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KNOWLEDGE AND DEVELOPMENT IN AFRICA

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Abstract

This paper argues that the main cause of Africa's poor governance, insecurity and abject poverty is the lack of appropriate knowledge. Therefore, the key to good governance, security and development on the African continent is the provision of relevant knowledge in one form or another. The paper explores the international structure of knowledge and argues that Africa remains on the scientific, technological, economic, political and military margins of the world largely because it is a net consumer, rather than a producer, of knowledge. It also examines the meaning of development in the African context, focusing on how knowledge can play an important role in the empowerment of women and in the promotion of respect for human rights. In addition, the paper explains how the political and legal infrastructure in African states has hindered the absorption of new knowledge and suggests how some of these countries might acquire a larger share in the benefits of global knowledge flows if they established appropriate governance structures. Finally, the paper explains the value of capacity building and argues that Africa's international partners can play important roles in helping African states develop expertise in various fields.

It is widely acknowledged that knowledge is the key to Africa's development, security and good governance. This is possibly one of the reasons Australia has expanded its scholarship program in Africa from 100 scholarships in 2007/2008 to 1000 scholarships in 2012/2013 (Richardson 2012). It is knowledge that drives globalization, stock markets, changes in information technology, and strategies to tackle HIV/AIDS. The successful pursuit of democratization, gender equality, environmental management, and sustainable development in Africa is predicated upon the rejection of obsolescent knowledge and the promotion of a knowledge renaissance.

Therefore, it is appropriate that one of the objectives of the African Union (AU) is to advance "the development of the continent by promoting research in all fields, in particular in science and technology." The Constitutive Act of the AU also requires the Executive Council to coordinate and take decisions on "education, culture, health and human resource development" and on "science and technology." Moreover, the Constitutive Act established two Specialized Technical Committees that deal with knowledge and innovation: the Committee on Industry, Science and Technology, Energy, Natural Resource, and the Environment; and the Committee on Education, Culture, and Human Resources. In addition, the Science and Technology department within the AU Commission deals with ideas, knowledge and innovation. Thus, knowledge and its application in development activities are at the core of the AU's objectives.

Some scholars have pointed to a correlation between knowledge, development and global influence. For example, Ali Mazrui (2000: 275) drew attention to this correlation when he observed: "The entire international system of stratification has come to be based not on 'who owns what' but on 'who knows what.'" Making a similar point in a different way, Calestous Juma (2000: 49) has argued: "Much of the reference to Africa in international forums has focused on the continent's natural wealth. However, natural resource endowment is not a sufficient basis for economic growth; it must be accompanied by investments in science and technology." Investment in science and technology implies establishing the foundation for knowledge production. For purposes of this paper, the term knowledge includes, but is not limited to, formal and informal education and scientific know-how.

As Makinda and Okumu (2008: 95) have argued, knowledge is a double-edged sword that can be used for destruction or for construction. This is because knowledge comes in various forms. For example, there is forward-looking and backward-looking knowledge; there is knowledge that reinforces ethical and moral values, and one that disrupts them; there is knowledge that encourages individualism and one that emphasizes communal identity; there is knowledge that encourages gender equality and one that discourages it.

The purpose of this paper is fourfold. Firstly, it seeks to explore the international structure of knowledge and to argue that Africa remains on the scientific, technological, economic, political, and military margins of the world largely because it is a net consumer, rather than a producer, of knowledge. Secondly, it examines the meaning of development within the African context. Thirdly, it explains how African states could acquire a larger share in the benefits of global knowledge if they established appropriate governance structures. Fourthly, it explains the value of capacity building.

