



## **Geoethics in environment - water-protection perspective in the GOAL Project framework**

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The GOAL project (Geoethics Outcomes and Awareness Learning) is an international partnership project to contribute to develop the potential of Geoethics with the aim of improving its concepts and practices through an innovative and creative approach (Vasconcelos et al., 2018). Within this framework Geoethics deals with the ethical, social and cultural implications of geoscience education, research and practice, and with the social role and responsibility of geoscientists in conducting their activities. (Peppoloni and Di Capua, 2016)

Within the GOAL Project the third output concerns Geoethics in the environment and will produce a publication as well as two educational resources for higher education on the issue of concrete environmental and water protection problems of human life.

These are of wide range, since the water-cycle connects areas under strong anthropogenic influence with natural and even protection areas that built the basis for cleaning and provision of mankind's demand on fresh water.

A strong utilization pressure on land and waterbodies awakes from the demands of the industry, agriculture and human societies itself. The 17 Sustainable Development Goals (SDGs) embody this conflict of interest when considered in the light of concrete infrastructure projects.

Especially in developed countries the rising concentration of nitrate due to fertilization and pesticides due to crop protection for agricultural production (SDG 2) lead to higher demand of treatment systems in drinking water supply (SDG 6).

Hydropower plants, that facilitate sustainable energy production (SDG 7), as well as artificial reservoirs, which might enable irrigation and agriculture (SDG 2) as well as ensuring constant drinking water supply (SDG 6), may have strong political implications and lead to tensions or even conflicts between nations (SDG 16). These projects also have the potential of major impacts on natural habitats on land (SDG 15) and below water (SDG 14).

Especially Engineers and scientists educated in higher education facilities besides all other stakeholders in the decision process of great infrastructure projects (e.g. politicians) must not only be able to design the necessary buildings and conceptualise technical solutions, but also be aware of the environmental implications a certain project might have on the natural environment and processes as well as the organisms in this ecosystems.

### References

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Peppoloni S. and Di Capua G. (2016). Geoethics: Ethical, social, and cultural values in geosciences research, practice, and education. In Wessel, G.R., and Greenberg, J.K. (Eds.) *Geoscience for the Public Good and Global Development: Toward a Sustainable Future*, Special Papers, 520. (pp. 17-21). Geological Society of America

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