Agricultural Productivity Program for Southern Africa (APPSA)

Knowledge Management and Communication in Research & Development Projects

Dr. Gracian Chimwaza,
ITOCA - Information Training & Outreach Centre for Africa
Knowledge Management (KM)

• The process of creating, sharing, using and managing the knowledge and information of an organization/programme

• It refers to a multidisciplinary approach to achieving organizational objectives by making the best use of knowledge

• Systematic approach – that promotes a culture of learning and a continuous process
What is Knowledge Management?

Knowledge management (or “KM”) is the management of knowledge within organizations.

Puja Shrivastav
SCIENTIFIC AND KNOWLEDGE GAP

Researchers: Total world share (Source: UNESCO¹)

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>2.2%</td>
</tr>
<tr>
<td>Canada</td>
<td>1.9%</td>
</tr>
<tr>
<td>USA</td>
<td>20.0%</td>
</tr>
<tr>
<td>Asia</td>
<td>40.9%</td>
</tr>
</tbody>
</table>

Patent application share (Source: WIPO²)

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed Countries</td>
<td>74.1%</td>
</tr>
<tr>
<td>Rest of the World</td>
<td>25.9%</td>
</tr>
</tbody>
</table>
AFRICAN AGRICULTURAL RESEARCH OUTPUT LANDSCAPE

• **ACCESS ISSUES**

• **INFRASTRUCTURE:** IT/Internet connectivity
  ✓ Initiatives to address high bandwidth costs

• **CONTENT:** Digital collections growing
  ✓ Initiatives to improve access

• **SKILLS AND AWARENESS ISSUES**
  ✓ Information competence skills
  ✓ Low uptake and usage issues
  ✓ Scientific writing + publishing skills
INTERNET BROADBAND EXPANSION

- Undersea Cable Expansion
- Over 10 Tb + growing
- Inland connections still to come
- Last mile challenges
  - government, pvt, agents, NRENs,
CONTENT ISSUES

- The **most up-to-date research knowledge** found in digital collections, databases (e-journals, e-books, IR)
- Subscriptions **increasing at 11-16% annually**
- **Limited access** to the world’s published knowledge results in
  - Duplication of efforts
  - Limits in innovation and diminished ROI
- **Offline access** to literature is still necessary for some institutions due to **limited Internet**
EFFORTS TO IMPROVE CONTENT ACCESS

OA initiatives

AGRIS  AgriKnowledge.org  Institutional Repositories  OER’s

DOAJ  PLOS  OpenDOAR

Bridging solutions (not OA)

research4life
The world’s leading primary research and review journals are still behind “pay walls”
Research Outputs Communication

• Publications
  – Online portals/databases
    • e.g. CCARDESA SAAIKS Knowledge Hub, Knowledge products
  – Print

• Meetings (F2F, Blended, Online)
  – Conferences
  – Seminars
  – Workshops
200+ R+D scientists trained in specialised Workshops

<table>
<thead>
<tr>
<th>Country</th>
<th>Course</th>
<th>No. Trained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lusaka-Sep 2017</td>
<td>Statistical planning and analysis</td>
<td>29</td>
</tr>
<tr>
<td>Lilongwe-Sep 2017</td>
<td>Information repackaging for specific target audiences (knowledge translation)</td>
<td>40</td>
</tr>
<tr>
<td>Kabwe-Sep 2017</td>
<td>Development of Scientific products</td>
<td>35</td>
</tr>
<tr>
<td>Maputo-Sep 2017</td>
<td>Statistical planning and analysis</td>
<td>34</td>
</tr>
<tr>
<td>Maputo-Sep 2017</td>
<td>Development of Scientific products</td>
<td>36</td>
</tr>
<tr>
<td>Salima-Oct 2017</td>
<td>Proposal development and resource mobilization</td>
<td>31</td>
</tr>
</tbody>
</table>
Conferences

- 1st Ag Science Week in SA: "Agricultural Productivity Innovations; Agri business; Trade and Markets 20-24 JUNE 2017, Malawi
- High Level Regional Policy Multi-Stakeholder Dialogue - Maputo, Mozambique - November 2018
- AFAAS Agricultural Extension Week - Durban, South Africa - November 2017
- Regional Conference on Climate Smart Agriculture - Johannesburg, South Africa - August 2016
- Botswana Youth Agribusiness Forum - Gaborone, Botswana – November
- Global Climate Smart Agriculture Conference - Johannesburg, South Africa - November 2017
CCARDESA/APPSA

