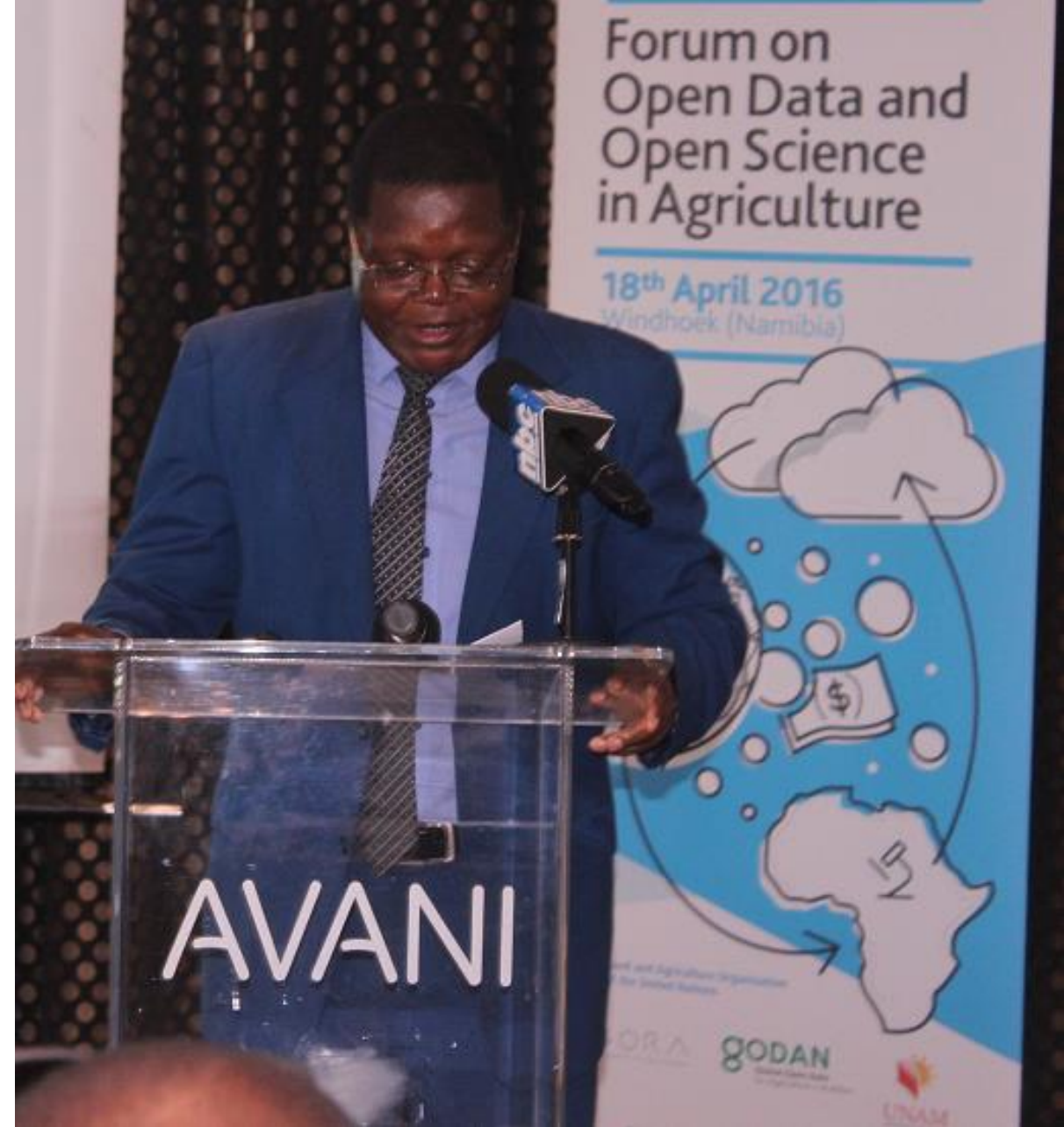


OPEN SCIENCE IN A DEVELOPING ENVIRONMENT

Thoughts on Issues, Challenges and Recommendations



Dr. Victor Kwame Agyeman
CSIR Director General, Ghana, 2016



Prof. Jairos Kangira, Dean - Faculty of Humanities and Social Science
UNAM, Namibia, 2016

Tools
Access Peer Open
Methodologies Reproducible Policies Scientific
♦ Workflows Citizen
Science Review
Data Research

GOAL OF OPEN SCIENCE



...to make the primary outputs of publicly funded research results - publications and the research data - **publicly accessible** in digital format with no or minimal restriction as a means for accelerating research.

