



JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

*Setting Trends in Higher Education, Research and Innovation*

# Experiences in Open Research & Education for Sustainable Development in Africa

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JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

*Setting Trends in Higher Education, Research and Innovation*

# **A University of Global Excellence in Training, Research, Innovation & Entrepreneurship for Development**





JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

Setting Trends in Higher Education, Research and Innovation



***“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

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





# Research on AIVs

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

**JKUAT- 1991**

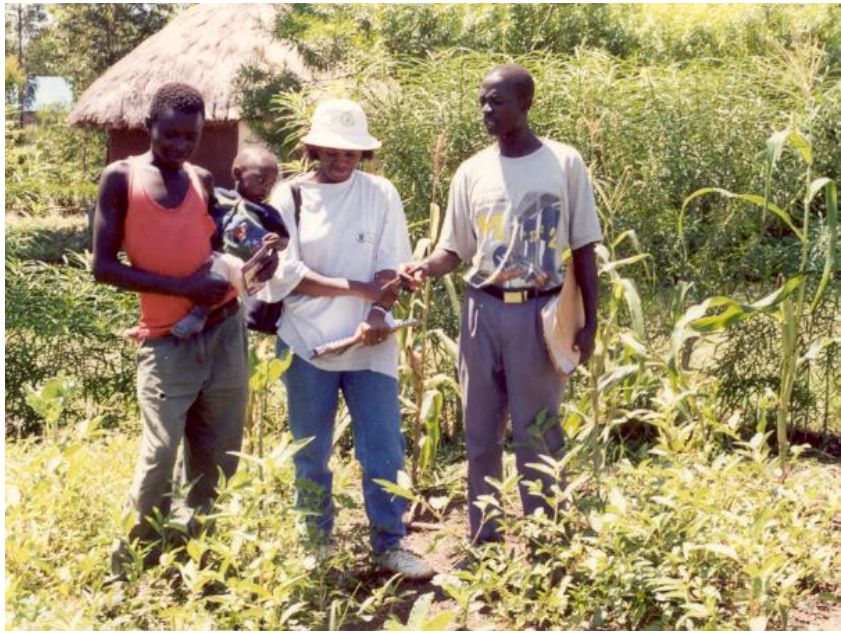
**Maseno University 1996**





# 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**



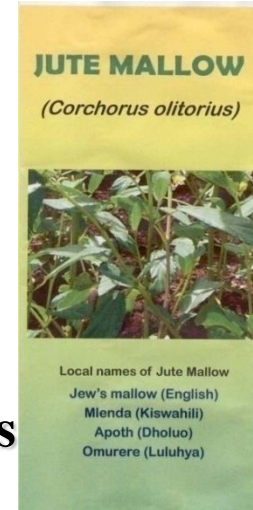
# Impact & Effects of AIVs Research



**6. A healthy Nation**



**3. Good crop for farmers**



**2. Leaflets 1. Quality seed**

**4. Availability & Consumption**

**5. Products**

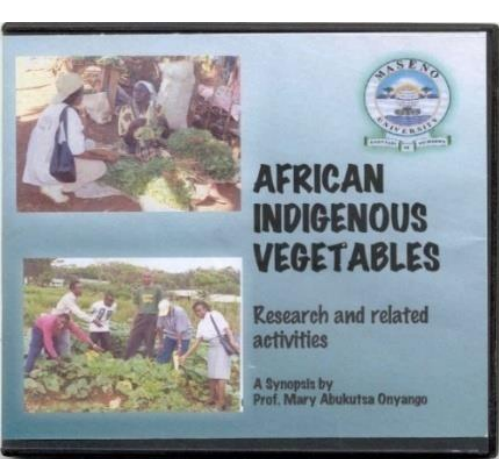
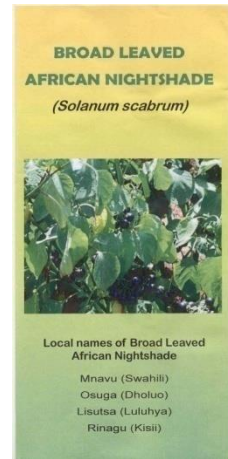


