



# NATIONAL ENERGY REPORT – UGANDA

*Policies, partnerships, Priorities and roles*

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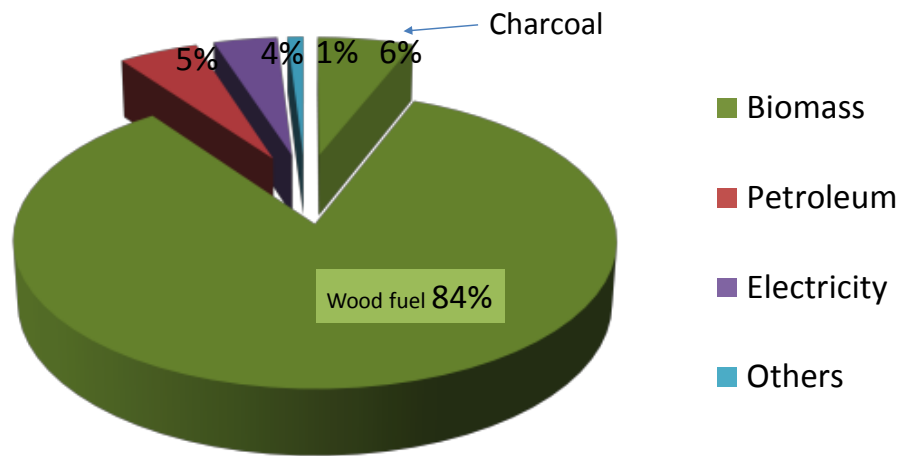
# SOURCE OF INFORMATION FOR THIS PRESENTATION AND CONTENT

Bench-marking survey of STI institutions in Uganda conducted within the Enrich project

Two National Roundtables jointly organised by the **Enrich** and **SUCCEED** Projects

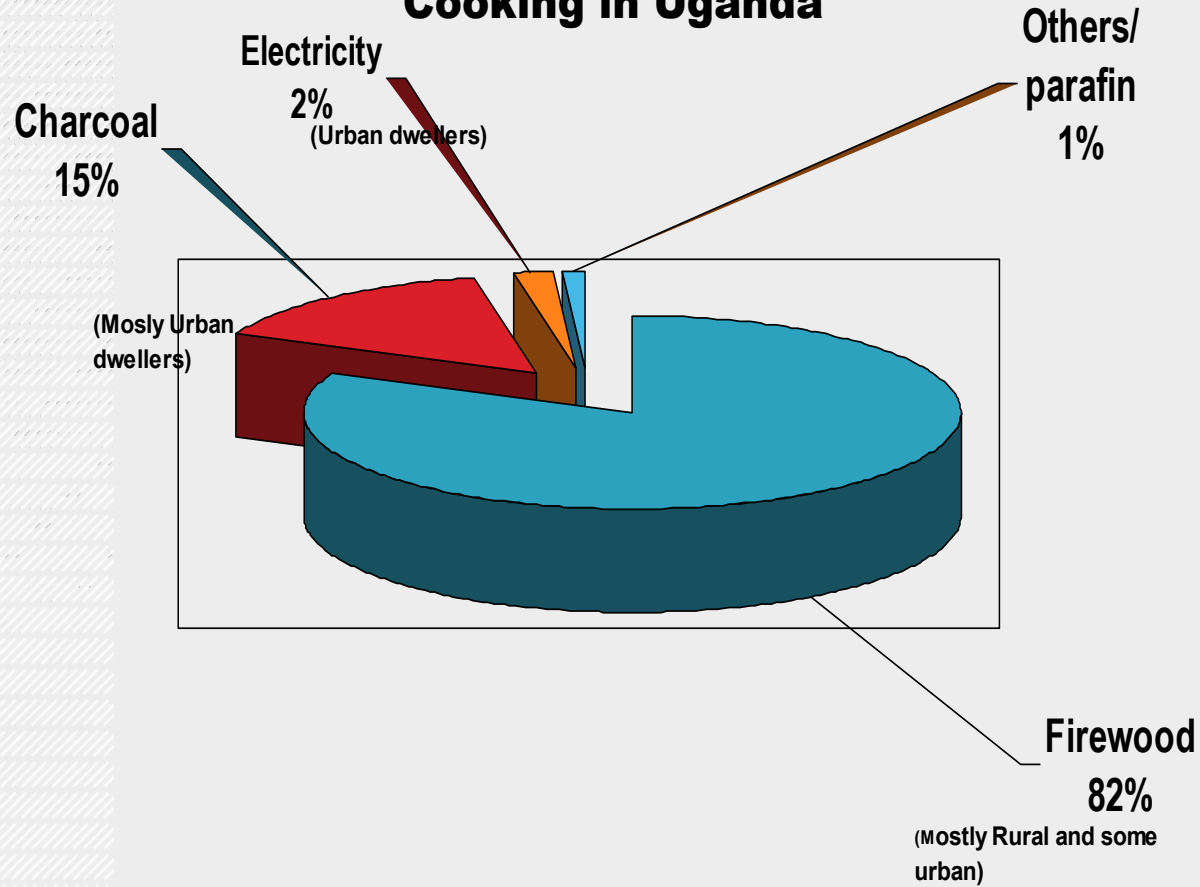
**Content:** Brief overview of energy situation; selected findings of the survey; conclusions and recommendations of roundtables

