

PID IG: Equity and Inclusion: universal access to PIDs

26 October 2023.

Venue: Austria

Open Science Initiatives in Africa

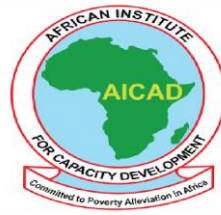
Prof Muliaro Wafula PhD., FCCS, FCSK

Associate Professor: JKUAT

Chair: CODATA Kenya

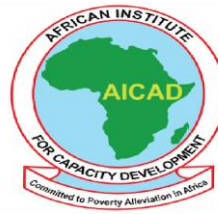
Lead Scientist: AOSP EA node

Adjunct Professor, AICAD



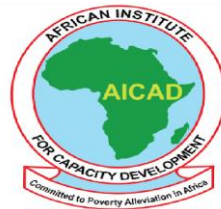
Introduction:

- The Africa Open Science Platform aims to position African scientists at the cutting edge of data intensive science.



AOSP key objectives

- Create a platform, with the potential to be a powerful lever of social, cultural and scientific vitality and of economic development.
- put African scientists at the cutting edge of contemporary, data-intensive science as a fundamental resource for a modern society
- Enable researchers to access a wide diversity of data streams, which, when integrated, reveal deep patterns in complex phenomena.
- Make science a more public enterprise that engages actively with business, policymakers, governments, communities and citizens as knowledge partners
- facilitate data-intensive, solutions-oriented research, bringing scientists and non-scientists together as knowledge partners in open networks of collaborative learning and problem solving



The African Open Science Platform (AOSP) with HQ in SA (<https://aosp.org.za/>)

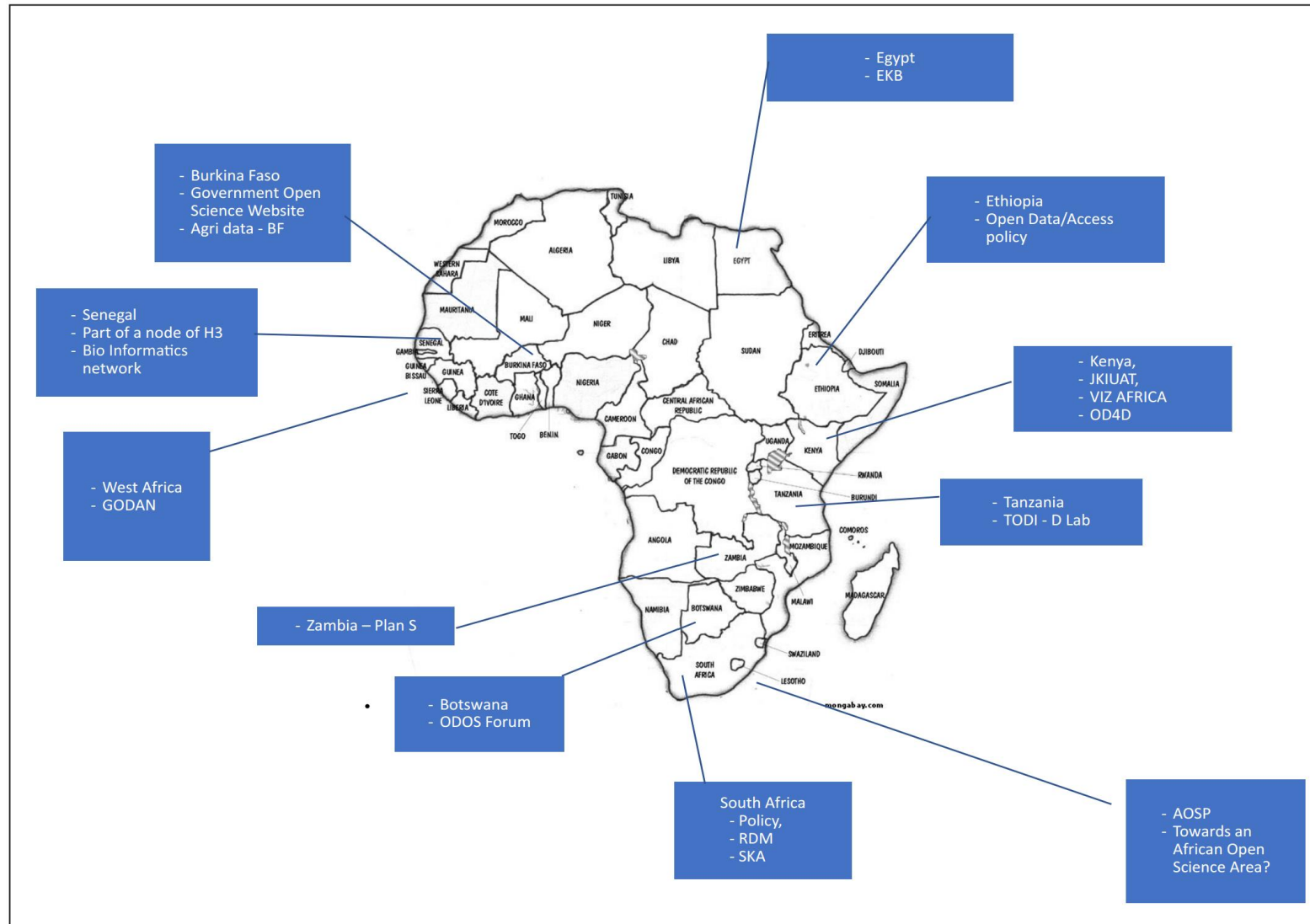
- It has 3 regional nodes:
 1. Egyptian National Authority for Remote Sensing and Space Sciences (NARSS) is the Northern African Node based in Egypt;
 2. The African Institute for Capacity Development (AICAD) is the East African Node based in Kenya, and
 3. The UbuntuNet Alliance is the Southern Africa Node based in Malawi