The International Structure of Knowledge

Africa's opportunities to benefit from global knowledge flows lie partly with the global community and partly with Africa itself. Africa is rich in natural resources, but to turn them into consumable wealth, it would require a capacity to engage in appropriate knowledge-intensive processes. This can be obtained through education, social learning, and the strategic partnerships that African states and universities could establish with institutions abroad. Through strategic partnerships, Africa might build its pool of expertise in a range of disciplines. Africa needs to seek knowledge that can facilitate the positive aspects of globalization, sustainable development, democratic governance, and peace building. It is African states that should come up with initiatives on how they can tap into appropriate sources of knowledge. However, Africa's international partners, including Australia, would need to provide training facilities and financial resources with which Africans can pursue such initiatives. This is the way to creating what the Director of UNESCO, Koichiro Matsuura, has described as "societies of shared knowledge" (UNESCO World Report 2005: 5).

One of the starting points for a discussion of the role of knowledge in Africa is the international structure of knowledge, which is a major determinant of Africa's share of new

ideas and innovations. The Western world dominates the structure of knowledge through various means, including journals, books, conferences, and seminars that promote Western-generated forms of knowledge. For example, the refereeing process in journals is a policing exercise that ensures that only knowledge framed in certain ways, which reflect American or Western standards, is accepted for publication.

North American and Western domination of knowledge is also achieved through citations, which are considered a measure of the impact of publications. Whereas African scholars often cite sources from all parts of the world, most Westerners mainly cite fellow Westerners even on African issues where credible African sources exist. Even textbooks written by Africans for fellow Africans rely on Western-generated epistemological and methodological perspectives and fail to question their normative and political underpinnings.

As a net consumer, rather than a producer, of knowledge, Africa suffers several disadvantages. First, African states apply knowledge that was shaped by non-African contexts, which might have little or no relevance for African conditions. Knowledge production is a social and political process that reflects the historical, cultural, and institutional milieu of its producers. Knowledge is constructed for a social, scientific or political purpose and for a community of scholars or policy makers. What Robert Cox said about theory equally applies to knowledge. Cox (1986: 207) argued: "Theory is always *for* someone and *for* some purpose. All theories have a perspective. Perspectives derive from a position in time and space, specifically social and political time and space."

Moreover, when researchers convey their findings, they do so in language, which cannot be value-neutral. In sub-Saharan Africa, this linguistic factor assumes an extra dimension because the language of transmission of ideas is often a borrowed one: English, French, and Portuguese. As knowledge construction is a social and political process, it has to be recognized that while scholars may engage in serious research, they cannot provide value-free knowledge.

Second, all knowledge is contestable and, in some cases, transient, and Africa is disadvantaged because it plays no role in the adjudication of knowledge claims. The transient character of knowledge suggests that while society may accept today's scientific

findings, it should not lose sight of the possibility that these findings may be challenged tomorrow. The implication of knowledge contestations is that Africa, as a net consumer, receives only that knowledge, which the knowledge brokers in the developed world consider palatable.

As Andrea Useem (1997: A47) argues:

Research, one of the few tools - or weapons - available to professional intellectuals, is also tangled in a global political economy that tends to marginalize Africa. Public universities on the continent have minuscule research budgets, so professors must raise funds from one of the few sources of money in Africa - donor organizations like the US Agency for International Development or the World Bank, which often promote the very orthodoxies that researchers seek to question. Intellectuals also blame their own governments for choosing foreign ideas over local ones. But ideas from the West often come with powerful incentives - the cash to put them into effect.

To participate effectively in the contestation of knowledge, African researchers need excellent facilities for investigation and experimentation. Unfortunately, African states have few research facilities and centres that can challenge Western intellectual dominance in various disciplines.

Third, Africa's marginal socio-economic position vis-à-vis other parts of the world is, in large part, due to the fact that it is a net consumer of knowledge and technology. Karl Marx argued that it was the economic base that determined the prevalent ideas and institutions. If this was the case during his time, it is no longer so. The international structure of knowledge plays a very important role in determining the structure of political and economic power and influence. Societies that are rich in natural resources, but poor in knowledge, like many African states, may not succeed as well as those that have both knowledge and resources. This is one of the reasons why a natural-resource poor country like Japan is wealthier and globally more influential than a natural-resource rich country like the Democratic Republic of Congo, which is poor in knowledge.

