



United Nations
Educational, Scientific and
Cultural Organization



International
Geoscience
Programme



UNESCO
Global
Geoparks

UNESCO Earth Sciences

For a Sustainable Earth, for Sustainable Societies



THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION



UNESCO works to advance and promote science in the interests of peace, sustainable development and human security and well-being, in close collaboration with its Member States and a wide variety of partners.



Maintaining the environmental sustainability of the planet is fundamental to our future well being and geologists are key stakeholders in this long-term sense of purpose.

UNESCO IS THE ONLY UNITED NATIONS ORGANIZATION WITH A MANDATE TO SUPPORT RESEARCH AND CAPACITY BUILDING IN EARTH SCIENCES



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UNESCO'S INTERNATIONAL GEOSCIENCE & GEOPARKS PROGRAMME (IGGP)

INTERNATIONAL GEOSCIENCE PROGRAM (IGCP)

The International Geoscience Programme (IGCP) serves as a knowledge hub of UNESCO to facilitate international scientific cooperation in the geosciences.

The IGCP mission includes promoting sustainable use of natural resources, advancing new initiatives related to geodiversity, geoheritage and geohazards risk mitigation.

- 500+ projects funded
- 10,000 participants from 136 member states
- 44 national committees

UNESCO GLOBAL GEOPARKS (UGGp)

UNESCO Global Geoparks are single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection.

They also act as laboratories for sustainable development which promote the recognition and management of our Earth heritage and sustain local communities.

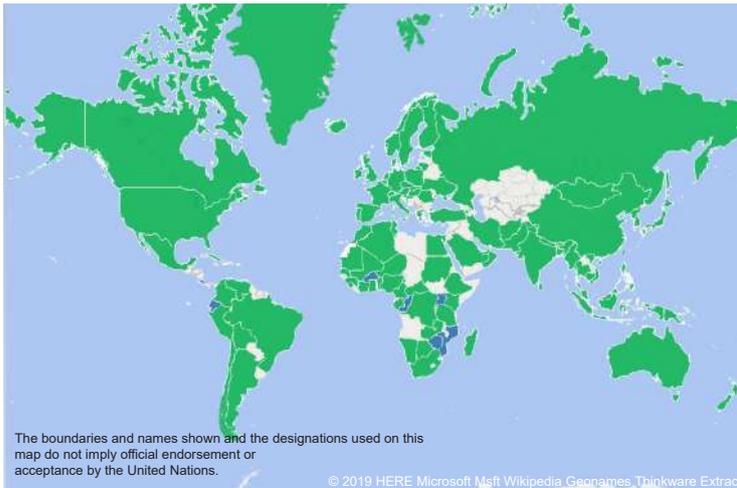
- 161 Unesco Global Geoparks
- 44 member states

UNESCO'S CONTRIBUTION TO EARTH SCIENCES

Since 1972, partnering with the International Union of Geological Sciences (IUGS) the IGCP has brought together tens of thousands of Earth scientists from around the world, including young scientists and enabled them to benefit from the cooperative spirit generated under the umbrella of UNESCO.

The IGCP support is especially earmarked to help young and female scientists from developing countries.

Only in 2019, 207 project leaders from 61 Member states brought together 4414 project participants from 114 countries and delivered the activities and objectives of 31 active IGCP projects.



World map showing countries involved in IGCP projects in green during 2019



A STRONG PEER REVIEW PROCESS

The IGCP Council, supported by over 50 members of the Scientific Board, is responsible for evaluating projects taking into account:

- Scientific quality
- Benefit to society from the research
- Emphasis on capacity building
- Multidisciplinary, multi-nations collaboration project
- North-South / South-South cooperation
- Gender equality



IGCP Council members and UNESCO HQ Team during 2019 Council Meeting.

