BIOMEG is **an interdisciplinary applied research project** in the field of agriculture and food safety, focused to complex correlations established between:

– *heavy metals contaminated soils (Pb, Cu, Z, Cd)*
– *their bioaccumulation's mechanisms in vegetables*
– *the use of zeolites for decrease of heavy metals contamination of agricultural solis*
– *impact of heavy metals on children's health and formativ performance.*

Projects includes activities in the fields of:

1. Assessment of heavy metals pollution levels of soils and cultivated vegetables on them:

- Sampling of soil and air along of colecting network in Baia Mare area, oriented from pollutant sources to unaffected areas. The samples will be analyzed physically (texture, structure, specific density and hydrophisics indicators) and chemically (sedimentable powders in air, pH, humic acids, SB (total basis), Ah (hydrolitical acidity), T (cationic exchange capacity), V (saturation level in basis), total content in N, P, K, heavy metals (Pb, Cu, Zn, Cd). Due to correlations between physically and chemically parameters of soil, meteorological conditions specific of area (termic and pluviometric levels, predominant winds, thermal inversion) dispersion charts will be designed and the most vulnerable to contamination areas will be identified.

- Selection of maxim polluted area, where specific vegetables of studied area (salad, potatoes, onion, radish) will be cultivated. During their vegetation cycles, different parts (roots, leafs) will be collected, biologically and biochemically analysed in order to show the plants diseases generated by heavy metals (necrosis) and the content and repartition of heavy metals. Soil samples the vegetables are cultivated on, also will be microbiologically and physically and chemically analyzed (parameters above mentioned) to establish the soil microbiota, total content and bio-available fraction of heavy metals.

- Starting from above mentioned parameters, will be identified:
  - the efficiency of zeolit
  - the cost involved in aplication of method using zeolit to reduce the heavy metals contamination of soils

- accumulations' pathways and mechanisms of heavy metals in vegetables' tissues, heavy metals contamination charts of vegetables and the most agricultural areas vulnerable to pollution.

2. Medical and formativ performance (learning capability) evaluation study assess the impact of heavy metals on the children's organism and on formativ performance.

The study will mention the penetration pathways of heavy metals in children`s body, the level of microelements required by organism, the influence of shortage/excess of these elements on human's organism. It will be selected the children beetwen 3-14 years old from two zones:

- one contaminated zone – Ferneziu, and

- one uncontaminated zone as martor zone – Calinesti,

bouth from Maramurs county).

The study will involved ~200 childrens shared out to three age orders (childrens under school age, pupil from elementary school and pupil from gymnasium). In the study it will be applied the tests recognized by Roumanian Psychologist Association.

3. Dissemination of results: web page, sctientific publications, work-shop, mass-media, CD prezentation, submitting a FP 7 proposal

4. Actions for human resources preparation (specialist research worker and young research worker) with the object to increse the competition in the field of research/development, for the successful participation at international competitions PC 8, INTAS, INTERREG.

5. Project management actions: decidedly flow, meeting and comunication between consortium's partners, communication with the funding institution, coordination of each steps and activitiy.