The current international structure of knowledge disadvantages Africa and demands that African researchers endeavour to produce knowledge that has the potential for global application. To move in this direction, African states need to design strategies and mechanisms through which African researchers on the continent and in the diaspora can utilize globalization processes to generate new knowledge for the continent on a continuing basis.

Globalization implies universalization, harmonization, and homogeneity, which sometimes result in the marginalization of African values, institutions, and norms. With regard to knowledge, globalization has been associated with according priority to “Western rational scientific knowledge ... at the expense of local knowledge”(Thomas 1999: 2). It has been criticized for offering “legitimacy to the dominant liberal agenda,” thereby undermining “the value of local diversity” (Thomas 1999: 2). While it is true that globalization has undermined indigenous and religious bases of knowledge, it has not been totally negative. Some aspects of globalization have provided great opportunities that Africa can exploit, but only if African governments invest in science, technology, and innovation, as well as in the humanities and social sciences.

If African states were to make great use of the forces of globalization, they would have to invest in the knowledge sector. With the right policies, strategies and mechanisms, African states and their people would find that they were not absolute losers in the globalization processes. The High-Level African Panel on Modern Biotechnology (hereafter African Panel on Biotechnology), co-chaired by Calestous Juma and Ismail Serageldin, has observed that “Africa’s ‘distance’ from the centres of technological origin is a source of creativity in applying existing technologies to new uses and therefore expands the prospects for international cooperation” (Freedom to Innovate 2007: 2). The 1999 *Human Development Report* discussed what it called “globalization with a human face”, namely a form of globalization that was predicated on ethics, equity, inclusion, human security, sustainability, and development (UNDP 1999: 1-13). It is within this context that we can explore development.

Development in the African Context

Development has always carried normative and ethical connotations. It has both qualitative and quantitative aspects, meaning that it is both about the fulfilment of basic material needs and the achievement of human dignity. In terms of physical needs, development is about improvement in people's living conditions, which includes, but is not limited to, the provision of food, shelter, education and health. However, development is also about governance or the people's capacity to manage their own affairs. It includes capacity building, thereby implying the introduction of new ideas, standards, institutions, norms, and techniques of overcoming obstacles to human progress. African leaders claim that they should be judged on their ability to bring about development. Therefore, development is a legitimating norm for African governments.

The meaning of development has not always been as broad as it is today. After World War II, for example, development was associated with self-sustained economic growth and the reduction of poverty, and was measured in terms of the gross domestic product (GDP). In the course of the 1960s and 1970s, some analysts started to argue that development described not only attempts to redistribute resources between countries, but also equitable redistribution of wealth within states. Even then, development was understood in narrow economic terms. Whenever the rich countries provided assistance to African states, it was largely in relation to major economic projects and with a view to improving the GDP. In some African states, the GDP was growing while some sections of the population were living in squalid conditions.

Since the 1980s, development has come to mean much more than economic progress. Policy makers and scholars now talk of development that has human, social, political, and economic dimensions. At first, this move away from the narrow economic-oriented development included the provision of basic needs such as shelter, water, and sanitation, as well as education and health. This expanded definition has been reflected in the UNDP's *Human Development Report*, which, since 1990, has listed as indicators of a country's development several factors, including maternal and infant mortality rates, and the bridging of the gender gap. This might explain why, for example, Australia's scholarship programme in Africa focuses on a few themes: agriculture and food security; water and sanitation; and maternal and child health (JSCFADT 2011: 45-49).

Women and Development

An important resource that African policy makers can utilize most effectively in the development process is women. The contribution of African women to the liberation struggle was recognized in the 1950s and 1960s. For example, a former President of Ghana, Kwame Nkrumah (1968: 89), argued that African women had “shown themselves to be of paramount importance in the revolutionary struggle.” They had given “active support to the independence movement in their various countries, and in some cases their courageous participation in demonstrations and other forms of political action had a decisive effect on the outcome” (Nkrumah 1968: 89). However, on the attainment of independence, African governments did not address the roles of women in the new society.