UNESCO'S VISION: EARTH SCIENCES FOR 21ST CENTURY

Develop innovative renewable energy production and CO2 mitigation,

Promote efficient, safe and sustainable earth resources exploration and extraction,

Understand, predict and fight climate change and geohazards

IGCP 636

Managing waste to maintain a healthy environment

Developing energy to power the nation

IGCP 643,638

Providing raw materials for modern society

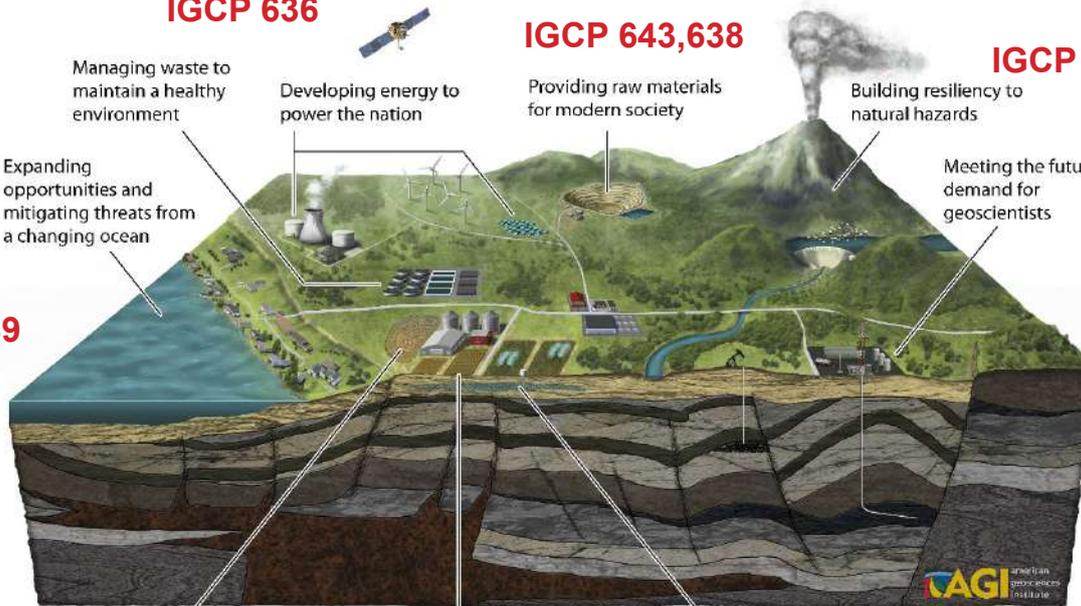
IGCP 641, 659, 672

Building resiliency to natural hazards

Expanding opportunities and mitigating threats from a changing ocean

Meeting the future demand for geoscientists

IGCP 655,639



IGCP 641,663

Confronting climate variability

Managing healthy soils

Ensuring ample supplies of clean water

IGCP 643, 661

IGCP 665

2020 PRIORITIES

- Environmentally responsible and innovative methods of exploration and exploitation of mineral resources and their recycling
- Sustainable approaches for the exploration and extraction of energy derived from the earth such as fossil fuels, coal, peat and geothermal energy
- Carbon Capture and Storage (CCS), Geological Sequestration of CO²
- Geohazards nearby metropolitan areas and disaster risk reduction related to human activities
- Water provision issues associated with climate change
- Small islands developing states (SIDS) and Africa water supply
- Earth's paleoclimate, paleoenvironment and paleontology to predict future climate and environment changes, and to provide scientific data for sustainable development strategies
- Global scale geological evidences for the Anthropocene



IGCP 641: Deformation and fissuring caused by exploitation of subsurface fluids



IGCP 636: Characterization and sustainable exploitation of geothermal resources

CHARACTERIZATION AND SUSTAINABLE EXPLOITATION OF GEOTHERMAL SOURCES

Countries: Colombia, Canada, Belgium, Chile, Djibouti, France, Iceland and Madagascar.

Objective: international team of researchers is developing better methods for extracting and exploiting geothermal energy and sharing this information with countries committed to making their own resources more accessible and economically viable.



HIMALAYAN GLACIERS: ASSESSING RISKS TO LOCAL COMMUNITIES FROM DEBRIS COVER AND LAKE CHANGES USING NEW SATELLITE DATA

Countries: UK, India and Bhutan.

Objective: Our international team of researchers is using GIS and remote sensing technologies to assess the level of risk in the Himalayas and teaching local communities how to use these techniques to monitor the situation, so that they can take steps to mitigate the socio-economic impact of climate change.



MONITORING LAND SUBSIDENCE IN COASTAL CITIES

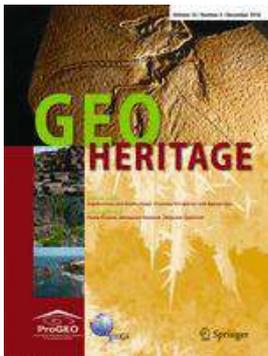


Examples of study sites are Alexandria, Dhaka, Jakarta, Shanghai and Venice.

