Experiences in Open Research & Education for Sustainable Development in Africa

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UCT-SPARC Africa open access Symposium 2019, in Cape Town, SA from 3rd to 7th December 2019
A University of Global Excellence in Training, Research, Innovation & Entrepreneurship for Development
“Effective Communication & Open Science is Key to Solving Current Global Challenges”
Open Research & Resources

- Participatory & Multi-Disciplinary Research
- Open Data
- Open Science
- Open access publishing
- Institutional Repositories
- Open Educational Resources
## Advocacy for IR and Open Research

<table>
<thead>
<tr>
<th>Event</th>
<th>Venue</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Eifl &amp; CKUL (Workshop) – Kenyan University</td>
<td>UoN-CCU</td>
<td>9/2/2010</td>
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<tr>
<td>2. Importance of Open access video recorded</td>
<td>UoN-CCU</td>
<td>9/2/2010</td>
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<tr>
<td>3. Eifl/JKUAT Open access workshop &amp; IR</td>
<td>AICAD/JKUAT</td>
<td>8/2010</td>
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<td>4. BioMed Central - Open access in Africa</td>
<td>KUCC</td>
<td>10/11/2010</td>
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<tr>
<td>5. Eifl/UoN Open access &amp; IR workshop</td>
<td>UoN - CCU</td>
<td>30/8/2012</td>
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<tr>
<td>6. Eifl/UoN Open access workshop &amp; IR</td>
<td>AICAD/JKUAT</td>
<td>18/10/2012</td>
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<tr>
<td>7. Eifl &amp; CUUL (workshop) - Agric Researchers</td>
<td>Kampala, Ug</td>
<td>14/5/2014</td>
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<tr>
<td>8. KALRO/FAO – Open data &amp; Open Science</td>
<td>Nairobi</td>
<td>15/6/2015</td>
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<tr>
<td>9. IBM-JKUAT - Open data &amp; Science, Cloud dev</td>
<td>NSC-JKUAT</td>
<td>29/6/2015</td>
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<tr>
<td>10. KLISC-Open Access Policy Formulation</td>
<td>Panafric Hotel</td>
<td>26/10/2016</td>
</tr>
<tr>
<td>11. KLISC-Open access policy implementation</td>
<td>Karatina Uni</td>
<td>18/05/2017</td>
</tr>
<tr>
<td>12. KLISC- Open access policy implementation</td>
<td>CUEA. Ke</td>
<td>26/07/2017</td>
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## Advocacy for IR and Open Access Research

<table>
<thead>
<tr>
<th>Organizers/Presentation/Activity</th>
<th>Venue</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. KLISC-Open access publishing workshop</td>
<td>Nairobi-Safari Club</td>
<td>04/10/2017</td>
</tr>
<tr>
<td>14. KLISC/EIFL OP Policy Formulation workshop for Gv institution managers</td>
<td>Nairobi Safari Club</td>
<td>28/02/2018</td>
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<tr>
<td>15. Santa Clara university, California, USA</td>
<td>Zoom</td>
<td>25/10/2018</td>
</tr>
<tr>
<td>16. University of Cape Town &amp; SPARC</td>
<td>Cape town (S/A)</td>
<td>5th /12/2019</td>
</tr>
</tbody>
</table>
Research on AIVs

- Multidisciplinary Research Program
- Participatory Research
- Unknowingly used the Value chain approach

JKUAT- 1991

Maseno University 1996
Research on AIVs

To Promote Sustainable Production and Utilization of AIVs for Nutrition Security and Poverty Reduction in Kenya (Africa)
Research Activities

• Germplasm collection and evaluation
• Seed bulking, Processing and Packaging
• Characterization of AIVs
• Agronomic studies
Research Activities

• Advocacy and Outreach
• Capacity building
  – Undergraduate and post graduate students
  – Farmers and CBOs
  – Policy makers
• Dissemination
Impact & Effects of AIVs Research

1. Quality seed
2. Leaflets
3. Good crop for farmers
4. Availability & Consumption
5. Products
6. A healthy Nation
## Publications and Communications

