

ANNEX 1

Bridging the Scientific Gap: A Call for Global Support in Enabling Remote Access to Lab Equipment for African Scientists

‘A call for Member States, Scientific Institutions, non-governmental organizations, and the Private Sector’

Africa has a wealth of scientific talents and potential, yet access to state-of-the-art laboratory equipment remains a significant challenge. The lack of resources has hampered scientific advancements, leading to a knowledge gap that affects not only the African continent but also global scientific progress. The numbers and statistics tell a stark story, where in 2019 the global share of scientific publications for Africa was only about 3.5% (UNESCO Science Report, 2021). The limited access to advanced lab equipment impedes innovation and development, leading talented scientists in Africa to seek opportunities abroad, resulting in a significant brain drain.

The idea and the initiative started with the International Union of Crystallography (IUCr) and the French National Centre for Scientific Research (CNRS), when a laboratory in the University of Lorraine in France gave access to a Single Crystal X-ray Diffractometer, which is a rare equipment in Africa. Scientists from more than 10 African countries received training. Today, scientists in three Member States are utilizing the system remotely and access will soon be provided to other trained scientists. The initiative shows success and since there is a clear eagerness from African Scientists to gain access to more scientific techniques, UNESCO is hoping to expand this type of opportunity to more scientists in Africa while providing access to other sophisticated equipment such as advanced microscopes. For this, we need the support of scientific institutions from all over the world, and for them to consider giving access to their laboratories. This access will be carefully discussed to guarantee flexibility, accountability, and benefits for both sides.

Objectives:

Our initiative seeks to address this pressing issue by:

1. Providing African scientists with remote access to essential laboratory equipment.
2. Promoting knowledge exchange and collaboration between African scientists and their global counterparts.
3. Boosting the scientific research output of Africa.
4. Reducing the reliance on outsourcing to perform sophisticated experiments.

Expected Results:

1. Accelerated scientific breakthroughs in Africa, leading to innovations that can address pressing challenges on the continent, such as water, energy, and health challenges.
2. Enhanced global collaboration and a more inclusive scientific community.
3. Retention of scientific talents within Africa.
4. Increased investment in scientific research across African countries.
5. Bridging the gap in research output, making it more equitable on a global scale.

Implementation Strategy:

The implementation strategy is designed to be straightforward and attractive for countries, governments, scientific institutions, and private sector to participate as follows:

- Governments, scientific institutions, and industry leaders are invited to join us in supporting this initiative.
- Participating entities can contribute by providing remote access to their laboratory equipment, through a shared arrangement, without affecting the productivity of the laboratories or its scientists.
- UNESCO, its partners, and cooperating institutes will organize training and offer support for African scientists as follow:
 - Support the travel and the accommodation of 1-2 selected scientists, based on a submitted application, to spend one month in the laboratory of the participating entity to get trained on the use of the equipment. The trained scientists will then act as focal points of their counterparts in the home institutions,
 - Hold 1-2 weeks open lab training in African countries/regions, for group of scientists; the training will ensure equipping the scientists with the technical knowledge of the equipment and the remote use,
 - Scientists will need to send their samples to the institutions offering remote access to their equipment. The samples will be handled/mounted by the assigned operator while full measurements and analysis will be performed remotely by the scientists in Africa.
 - UNESCO and partners can compensate the entity for the operator and the equipment maintenance.
 - Facilitate collaborative research projects that promote knowledge exchange and collaboration between scientists in Africa and the contributing entities.

The implementation will start in Africa, and as the initiative proves successful, expansion of the model to other regions facing similar challenges can be done.

For any questions, please do not hesitate to contact Ms. Amal Kasry, Chief of the Basic Sciences, Research, Innovation and Engineering Section (a.kasry@unesco.org).