According to the 1999 *Human Development Report*, for instance, the bottom five countries in the world in the gender-related development index were African: Burundi, Burkina Faso, Ethiopia, Guinea-Bissau, and Niger (UNDP 1999: 128). Moreover, three of the bottom five countries in the world in gender empowerment measures were African: Mauritania, Togo, and Niger. Any system of government that discriminates against part of the population is ethically deficient. The AU has given women prominent positions and is committed to gender mainstreaming. However, many African states have yet to put in place structures, policies, and strategies that are designed to expedite the empowerment of women. It is the responsibility of African states, in partnership with civil society organizations and the developed world, to ensure that gender equality is respected. The Australian scholarship programme in Africa seeks to address this problem by insisting that at least 50 percent of scholarship recipients must be women (GRM International 2011).

Human Rights and Empowerment

Knowledge helps bring about development and the respect for human rights in various ways. Firstly, by empowering women, knowledge helps facilitate development. However, development, in turn, is a human right. In this way, knowledge helps promote human rights. Secondly, unlike other forms of foreign assistance, education aid (including scholarships), which is designed to spread knowledge, aims at transforming individual scholarship recipients. These recipients may, in turn, use the knowledge acquired to transform their

societies by, for instance, insisting on respect for the rule of law and human rights. A USAID (2004: xvi) report on the effectiveness of US training on African scholarship recipients between 1963 and 2003 defined impact as “any change that occurred at the institutional, sectoral, community, national or regional level attributed to ... [the] training”.

Given space constraints, this paper will avoid the discussion of measuring the impact of courses on trainees and instead focus only on the relationship between development and human rights. The 1948 Universal Declaration of Human Rights (UDHR) as well as the 1966 International Covenant on Economic, Social and Cultural Rights, regarded development as a human right. Accordingly, African scholars and policy makers have argued for decades that development is a human right.

However, Western countries did not accept development as a human right until the 1990s. Indeed, the US government voted against the 1986 UN Declaration on the Right to Development. Several other Western countries abstained. More recently, the West has caught up with Africa and now considers development as a human right. Following the 1993 World Conference on Human Rights in Vienna, the Vienna Declaration and Programme of Action stated that “democracy, development and respect for human rights and fundamental freedoms are interdependent and mutually reinforcing” (UN General Assembly 1993: 5). This has various implications for African governments. As the global norm of development is predicated on the understanding that richer countries have a moral obligation to provide assistance to the poorer ones, Africa’s poverty can be blamed on the whole world.

As the 1993 Vienna Declaration and Programme of Action stated, there is a close relationship between development and democracy. The reason development and democracy are closely interrelated is that it is difficult to describe people as developed unless they participate meaningfully in the management of their community. Thus, the term development has expanded to include democratization, an independent judiciary, and an open, responsible and accountable government.

This brings into focus the relationship between knowledge, empowerment and development. Former UN Secretary-General, Boutros Boutros-Ghali, had this relationship in mind when he argued that development “can only succeed if it responds to the needs of the people, and if it articulates these needs into a coherent policy framework” (Boutros-Ghali

1995: 2). Through capacity building courses and seminars, knowledge can be disseminated, which will, in turn, sensitize people to liberal democratic ideas and encourage them to participate more effectively in the development process.

There is also a close relationship between development and security. Like development, security is primarily about the quality of life for individuals as well as their communities. For example, Thomas (1999: 3) posits that human security “has both qualitative and quantitative aspects”, and that it is “pursued for the majority of humankind as part of a collective, most commonly the household, sometimes the village or the community.” Thomas (1999: 3) further argues: “At one level, [human security] is about the fulfillment of basic material needs, and at another it is about the achievement of human dignity, which incorporates personal autonomy, control over one’s life, and unhindered participation in the life of the community.” She observes that human security requires emancipation “from oppressive structures – be they global, national or local.” Thus, security and development broadly refer to similar types of activities. This means that the tools through which African states can pursue security, gender equality, good governance, respect for the rule of law and development, are similar. To be sustained, such tools need to be reinforced by progressive political and legal mechanisms.

