NATURAL SCIENCES

Science for a Sustainable Future
Specialists in Natural Sciences

Nairobi Office:
• Dr R. Jayakumar, Head and Regional Hydrologist
• Dr Alice Ochanda, Specialist Women in Science
• Dr Samuel Partey, Specialist for Science Technology and Innovation
• Under Recruitment - Specialist in Earth Sciences
• Mr John Ngatia, Research Assistant

Addis Ababa:
• Under Recruitment - Natural Sciences Programme Specialist

Dar es Salaam:
• Mr Keven Robert, National Professional Officer

Antananarivo, Madagascar – Antenna Office:
• Dr Julie Christie Rakotoson, Coordinator Antenna Office
Major Programme Divisions under Natural Sciences

• Science Policy and Capacity Building - IBSP

• Ecology and Earth Sciences – MAB and IGGP

• IHP – Water Sciences
UNESCO Nairobi

Natural Sciences for the 2030 Agenda

37 C/4 Strategic Objective 4: Strengthening science, technology and innovation systems and policies – nationally, regionally and globally

- Harnessing the sciences, including the basic sciences, technology, and innovation and knowledge for sustainable development (MLA 1)

37 C/4 Strategic Objective 5: Promoting international scientific cooperation on critical challenges to sustainable development

- Advancing science for sustainable management of natural resources, disaster risk reduction and climate change action (MLA 2)
- Improving knowledge and strengthening capacities at all levels to achieve water security (MLA 3)
UN 2030 Agenda – AU Agenda 2063 - Paris Agreement - Sendai Framework

UNESCO Nairobi
### Agenda 2063

1. A prosperous Africa based on inclusive growth and sustainable development
2. An integrated continent, politically united, based on the ideals of pan-Africanism and the vision of Africa’s Renaissance
3. An Africa of good governance, respect for human rights, justice and the rule of law
4. A peaceful and secure Africa
5. An Africa with a strong cultural identity, common heritage, values and ethics
6. An Africa whose development is people-driven, relying on the potential of African people, especially its women and young people, and caring for children
7. Africa as a strong, united, resilient and influential global player and partner

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• February 2018 - Third Africa Forum on Science, Technology and Innovation (STI)-Africa Development Bank and Government of Egypt-UNESCO showcased GO-SPIN and SAGA

• Regional Science, Technology and Innovation Policy for East Africa Community working with EASTECO (East African Science and Technology Commission) expected to adopt the policy document Aug 2019

• Global Observatory of Science, Technology and Innovation Policy Instruments (GO-SPIN) & STEM and Gender Advancement (SAGA) for Eastern African Regional Countries – Rwanda GO-SPIN; Kenya SAGA & GO-SPIN

• Forth Expert Group Meeting on Science, Technology and Innovation Roadmaps for the SDGs jointly with UNDESA, WB, UNCTAD & UNESCO

• Participated in the Science, Technology and Innovation Strategy for Africa (STISA-2024) Review meeting organized by AUC

• Africa Engineering week organized in Rwanda 2017, Kenya 2018
Women in Science

• STEM mentorship national camps for girls and teacher training workshops on gender-responsive pedagogy for Kenya, Madagascar, Rwanda & Uganda as well as Regional Training of Trainers on quality gender-responsive STEM education for Francophone and Anglophone countries in Dakar and Kigali respectively;

• The second Forum for African Women Vice-Chancellors (FAWoVC) was held on October 21, 2018 in Nairobi

• During Africa Engineering Week - 602 secondary school girls and boys (300 girls and 302 boys) were mentored in STEM.
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Local Indigenous Knowledge System and SIDS

- Working with LINKS Unit in HQs in carrying out Transdisciplinary Climate Knowledge Project “Knowing our Changing Climate in Africa” a regional initiative from our region, Kenya, Ethiopia, Tanzania and Uganda is participating

- Outcome from the project “Pastoralist and Scientific Assessments of Weather and Climate Knowledge Complementary in Adaptation” presented at IPCC, COP meetings

- SANDWATCH activities in Madagascar and Comoros to address climate change for sustainable development – Small Island States are highly vulnerable to climate change impacts on coastal resources and ecosystems such as coastal erosion, coral bleaching and mangroves degradation. Mauritius and Seychelles already part of this network and carrying out national activities involving schools
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MAB - Biosphere Reserves

• UNDP Comoros provided seed funding to UNESCO to help the national Government to prepare the nomination dossier – already consultant undertook missions and nomination dossier will be submitted during Sep 2019

• UNDP Mauritius is providing support to National Government under UNESCO’s technical coordination to re-nominate the first generation biosphere reserves – National Validation workshop organized during 6-10 May 2019, re-nomination expected to be submitted during Sep 2019

• UNDP Seychelles is providing support to National Government under UNESCO’s technical coordination to carry out feasibility study to identify potential site for nomination

• Rwanda Gishwati Mukura National Park will be nominated as BRs the application dossiers are ready supports were received from World Bank

• We held preliminary discussions with Djibouti authorities for feasibility study of BRs – willing to start discussion with Eritrea, South Sudan where there is no BRs.
Earth Sciences

