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POLICY BRIEF

STRENGTHENING HIGHER EDUCATION STAKEHOLDER RELATIONS THROUGH INTELLECTUAL PROPERTY RIGHTS IN AFRICAN UNIVERSITIES

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Executive Summary

Universities are at the heart of research and innovation. They are a source of fundamental knowledge and, occasionally, industrially relevant technology especially in modern knowledge-based economies. It is for this reason that African universities aim to better their relationships with external stakeholders (industry, other universities, and international-partners) through policy intervention seeking for more effective ways of conducting relevant research and development (R&D) that can lead to patentable results.

This Policy Brief illustrates how specifically the status of intellectual property rights (IPR) in African universities' R&D activities and innovations can be strengthened. It informs that the development, protection and commercialization of IPR generated from the R&D and innovation activities of African Universities is still low especially in the sub-Saharan region. Universities find it difficult to pursue protection of IPR unless it shows great promise to become an outstanding commercial success so that the institution will be able to recoup their investment. Several other challenges still hinder most African universities from making appreciable impact in their countries. The Association of African Universities (AAU) in partnership with the Association of Universities and Colleges of Canada (AUCC) seeks to strengthen higher education-stakeholder relations in Africa and it is believed that this research will position universities to better develop their skills and knowledge to meet their countries' economic needs and begin to tackle the emerging problem of graduate unemployment. If well managed, IPR development is one tool that will open universities to the enormous opportunities availed by the economies of African states.

R&D Innovation and Economic Development – the African context

Africa is exposed to a wide range of technological opportunities to address its human development challenges. Technologies such as ICT, bio and nano-technology can be exploited and applied to address food production inefficiency, fight diseases, and increase economic competitiveness of the continent. Africa's ability to tap these opportunities however, is undermined by the relatively weak innovation systems. Most African countries lack the requisite scientific and technological capabilities to effectively engage in the application of science, technology and innovation for development.

Research is aimed at gaining more comprehensive knowledge or understanding the subject under study, to meet a specific or recognized need (applied research), or without specific applications in mind (basic research). Development then transforms the research findings or knowledge into plans for new or improved products or processes. This may include product design(s), testing, creating of prototypes, and pilot projects.



On the other hand, innovation is a change in the thought process for doing something, or the useful application of new inventions or discoveries. To be called an *innovation*, an idea must be replicable at an economical cost and must satisfy a need. Well applied efforts and strategies to uplift Africa's innovation and R&D potential does not only promise a competitive continent but also a hub for new development strategies, companies and/or products. In the same light African universities should embrace R&D and innovation practices if they are to become birth places for knowledge, products, and companies that can address some of African development challenges.

Methodology

This brief is a result of information gathered from a selection of 56 universities representing the four regions of Africa (North, West, East and Southern Africa) and languages spoken on the continent, e.g. French, English, Portuguese and Arabic. A questionnaire was used for information gathering and for Uganda, the selected universities were visited and a consultative meeting held with representatives of the universities in Uganda and to discuss IPR in universities. Desk research and an internet search was undertaken to study the strategic plans, external relations, research strategies, and technology transfer of the selected universities. Analysis of the findings was done and a report compiled with recommendations to universities on policies relating to Industrial relations, strategic plans and intellectual property rights.

Conclusions: Intellectual Property Rights in African Universities

Intellectual property (IP) is a broad categorical description for the set of intangibles owned and legally protected by a company from outside use or implementation without consent. IP can consist of patents, trade secrets, copyrights and trademarks, or simply ideas. The owner of the IP enjoys Intellectual Property Rights.

Most universities in Africa especially those in sub-Saharan Africa have not pursued IPR protection seriously. It is universities in South Africa and some in Northern Africa that have made significant strides in the protection and commercialization of IPR generated from their R&D and innovation activities. While interest by university researchers is cited, there has been little effort made by the sub-Saharan universities to apply for IPR protection and subsequently commercialize the research results and inventions by staff and students. In the few cases where IPR protection has been sought in sub-Saharan universities, the expenses of patent registration and maintenance have been met by the individual researcher.

i. University Supportive Institutions and Policies

It was found from the study that universities in the sub-Saharan region have also recognized the importance of IPR protection and commercialization as a way of contributing to the continent's economic development through the knowledge economy. They have or are in the process of putting in place supportive institutional frameworks and policies for the promotion of IPR. The initiatives included:

- Well-articulated strategic plans with an emphasis on improved quality teaching and research and knowledge transfer partnerships.
- Research policies and strategies
- Intellectual Property Policies and regulations
- External relations and industry linkages
- Generation of income from a variety of sources
- Internationalization of education



ii. Challenges to IPR in African Universities

Commercialization of IPRs is not widespread in many African universities. Most universities find it difficult to pursue protection of IPR unless it shows great promise to become an outstanding commercial success. Specific challenges include:

- The weak intellectual property systems which lack proper framework(s) for tracking and encouraging innovation and R&D activities in the universities.
- Staff promotion policies demand prolific publications and dissemination of research results especially at conferences. This in the end leads to premature dissemination of unprotected research results and thus losing the patentability of inventions.
- Low commercialization of innovations and Research and Development outputs which mainly culminates from the involved high costs of IPR protection and patent registration.
- Inadequate use of reverse engineering to make patentable products yet opportunities for product(s) improvement exist given the rampancy of substandard imports in African states.
- Lack of entrepreneurial culture inculcated by staff and students. Most university courses lack the blend of entrepreneurship thereby producing graduates/researchers with the excellent technical knowledge to design and make products only to gather dust in the university stores as research findings.
- Individual professors/researchers file for Intellectual Property Patents some for selfish reasons but most because the university has not helped.
- Weak linkages between universities and industry also highly challenge IPR development. Being the major consumer of the research-results, only products that impress the industry shall ever break even in the market which is the great motivation for IPR development in the universities.
- Inadequate utilization of local materials and traditional knowledge to yield Intellectual Property Rights
- Some IPR are exploited by collaborators from developed countries who are more enlightened. The local universities are only left with the acquired skills and the other benefits and they lose out on the real deal of IPR for the inventions.