(OECD, 2015)

OPEN ACCESS AND PUBLISHING

Institutional Repositories

OpenDOAR

Countries by Region (3801)

Africa (165)

Americas (1022)

Asia (722)

Europe (1789)

Oceania (103)

Open Access Publishing

- African Journals OnLine (AJOL)

255 Open Access Journals

101,817 articles

- AAS Open Research
- AfricArXiv

OPEN SCIENCE FOR WHAT?

“Does open data have any relevance to the daily bread and butter issues that African citizens face?” (ICT Works 2016)

Infectious
Disease
Outbreaks

Population
Growth

Youth
Unemployment

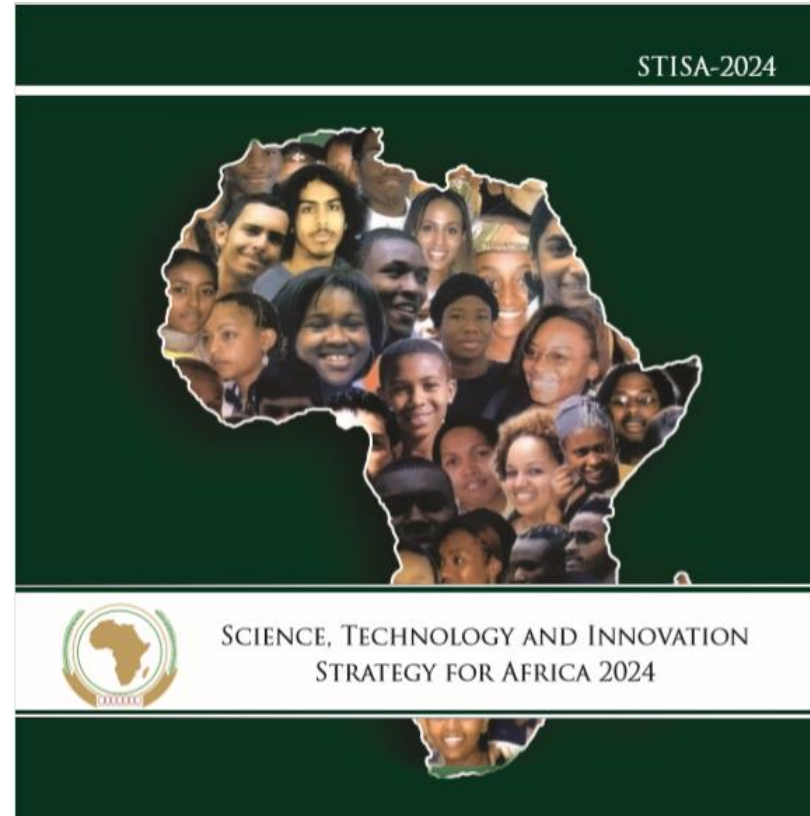
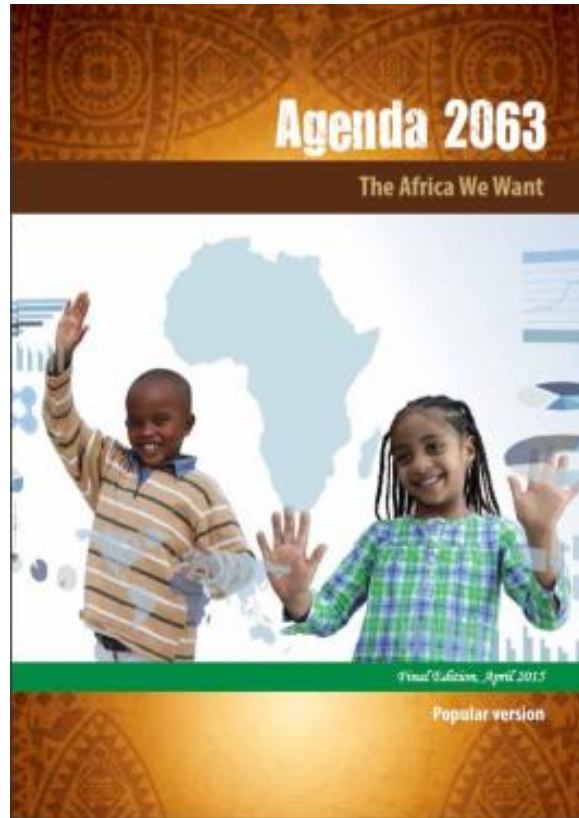
Corruption

Climate Related
Disasters

Poverty

...among others

OPEN SCIENCE FOR WHAT?... /2



THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT



ISSUES AND CHALLENGES

OPEN SCIENCE AGENDA

Open Science is NOT:

- on national governments or regional economic communities' agendas

Many national Open Science initiatives lack government-level logistical and financial support

Africa level?