Reforming Governance Structures

Governance structures are crucial for innovation and the generation of knowledge. Any country’s intellectual capital is only as strong as the political and legal climate permits. It is the governance structures of African states that have, in part, determined the poor shape of their knowledge bases. Calls for greater investments in science, technology, and innovations cannot be heeded by African states unless they restructure their political and legal systems. Just as foreign direct investments require supportive governance structures, investments in knowledge creation need an accommodating politico-legal climate.

There are several obstacles to the efficient production of knowledge in Africa. The first is the low remuneration for researchers and university lecturers in many states. South Africa is the exception, but even there the lecturers’ salaries have been falling behind those

of other professions. The second obstacle is the lack of flexibility in employment conditions. There are no incentives for hardworking researchers and lecturers, and no funds to hire the best researchers. The third is the constraints under which scholars carry out research. In developed countries, researchers simply need funds to conduct research. Ethics committees in their universities may insist on following ethical rules, but they do not hold them back. However, in many African states, researchers need research clearance certificates, and obtaining them can often take many months in some states. The fourth obstacle is the unwillingness of the political elite to recognize that competent researchers can provide useful input into the policy process.

If African states were to make use of the knowledge produced in Africa and elsewhere, the policy establishment would need to take a number of steps to reconfigure their governance structures. The first is to make the conditions for research more flexible and attractive by redesigning political and legal mechanisms that are accommodating to innovations in all disciplines. Africa's international partners can play an important role of encouraging African states to take these initiatives by funding them. It is through such measures that Africa can benefit from a highly skilled and mobile workforce and develop appropriate knowledge economies. The knowledge-friendly governance structures required for African states to share in the benefits of the global knowledge economy may vary from one state to another, and from one sub-region to another. Appropriate structures and mechanisms should be able to tackle the need for flexibility in the workforce, accommodate innovations and reform taxation rules, especially those relating to the importation of equipment associated with knowledge creation. They also need to address human rights, gender relations, environmental issues, and participatory democracy.

The second step is to provide a mechanism for integrating science, technology, and innovation adequately into development plans. Many African states are interested in the benefits of science, technology, and innovation, but some of them lack the basic policy infrastructures to integrate them sufficiently into development objectives. This may be blamed partly on the lack of strategic leadership, the lack of skilled personnel, and the nature of governance structures. It is through new governance structures and processes that

African states can meaningfully integrate science, technology, and innovation into development plans and generate appropriate knowledge economies.

The third step is to design governance frameworks that take account of both global forces and indigenous contributions. African countries are part of international society, so their political and legal structures are partly derived from the rules, institutions, values, and norms that underpin life in other countries. For example, establishing knowledge-friendly governance frameworks in Africa would need to take into account the revolution in biotechnology and biomedical research, global knowledge flows, and agricultural innovations. This may help African states take advantage of the latest technology to improve their crops, farm in semi-arid areas, and exploit their biodiversity resources. It also may facilitate the development of strategic partnerships between African universities and their counterparts abroad. Therefore, it is imperative that African policy makers recast their governance structures in order to tap into knowledge that reflects the changes in global norms while at the same time serving the local needs.

However, foreign institutions cannot be transplanted root, stem, and branch into Africa without taking account of African practices. The new structures need to reflect as much as possible the progressive values, norms, and standards in Africa. Indigenous Africans have knowledge about medicine, environmental management, and agriculture, which may be of use in the future. In this case, African universities can play important roles in setting the breadth and depth of indigenous values that are to be incorporated into the knowledge banks. Knowledge production demands that African policy makers promote, and experiment with, policies that incorporate social learning. Social learning encourages borrowing from other countries, but it also requires a greater understanding of the evolving social, cultural, economic, and scientific contexts within which African universities and research centres operate.