<table>
<thead>
<tr>
<th>Publications &amp; Channels of Communication</th>
<th>Approximate No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Public Lectures and keynote speeches</td>
<td>40 (50% open access)</td>
</tr>
<tr>
<td>2. Theses</td>
<td>02 (50%)</td>
</tr>
<tr>
<td>3. Books and Book chapters</td>
<td>15 (50% e-books)</td>
</tr>
<tr>
<td>4. Dissemination Leaflets</td>
<td>15 (50% open access)</td>
</tr>
<tr>
<td>5. Technical Reports</td>
<td>10 (50% open access)</td>
</tr>
<tr>
<td>6. Technical Books and Booklets</td>
<td>11 (20%)</td>
</tr>
<tr>
<td>7. Magazine and Newspaper articles</td>
<td>20 (50% open access)</td>
</tr>
<tr>
<td>8. Audio and Videos (Documentary, Radio, TV)</td>
<td>20 (20% open access)</td>
</tr>
<tr>
<td>9. Scientific refereed conference papers</td>
<td>40 (80% open access)</td>
</tr>
<tr>
<td>10. Scientific refereed Journal Papers</td>
<td>40 (85% open access)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>213</strong></td>
</tr>
</tbody>
</table>
Publications and Communications

- Scientific papers publications
  - Traditional Print Journals (Long time)
  - International Journals (Biased Rejection)
  - Open Access Journals
- Open Access Journals (DOAJ)
Open Access Platforms

- Google Scholar – demonstrate
- Research gate
- Academia.edu
JKUAT TOP MANAGEMENT STRUCTURE

- Vice Chancellor's Office
  - Academic Affairs Division
  - Administration Division
  - Finance Division
  - Research, Production & Extension Division
Co-ordination of Research, Production, Innovations, Extension & Collaborations

Co-ordination of workshops and Seminars

Soliciting for funds for research, innovations and production

Co-ordination of income generating units

Co-ordinate the activities of competence centres
Research Production & Extension Division

1. Research
2. Production
3. Extension
4. Linkages
5. University Community
   Collaboration Department (UCCD)
6. University Farm

Thematic Research Centers
- Institute of Energy & Environmental Technology (IEET)
- Institute for Biotechnology Research (IBR)
- Sino-Africa Joint Research Center (SAJOREC)
- Water Research & Resource Center (WARREC)
- Sustainable Materials Research and Technology Centre (SMARTEC)

Income Generating Units
- Chemistry Products Centre (CPC)
- Food Technology Centre (FOTEC)
- JKUAT Nursery school
- University Bookshop
Research/Innovation Support

• Sources of Funding
  – Internal Funding (JKUAT Upto2018)
    • Required to be multi-disciplinary
  – NRF Funding (Post-Graduate & Multi, support infrastructure development)
  – KENIA: Kenya National Innovation Agency
  – External Funding (EU, JICA, IFS, BGF, BMZ)

• Funding with different requirements with regards to IP & ABS, Publications & Dissemination
JKUAT - 54 Patents (DIPUIL)

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patents</td>
<td>8</td>
</tr>
<tr>
<td>2. Utility Models</td>
<td>15</td>
</tr>
<tr>
<td>3. Industrial Designs</td>
<td>1</td>
</tr>
<tr>
<td>4. Trade Marks</td>
<td>27</td>
</tr>
<tr>
<td>5. Copy Rights</td>
<td>3</td>
</tr>
</tbody>
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How open can we be with innovations? - IP Policy Restrictions
Major events include

- JKUAT annual Open day
- Central Kenya ASK Show at Nyeri,
- Nairobi International Trade Fair
- Commission For University Education(cue) Exhibition
- JKUAT Annual Tech-Expo
- Other exhibitions and farmer events as often requested/approved
- Planning Open Mkulima Expo
Extension and Technology Transfer
MASS MEDIA
Dissemination
Smart Harvest & Technology
JKUAT Institutional Repository

Background

• Open access sensitization workshop for Kenyan Universities and publishers
  – February 2010 – UoN- CCU
  – CKUL & EIFL
  – Video on the importance of open access publishing

• Open access introduced to JKUAT
  – Workshop on benefits of OP
  – JKUAT Library & EIFEL
  – Creation of a committee to develop OA Institutional policy

