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









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## 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, 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.



UNESCO and the International Geological Sciences Union of established the first international standard buildings for ornamental stones by extensively documenting stones that have been significant in human culture. To date, twenty-two stone types from fourteen countries have been recognized as heritage stones, including Podpêc Limestone (Slovenia), Maltese Globigerina Limestone (Malta), Piedra Mar del Plata (Argentina), and Makrana Marble (India). Many researchers have been supported through building capacity activities. public training in awareness campaigns and organization of international sessions.

Right: the UNESCO designated World Heritage Site, Taj Mahal, captured from the South Gate; and Dr. Gurmeet Kaur conducting field work at one of the Makrana quarries (Rajasthan, India), a source of the world famous marble that was used in the iconic monument and is now recognised as a heritage stone. Credit: Anuvinder Ahuja.

### **IGCP's Contribution to SDG 12**

While many people have access to and consume enormous amount of goods exerting serious pressure on Earth's natural resources, a large share of the world population is still consuming far too little to even meet their basic needs.

To balance this inequality in a sustainable manner, humanity's ecological footprint must be reduced by changing the production and consumption chain of goods and resources. This can be achieved though the efficient management of our shared natural resources and improving the way toxic waste and pollutants are disposed of by encouraging industries, businesses and consumers to recycle and reduce waste. At the same time developing countries must be supported to move towards more sustainable patterns of consumption by 2030. **SDG 12 aims to ensure sustainable consumption and production patterns.** 

Earth's resources are present in our daily life in multiple forms and are an essential part of our modern life. Without them many human activities would not be possible and our lives would certainly be different.



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