

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



## 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 3



Together with its development partners, UNESCO has assessed the impact of active and abandoned mines and mineral processing on the environment and human health in Africa. In these projects, soil and biological samples are collected and studied to understand the extent of the contamination underground. This knowledge has been disseminated in conferences, meetings and workshops in Africa and Europe, with some findings published in academic journals.

Right: artisanal mining in Mikei Village, Kenya. Credit: MICA Cooperative Migori, Willis. Ogutu Odhiambo.

Great progress has been made in the fight against several leading causes of death and disease. Life expectancy has increased dramatically; infant and maternal mortality rates have declined, great improvements have been made in the battle against HIV and malaria deaths have halved. Despite this, the world is not on track to achieve the health-related Sustainable Development Goals and progress has been uneven, both between and within countries. **SDG 3 aims to ensure healthy lives and promote wellbeing for all at all ages.**

In several sub-Saharan African countries, mining activities contribute significantly to foreign exchange earnings and employ many people. However, these activities also constitute a serious environmental and public health problem due to the intense use of chemicals and aggressive mining techniques, particularly in regions with a strong presence of artisanal mining. Problems such as soil, surface, and groundwater contamination by heavy metals; gaseous emissions in mining and mineral processing districts; and human exposure to hazards, such as noise, traffic, oxygen deficiency, extreme temperatures, and radiation and radon, are common.



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