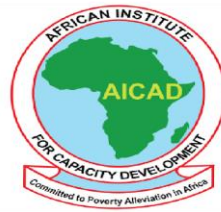


AOSP East African Node

- The role of the AOSP East African Node is to support and promote efforts aligned with implementation of open science programmes at a regional level, strengthen knowledge networks and infrastructure access, and enhance cooperation between regions and globally in support of the AOSP's vision.
- AOSP – East African Node is a partnership between the **African Institute for Capacity Development** (<https://www.aicad.or.ke/>), and **Jomo Kenyatta University of Agriculture and Technology** (<https://www.jkuat.ac.ke>), Kenya – the National Member of **CODATA International**.

Examples of Open Science Initiatives in Africa

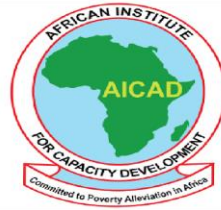




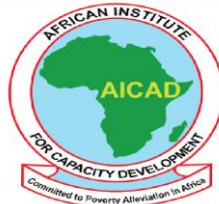
International Open Science projects in Africa

Ref: Mwelwa, J, et al. 2020. Developing Open Science in Africa: Barriers, Solutions and Opportunities. Data Science Journal, 19: 31, pp. 1–17. DOI: <https://doi.org/10.5334/dsj-2020-031>

- ✓ The H3ABionet project
- ✓ South African National Biodiversity Institute (SANBI), a major node of the Global Biodiversity Information Facility. It hosts biodiversity information to make it freely available on the internet so that policy makers, managers and researchers can make well-informed decisions that contribute to sustainable development.
- ✓ Data First – the only African database that has the CoreTrustSeal of the International Science Council's World Data System



- ✓ African Academy of Sciences (AAS) Open Research – a platform for rapid publication and open peer review for researchers.
- ✓ The Square Kilometre Array (SKA) project involves 8 African national partners (South Africa, Botswana, Ghana, Kenya, Madagascar, Mozambique, Namibia, Zambia)
- ✓ The Indigenous Knowledge and Climate Change Adaptation Research Project among the Griqua and Nama peoples in South Africa



Kenya Open Data Instruments

Constitution of Kenya, 2010

Article 35, gives citizens the right to access information



Access to Information Act 2016

AN ACT of Parliament that gave effect to Article 35 of the Constitution



JORD Policy

Policy to promote ROI, Collaboration, Innovation, Enable Diverse Studies etc

35. Access to information

- (1) Every citizen has the right of access to—
 - (a) information held by the State; and
 - (b) information held by another person and required for the exercise or protection of any right or fundamental freedom.
- (2) Every person has the right to the correction or deletion of untrue or misleading information that affects the person.
- (3) The State shall publish and publicise any important information affecting the nation.

