

Towards sustainable management of georesources: the importance of Cooperation Projects to boost education on responsible and sustainable mining. The example of the SUGERE and GEODES projects



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INTRODUCTION

Sustainable and responsible management of geo-resources requires a rethinking and redesign of our production and consumption patterns. Awareness of the natural environment as a common good to be preserved, and knowledge of the close link between the natural environment and the socio-economic system are prerequisites for a profound change in human attitudes at both individual and societal levels. In this context, training and education of all actors involved in the management of geo-resources is an indispensable starting point for the acquisition of critical, ethical, and conscious thinking and the technical skills necessary to solve local problems and initiate sustainable development.

MAIN GOALS OF SUGERE AND GEODES:

- the **INTERNATIONAL STANDARDIZATION OF UNIVERSITY TRAINING AND TEACHING ACTIVITIES** concerning **EARTH SCIENCES** and **MINING ENGINEERING**
- promotion of a **MORE RESPONSIBLE AND SUSTAINABLE USE OF GEORESOURCES**.

SHARING OF THE COMMON VIEW OF LOCAL ECONOMIC DEVELOPMENT AS SET BY THE RIGHT BALANCE OF:
GEOLOGY/MINING + ENVIRONMENTAL ISSUES + SOCIAL ISSUES + ECONOMIC ISSUES

DEVELOPING DEGREE PROGRAMS AT DIFFERENT LEVELS:
 BACHELOR, MASTER AND PhD, IN THE FIELD OF GEOLOGY, GEOLOGICAL ENGINEERING, AND MINING ENGINEERING
 INVOLVMENT OF UNIVERSITIES FROM AFRICA (MOZAMBIQUE, ANGOLA AND CABO VERDE – NO MORE PRESENT IN GEODES)

DEVELOPING AND IMPLEMENTING PROGRAMS FOCUSING ON THREE KEY AREAS:
 KNOWLEDGE ABOUT EARTH SCIENCES AND NATURAL RESOURCES,
 SKILLS RELATED TO SUSTAINABLE ENVIRONMENTAL DEVELOPMENT,
 ETHICS AND SOCIAL ECONOMICS.

THE PROJECTS

The present research focuses on two consequential **ERASMUS+** projects: **SUGERE** and **GEODES**. Both had the common goal of the international standardization of Higher Education training and teaching in Earth Sciences and Mining Engineering.