# Publications and Communications

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

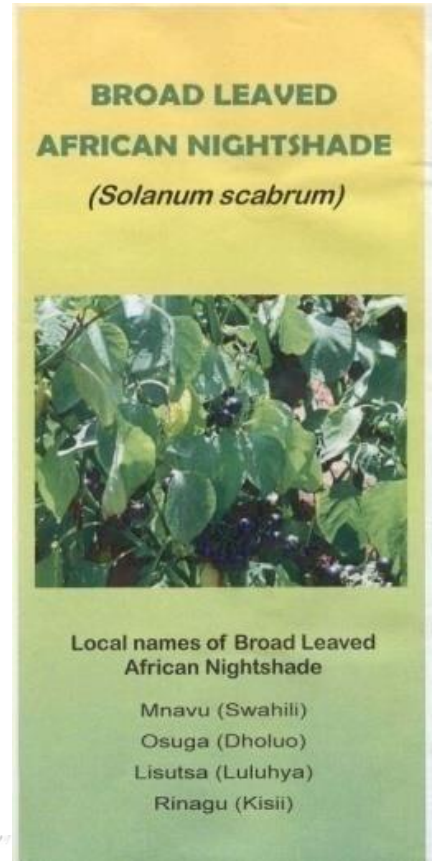
# Publications and Communications

- Scientific papers publications
  - ❖ Traditional Print Journals (Long time)
  - ❖ International Journals (Biased Rejection)
  - ❖ Open Access Journals
- Open Access Journals (DOAJ)
- African Journal of Food, Agriculture, Nutrition & Development-2007



