



Geoethics' Syllabus and Geoethics in Georesources and Geopark – 2nd GOAL Workshop Report

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Table of Contents

Introduction	4
Intellectual Output 2A (IO2A) – GOAL Educational Theoretical Framework	6
Intellectual Output 2B (IO2B) – GOAL Syllabus Template	6
Intellectual Output 2C (IO2C) – GOAL Educational Resources Template.....	6
Intellectual Output 2D (IO2D) – Abstract book of GOAL 2 nd Workshop.....	7
Intellectual Output 2E (IO2E) – Geoethics Concerns.....	7
Intellectual Output 2F (IO2F) – Report of the 2 nd GOAL Workshop.....	7

Introduction

To respect the Earth is an ethical responsibility in as much as a necessity, if sustainable life is to endure. Geoethics is imbued with both this concern and this principle. It recognizes that the relationship between human beings and their environment involves an ethical imperative and reflects upon different practices that may promote a sustainable balanced relation between people and nature.

This report has been prepared as a result of the 2nd workshop of the project GOAL (*Geoethics Outcomes and Awareness Learning: 2017-1-PTO1-KA203-035790*), that was held in Porto (Portugal) at the Faculty of Sciences of University of Porto (FCUP), from 14th to 18th January 2019, organized by the Portuguese team, headed by Clara Vasconcelos (GOAL Project Coordinator).

The GOAL project aims to develop a Geoethics syllabus and related higher education resources directed at promoting awareness on the ethical and social implications of geoscience research and practice, thus enhancing the quality and relevance of students' knowledge, skills and competencies. In an effort to achieve these aims, the Portuguese workshop was prepared in order:

- i. To establish an educational theoretical framework;
- ii. To define a template for the Geoethics syllabus and educational resources;
- iii. To explore some Portuguese geoethical cases related to georesources management;
- iv. To address the thematic of Geoethics in geoparks and geotourism – issues will be raised concerning social awareness taking into account geological heritage and geodiversity.

For this purpose, an agenda was defined for this workshop, consisting of lectures – made by members of the Portuguese team and two invited speakers –, two field trips – to Arouca Geopark (Arouca) and Paço de Calheiros (Ponte de Lima) –, and several moments of debate.

From the theoretical view, topics related to geoscience education, exploration and management of georesources, geoconservation and geological heritage were addressed and defined. This initiative was important to establish a common understanding among the participants since they were of distinct scientific areas. Nevertheless, the interdisciplinary qualification of the members, reflected in the different overviews and approaches, constituted an asset for this workshop.

During the Portuguese workshop, the collaborative work was emphasized, and the participants developed the following intellectual outputs:

- Intellectual Output 2A (IO2A) – GOAL Educational Theoretical Framework;
- Intellectual Output 2B (IO2B) – GOAL Syllabus Template;
- Intellectual Output 2C (IO2C) – GOAL Educational Resources Template;
- Intellectual Output 2D (IO2D) – Abstract book of GOAL 2nd Workshop;
- Intellectual Output 2E (IO2E) – Geoethics Concerns;
- Intellectual Output (IO2F) – Report of the 2nd GOAL Workshop.

These intellectual outputs are essential for the progress of the project since they are the framework of the next tasks to be accomplished by the GOAL project.

The minutes meeting of the 2nd GOAL Workshop was written in the end of the workshop and approved by all participants.

Intellectual Output 2A (IO2A) – GOAL Educational Theoretical Framework

The *GOAL Educational Theoretical Framework* was developed during the Portuguese workshop (<https://goal-erasmus.eu/wp-content/uploads/2019/02/GOAL-OUTPUT2A.pdf>). This resulted from the discussion between the participants and, consequently, agreement on the learning theory to be followed in the GOAL project.

Social Constructivist learning view is pointed as powerful to develop a Geoethics syllabus and complementary educational resources aligned with GOAL project main aims.

Intellectual Output 2B (IO2B) – GOAL Syllabus Template

The *GOAL Syllabus Template* resulted from the debate of some educational concepts and establishment of a GOAL's syllabus draft template (<https://goal-erasmus.eu/wp-content/uploads/2019/02/GOAL-OUTPUT2B.pdf>) and was establish the first draft of GOAL's syllabus template.

The Geoethics syllabus template integrates contents that are related to georisks, geoheritage, water management and georesources exploitation and exploration.

Intellectual Output 2C (IO2C) – GOAL Educational Resources Template

The *GOAL Educational Resources Template* was elaborated according to the educational framework and methodologies approved to be used in GOAL project (<https://goal-erasmus.eu/wp-content/uploads/2019/02/GOAL-OUTPUT2C.pdf>).

Intellectual Output 2D (IO2D) – Abstract book of GOAL 2nd

Workshop

The *Abstract book – Geoethics’ Syllabus and Geoethics in Georesources and Geoparks* was developed during the preparation of the Portuguese workshop. It resulted from the compilation of the abstracts developed by the workshop speakers to make their presentations (<https://goal-erasmus.eu/wp-content/uploads/2019/02/OUTPUT2D.pdf>).

Intellectual Output 2E (IO2E) – Geoethics Concerns

The *Geoethics Concerns* was developed during the discussions between the participants of the Portuguese workshop (https://goal-erasmus.eu/wp-content/uploads/2019/02/IO2E_Geoethics_Concerns.pdf). Considering that the reflection upon Geoethics concerns and values will allow GOAL members to elaborate the syllabus and the educational resources, this output presents a list of Geoethics concerns in the different thematic of GOAL syllabus.

Intellectual Output 2F (IO2F) – Report of the 2nd GOAL Workshop

The *Report of the 2nd GOAL Workshop* is the final output of the 2nd GOAL Workshop and integrate all the outputs produced in the workshop.