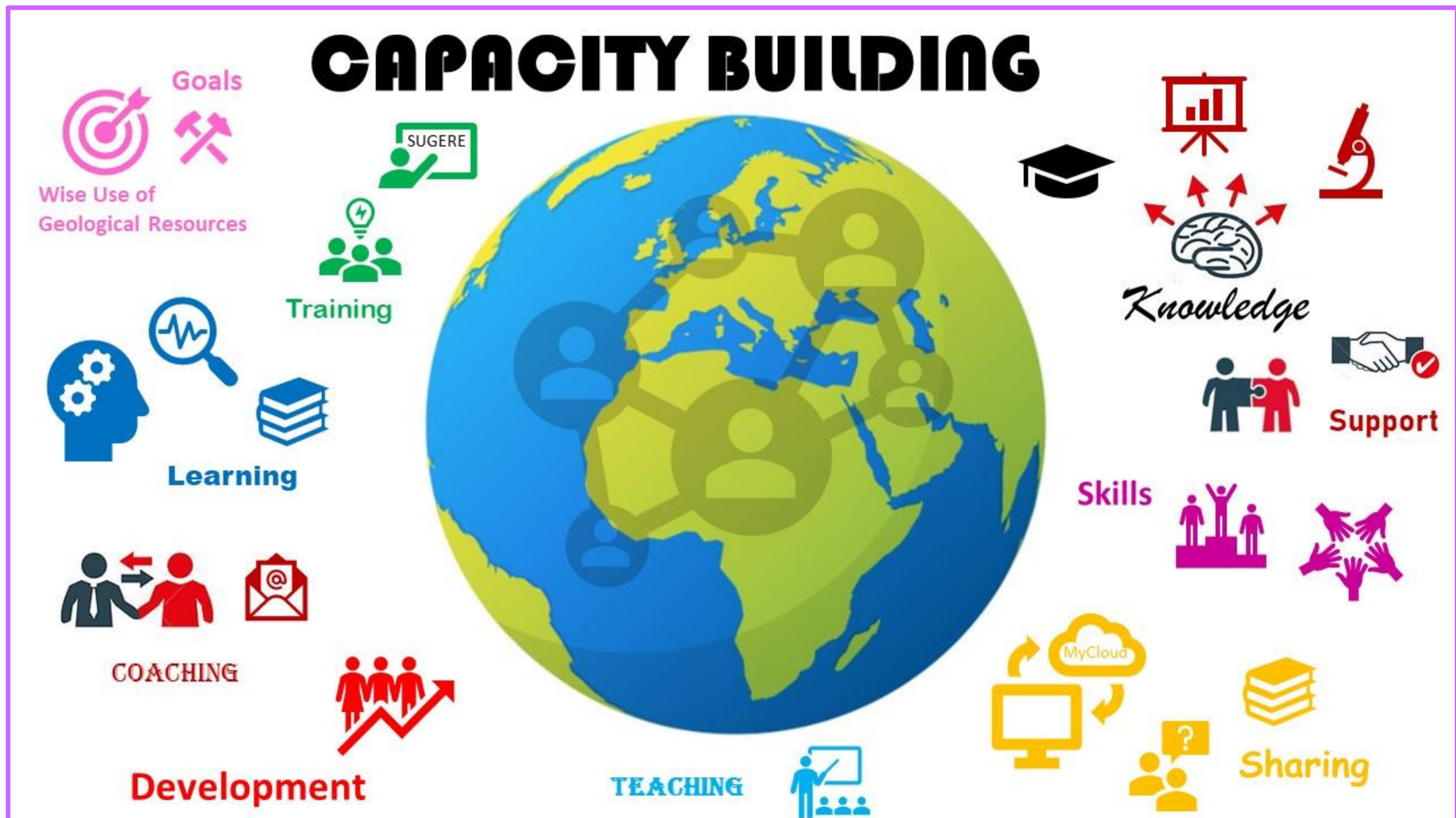
- Training period in Salamanca (September 2019)
- Training period in Torino (September 2022)
- Training period in Coimbra (April 2023)
- GeoMinas-SO Conference (May 2023) and GeoMinas 2.0 (May 2025) in Maputo
- Online Training (February 2024-September 2024) and Training in Africa (May 2024-May 2025)
- Conferences (EGU 2022, SGI 2022, EGU 2023, TERRA 2023, EGU2024, IGC2024, ISMEMP2024)

- Coordination, revisions and supporting activities for the updating of the Curricula for BSC, MSC and PhD in Angola, Mozambique e Cabo Verde. Other Universities will be involved during the GEODES project.
- Courses developed for PhD in Geology (on line lessons for UAN - Angola)
- Seminars for bachelor, master and Phd students (geology and mining engineering) at Maputo (Mozambique)
- Support for Labs updating



Thanks to **SUGERE** project, a strong **RESEARCH AND TRAINING NETWORKS BETWEEN EUROPEAN** (Portugal, Spain, Italy) **AND NON-EUROPEAN** (Capo Verde, Angola and Mozambique) **UNIVERSITIES** interested in mining issues have been set up. **GEODES** project will continue the path.

These projects promote **CULTURE OF SUSTAINABILITY** and the **DEEPENING OF SKILLS IN THE FIELD OF GEOMINING**: from the **DEVELOPMENT OF CRITICAL THINKING**, fundamental for the **RESOLUTION OF LOCAL PROBLEMS**, to the **ACQUISITION OF ETHICAL VALUES** and **TECHNICAL SKILLS** that underpin **SUSTAINABLE DEVELOPMENT**.



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