SCIENCE, TECHNOLOGY AND INNOVATION
STRATEGY FOR AFRICA 2024

INADEQUATE PUBLIC FUNDING FOR R&D

And practically there is no private investment in R&D except for a few countries

Sub-Saharan Africa accounts for:

- less than 1% of the world's research output
- 0.03 % of the world's research data



LEADERSHIP OF OPEN SCIENCE

Strategic leadership for Open Science is missing in most countries

Library and information professionals are playing a key role in most institutions

National public agencies with the mandate for science, technology and innovation (STI) are not actively involved

CONCERNS AND FEARS

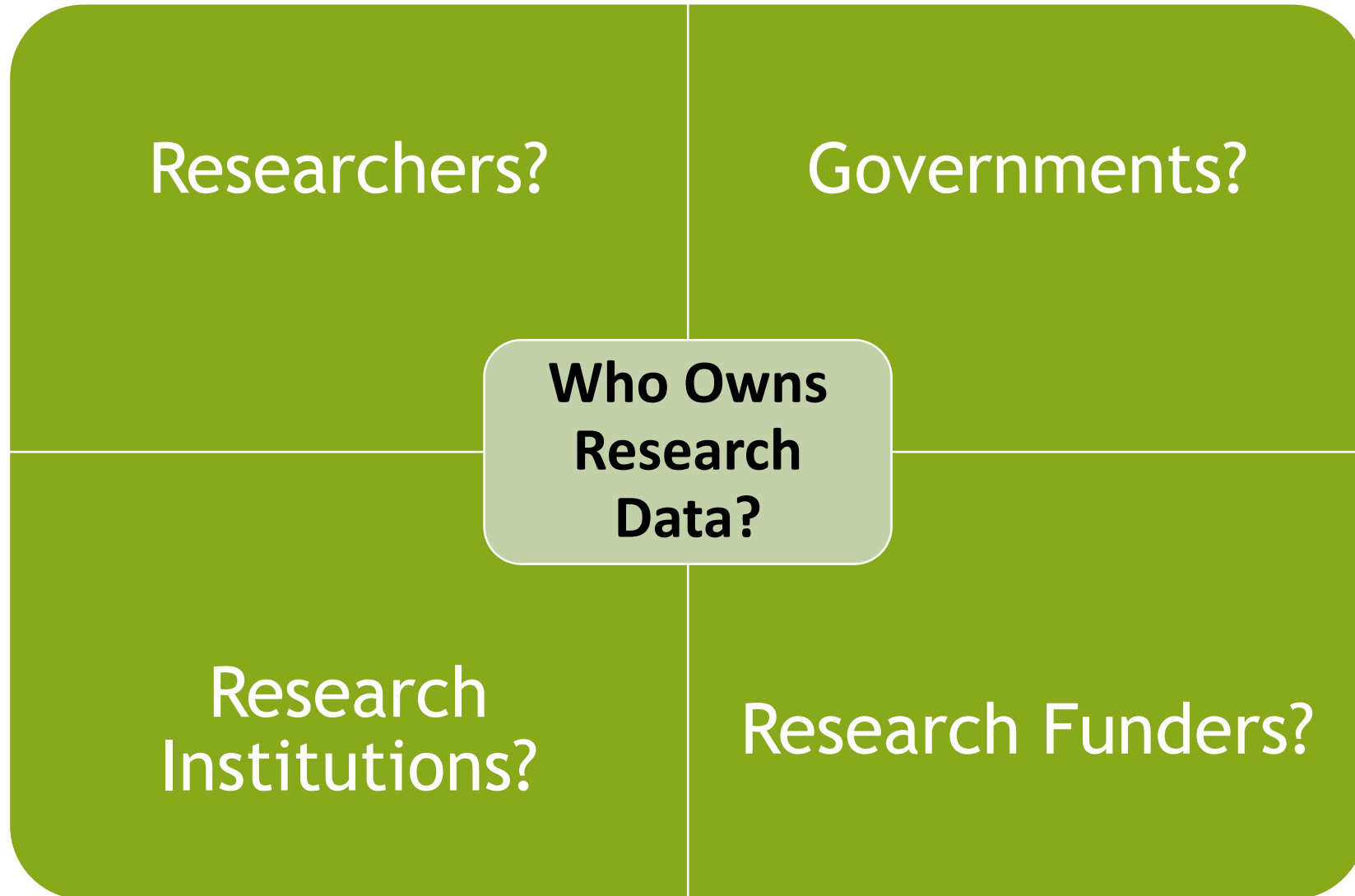


Recognition & promotion is still largely based on publishing in conventional journals ("publish or perish" syndrome)

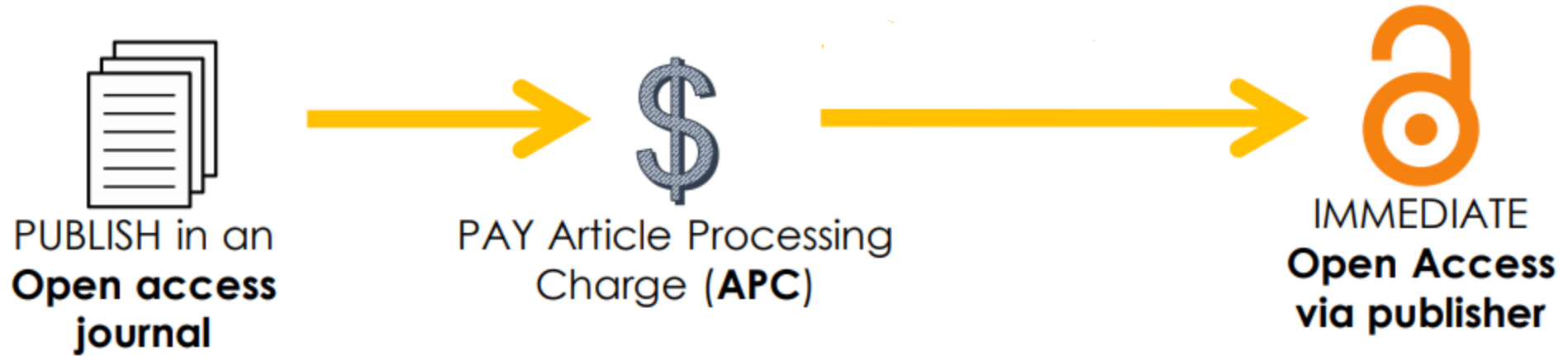
Less credibility given to open access publications

Researchers fear to publish in open research platforms and open access journals

OWNERSHIP OF RESEARCH DATA



GOLD OPEN ACCESS ROUTE - COSTS



Inadequate public funding for research = researchers and institutions can not afford APC

TECHNOLOGICAL BARRIERS

Open access and open data depends on availability of the internet infrastructure

National/regional academic and research networks are helping to secure affordable broadband and efficient ICT access and use



RECOMMENDATION - 1

Develop an Enabling Environment

- Support from the highest political and government levels
- National policy and legal frameworks favourable for Open Science
- Incentive schemes/reward mechanisms for practicing Open Science
- Mandate national research and development agencies to lead or coordinate Open Science Initiatives

RECOMMENDATION - 2

Strengthen Individual & Institutional Capacities

- Equip researchers (and their support and technical staff) with needed appropriate skills and competencies to practise Open Science
- Develop institutional Open Science policies and guidelines
- Invest in digital and support infrastructure for researchers

RECOMMENDATION - 3

Establish or Strengthen National Multi-stakeholder Platforms/Forums

....to contribute to Open Science policy formulation

....to facilitate collaboration, exchange and capitalization of knowledge on Open Science

RECOMMENDATION - 4

Advocate for Open Science

- Deliver key messages highlighting the benefits of open science based on evidence – targets: policymakers, researchers, science students, etc.
- Advocate for reward mechanisms for researchers who make their publications, research data and methodology open for scrutiny

CONCLUSIONS

In developing countries:

- Open Science initiatives should not be pursued for their own sake.
- Open Science should contribute to improving the livelihoods of millions of people (address the daily bread and butter issues)
- Funding for R&D, enabling policy frameworks, strengthen individual & institutional capacities, and multi-stakeholder approaches are key to Open Science in developing countries

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