PART II—RIGHT TO INFORMATION

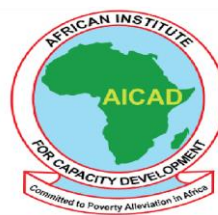
- 4—Right to information.
- 5—Disclosure of information by public entities.
- 6—Limitation of right of access to information.

PART III—ACCESS TO INFORMATION

- 7—Designation of information access officer.
- 8—Application for access.

2.4 Research data and records should be:

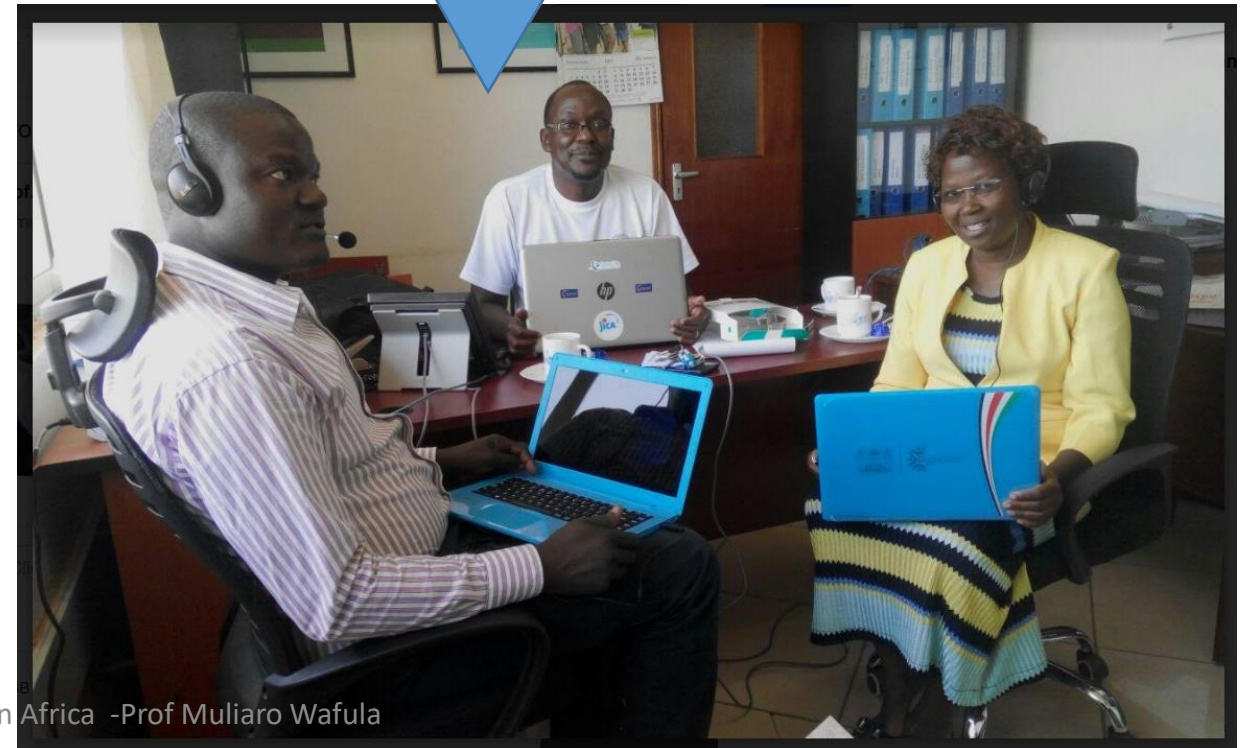
- a) Accurate, complete, authentic and reliable;
- b) Identifiable, retrievable, and accessible;
- c) Secure and safe;
- d) Kept in a manner that is compliant with legal obligations and, where applicable, the requirements of funding bodies and the University Policies and regulations
- e) Able to be made available to others in line with appropriate ethical, data sharing and open access principles.