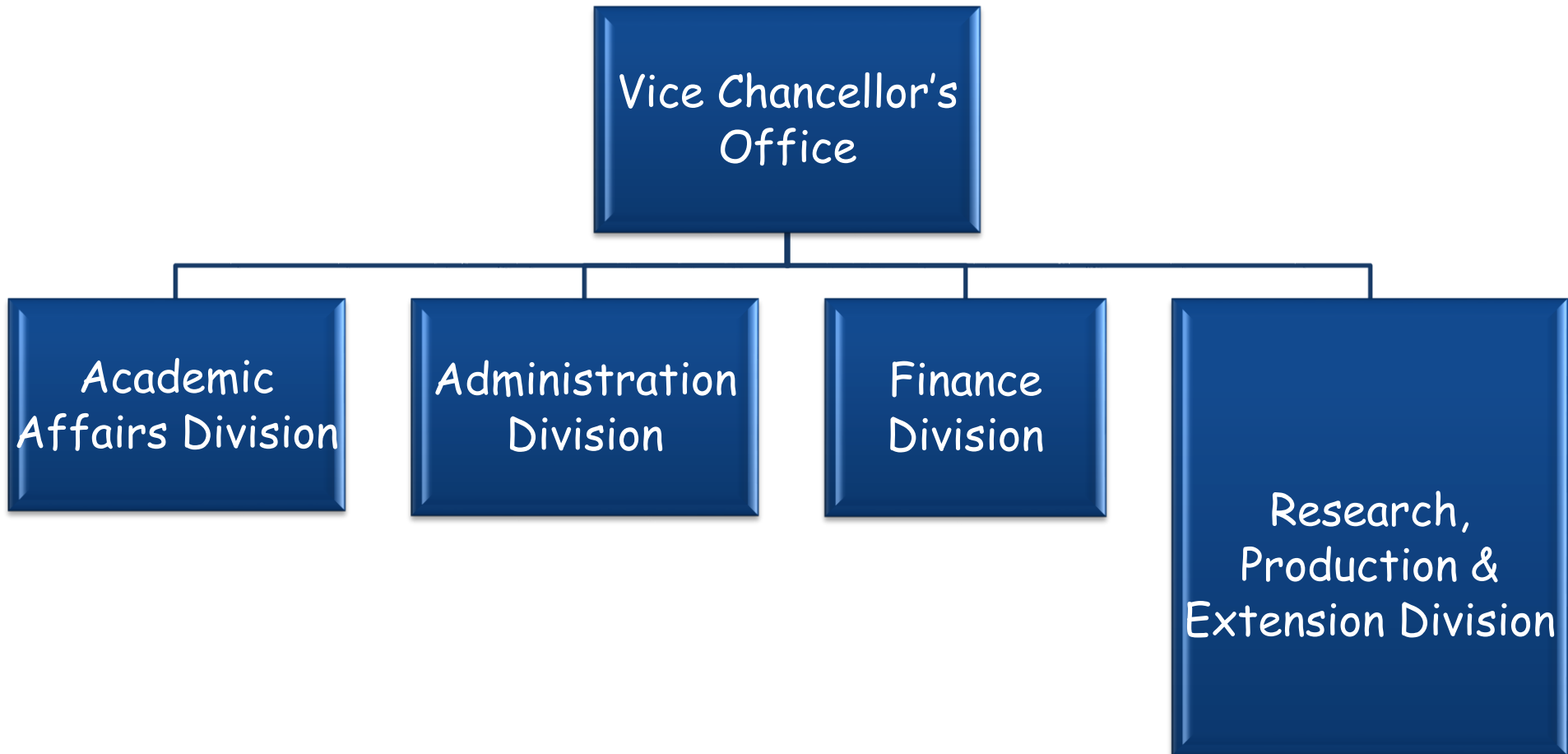
# Open Access Platforms

- **Google Scholar**  
– demonstrate
- **Research gate**
- **Academia.edu**





# JKUAT TOP MANAGEMENT STRUCTURE





## Research, Production & Extension Division Responsibilities (June 2017)



- **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

Production/Innovations



Research



Extension & Technology Transfer

Linkages

Directorate / Departments of RPE

- 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)

Category	Number
1. Patents	8
2. Utility Models	15
3. Industrial Designs	1
4. Trade Marks	27
5. Copy Rights	3