Policy Recommendations

For African Universities:

African universities should do the following:

- Formulate strategic plans with clear emphasis on research, innovation and IPR management.
- Pursue strong university-industry linkages and external relations.
- Emphasize research that involves collaboration between different disciplines which can better tackle complex societal problems like poverty eradication.
- Develop research policies and strategies and ensure that they are well implemented.
- Seek funding and implement regional collaboration projects involving research for better resource sharing and utilization.
- Prioritize and set annual targets for commercialization of intellectual property rights as a contribution to national economic development.
- Set up Technical Transfer Offices and/or departments dedicated to IPR activities for better management of commercialization of research results.
- Universities should closely monitor their research-work to ensure spin-offs arise from the research results.



- Set up business incubators to nurture small start-up enterprises, especially those arising from university research or innovations.
- Set up university-based science and technology parks

For Industry:

Industry should do the following:

- Attend conferences organized by universities especially those for the dissemination of research results.
- Contribute to formulation and revision of university curricula.
- Promote sharing of the research burden, such that the university conducts research while industry provides funding and utilizes research results.
- Offer of student attachments for research and internships.
- Promote stronger collaborations and partnerships between the university and stakeholders that can make use of and strengthen the university's research.
- Seek solutions to their problems from collaborating with university faculty.
- Provide funding for university chairs and research.

For African Governments:

African governments should do the following:

- Enact IPR related laws and policies and ensure that they are implemented.
- Increase funding to R&D and Innovation Activities (Initially increase R&D funding to 1% of GDP and progressively increase the funding to 2% or even 3% of GDP). This will increase the number of IPR which when commercialized will increase the knowledge economy on the continent.
- Improve the funding for public universities to enable them to retain quality staff – particularly those involved in research and innovation.
- Promote the triple helix collaboration and innovative cluster systems
- Promote regional and international collaborative research projects

Recommended Reading

Association of American Universities. (2012). *Understanding University Technology Transfer*.

Julien Rumbelow. (2012). *Measuring Research and Expenditure NPCA/UIS/CESTII African Science, Technology and Innovation Indicator Initiative Training Workshop*. Cape Town South Africa, April 2012, UNESCO.

OECD. (2000). *Workshop on Management of Intellectual Property Rights from Public Research, Issues Paper*, TT00100492, OECD, 15/11/2000.

Ssebuwufu, J., Ludwick, T. Beland, M. (2012). *Strengthening Linkages between Industry and the Productive Sector and Higher Education Institutions in Africa*. Accra: Association of African Universities.



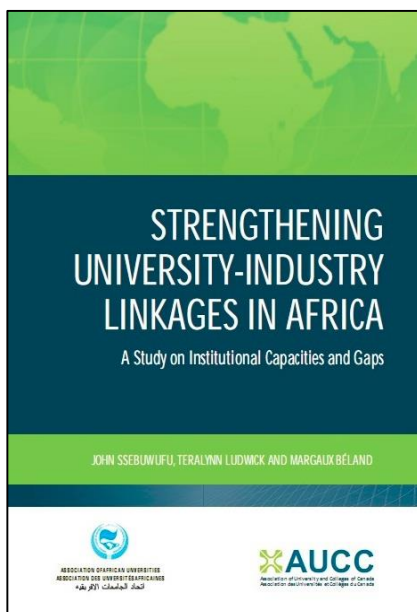
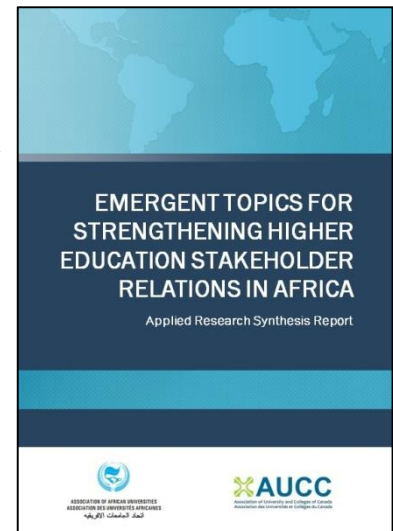
WIPO (World Intellectual Property Organisation). (2012). *Causes of Worldwide growth in patent filings, Special Section*.

Department of Foreign Affairs and Trade. (2001). *Intellectual Property and Biotechnology: A Training Handbook*. Commonwealth of Australia.

Further reading available at www.aau.org

The *Emergent Topics for Strengthening Higher Education Stakeholder Relations in Africa* publication (to be finalised and released in 2013) is a resource for information on the logistical considerations of external relations between universities and industry in Africa.

The report contains the full results of the study discussed in this policy brief. Other thematic topics synthesized in the report include gender equity, technology uptake and generation, graduate employability, and business ethics. Free copies of the report will soon be available at www.aau.org.



The *Strengthening University-Industry Linkages in Africa: A Study on Institutional Capacities & Gaps* (2012) report presents the findings of a scoping study on university-industry linkages in Africa to determine what interface structures, policies, positions, incentives, and funding avenues are currently in place for universities (or lacking). The scoping study determined what services or interventions African institutions themselves gauge to be most important for strengthening their efforts. Based on responses from a total of 133 universities and other higher education institutions across Africa, the findings show that African universities are indeed taking initial steps to stimulate and deepen linkages with industry and the productive sector. For a free copy of the report and more information, visit www.aau.org.