# OVERVIEW OF THE ENERGY SITUATION IN UGANDA



*Source: MEMD Energy Balance Report*

# Relative use of energy sources for Cooking in Uganda



Why??

# GOVERNMENTS PRIORITY AREAS FOR RENEWABLE ENERGY DEVELOPMENT

- Increase power generation by over 3,000 MW through construction of large hydropower and, thermal power plants through public and private investments
- Increase power generation from renewable energy sources, mainly solar, geothermal, among others
- Promote and increase access to modern energy services (rural and peri-urban electrification schemes)
- Develop the oil and gas sector
- Formulate energy related Policy and other regulatory frameworks
- Promote energy efficiency in all sectors
- Promote capacity building in the energy sector



# POLICIES/LEGAL FRAMEWORKS

- National STI Policy, 2009
- National Biotechnology and Biosafety Policy 2008
- UNCST Act 1990 – legal framework for national research oversight
- National Research Registration & Clearance Policy & Guidelines (2016)
  - Documenting R&D activities in all sectors for coordination & oversight, priority setting and deployment of research findings for public policy.
- National Guidelines for Research involving Humans as Research Participants (2014)
  - Regulatory framework for conduct of research without compromising their rights and welfare
- Electricity Act
- National Oil & Gas Policy
- Uganda Wildlife Policy
- National Forestry and Tree Planting Act
- Wetland Policy, National Environment Act
- **National Environment Management Policy**

# NATIONAL FRAMEWORK

- National Development framework (NDPII, Vision 2040, Sector policies)
- Energy Policy
- RE Policy - 2007 Electricity Act
- Rural Electrification Strategy and Plan
- National Forestry Policy
- Education Policy
- Industrial Property Act (2014)
- Agriculture Policy
- Industrialization Policy
- National Renewable Energy Policy
- Universities and Other Tertiary Institutions Act





# KEY STAKEHOLDERS IN THE ENERGY SECTOR

## Government

- Ministries: Ministry of Energy and Mineral Development (MEMD), MoWT, MoEST
- National Crop Resources Research Institute
- Rural Electrification Agency (REA)
- Uganda Industrial Research Institute - UIRI
- Uganda National Council for Science and Technology UNCST
- Departments (DWRD, DER)
- Agencies (UETGCL, UETCL, UEDCL, REA, ERA, NEMA)
- Local Governments

## NGOs/CBOs/Development Partners

- Integrated Rural Development Initiatives - IRDI
- Joint Energy and Environment Projects (JEEP)
- Rural Initiative for Development and Environmental Management (RIDEM)
- Uganda Coalition for Sustainable Development (UCSD)
- Uganda Environmental Education Foundation (UEEF)
- World Bank, GIZ, UKAID, USAID, EU, UNDP, WWF-UCO

## PRIVATE SECTOR

- Private Power Generators (Kakira SWL, Kinyara SWL)
- Private Power Distributors (UMEME, Ferdsult, Global Networks, NEK)
- Construction Companies
- Charcoal dealers
- Briquette manufacturers

## HIGHER EDUCATION INSTITUTIONS

- Universities
- Other Degree Awarding Institutions
- UNCST
- UIRRI
- Technical Colleges
- Electricity, Environmental, RAP Consultants

# STI SUPPORT SERVICES/INSTITUTIONS ON ENERGY ACCESS

**National: NCHE, research departments/directorates at all public universities & RIs, UNCST, RECS**

- **Regional: IUCEA one mechanism for monitoring research excellence in universities**