- 2018 & 2019 AfricaArray International Geophysics Field School (AAFS) with University of the Witwatersrand, South Africa for Sub-Saharan Africa provided full support to five candidates each year


- Prepared policy review for Abandoned Mine sites of Africa from the pilot case studies

- Documentary on Migori Artisanal Gold Mining to get the political attention on ASM Education under TVET

- Prepared a concept paper to jointly with University of British Columbia and Jomo Kenyatta University of Agriculture and Technology on TVET for Artisanal Small Scale Mining Curriculum
Completed major project implementation

• “Mapping and Assessing the Environmental and Health Impacts of Abandoned Mines in Sub-Saharan African Countries”

• African Network of Earth Science Institutions (ANESI) Through ANESI, 84 institutions from 30 countries are exchanging scientists; therefore promoting South-South collaborating and boosting skill development within Africa
Disaster Risk Reduction

• Preparing a concept paper on DRR in Higher Education in Africa working with Stellenbosch University of South Africa, Research Alliance for Disaster Risk Reduction (RADAR) - PeriPeri U Secretariat – it will be an inter-sectoral initiative

• Africa Risk Methods School II: Focus on urban geo-hazards (landslides, seismic and hydrological risks): Addis Ababa (October/November, 2019)

• Africa Drought Monitoring – UNESCO and Princeton University developed the system. For East and Horn of Africa regional workshop will be organized with UNECA and ACPC. For the benefit of regional forecasting we are working with African Climate Policy Centre of ECA to install the system for making regional forecast. In addition working with REC’s to install this system in to their technical arm so far AGRHYMET, IGAD agreed working with others too.
• Regional Coordination Function for Africa
• iRAIN Capacity building workshop for EAC, IGAD and IOC Member countries organised at Mekere University of Uganda, supported by University of California (Irvine) and International Center for Integrated Water Resources Management (ICIWaRM), UNESCO category 2 centre, USA
• Coordinated Africa Water Week along with AMCOW, other Regional Offices and UN Agencies – organised seven side events
• For first time prepared and published Groundwater Map of Africa with WHYMAP Consortium – launched at the plenary session of Africa Water Week
• Rain Water Harvesting Application for Smart phones and dedicated website – Calculator for Rainwater for 54 countries of Africa – outreach videos on animated cartoon format for common audience [http://rainwaterharvesting.africa](http://rainwaterharvesting.africa/)
• AU-NEPAD African Networks of Centers of Excellence on WATER -to foster sustainable capacity development at institutional, higher education, technical, scientific and vocational level in the water sector
• Capacity Building for experts from IGAD and EAC Region on “Integrating Groundwater Management within River Basins”

• Consolidating groundwater data and maps from BGR, BGS, IGRAC to synergize in one system and update the Africa Groundwater Map with various thematic layers. As a first step the consortium decided to develop for ECOWAS Region

• Coordinated with ECA and other partners for contribution from Africa for UN-World Water Development Report 2019 Leaving No One Behind

• Coordinated with UNESCO-WWAP, UN-Water, UNECA in carrying out a pilot research on SDG 6 contribution to other SDG’s being reported during HLPF 2019

• Presented the research findings in ARFSD and key message from our study will be submitted to HLPF as contribution from Africa through UNECA

• National Training for Tanzania on Eco-hydrology approach for better water management in Tanzania
Concluded discussion with GIZ of Germany to organise a capacity building and pilot research study from East and Horn of Africa on Water-Energy-Food Nexus.

Working with African Groundwater Network, UNECA, UN Habitat, UNEP on a pilot research for Groundwater for African Cities – prepare Status Paper from 15 cities and further apply for an implementation programme to develop policy guidelines and capacity building manuals for groundwater supply for urban areas.

Concluded agreement with ICIWaRM UNESCO Category 2 based in US under US Army Corps of Engineers to organise training for experts from East and Horn of Africa on “Climate Risk Informed Decision Analysis (CRIDA): collaborative water resources planning for an uncertain future” – Pilot study for Uganda.

Working with UNECA, UNEP on Water and Hygiene Education for Children through Mobile Phone Application.

IHP Africa Regional Meeting to discuss about regional priorities will be organised at Cape Verde during Oct 2019.
Inter-Sectoral

- Biodiversity conservation in National Park of Madagascar (SC/CLT)
- Prepared a concept on “Strengthening Capacities for Assessing School Facilities-Implementation of the UNESCO-VISUS methodology for assessing school facilities and providing critical information to decision-makers” (SC/ED/SHS)
- Working with Network of Universities in Africa on DRR at Higher Education – (SC/ED/SHS)
- TVET Curriculum on Artisanal Small Scale Mining (ED and SHS)
- Climate Change Education (SC/ED)
- Water and Hygiene Education (SC/ED)
- Teacher Training on quality gender responsive STEM Education (SC/ED)
• US $ 350,000 from Slovak International Development Cooperation for Water Security in Turkana – agreement signed

• KOICA US $ 5.5 Million for Community engagement in biodiversity conservation at National Parks of Madagascar – Under negotiation

• JICA US$ 4.5 Million Strengthening Disaster Prevention Approaches in Eastern Africa - Under negotiation

• Flemish US$ 250,000 Endangered Species Education for Eastern Africa – Under negotiation
Thank You

There is no Planet B