

# 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 6

### 6 CLEAN WATER AND SANITATION



Water scarcity affects more than 40% of the global population, 4.5 billion people lack safely managed sanitation services and 2.3 billion are without basic sanitation. **SDG 6 aims to ensure the availability and sustainable management of water and sanitation for all.** This means reaching over 800 million people who lack basic services and improving the accessibility and safety of services for over two billion people. To achieve this goal, a strong investment in adequate infrastructure, sanitation facilities, and education for hygiene is needed. Protecting and restoring water-related ecosystems is also essential.

Life on Earth depends on water and its sustainable use is vital for continued human activities. Understanding the Earth's water cycle involves studying and managing groundwater systems, hydrogeology, and water sources and their contamination.

Investigating the source of the Ali-Sabieh volcanic system groundwater contamination using artisanal boreholes in Djibuti. UNESCO projects cover diverse objectives including strengthening the capacity of West and Central African laboratories and technical staff to better predict the impact of climate change on water resources and land use in their region; the study and mapping of karst systems all over the world that currently supply water for over 25% of the world's population; and deciphering the origin of high sulphate and nitrate concentrations in the Ali-Sabieh aquifer in the Republic of Djibouti that supplies drinking water to the second most populous city in the country.



Above: local inhabitants retrieving water from the Ali-Sabieh aquifer through a well. Credit: UNESCO

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