Creating Innovative Videos for Learning Mathematics for Primary Schools

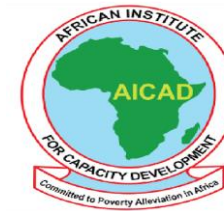
ODSI: JKUAT

To build open data based innovative mobile
To encourage scientists to open their research data for public consumption and use.
To use open data to offer solutions to societal challenges
To engage partners support on the open research data initiative

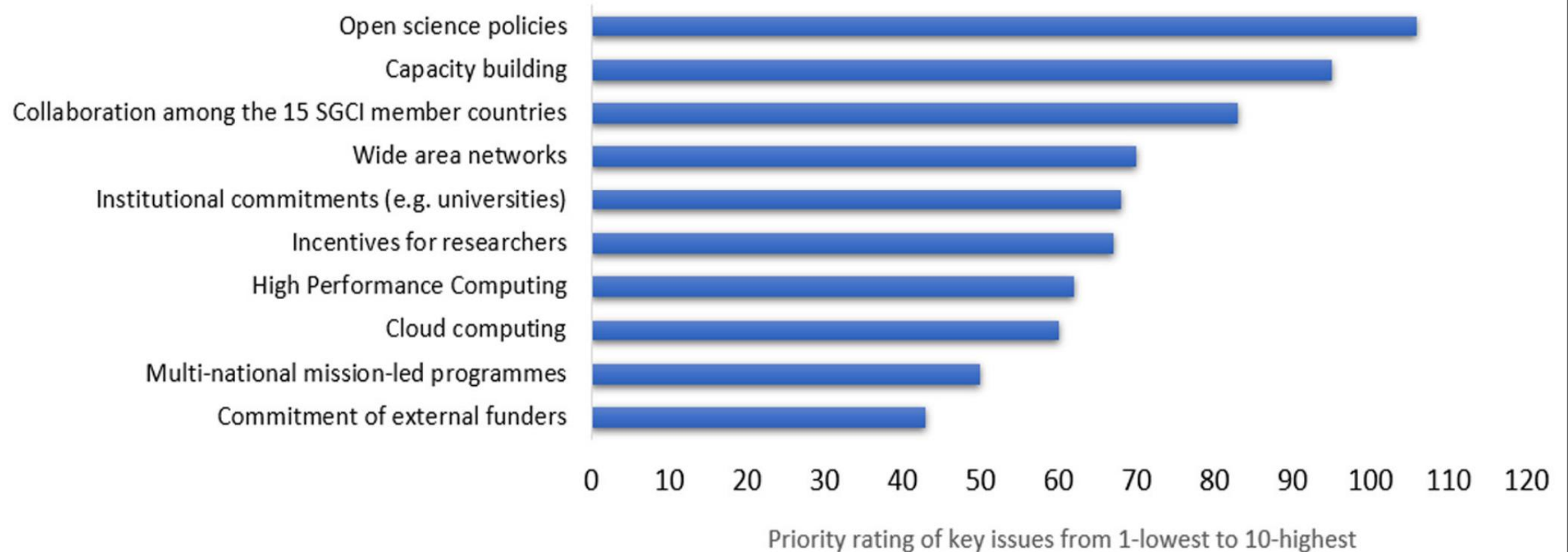




Priority ranking of OS issues that contribute to economic and social development in Africa



Cumulative rating of 10 key issues contributing to Collaborative Open Science as per 13 SGCI member countries in Africa namely: Kenya, Burundi, Uganda, Tanzania, Côte d'Ivoire, Botswana, Ghana, Zambia, Mozambique, Sudan, Sierra Leon, Malawi and Namibia





Institutions leading practice of OS in Kenya

Table 1: Summary of different approaches to practicing open science by selected Kenyan institutions.