JKUAT DR Policy
JKUAT-Institutional Repository

Development

• OA policy was developed between 2010 and 2012
  – through a consultative process
  – All inclusive committee
• Approved and adopted on 22\textsuperscript{nd} of June 2012
• \url{https://goo.gl/PZex4O}
• October, 18 2012-IR Workshop held at AICAD-JKUAT
• IR publicly launched by the VC

JKUAT DR Policy
JKUAT Institutional Repository

ir.jkuat.ac.ke

- Collects, Preserves, and Distributes digital materials available at Jomo Kenyatta University of Agriculture and Technology.
- Communities in the Repository
- JKUAT Graduation Cere (4)
- JKUAT in the news (0)
- JKUAT Journals (170)
- JKUAT Key Speeches (71)
- JKUAT Library (16)

JKUAT DR Policy
JKUAT Institutional Repository

- Policies/Reports/News (2)
- Research papers/conference proceedings (1447)
- Theses and dissertations (1601)
- University projects and collaborations (0)
- View on line -Internet
- Search Abukutsa on JKUAT IR
Benefits and Achievements

Achievements

• The issue of the IR has been taken up by the Vice Chancellor who constantly follows up on progress

• The VC has made it mandatory for JKUAT staff to have Google Scholar accounts. This makes it easier for the library to harvest research by JKUAT researchers

• Ranking of Universities

JKUAT DR Policy
Open Data

• CODATA: Committee on Data-ICS
• Regional data sharing centre
• JKUAT-CODATA member org
• JKUAT Established CODATA -2016
• ICT Centre of Excellence & Open data (iCEOD)
• Improve the quality, reliability, management and accessibility of data
Open Data

• Process (2014-2016) - Open Research Data Policy (online)
  • Sensitization workshops - 2015
  • Open data, open Science & cloud development at JKUAT
• Competitions – among researchers
  • African Indigenous vegetables
• Trainings and Workshops
Benefits of IR and Open Research

• Dissemination of Information to end users
• Knowledge and Information Sharing
• Availability of Reference Materials for Scholars
• Information and knowledge for Development
• Visibility of Scholars- citations on Google scholar
• Professional Advancement
• Invitations to conferences as key note speaker
• Increased collaborations
• Job opportunities and Consultancies
• Repositioned AIVs to Super Vegetables
• Recognition and Awards: Edinburgh Medal 2014
Recognitions and Awards

1. KARI-1998
2. CGIAR-2007
3. Gender and Diversity-2009
4. CTA/FARA/RUFORUM-2009-African Woman Scientist Competition-1st Prize
5. RUFORUM IMPRESSA Prize- July 2010-3rd Position
6. AU Woman Scientist-Earth and Life Sciences EA region- 1st Position-2010
7. Elder of the Order of the Burning Spear (EBS)
8. Edinburgh Medal in 2014, city of Edinburgh
African Indigenous Vegetables
Moved from being Poor man’s food/weeds in 1991 to Super Vegetables in June 2015 as result of Open Access Publishing

See the link below to Nature Magazine

Main Streaming OP Research at JKUAT

• Policies:
  • Research,
  • IP, Open
  • Research data policy
  • Digital Repository Policy

• Identifying Champions
• Advocacy workshops for researchers & students
• Training of staff and Students
• Bench Marking with other Institutions
• Include in the Research reward system
Open Educational Materials

• Initiated in 2012-2014 by ICT Department
  – Course Outlines
  – Lecture notes
  – Reading Materials
  – Modules
  – Assignments

• Sensitization workshops and trainings (Colleges)
  – Very few lecturers turned up for training
  – Fear of their work need to revisit
Challenges

• Poor internet connectivity (ICT)
• Inadequate ICT infrastructure
• Inadequate advocacy and misconceptions
• Managing IP Rights issues
• Lack of awareness of publisher copyright and obligations. Researchers end up publishing in journals that restrict open access making it impossible to upload their work in our IR
• Harvesting research is a tedious process because the library has to confirm with different publishers on archiving rights
Conclusions

• Deliberate efforts should be made and policies and strategies put in place to support open Research and Educational materials
• Scientific Research findings must be effectively communicated to the public for impact on society and policy by repackaging them (Real Impact? )
• Researchers and scholars should make efforts to publish in open access journals
• Develop enabling environment for open Science and OP publishing for researchers
• Identify African Open Science Champions (AAS)
• Clear reward systems be established
Thank You