

*Theme 6 „Environment”*  
**Offer for the participation in the project that will be prepared for the 4<sup>th</sup> call for proposals**  
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<b>Is interested in the participation in a project that will be prepared and submitted in the following topic:</b>	
Number and title of the area (from Work Programme)	<b>Area 6.3.1.1 Water</b>
Number and title of the open topic (from Work Programme):	<b>ENV.2010.3.1.1-4 Water harvesting technologies in Africa</b>
<p><b>Short description of the organisation:</b> (including area of activity, scientific staff, expertise, equipment, collaboration, etc...)</p> <p>The Institute - (established in 1970) consists of 4 Departments: Hydrology and Water Management, Geotechnics and of Groundwater, Water Engineering and Hydraulic Transport, Mechanics and Engineering Constructions; 3 Institute Laboratories: the Hydraulic Laboratory equipped in physical models and flumes, the Geotechnics Laboratory, the Laboratory of Concrete Technology and Material Resistance; 2 Faculty Laboratories: Computers and GIS. The Institute has a competent staff (32 scientific staff members and 15 technical staff) for doing research and expertises (environmental impact assessment, engineering structures, hydrogeology, geotechnics) and for teaching (degree courses: Bachelor, Master of Science and PhD in Environmental Engineering). The research activities: flood control and flood protection, natural regulation of rivers and water management, hydraulics, hydrology, hydrogeology, earth dams and embankments, ecological engineering, waste management, water pollution and protection: application of pre-dams to protect against diffuse entries into the surface water. In recent years we focus on flood protection systems and biotechnical protection systems against erosion.</p>	
<p><b>Proposed contribution to the project:</b>  <i>-the application of geocomposite to increase plant growth especially in areas with low rainfall and light soils.</i></p> <p>Geocomposites absorbing water it is the technology allowed to increase water use efficiency. Geocomposite containing superabsorbent SAP supports better development of the plants root system. Geocomposite can be installed on slopes of roads, river embankments and landfills. The root system increases the shear strength of the humus layer. Usage of geocomposite containing SAP can change the density of root distribution, increasing its density in the vicinity of the geocomposite. Roots penetrating into the SAP geocomposite improve the shear strength between soil and geocomposite. The tests' results confirm its efficiency. Positive influence of SAP geocomposite on growth of young apple and peach trees after three years observations has been observed. Placed in a soil it is not a barrier for roots to access the water retained in the geocomposite. The application of geocomposite can increase plant growth in significant way, especially in areas with low rainfall and light soils because of their low water retention capacity.</p> <p>Laboratory, semi-technical and field experiments are needed to test and fully verify efficiency of the technology in different climatic regions.</p>	
<p><b>Chosen references (publications, others):</b></p> <p>Lejcuś K., Garlikowski D, Orzeszyna H., Pawłowski A. Geocomposite with superabsorbent in landfill reclamation and slope protection. Monografia. Management of Pollutant Emission from Landfills and Sludge. Taylor&amp;Francis. London 2008, Str.151-157.</p> <p>Pawłowski A., Lejcus K., Garlikowski D., Orzeszyna H. Geocomposite with Superabsorbent as an Element Improving Water Availability for Plants on Slopes. Geophysical Research Abstracts, Vol. 11, EGU2009-9997-2, 2009. EGU General Assembly 2009.</p>	