Institution	Open access institutional repositories (IRs)	Open access policies	Training or Events	Infrastructure
University of Nairobi (UoN)	Digital Repository Open Access Resource Center	UoN Open Access Policy 2012 UoN Plagiarism Policy 2013	Open Access week 2015 Open access Week 2016	Open Distance Learning Module Jomo Kenyatta Memorial Library houses KENET .
Jomo Kenyatta University of Agriculture and Technology (JKUAT)	Has an ICT Center of Excellence and Open Data with a sub-task force that advocates for various open science principles.	—	Open Data Workshop 19th Sept 2017 Open Access Workshop Open Access Week on August 18th to 24th 2010	Open and Distance Learning Modules
Kenyatta University	Has Open Access databases with links to open access journals, courseWare, and e-books Institutional repository .	—	Creating awareness about Open Science during Library Open Week in 2016	Open and Distance Learning
Strathmore University	Strathmore University Repository	—	—	—
International Livestock Research Institute (ILRI)	ILRI Repositories	Strategy on Research Publishing Research publishing	Workshops and training on Open science, open access, and open data ILRI Open, Open Data Portal	—



Open Educational Resources

- OERs in Kenya -most universities are yet to offer educational resources, including teaching, learning, and research materials, openly and for free.
- One must be enrolled as a student to access the open learning platforms, which is a barrier for non-students.
- AOSP will provide such resources and is looking for partners