Workshops

• Climate Finance and Proposal Writing Training - Gaborone, Botswana - December 2018
• ICKM Community of Practice Training Workshop - Johannesburg, South Africa - October 2018
• Approaches to Adaptation and Climate Smart Agriculture in the SADC Region - Réduit, Mauritius - June 2018
• Dry Season Management Workshop - Gaborone, Botswana - May 2017
• Approaches to Adaptation and Climate Smart Agriculture in the SADC Region - Harare, Zimbabwe - September 2017
• Approaches to Adaptation and Climate Smart Agriculture in the SADC Region - Ongwediva, Namibia - September 2017
• Approaches to Adaptation and Climate Smart Agriculture in the SADC Region - Cape Town, South Africa - October 2016
• Skills Training - Manzini, Eswatini May 2016
Research Output Quality

- Open data and Open Science Underpinning KM & Communication
- Systematic Reviews enhancing evidence based research
What is Open Data and Open Science?
Why Open Data and Open science?
Open Science

“The conduction of science in a way that others can collaborate and contribute, where research data, lab notes and other research processes are freely available, with terms that allow reuse, redistribution and reproduction of the research”

FOSTER Project - https://www.fosteropenscience.eu/foster-taxonomy/open-science-definition
Open Science entails...

- **Transparency** in methodology and collection of data
- **Availability** and **re-use** of scientific data
- **Public accessibility** to scientific communication
- Using **digital tools** to facilitate **scientific collaboration** and **sharing of data**
Why Open Science?

• Improve efficiency in science
• Increase transparency and quality in the research validation process
• Speed the transfer of knowledge
• Increase knowledge spill-overs to the economy
• Address local & global challenges more effectively
• Promote citizens’ engagement in science and research

UK eInformation Group
Research Data

- "information, in particular facts or numbers, collected to be examined and considered and as a basis for reasoning, discussion, or calculation"

*European Union Commission*
Research Data - Examples

- Statistics
- Results of experiments
- Measurements
- Observations resulting from fieldwork
- Survey results
- Interview recordings
- Images

A lab technician testing and registering data collected on soil samples at the Sokoine University of Agriculture. Photo credit: ©FAO/Simon Maina
Open Data

• “Primary scientific data should be available to anyone without restrictions from copyright, patents, or other mechanisms of control”

• Open Data also applies to opening up of government data.

• In Africa: Ghana, Kenya, Rwanda, South Africa, Burkina Faso, Tanzania are among countries implementing Open Data initiatives. Opendatabarometer.org
Open Data...

• Data must first be both “technically open” and “legally open.”
  - Technically open: available in a machine-readable standard format (usually accessed on the web).
  - Legally open: explicitly licensed to allow commercial and non-commercial use and re-use without restrictions.

• Data also must also be of good quality
Agricultural Productivity Program for Southern Africa (APPSA)

Systematic Reviews enhancing evidence based research
What is a systematic review (SR)?

- “...a scientific investigation that focuses on a specific question and uses explicit, pre-specified scientific methods to identify, select, assess, and summarize the findings of similar but separate studies.”

- SR gleaning experiences from health and bio sciences disciplines

- SR require more time & effort than literature review conducted on primary agricultural research.
Critical components

• A methodical, comprehensive literature synthesis focused on a well-formulated research question
• Identifies and synthesizes all of the available literature on particular topic
• Is conducted in an unbiased, reproducible way
• Identifies gaps in research
• Provides evidence for practice and policy-making
What authors DO

Identify the issue and determine the question

Write a plan for the review (protocol)

Search for studies

Sift and select studies

Extract data from the studies

Assess the quality of the studies

Combine the data (synthesis or meta-analysis)

Discuss and conclude overall findings

Systematic Review

Dissemination
Best available evidence

EVIDENCE-BASED DECISION MAKING

Populations’ or clients’ needs or expectations

Resources & practitioner expertise

https://www.cebi.ox.ac.uk/for-practitioners/how-to-use-evidence.html
Takeaways

• **Research output quality, access and user skills** need to be addressed if produced knowledge and technologies are to be managed & communicated effectively in African R + D institutions

• **Open Data and Open Science** is underpinning research and will benefit R +D practice going forward

• **Evidence based decision** making depends on research quality data and analysis
What’s in it for you?

$2M will be distributed to the Top Visionaries, who will be eligible to receive a prize of $200,000 each.

For more information:

https://www.foodsystemvisionprize.org/
Thank You!