

FACTSHEET : FLAGSHIP PROGRAMME 5

Enhance Open Science, reinforce capacity building in Basic and Applied Sciences and Scientific Research to strengthen innovation and technology development and use in Ocean Science, climate change resilience and water resource management in Africa

ADDRESSING AFRICA'S NEEDS

Africa faces numerous science-related challenges, including climate change mitigation and adaptation, natural and environmental disasters, biodiversity loss and ecosystem collapse, water crises, pressure and uneven distribution of natural resources, marine pollution and waste management, coastal erosion and habitat loss, open science and data sharing, access to quality science education, lack of access to scientific equipment, limited availability of scientific information and knowledge, and inadequate ocean observation and monitoring.

UNESCO'S RESPONSE

Flagship programme 5 is organized around four action areas covering natural resources, science, technology and innovation, education for sustainable development, resilient societies, and water-food-energy-ecosystems interaction. All interventions are implemented by gathering evidence on innovative solutions, building capacity, and providing policy support. Activities in the area of science, technology, and innovation (STI) focus primarily on strengthening institutional and human resource capacities to address identified challenges, operationalize the transformation process, and drive sustainable socioeconomic transformation.

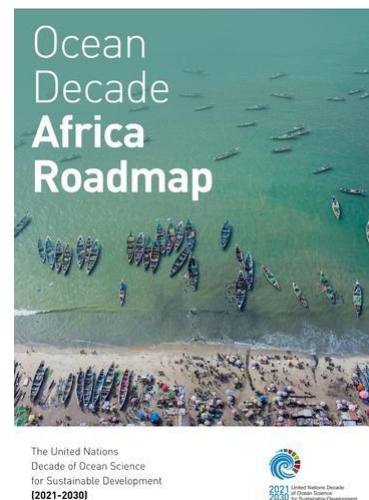
PROGRESS

Main objective 1 “Harnessing science to inform the management of natural resources and the development of sustainable ocean economy”:

Biosphere and Heritage of Lake Chad (BIOPALT): In the Lake Chad Basin, the BIOPALT approach generated new knowledge across the fields of hydrology, biodiversity and cultural heritage. It empowered 2,000 people with knowledge on the sustainable management of resources, while engaging 30,000 beneficiaries in green income-generating activities. It facilitated the development of 3 new biosphere reserves and contributed to the elaboration of new monitoring tools for water quality, droughts and floods in Nigeria, Chad, Cameroon, Central African Republic and Niger.

Ocean Data Information System (ODIS) Support: Currently, there are 4 African nodes integrated into the ODIS, which is a promising start. The goal is to increase this number

to 6 by the end of 2024. This initiative has significantly improved access to oceanographic data for African data centers, researchers, policymakers, and the general public, thereby enhancing informed decision-making in ocean governance and management. UNESCO will continue to provide technical support, identify and integrate additional nodes, secure necessary funding, and build capacity in African data centers.



Advancing the UN Decade of Ocean Science in Africa: The publication of the Ocean Decade Roadmap for Africa, the establishment of the Africa Ocean Decade Task Force, and the endorsement of the SEAWARD Africa programme under the UN Decade of Ocean Science are significant achievements. These initiatives provide a strategic framework for advancing ocean science and sustainable ocean management in Africa. They foster collaboration among African nations and international partners, driving progress towards achieving the goals of the Ocean Decade. UNESCO will implement the roadmap's strategies, support the task force's activities, and promote the SEAWARD Africa programme to ensure the sustainable use and conservation of ocean resources across the continent.

Main objective 2 “Preventing risks and enhancing resilience and adaptive capacity to climate change and disasters”:

AI-tools to address natural hazards: UNESCO is using Science Technology and Innovation to build resilience in Member States for addressing natural hazards. An AI Chatbot has been developed which enables individuals to get necessary pertinent information before/during/after disasters (early warning system, evaluation center, and public support). 700 experts from the

public sector in Kenya, South Sudan, Rwanda, Tanzania and Uganda have been empowered with skills on how to use the AI tools.

