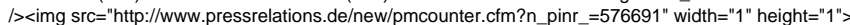




Africa: More Research in Science, Technology, Engineering and Math Needed to Meet Regions Promising Economic Potential

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A new report from the World Bank and Elsevier* notes that Sub-Saharan Africa's striking economic growth in recent years is reflected in its growing capacity for research in science, technology, engineering and mathematics—the so-called "STEM" fields. However, research in key areas remains insufficient to meet the needs of the rapidly modernizing continent, the report argues.
"Research in science, technology, engineering and mathematics has doubled in Africa over the past decade and vastly improved in quality, but is still not sufficient to fuel its fast-growing economies," said Makhtar Diop, World Bank Vice President for Africa. "We need to increase cutting-edge, industry-driven research capacity so that African economies become more competitive, but also to foster greater collaboration across countries as they seek common, evidence-based solutions to today's most pressing development challenges."
According to the report, A Decade of Development in Sub-Saharan Africa: Science, Technology, Engineering and Mathematics Research, Africa's share of global research output is less than 1 percent, which is small when compared to its 12-percent share of the world's population. Also, the correlation between level of national research output and economic growth is weaker in African countries when compared to countries such as Malaysia and Vietnam.
"Smartly targeted investments in higher education and science-based research can be absolutely transformational as economies evolve," said Claudia Costin, Senior Director, Education at the World Bank. "We are committed to supporting African countries as they reshape their higher education systems to deliver the knowledge and expertise that is in such great demand on the continent today."
In fact, recent growth in Africa's research has been overwhelmingly driven by advances in research capacity in the health sciences, which today account for over 45 percent of all research in Africa, the report notes. Research in the physical sciences and STEM-related fields makes up only 29 percent of all research in the region, when South Africa is excluded.
"Just as in the case of health sciences research, if African countries can direct consistent resources and support from governments and partners towards post-graduate and doctoral research that addresses specific challenges, we could see solutions quickly materialize in key areas such as adaptation of agriculture and infrastructure to climate change," said Andreas Blom, one of the report's authors and Lead Education Economist at the World Bank. "The report presents an analytical foundation for strengthening science education and research, and offers more information on how to build research capacity that is aligned with the region's needs."
The report also finds that Africa's research capacity is fragmented across the region, with little sub-regional collaboration. Intra-African collaboration (without a South African or international collaborator) comprises less than 3 percent of total research in three sub-regions—East Africa, West and Central Africa, and Southern Africa. Further, the report found little knowledge transfer and collaboration between African academics and the corporate sector, as measured by corporate downloads of and patent citations to African academic research, especially for STEM disciplines.
Despite these challenges, another co-author of the report, George Lan, Analytical Product Manager, Research Management of Elsevier, noted the importance and benefits of international collaboration in driving growth in Africa's research output.
"For the majority of the region's international collaboration partners, the relative citation impact of such collaborations is actually higher than each partner's own citation impact, suggesting that the collaboration is a win-win situation," Lan said.
The World Bank is strongly committed to advancing higher education, science and technology in Africa. With close to US\$600 million invested in these areas at present, it is the biggest funder of higher education institutions in Africa.
*Elsevier is a world-leading provider of information solutions that enhance the performance of science, health, and technology professionals, empowering them to make better decisions, deliver better care, and sometimes make groundbreaking discoveries that advance the boundaries of knowledge and human progress. Elsevier provides web-based, digital solutions - among them ScienceDirect, Scopus, Elsevier Research Intelligence and ClinicalKey - and publishes nearly 2,200 journals, including The Lancet and Cell, and over 25,000 book titles, including a number of iconic reference works.
The World Bank
1818 H Street, NW
DC 20433 Washington
USA
Telefon: (202) 473-1000
Telefax: (202) 477-6391
Mail: investigations_hotline@worldbank.org
URL: <http://www.worldbank.org/>


Pressekontakt

The World Bank

DC 20433 Washington

worldbank.org/
investigations_hotline@worldbank.org

Firmenkontakt

The World Bank

DC 20433 Washington

worldbank.org/
investigations_hotline@worldbank.org

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