- **URSB periodic IP clinics**

- **Technology parks/centres in process - UNCST, UIA, UIRI**

- **Business incubators**

- **Enterprise Uganda**

# CHALLENGES ON ENERGY ACCESS AND EFFICIENCY

- Lack of coordination
- Insufficient information sharing
- Incompetence
- Structural issues
- Bureaucracies
- Duplication
- Inadequate information
- Inadequate infrastructure
- Little appreciation for local actors who try to improve
- Proliferation of counterfeit products on the market



# OPPORTUNITIES

- The immense energy demand
- Huge potential for renewable energy development
- Good will of development partners
- Relatively favourable institutional, regulatory and policy frameworks
  - Policies within universities to encourage KT, innovation & spin-off creation
- Rapidly expanding private sector involvement
- Opportunity for capacity building – existence of numerous tertiary institutions

# CONCLUSIONS

1. Overlaps, duplication of roles and limited networking/partnerships characterize the energy sector in Uganda
  - Population mainly depends on biomass (regulated by Ministry of Water and Environment) yet renewable energy is mandate of Ministry of Energy and Mineral Development.
2. Interaction between the higher education system, the private sector and the government is still limited – Need to promote **Multi-Way Interaction**
3. Limited regional cooperation in STI
4. Limited awareness on many issues in the energy sector (e.g. the proliferation of counterfeit products on the market)
5. Alternative energy options for Uganda are generally more expensive than biomass energy: makes it difficult for communities to embrace



# RECOMMENDATIONS

## 1. Strengthen Co-ordination/ collaboration between stakeholders

- Define clear roles, expectations and guidelines
- To ensure realisation of planned outputs
- To promote partnerships and reduce duplication
- To enhance coordination between Universities and Partners

Stakeholder	Role
Government	<ul style="list-style-type: none"> <li>Policy formulation</li> <li>Monitoring &amp; Enforcement</li> <li>Financing research and Innovation</li> <li>Buyer and Seller of Energy</li> <li>Regulation and Standards</li> <li>Decision Making on national priorities</li> </ul>
Industry	<ul style="list-style-type: none"> <li>Investment in energy</li> <li>Construction</li> <li>Consultancy Services (Supervision, Feasibility and ESIA)</li> <li>Training (internships/attachments)</li> <li>Uptake and adoption of innovations (e.g. YAKA, Renewable Energy)</li> </ul>
Tertiary Institutions and Science Tech Councils	<ul style="list-style-type: none"> <li>Research</li> <li>Innovation e.g. -KIRA EV</li> <li>Dissemination/promoting networking</li> <li>Training and refresher courses</li> </ul>
Civil Society and Development Partners	<ul style="list-style-type: none"> <li>Financing, Implementation and Policy guidelines</li> </ul>
Communities	<ul style="list-style-type: none"> <li>Information source, Labour Uptake of Innovations</li> <li>Consumer loyalty-pay bills</li> <li>Anti-vandalism</li> </ul>

# ROLES OF HIGHER EDUCATION INSTITUTIONS

- Develop Curriculum/training materials/ programmes on pertinent STI issues – IPP, TT, KMT, relating to the energy sector
- Establish clear strategy for engaging private sector to support Research, Innovation and Knowledge Exchange
- Strengthen training programmes in oil and gas, thermal energy, hydroelectricity and other innovative energy sources
- Strengthen networks for researchers and other actors in the energy sector at national regional & international level
- Conduct cutting edge research to guide policy

# RECOMMENDATIONS

2. **Networking:** promoted between stakeholders in the energy sector and strengthened – stakeholder network. Creating a framework through UNCST for interaction of stakeholders at national level and University. – for research dissemination
3. **Community engagement and national awareness:** sensitize communities through various means to yield positive results
4. **Disseminate renewable energy research information:** should target stakeholders in public and private sector to promote uptake of new technologies
5. **Policy Review:** Reduce red tape policies and practices to encourage investors
6. **Institutional framework:** Promote collaboration in the energy sector (production, generation, distribution, marketing, consumers and researchers
7. **Strengthen Science Technology and innovation:** capacity building and involvement of local artisans

## 8. Renewable Energy Research

HEIs to embrace renewable energy and promote best practices in energy efficiency and access. Ascertain energy demands of Uganda and strategies made to meet them; encourage multidisciplinary research

Research and innovations should ensure that solutions to the energy needs provide for:

1. Quality and durability,
2. Reliable access,
3. Affordability,
4. Compatibility,
5. Environment sustainability

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East African and European partners in the ENRICH and SUCCEED projects

Various National Partners