UNESCO-IOC Tsunami Ready Recognition in Egypt: Alexandria has become the first city in Egypt and Africa to achieve UNESCO-IOC Tsunami Ready Recognition. This enhances the city's preparedness for tsunami events, ensuring better protection for its residents and infrastructure. It also sets a precedent for other African cities to follow, promoting regional resilience against tsunamis. UNESCO will continue to support and expand tsunami preparedness initiatives across other vulnerable coastal cities in Africa, leveraging the success of Alexandria as a model.

Main objective 3 “Developing national capabilities in science, technology s Innovation and education for sustainable development”:

Remote access to equipment: UNESCO has mobilized international support, securing advanced scientific equipment from 7 Member States and other organizations. Over 200 researchers and students from more than 5 African countries have benefitted from remote access to a Single Crystal X-Ray Diffractometer, in collaboration with International Union of Crystallography, the French National Centre for Scientific Research and the University of Lorraine (France). This initiative advances research and education in Africa.

Main objective 4 “Enhancing adaptive capacity to the multiple intersecting challenges of water-energy-food-ecosystem (WEFE)”:

Be-resilient: The Be-Resilient approach to addressing water-related challenges and climate change impacts in Southern African countries uses the Climate Risk Informed Decision Analysis (CRIDA) - a step-by-step framework for developing adaptation pathways to climate change. IT has led to climate-proofing of Lusaka's Water Treatment Plant, and implementation of nature-based solutions in Zimbabwe's highlands to address increasing flood and drought risks. It has operationalized Citizen Science in 4 Biosphere Reserves using a smartphone application, thereby becoming a model that is being upscaled to the global level, particularly in African SIDS.

OPPORTUNITIES OF ENGAGEMENT

Main objective 1 “Harnessing science to inform the management of natural resources and the development of sustainable ocean economy”:

“Awareness Raising and Capacity Development on Geo-heritage and UNESCO Global Geoparks”: The initiative seeks to organize two main types of trainings: (1) national and regional trainings to promote the concept of geoparks and train local experts, and national commissions; (2) regional geo-heritage trainings for geological surveys to train African geologists.

“Advancing Sustainable Ocean Plans (SOP)”: This

initiative seeks to enhance the sustainable management of Africa's ocean and coastal zones through integrated approaches. It focuses on improving governance, promoting ecosystem-based management, and fostering collaboration among stakeholders. Key activities include capacity building, policy development, and the implementation of best practices for coastal and marine resource management. It would be implemented in the framework of the UNESCO-led Ocean Decade programme on Sustainable Ocean Planning.

“Support for the Development of National and Regional Ocean Science Plans”: This initiative seeks to develop evidence-based national and regional ocean science plans for member states to foster the growth of the ocean/blue economy. It focuses on creating comprehensive strategies that integrate scientific research, policy development, and sustainable management practices to support the blue economy at both national and regional levels. It would draw on the framework of the Africa Ocean Decade Roadmap, the SEAWARD Ocean Decade programme, and be implemented at the national level in coordination with National Decade Committees that are being established throughout Africa as platforms to identify and national ocean science and capacity development priorities.

Main objective 2 “Preventing risks and enhancing resilience and adaptive capacity to climate change and disasters”:

“Using Science Technology and Innovation for resilience”: This initiative seeks to build a comprehensive Business Continuity Plan on using Science Technology and Innovation (STI) for resilience to disaster risk reduction. It addresses climate change adaptation and disaster risk reduction by leveraging STI-based solutions, capacity building and public-private partnerships (mobile AI chatbot for risk communication, machine learning device for early warning system).

Main objective 3 “Developing national capabilities in science, technology s Innovation and education for sustainable development”:

“Remote Access to Scientific Laboratory Equipment”: The “Remote Access” initiative seeks to provide African scientists with remote access to limited or unavailable equipment, as well as to train researchers from multiple African countries on advanced equipment. Besides the founding gap, one major challenge consists in finding partners (research institutions) in different member states, which can provide access to their equipment.

Main objective 4 “Enhancing adaptive capacity to the multiple intersecting challenges of water-energy-food-ecosystem (WEFE)”:

“Capacity development and implementation of bottom-up adaptation strategies water resources management”: The initiative uses CRIDA (*Climate Risk Informed Decision Analysis*) methodology case study applications to improve national risk management strategies and to lower the impact of water-related hazards on vulnerable communities in East and West Africa.