**How open can we be with innovations?-IP Policy Restrictions**



# Dissemination and Technology Transfer

**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



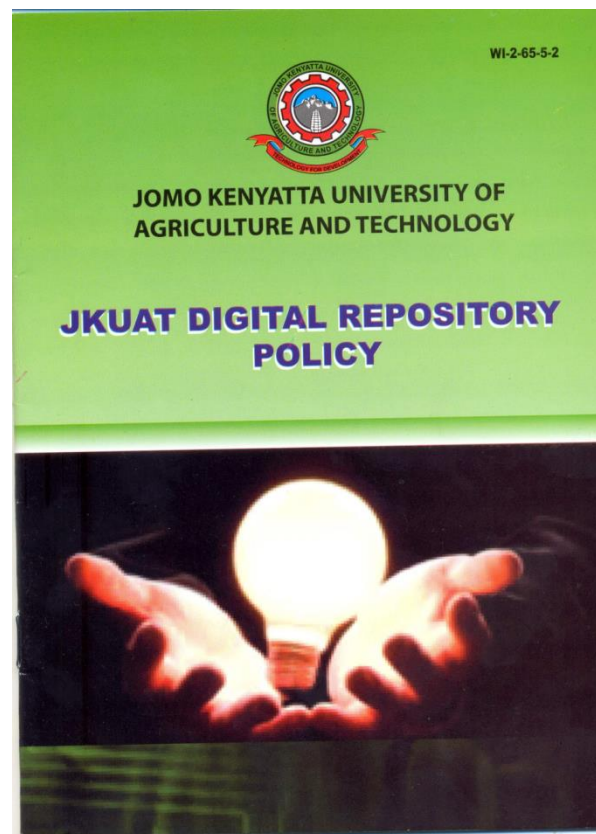


# **JKUAT Institutional Repository**

## **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

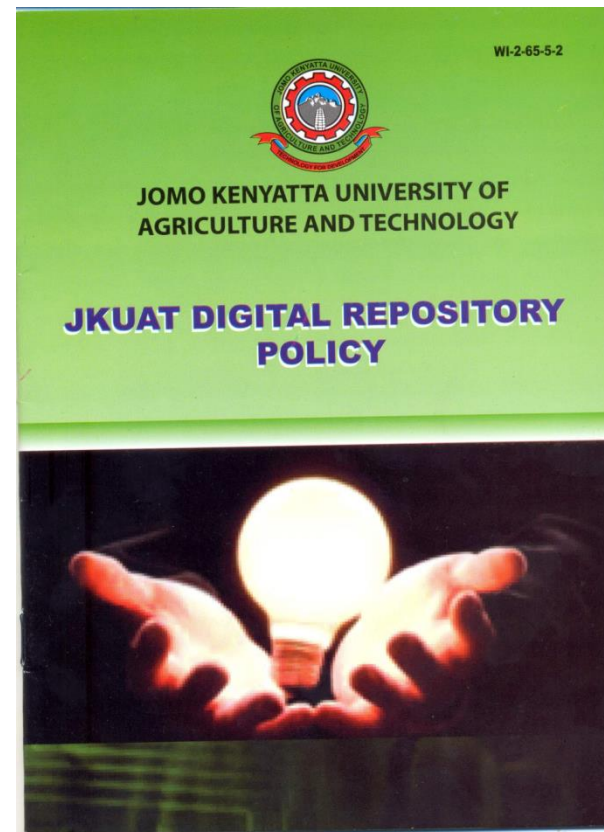
## Development

- OA policy was developed between 2010 and 2012
  - through a consultative process
  - All inclusive committee
- Approved and adopted on 22<sup>nd</sup> of June 2012
- <https://goo.gl/PZex40>
- October , 18 2012-IR

Workshop held at AICAD-JKUAT

- IR publicly launched by the VC

## JKUAT DR Policy

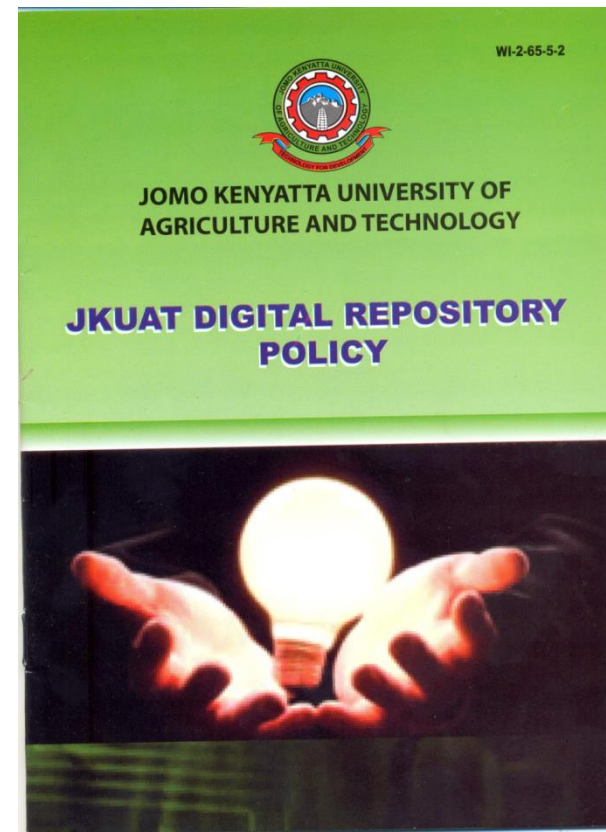


# JKUAT Institutional Repository

[ir.jkuat.ac.ke](http://ir.jkuat.ac.ke)

