - MAGIC

Improved extraction ratios for deep coal mines - IMPREX

Flooding Management for underground coal mines considering regional mining networks - FLOMINET

Innovative Technologies and Concepts for the Intelligent Deep Mine of the Future - I²Mine.

The tasks would be performed by at least two of our laboratories:

The Laboratory for Mineral and Waste Processing

Proposals of research activities

The laboratory has experience mainly in the scope of research on hard coal processing as well as waste materials. The laboratory disposes of modern laboratory equipment as well as full test stands for research on selected unit processes, mainly concerning solid-liquid separation processes, like:

- Screen –bowl and sedimentation centrifuge,
- Chamber filter press ,
- Filter belt press,

We also look for new ways of usage of modern electron microscope (Hitachi) and the devise MorphologyG3 (Malvern) equipped with the Raman attachment. This instrument enables the recognition of the size and shape of grains as well as its chemical composition. We also dispose of a high temperature optical microscope and a viscometer with the range of temperature of measurement conditions up to 1600°C.

The Laboratory for Deposit Geology and CO₂ Storage

Proposals of research activities on deposit geology

The assessment and determination of the hard coal resource base for:

- Underground coal gasification,
- Perspective purposes – under the depth of records of deposit in the area of active collieries,

Deposits remaining after collieries closure.
Recording of deposits of methane absorbed in coal seams (CBM) – as a main and associated mineral
The assessment of methane resources,
Simulation techniques for methane extraction (from the surface, and from underground),
The determination of the potential for CO₂ storage in coal seams, as well as the methane recovery (ECBM).
The determination of the ways of methane migration in the process of colliery closure
The prognosis of potential ways of migration,
Risk assessment,
Geochemical monitoring of the surface area.

We would be obliged if you kindly take into consideration our express of interest.

Looking forward to hearing from you soon,

With best regards,

Contact person:

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Team of Programming and Coordination of Research

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