Countries: China, Egypt, Italy, Netherlands and Indonesia.

Objective: Climate change and related sea-level rise pose unique challenges to densely populated cities that may be exacerbated by outdated urban infrastructures. Our international team of researchers is studying the geophysical and hydro meteorological hazards affecting low lying cities, in order to control and prevent land subsidence.

HERITAGE STONE DESIGNATION



Examples of certified stones are the Belgian Petit Granit, Italian Carrara Marble, Norwegian Larvikite.

Countries: Australia, Sweden, Spain, Slovenia, Belgium, USA, Japan, Canada, India, South Africa, Brazil and U.K.

Objective: Geoheritage makes an important contribution to national and regional economies. Our international team of researchers is identifying naturally occurring stones of cultural, historic, geological and economic significance for particular regions and informing local communities about the value of certifying them. The team is also advocating sustainable and responsible quarrying.

CAPACITY-BUILDING IN EARTH SCIENCES AND UNESCO

Research and capacity-building in Earth Sciences for UNESCO Member States is our top priority. In order to do so, the IGCP partners with international research institutes to foster knowledge transfer in Earth Sciences.

IGCP field trip exchange initiative, started in 2019, supported 32 early career scientists from 21 different countries: Nepal, Thailand, India, Ethiopia, Kenya, DRC, S. Africa, Afghanistan, Chile, Namibia, Sierra Leone...

In 2019, the Irish Center for Research for Applied Geosciences (iCRAG) brought together 42 postgraduate students and early career practitioners from 28 nations, including 6 early-career geoscientists from developing countries sponsored by UNESCO.



Organizations supporting UNESCO's capacity-building activities.



*Participants of Researching Social Theories, Resources, and...
Dublin*



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and Environment International Summer School, July 2019,

The 6th SGA-SEG-UNESCO-IUGS Short Course on African Metallogeny Gold Deposits: from Exploration to Mining organized by Society for Geology Applied to Mineral Deposits (SGA) held in Yamoussoukro Côte d'Ivoire between 28th of October to 1st November 2019.



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UNESCO sponsored 17 students and early career researchers from Algeria, Cameroon, Côte d'Ivoire, Nigeria and Senegal.

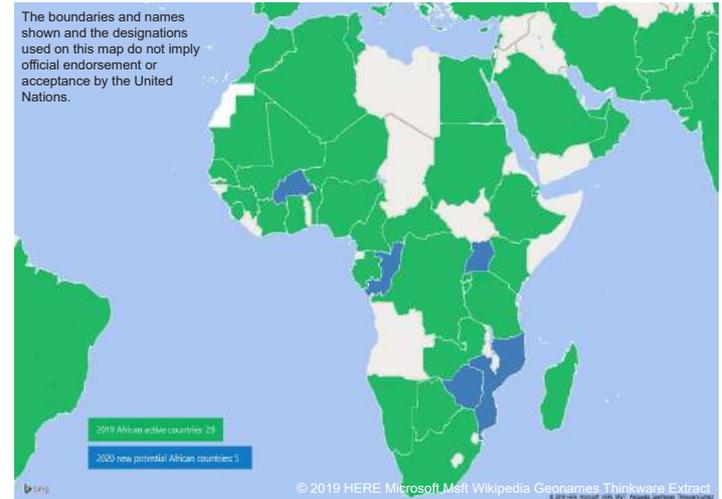
UNESCO'S GLOBAL PRIORITIES: AFRICA AND GENDER EQUALITY



UNESCO Earth Sciences projects show promising results of gender equality, women scientists make up for:

- 34% of all participating scientists and 49% of young scientists in 2019
- 38% of the project leaders of the active projects in 2020

In 2019, UNESCO supported early career earth scientists from 32 African Member States to facilitate better management of Earth's resources and mitigation of geohazards, which are critical for Africa.

