

Overview of the Natural Sciences Sector



Advancing science for peace and sustainable development

Over the 2022–2025 period, UNESCO’s work is being guided by international frameworks such as *The 2030 Agenda for Sustainable Development*, *Paris Agreement (2015) on climate action*, *United Nations Sendai Framework for Disaster Risk Reduction (2015–2030)*, *Post-2020 Global Biodiversity Framework* and the *African Union’s Agenda 2063*.

The Natural Sciences Sector takes a systemic, integrated approach to implementation, drawing upon the complementary profiles of its science programmes, with a focus on skills and knowledge enhancement for more integrated management of natural resources and the development of green economies. Our priority is to:

- strengthen science, technology, engineering and mathematics (STEM) education to develop skills for the green economy and Fourth Industrial Revolution;
- help reverse the decline of the natural environment and conserve geodiversity and biodiversity by strengthening the links between nature, people and culture, including via UNESCO’s World Network of Biosphere Reserves and UNESCO Global Geoparks, which test and disseminate interdisciplinary approaches to sustainable development;
- foster capacity-building in science, technology and innovation for greater resilience to a changing climate, via the study of basic sciences and engineering, ecological sciences, geosciences, hydrological systems, ecohydrology, geohazards, science, technology and innovation policy and governance, etc.;
- foster responsive, inclusive national innovation systems, including via the promotion of open science and open access to data, technology transfer and targeted policies, roadmaps and strategies for sustainable development, in line with the SDGs.

STAFF

- 115 staff led by the Assistant Director-General for Natural Sciences, including
- 42 professionals based in UNESCO’s field office network.

ORGANIZATIONAL STRUCTURE

- Division of Science Policy and Basic Science
- Division of Ecological and Earth Sciences
- Division of Water Sciences
- Section for Small Island Developing States
- Disaster Risk Reduction Unit

INTERNATIONAL SCIENCE PROGRAMMES

- Intergovernmental Hydrological Programme
- Man and the Biosphere Programme (MAB)
- International Geoscience and Geoparks Programme
- International Basic Sciences Programme

PROGRAMME UNITS IN ITALY

- World Water Assessment Programme (WWAP)
- Abdus Salam International Centre for Theoretical Physics (ICTP)
- World Academy of Sciences for the Advancement of Science in Developing Countries (TWAS)
- Organization for Women in Science for the Developing World (OWSD)

GLOBAL CHALLENGES

- Water insecurity
- Climate change
- Biodiversity loss
- Natural hazards: preparedness and mitigation

FOCUS ON

- Small Island Developing States
- Local and indigenous knowledge systems
- Youth
- Women in science

OVERARCHING PRIORITIES

- Africa
- Gender equality



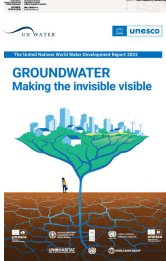
SITES DESIGNATED BY UNESCO

748

biosphere reserves in 134 countries,
covering 5% of Earth's landmass

195

UNESCO Global Geoparks in
48 countries



FLAGSHIP REPORTS

- **UNESCO Science Report**

monitors global trends in science governance and scientific endeavour every five years. The theme in 2021 was The Race Against Time for Smarter Development.

- **Engineering for Sustainable Development**

analyses emerging issues in engineering every ten years, most recently in 2021.

- **World Water Development Report**

produced annually by UNESCO's World Water Assessment Programme on behalf of UN-Water. The theme in 2022 was Groundwater: Making the Invisible Visible.

UNESCO co-sponsors the Intergovernmental Science–Policy Platform on Ecosystem Services and Biodiversity, which produces regular assessments.

UNESCO PRIZES and AWARDS IN NATURAL SCIENCES

- Kalinga Prize for the Popularization of Science
- L'Oréal–UNESCO Awards for Women in Science
- UNESCO-MAB Young Scientists Awards
- Michel Batisse Award for Biosphere Reserve Management
- Sultan Qaboos Prize for Environmental Conservation
- UNESCO–AI Fozan International Prize for the Promotion of Young Scientists in Science, Technology, Engineering and Mathematics
- Carlos J. Finlay UNESCO Prize for Microbiology
- UNESCO–Equatorial Guinea International Prize for Research in the Life Sciences
- UNESCO–PhosAgro–IUPAC Partnership in Green Chemistry for Life
- UNESCO–Russia Mendeleev International Prize in the Basic Sciences

INSTITUTIONAL PARTNERS IN SCIENCE

The Natural Sciences Sector partners with independent centres of excellence and university chairs which espouse UNESCO's values to create a pool of experts in Member States who can support programme and project implementation and provide UNESCO with feedback on emerging trends in science and innovation.

74 independent centres of excellence operate under the auspices of UNESCO (category 2 centres), in the fields of water, renewable energy, science policy, mathematics, physics, biotechnology, the geosciences and remote sensing.

237 university chairs operate within UNESCO's Unitwin network, in basic and engineering sciences, ecological and earth sciences, science policy and sustainable development, water and energy.

Recent milestones

2017

The Synchrotron-Light for Experimental Science and Applications in the Middle East, (SESAME) in Jordan became operational almost 20 years after UNESCO first federated countries in the region around this project.



2021

UNESCO's 193 Member States adopted the Recommendation on Open Science in 2021. This ground-breaking instrument should improve transparency in science, foster scientific collaboration and help to bridge the knowledge and technology gaps between and within countries.

2021

The new Mura-Drava-Danube Biosphere Reserve covers almost 1 million hectares and is the first to span five countries: Austria, Croatia, Hungary, Serbia and Slovenia.



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