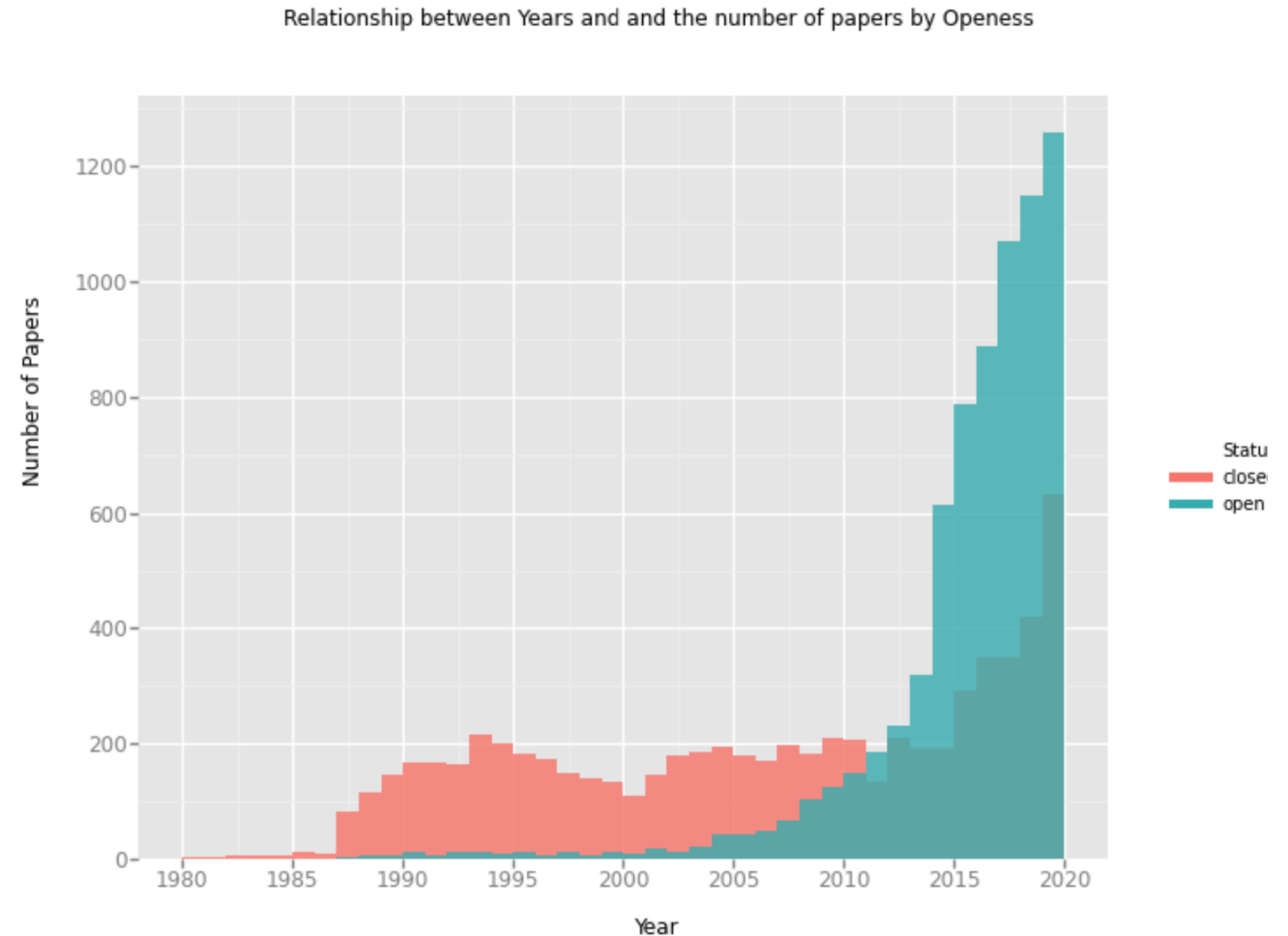
Institutional repositories

- Kenya had 32% of repositories in Africa and was preceded by South Africa, 40% (Bezuidenhout et al., 2020).
- In Kenya research institutions such as the International Centre of Insect Physiology and Ecology (icipe) and Kenya Agricultural and Livestock Research Organization (KALRO) have repositories where their research publications can be accessed
- Jomo Kenyatta University of Agriculture and Technology,, the University of Nairobi (UoN), Kenyatta University, and Africa Nazarene University have institutional repositories and open access resources within their digital Libraries .
- In addition to literature repositories, ILRI has an open access data portal where research data can be accessed. AOSP EA node would like to provide such a portal in support for growth of open access data repositories in African



Adoption of open access publishing by Kenyan authors

- the publishing trend in Kenya shows that scholars increasingly opt to publish in open access journals
- The shift towards open access publishing is particularly welcome in Africa





Summary of African Open Science Policy Framework

(Ref: Wafula et al, 2019)



Policy Statements		Enabling Practices	Policy Implementers										
			1	2	3	4	5	6	7	8	9	10	11
1	Adopt Findable, Accessible, Interoperable and Reusable (FAIR) Data Principle	- Promote open science culture through training and awareness raising - Develop cloud computing facilities that provide networked computation, data access and analysis tools - Promote science diplomacy											
2	Observe instrumental, procedural and distributive data justice while handling, using and distributing data	- Promote open science culture through training and awareness raising - Encourage citizen science - Support open collaboration through ICTs - Develop cloud computing facilities - Support Open Innovation - Promote Science Diplomacy											
3	Establish open access to publications through repositories and journals	- Promote Open Science Culture through Training and Awareness raising - Encourage Citizen Science - Support Open Collaboration through ICTs - Promote Science Diplomacy											
4	Support Submission of data to a repository before submitting the respective manuscript describing the respective data	- Promote Open Science Culture through Training and Awareness raising - Encourage Citizen Science - Support Open Collaboration through ICTs											
5	Develop Shared and interoperable data infrastructure	- Develop cloud computing facilities that provide networked computation, data access and analysis tools - Support open collaboration through ICTs - Support open innovation - Encourage citizen science											

Policy Implementer Key:

1 -Government, **2** -Policy Makers, **3** -Universities, **4** -Scholarly Societies, **5** - Publishers, **6** - Research Institutes, **7** - Research Funding Agencies, **8** -Repositories, **9** - Libraries, **10** -Archives, **11**- Researchers

