Domination or Dependence for data collaboration in Africa

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Background: Evolution of Ethical considerations

• Science is not only created using data: **Rational purity vs opinions!**

• **Open data**: What is open and for Who?

• **Aspirations**: Hidden agendas, contentious intent and objectives

• **Confusing**, fragmented landscape, tools, methods, truncated

• **Data disparity** between Global North and South: The power relationships

• **Lack of feedback mechanisms** between data providers and users

• Complex environmental issues through **Transdisciplinary data**
Hippocratic Oath (IV Century Before JC)

“I swear upon a number of healing gods that he will uphold a number of professional ethical standards.

I swear by Apollo, the healer, Asclepius, Hygieia, and Panaceae, and I take to witness all the gods, all the goddesses, to keep according to my ability and my judgment:

- Never do harm to anyone
- Not give a lethal drug to anyone if I am asked,
- will preserve the purity of my life and my arts”
Where data ties with ethics

**Technological sphere:**
What can we do about it?

**Natural science sphere:**
What is going on? Which measures and indicators are useful?

**Legal-administrative sphere:**
Which rules count? Which kinds of regulations are appropriate?

**Political sphere:**
Who decides? Which interests are involved?

**Ethical-cultural sphere:**
Is this a problem? Why? Is it of cultural significance? What place in human history?

Arl, 2006
Science is not only created using data

What are the Ethical Dimensions in Each of the Axis

External considerations

Budget
Storage
Operable

Limited
Large
Access

Locked
Open
Availability

High
Low
Relevant

PATHWAY
Time 1 → Time 2

SCENARIOS
A. Different modulators

Ideal data framework
What data matters?

Integration (not fragmentation)

Relevance, salience, legitimacy etc.

Research impact on actors

Process of monitoring / quality assurance

Research application

Negotiating among various priorities and values
A Big Continent with a Lot of Resources

But Who is telling us the region’s stories?
Normative science vs domestic knowledge

• Addressing common problems through **transdisciplinary** research
• **Europe and USA dominates** the Science in Africa!

Less than 1% of the world’s research output while being home to 12% of the global population

Main foreign partners, 2008–2014 (# papers)

<table>
<thead>
<tr>
<th>Country</th>
<th>First collaborator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benin</td>
<td>France (529)</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>France (676)</td>
</tr>
<tr>
<td>Cabo Verde</td>
<td>Portugal (42)</td>
</tr>
<tr>
<td>Côte d’Ivoire</td>
<td>France (610)</td>
</tr>
<tr>
<td>Gambia</td>
<td>UK (473)</td>
</tr>
<tr>
<td>Ghana</td>
<td>USA (830)</td>
</tr>
<tr>
<td>Guinea</td>
<td>France (71)</td>
</tr>
<tr>
<td>Guinea-Bissau</td>
<td>Denmark (112)</td>
</tr>
<tr>
<td>Liberia</td>
<td>USA (36)</td>
</tr>
<tr>
<td>Mali</td>
<td>USA (358)</td>
</tr>
<tr>
<td>Niger</td>
<td>France (238)</td>
</tr>
<tr>
<td>Nigeria</td>
<td>USA (1309)</td>
</tr>
<tr>
<td>Senegal</td>
<td>France (1009)</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>USA (87)</td>
</tr>
<tr>
<td>Togo</td>
<td>France (146)</td>
</tr>
</tbody>
</table>

Source: Thomson Reuters’ Web of Science, Science Citation Index Expanded, 2014
The value of affiliation

• A global Family or a global competition?
• Developing **soft power** through data
• **Asymmetrical power relationship** largely related to **funding** disparities (Command control vs Engage-align)

Abstracts supposedly originating from leading US and German universities scored higher than identical ones attributed to top universities in Ethiopia and Malawi (*M. Harris et al. Health Aff. 36, 1997–2004; 2017*)
Context specific data and power relationships

• Data & knowledge means power, and thus that the struggle to have data is an inherently political one.

• Engaging users to identify what data they need to act (Legitimacy and salience/relevance)

• Mobilizing various epistemic groups—not just scientists—to produce that knowledge, in ways that...
  • Integrate knowledge of practitioners, outside experts
  • Assure access by all to the fruits of such knowledge mobilization
Data fatigue

Are we producing data we use
Who takes credit of the data collected in Africa
Opportunities Prioritization

• Double equation
  • Where the money comes from?
  • Where the money is invested?

<table>
<thead>
<tr>
<th>Country</th>
<th>Business enterprise sector</th>
<th>Government</th>
<th>Higher education</th>
<th>Private non-profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>0.2</td>
<td>96.0</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>Senegal</td>
<td>0.3</td>
<td>52.0</td>
<td>31.4</td>
<td>16.2</td>
</tr>
</tbody>
</table>

- Business enterprise sector
- Government
- Higher education
- Private non-profit

Note: Complete data for each sector are unavailable for other West African countries.

Source: UNESCO Institute for Statistics, January 2015
Economic Stakes entails Legal implications
Managing the tension between:
confidentiality and transparency

Discovery

Innovation

Transformation

Patents, Property rights, protectionism, private competitions, etc.
35% of African population has access to internet
Diversity of products and scales

Very high scale: Inventory data in situ
High scale: Protected forest, Village forests
Medium scale: National (vegetation types)
Low scale: Regional (biomes)

More parameters, Higher complexity
Data Governance: Scaling up information

Knowledge transfer platform

Audit/Screening of Demand driven data

Research Centers

Curation of data

Data by sector vs integrated data

All Actors / Partners
Lessons learnt

Application, scaling up, partners

Data Package

Ethics should be managed along the data value chain
Building Resilience Through Data

https://www.prepdata.org/

PREP — both through the Partnership and its PREPdata platform — helps visualize and customize data, improves access to datasets, and supports the climate resilience ecosystem.

PREP Membership Today

Coordination & Core Partners
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- NOAA
- United States Global Change Research Program

NGO Partners
- American Society of Adaptation Professionals
- The Collider
- EcoAdapt
- SIP

Private Sector Partners
- Amazon Web Services
- Esri
- Microsoft
- Google

https://www.prepdata.org/
Ninad Bondre
Independent Scholar working on Science Communication in Sweden

• At times, the role of the local researchers is reduced to that of a tourist guide: they help negotiate and open up the physical and cultural terrain rather than conceive of projects or contribute equally.

• These local researchers, too, accept this role, perhaps because the resources/facilities at their disposal don't always allow them to rectify the imbalances of privilege. For them, thus, the choice is between being the last author on a paper versus not being an author at all.

• There are many good recommendations, hopefully some of them will be implemented with unrelenting diligence!