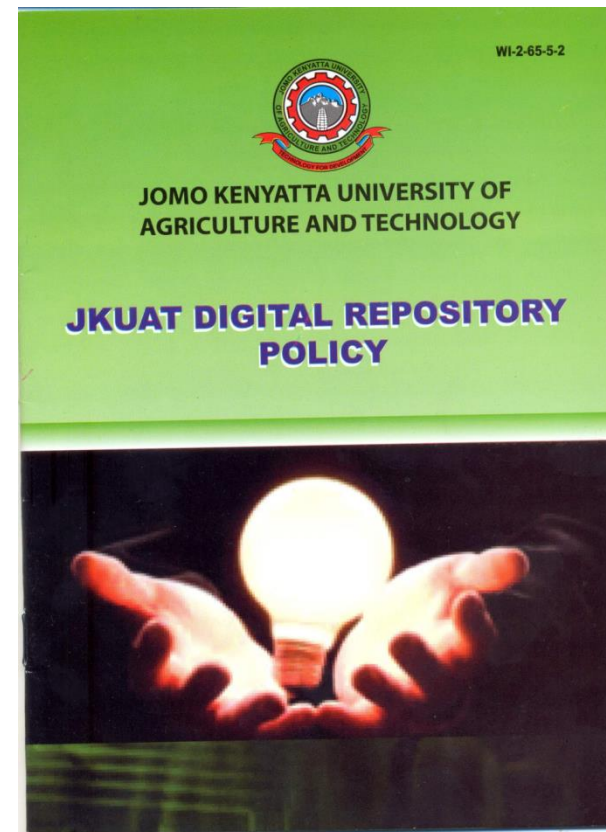
- **Collects, Preserves, and Distributes digital materials available at Jomo Kenyatta University of Agriculture and Technology.**
- **Communities in the Repository**
- **JKUAT Graduation Cere (4)**
- **JKUAT in the news (0)**
- **JKUAT Journals (170)**
- **JKUAT Key Speeches (71)**
- **JKUAT Library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

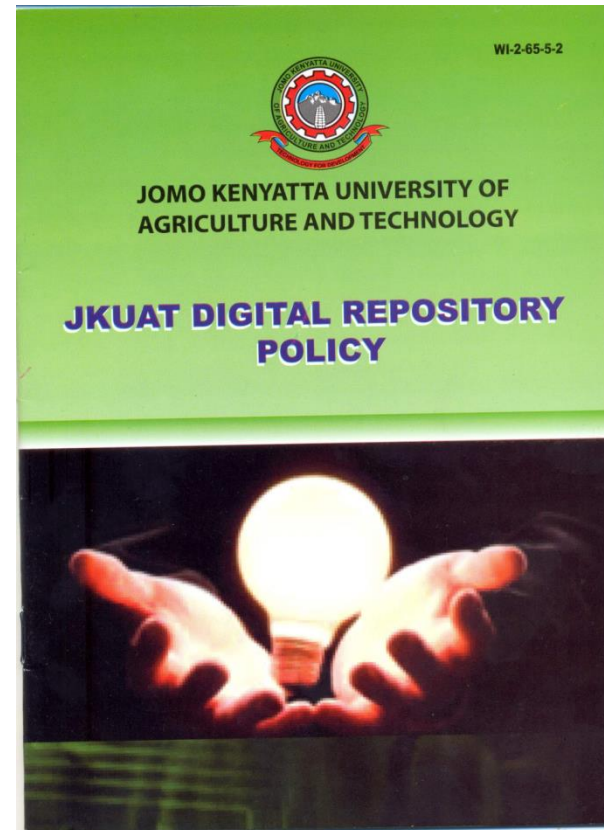


# Benefits and Achievements

## 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-1<sup>st</sup> Prize**

**5. RUFORUM IMPRESSA Prize- July 2010-3<sup>rd</sup> Position**

**6. AU Woman Scientist-Earth and Life Sciences EA region- 1<sup>st</sup> 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**

**<http://www.nature.com/news/the-rise-of-africa-s-super-vegetables-1.17712>**



# **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**