Policy Statements		Enabling Practices	Policy Implementers										
6	Encourage use of recognized waiver or license that is appropriate for data	- Promote open science culture through training and awareness raising - Promote open software code											
7	Public and private funders should adopt obligatory green, gold or a hybrid of green and gold open access policies with their respective implementation measures	- Promote open science culture through training and awareness raising - Support open collaboration through ICTs - Develop cloud computing facilities that provide networked computation, data access and analysis tools - Support open innovation - Promote science diplomacy											
8	Offer incentives to acknowledge open practices in publications	- Promote open science culture through training and awareness raising - Promote open software code - Develop cloud computing facilities - Support open collaboration											
9	Encourage Open peer-review models	- Promote open science culture through training and awareness raising - Support open collaboration through ICTs - Develop cloud computing - Support open innovation. - Promote science diplomacy											

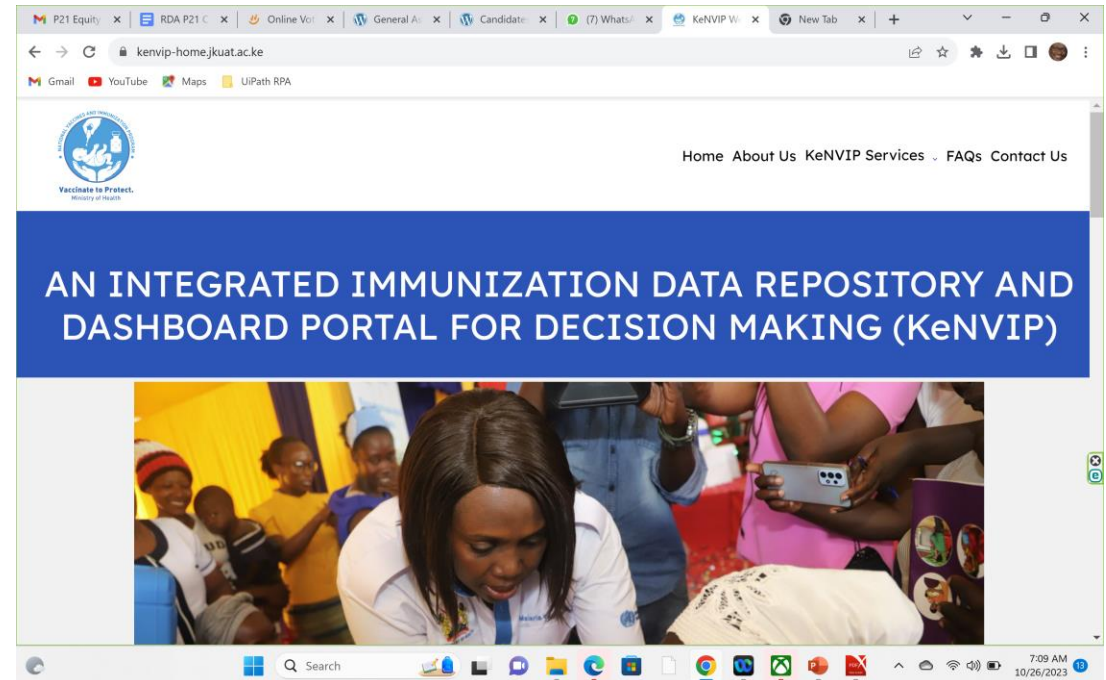
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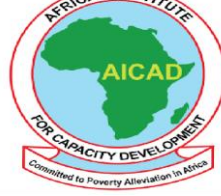
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Current Project

- Development of Data Repository for Decision Making in MoH- National Vaccine and Immunization Program (NVIP) <https://kenvip-home.jkuat.ac.ke/>
 - ✓ Publish APIs
 - ✓ Issue DOIs
 - ✓ Create FIP Communities
- Organizing VizAfrica 2024: Nairobi Feb 5-7, 2024
<https://datatin.net/vizafrica-conference-and-symposium/>
- Proposed to host International Symposium on Open Science Clouds (ISOSC) 2024 (Nairobi)





THANK YOU