Capacity Building

The term “capacity building” is often used to refer to a wide range of activities related to learning and the acquisition and use of knowledge. For example, the United

Nations Environment Programme (UNEP) has defined capacity building as “the strengthening and/or development of human resources and institutional capacities. It involves the transfer of know-how, the development of appropriate facilities, and training in sciences related to safety in biotechnology and in the use of risk-assessment and risk-management.” (Virgin, et al. 1999: 6). The term “capacity building” is used here in a limited sense to refer to the building of human resources and societal structures and mechanisms that are necessary to perform specific tasks, namely the creation of knowledge using indigenous and global sources. It is employed to describe the creation of conditions and organizational structures through which African societies can achieve human welfare, participatory democracy, peace and socio-economic justice.

As a process of acquiring and applying knowledge, capacity building legitimizes imitation. This implies that through capacity building, individuals are encouraged to adopt the skills, techniques, and methods of those whom they perceive as “successful” and apply them to address problems in their own situations. Capacity building is crucial for development and for the application of appropriate science, technology, and innovation. Unfortunately, across the African continent at this stage, there are still very few appropriate organizational structures and outfits for capacity building. For this reason, developing institutional capacity remains a high priority for Africa.

It is institutional capacity that will help African scientists participate meaningfully in the global knowledge production. According to the 1998 UNESCO World Science Report, Africa was virtually a bystander in most international science issues. It has not only failed to make an impact on the development of new materials and products, it has played no major role in the fast-moving, far-reaching information technology and communications industry. A UNESCO report claims that in a 1992 survey, Africa counted a total of 20,000 scientists and engineers who represented only 0.36 per cent of the world's scientists. These scientists were responsible for only 0.8 per cent of the total world scientific publications.

There are several internal politico-economic reasons for Africa’s fragile capacity in science, technology, and innovation. The first is the lack of political support for indigenous efforts in science and technology. A good illustration of the lack of devotion to scientific work is provided by an Ethiopian scientist who, in the 1990s, tried to isolate a soap

ingredient for commercial exploitation from a soap berry plant, but gave up due to lack of government support and left for an American university. The American researchers he was working with not only discovered that the ingredient had other potentials, but deliberately failed to share their findings with the Ethiopian scientist. They then went on to develop the ingredient into a very rich anti-bilharzia treatment, patented their discovery and sold it to a pharmaceutical company for millions of dollars. If the Ethiopian government had supported its scholar, the scientific and financial benefits would have accrued to Ethiopia.

The second, which is related to the first, is the miniscule expenditure on science education, research, and development in universities and research institutes. Some African universities and research centres have been mismanaged, starved of research funds and neglected to the extent that they offer few answers to Africa's research needs. According to the 2006 UNDP *Human Development Report*, Africa spends 0.07 of its gross domestic product on research and development. Due to the lack of funding from national governments, African research institutes almost fully rely on foreign donations, making them producers of knowledge that serves the interests of the donors. Without such foreign support, African research institutes could not survive. Although such support might be seen as a lifesaver for African research institutes, it also means that African scientists have to promote the research agenda of those funding them. Thus, these institutes rarely produce new knowledge that serves African interests. The African Panel on Biotechnology has underlined the "need to shift from dependence on relief models to a new emphasis on competence-building" (Freedom to Innovate 2007: 44-45).

The third is the migration of scientists from Africa to other parts of the world, which is sometimes called the "brain drain". As most research institutes are poorly funded and lack modern research equipment, most scientists have left the continent for greener pastures in Europe and North America. Since the 1960s, Africa has been losing a high percentage of its scientists due to poor remuneration, research equipment and other factors.

The volume and cost of the African brain drain are hard to verify. By 2006, it was estimated that the continent was losing 20,000 skilled professionals every year. Most of these were highly trained professionals such as doctors, engineers, and other scientists. The

brain drain produces “brain strain” on development by depriving Africa’s weak economies of their best human resources and through the hiring of expatriates at a very high cost.

