Step I. Establishing of organizing and methodological frame of the project

Activity I.1.Experimental and operational protocol processing by correlation of partners' activities in order to reach the project objectives (*UNBM,SCDAL,UO*):the gold is meeting at Baia Mare of consortium's partners to recognize the particularities of studied area and common agreeing the project' s evolution in generally and the first step particularly.

Activity I.2. Identification, inventory and characterization of actual sedimentation ponds in area Maramures (Baia Mare). Synthesis of actual data regarding the influence of sedimentation ponds in pollution of neared areas. Assessment of implementation of European laws in environment issue for studied area (UBM,SCDAL,UO): will be inventoried and technical description (foundation, structure, physically/chemically, etc.) the sedimentation pond from Baia Mare area; presentation of rehabilitation action, description of ecological accidents, impact on environment, rehabilitation of polluted areas; a synthesis of bibliographic data about sedimentation ponds' rehabilitation methods will be approached and also aspects regarding implementation of European legislation in environment field.

Activitaty I.3. Equipment and material acquisition (*UNBM, SCDAL, UO*): involves the equipments, the reagents and the material required by the future research activities.

Activity I.4. Web page building. Elaboration of reporting documents for step I (UBM, SCDAL, UO): web page of the project will be build and permanently up-graded with information about the project evolution.

Step II. Collecting of waste soil and vegetal samples from the surface of sedimentation ponds for physic-chemically-biologically analysis. Creating of database with obtained information

Activity II.1. Establishing of monitored area. Field work and setting the sampling network, according the objectives (UBM, SCDAL, UO): a study area from the surface of the pond will be chosen; the area will be charted using GPS; the sampling points and their coordinates will be settled.

Activity II.2. Sampling of soil and vegetable from the pond (UBM): soil samples will be collected from the surface and depth (50 cm) and also vegetable samples spontaneously grower-up; samples will be marked, stored in optimal conditions to avoid contamination and send to be analyzed.

Activity II.3. Physic-chemically analysis of soil and vegetable samples, biological and phytosanitary analysis of inventoried plants; creating of database with obtained results (UBM,SCDAL, UO): soil samples will be analyzed physic-chemically-microbiologically to establish:pH, electrical conductivity, capillarity, porosity, humidity, granullometry, specific surface, density, heavy metals content and speciation of heavy metals chemical combinations, organic and inorganic carbon content, N, P content, soil micro biota; for vegetable samples will be studied: phytosanitary condition (necrosis, vegetal density, etc.) in order to correlate health conditions and biological evolution with heavy metals content; vegetal species will be chosen with high adaptability to the particularly conditions of studied pond.

Activity II.4. Equipment and material acquisition (*UNBM, SCDAL, UO*).

Activitatea II.5. Up-dating of web page. Elaboration of reporting documents for step II (UBM,SCDAL,UO).

Step III. Developing of bio-accumulation test at laboratory level previous pilot level. Establishing of improvement solutions in order to decrease the bio-accumulation rate of heavy metals. Selection of optimal species with high adaptability

Activity III.1.Establishing of improvement solutions at laboratory level using amendments in order to lock the bio-accumulation of heavy metals by plants. Using of zeolite, with different activating forms and mixed with the waste soil in different reports: the study will be perform in static/dynamic conditions in order to simulate the natural processes; laboratory tests will be done to monitories the evolution of selected vegetal species using as support different mixtures: soil/zeolite and varying some parameters (soil/zeolit mixing ratio, activation form of zeolite) in order to established the optimal condition for developing of vegetal selected species.

Activity III.2. Establishing of mathematical correlation between involved factors in bio-accumulation of heavy metals by the plants with high adaptability, in amendments utilization conditions (UBM,SCDAL,UO): based on performed analysis, some correlations between monitored parameters will be done and mathematical models for bio-accumulation of heavy metals in plants will be described.

Activity III.3. Equipment and material acquisition (UBM,SCDAL,UO).

Activity III.4. Up-dating of web page. Elaboration of reporting documents for step III (UBM,SCDAL,UO).

Step IV. "In situ" application of methodology and procedures established for rehabilitation of sedimentation ponds

Activity IV.1. Selection of area for practical implementation of the procedure. Obtaining of required protocols for activities developing from pond owner **(UBM):** a degraded area from the studied pond damn will be selected for rehabilitation.

Activity IV.2. Practical application of rehabilitation methodology. Amendments application and growing of optimal vegetal species on pond surface (UBM,SCDAL,UO): on selected area zeolite amendments will be applied, according to optimal method established at laboratory level and selected vegetal species will be seeded.

Activity IV.3. Monitoring for time evolution of rehabilitated area (UBM,SCDAL,UO): periodically, soil and vegetable samples will be collected and analyzed in order to monitoring the time evolution of physic-chemically-biologically parameters.

Activity IV.4. Equipment and material acquisition (UBM,SCDAL,UO).

Activity IV.5. Up-dating of web page. Elaboration of reporting documents for step IV (UBM,SCDAL,UO).

Step V. Dissemination actions of the project' results

Activity V.1. Up-dating of web page with the results and conclusions of the project (UBM).

Activity V.2. Work-shop organizing in the field of the project to disseminate the results. Dissemination of results using media. Presentation of results on CD (UBM,SCDAL,UO): during April-Mai 2011, in Baia Mare a work-shop in the field of the project will be organized; will be invited: national/international researcher in the field, local authorities: City Hall, Environment Protection Agency, Mining Agency), citizen, agricultural productive, students, NGOs; the event intends to be a way for warning the authorities regarding the risk induced by the sedimentation ponds presented near the human communities, aspects regarding increasing of physically-chemically of ponds, the risk of bio-accumulation of heavy metals in vegetables cultivated in pond's area, the viability of methods used in decontamination of soil polluted with the heavy metals; protection of population in case of chemical hazards.

Activity V.3. Dissemination of results by participating to national/international scientific events, publication of papers in ISI quoted journals (UBM,SCDAL,UO).

Activity V.4. Book publication in a CNCSIS recognized editure; **Publication of informative materials in the field of chemical hazards (UBM)**: the project's result will be published, disseminated to work-shop and during another scientific events; in cooperation with Emergency Situations Inspectorates and Public Health Agencies of MM and SM counties, will be elaborated materials (brochures, Guide for good practices) in which will be presented the chemical hazards of non-ferrous industry: chemical substances involved, exposure limits, chemical and physic properties, contamination pattern, impact on human organisms (symptoms, affected organs) but also on others environment ' components(air, water, soil, vegetal and animal organisms) and the actions in order to reduce the contamination risk/victims; the materials will be disseminated to population (especially that located near the pollutant sources) through: family doctors offices, official institutions, Environment Protection Agency, ONGs, web page, pollutant units, etc.

Activity V.5. Equipment and material acquisition (UBM,SCDAL,UO).

Activity V.6. Elaboration of reporting documents for step V and the final report (UBM,SCDAL,UO).