HOW UNESCO'S MANDATE IN EARTH SCIENCES CONTRIBUTES TO THE IMPLEMENTATION OF THE UNITED NATIONS 2030 AGENDA

United Nations Educational, Scientific and Cultural Organization

International Geoscience Programme

UNESCO Global Geoparks

What are the Sustainable Development Goals?

As a universal call to action, in 2015 the United Nations adopted Sustainable Development Goals (SDGs) as part of the 2030 Agenda for Sustainable Development to be implemented over fifteen years (2015-2030). With 17 objectives and 169 targets, the SDGs have the overall aim to eradicate poverty and other deprivations, introduce strategies that improve health and education, reduce inequality and spur economic growth, while at the same time ensuring environmental protection. To achieve this, a great transformation of the financial, economic and political systems that govern our societies is needed and political commitment and decisive action by all stakeholders is vital.

Fully interconnected, the SDGs cover areas as diverse as education, gender equality, responsible consumption and production, and peace, justice and strong institutions.

Each SDG has targets that need to be accomplished. Progress on the implementation of these targets is monitored by the Member States through the Voluntary National Reviews and presented at the UN High-level Political Forum on Sustainable Development, the main global forum for reviewing successes, challenges and lessons learned on achieving the 2030 Agenda for Sustainable Development.

How does Earth Sciences contribute to the implementation of the SDG's?

Geoscience, or Earth Science, is the study of the Earth. This includes its surface and the processes that shape it but also its interior and the dynamics that occur beneath the crust. Through the study of the oceans, the atmosphere, rivers and lakes, ice sheets and glaciers, volcanoes and earthquakes, earth science aims to understand how these systems work today, how they operated in the past and to predict how they may behave in the future. The study of geoscience also covers how living things, including humans, interact with the Earth, for example, through the resources we use or how water and ecosystems are interconnected.

The overall aim of the SDGs is to pave the way for a sustainable world and, as it is demonstrated in this booklet, geoscience is at the core of this mission.

This discipline has the ability to grasp the complex interconnections between the atmosphere, hydrosphere, cryosphere, biosphere, and lithosphere giving a unique whole-planet perspective of the Earth system. However, it suffers from inherent limitations - incomplete data, lack of experimental control or the inability to make direct measurements - that are related to the fact that geoscience studies a 4.6 billion year old planet where most events occur at temporal scales much larger than the human lifetime. These challenges are very similar to those faced by sustainability science.

It therefore becomes evident that geoscience is paramount for the successful implementation of the Sustainable Development Goals.

The International Geoscience Programme (IGCP)

Since 1972, UNESCO, through the International Geoscience Programme (IGCP) and in partnership with the International Union of Geological Sciences (IUGS), has harnessed the intellectual capacity of a worldwide network of geoscientists to lay the foundation for our planet's future, focusing on responsible and environmental resource extraction, natural hazard resilience and preparedness, and adaptability in an era of changing climate. UNESCO, the only United Nations organization with a mandate to support research and capacity building in geology and geophysics, and its flagship programme, the International Geoscience Programme, actively contribute to society and to the implementation of the Sustainable Development Goals.

IGCP's Contribution to SDG 1

While the number of people living in extreme poverty has reduced by more than half since 1990, in 2015 there were still about 736 million people living on less than 1.90 USD a day; lacking access to basic human needs such as food and sanitation. **SDG 1 is committed to ending poverty in all its forms** and geoscience plays an important role in this objective. Geological resources of all kinds are essential for human life. Mineral resources in particular are present in our everyday lives, from toothpaste to mobile phones and medical equipment. They are highly sought-after and have strong economic value making them a potential tool for economic development.

UNESCO supports collaborative study between institutions and researchers in West and Central Africa to identify valuable accumulations of mineral resources in this region, which will be crucial to local economic development and the fight against poverty. This knowledge will also allow public authorities to improve sustainable mineral extraction and management practices that strengthen institutional capacities and competencies for efficient long-term planning that will help end poverty in Africa.

One of UNESCO's geoscience projects is focused on gathering information on ore-bearing rock formations in West Africa. The project produced a knowledge exchange platform that promotes scientific field trips, courses and even the updating of secondary school curricula on the geological evolution of the region.

Above: explaining how mineral deposits in pillow lava may have formed during the Birimian tectonic stages in Senegal.
Credit: Tahar Aïfa.

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