To address these and similar problems, the African Panel on Biotechnology has called for the creation of African Regional Innovation Communities (Freedom to Innovate 2007: 59-60). This approach has merit because the production of scientific knowledge in Africa is severely hampered by the lack of, or obsolete and dilapidated, infrastructure. This situation has compelled African scientists to operate in environments in which they merely perform routine tasks that contribute little or nothing to scientific innovations.

According to Zola Mbanguta (2007), “the developed nations constitute only 21% of the world population, but 3 out of every 1,000 of their population are researchers and they own 84% of the world’s research articles and 97% of research patents. The developing world constitutes 79% of the world population, but only 1 out of every 3,000 of their population is a researcher, and they own only 16% of the world’s research articles and only 3% of research patents.” This gap needs to be filled by calibrated capacity building programmes.

Australia and Africa’s other international partners can play important roles towards the achievement of this goal by, inter alia, supporting the existing research centres, which currently receive little funding from African governments. Besides the Institute of Security Studies, which has offices in several African states, active research centres include the African Capacity Building Foundation, the African Centre for the Constructive Resolution of Disputes, the African Centre for Technology Studies, the African Economic Research Consortium, the Council for the Development of Social Sciences in Africa, the Kenya Institute of Public Policy Research and Analysis, and the UN University Institute for Natural Resources in Africa. The ambitions, competencies and effectiveness of these, and similar, organizations vary enormously. They also face different financial, political, and legal constraints, depending on where they are based. Some of these research centres carry out rigorous policy analysis and have influenced state policies.

In the long-term, African states will have to look for alternative ways of capacity building. The richer African states, like South Africa, might train their own personnel in most disciplines, with minimal outside assistance. The poorer states face more daunting tasks.

They would need to give their universities strategic leaders, restructure them and fund them appropriately. If they cannot afford these measures, then policy makers in such states would need to explore opportunities of establishing regional institutes to help develop the capacity they need to enhance their knowledge bases. The African Panel on Biotechnology has suggested a model in its proposal for regional innovation centres based on the five African sub-regions: Central Africa, Eastern Africa, North Africa, Southern Africa and West Africa.

One of the priorities for African policy makers should be to ensure that high quality research moves out of university campuses into the government ministries. In addition, African policy makers and educational leaders need to broaden and deepen research partnerships with industry, as well as with developed and other developing countries. Through such partnerships, they may acquire part of the knowledge and funding they need to help their societies establish strong knowledge bases. It is these measures that will pave the highway for the creation of competitive knowledge economies in Africa.

Conclusions

Compared with other parts of the world, Africa remains marginalized scientifically, economically, politically, and militarily due its weak knowledge base. This situation presents four major challenges to African policy makers and their international partners. The first is that African policy makers should define the type of knowledge they need. Knowledge has been used for different purposes, including creating profits for corporations at the expense of workers and waging war on other societies. African policy makers have to identify the knowledge they need to attain human welfare, participatory democracy, peace, and socio-economic justice. As Peter Vale (2003) has argued: “sound policy options often follow new understandings.”

The second challenge is to facilitate the emergence, nurturing or training of strategic leaders. Whether it is political, business, or educational leaders, or leaders in science, technology, and innovation, it is people with strategic vision who will find the way out of Africa’s marginalized position. Africa’s international partners will need to play a role by providing training and exposing such leaders to the best practices.

The third challenge is to build the governance structures through which African states can more effectively address their problems in a globalizing environment. It is through an accommodating politico-legal climate that the African people can use new technologies, as well as indigenous knowledge, to participate meaningfully in development. Without transforming their governance structures, African states will have very limited chances of creating appropriate knowledge and addressing some of the main causes of poverty.

The final challenge is to revamp universities, establish regional research centres, and deepen strategic partnerships with successful countries. African states have to take capacity building more seriously, as part of their efforts to create appropriate knowledge bases. The Australia-Africa Universities Network (AAUN), which was launched in Canberra on 17 July 2012, might facilitate cooperation between some Australian universities and their African counterparts. However, the AAUN, which is led by the University of Sydney and comprises less than half of Australian universities, is unlikely to achieve much unless AusAID funds most of its activities.

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