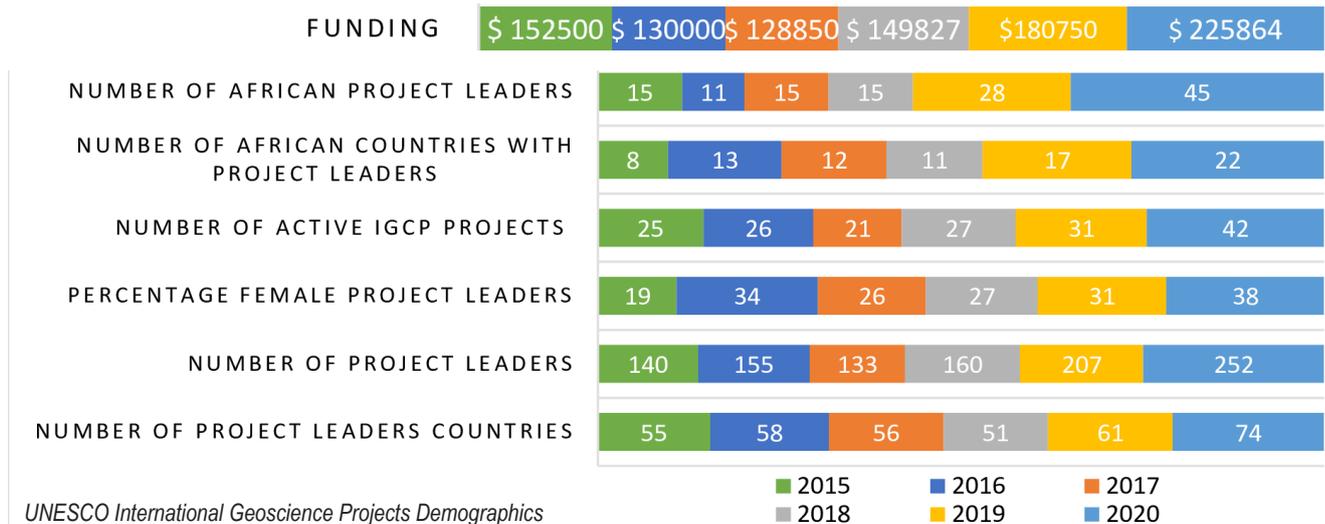


Member states participating in IGCP projects in green 2019. Blue coloured Member States applied for participation from 2020.

UNESCO INTERNATIONAL GEOSCIENCE PROJECTS DEMOGRAPHICS

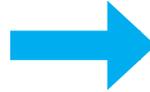
The overall analysis of the IGCP annual reports since 2016 that IGCP project outreach and diversity have increased continuously over the years.

- 2019: A total number of 70 IGCP project activities took place in 26 countries with 4417 project participants from 114 countries,
- 2020: 252 IGCP project leaders from 74 countries are leading 42 projects on societal challenges



GLOBAL PRIORITIES AND EARTH SCIENCES

- Paris Climate Agreement
- Sustainable Development Goals
- Sendai Framework for Disaster Risk Reduction



These agreements define the way politicians and the public view the 21st Century's greatest global challenges. Earth Sciences are at the forefront of problem solving of these challenges...



The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030.



The Sendai Framework for Disaster Risk Reduction (2015–2030) is an international document adopted by the UN member states. Its purpose is the “substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries”.



The Paris Climate Agreement is an agreement within the United Nations Framework Convention on Climate Change to reduce the risks and impacts of climate change. The Paris Agreement's long-term temperature goal is to mitigate global warming and keep the increase in global average temperature under 2 °C and to pursue efforts to limit the increase to 1.5 °C.

EARTH SCIENCES ARE ESSENTIAL TO ACHIEVE THE SDG'S, SENDAI FRAMEWORK FOR DRR, THE PARIS CLIMATE AGREEMENT AND GLOBAL TARGETS.

UNESCO commitment for Earth Sciences:

- Building partnerships and cooperation, not only between local stakeholders, but also internationally through regional and global (scientific) networks where knowledge, ideas and best practices are shared (SDG 17)
- Giving opportunities to young Earth scientists to develop their careers internationally (SDG 4)
- Emphasizing the empowerment of women and developing more effective methods to find and sustainably exploit natural resources of minerals and groundwater (SDG 1, SG 6, SDG7)
- Supporting scientific researches on evidence collection from the Geological Records for the understanding of Earth's climate change and the evolution of life (SDG 13)

MORE INFORMATION ON OUR WEBSITE

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