Title: Combining and Constructing a Research, Knowledge and Training African Area

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Inspiration

"When you say someone is an educated African, you mean that he is conscious of his people's problems, that he knows his culture well enough to be able to discriminate between its drawbacks and its advantages, that he can take the land his people have, the livestock his people keep, the wisdom that his elders teach, and the customs that his people follow, and, integrating all these with his western knowledge and techniques, help to construct progressive African communities."[2]

"It is better that we face the problems of Africa as Africa. For our history of being pushed around is an African history, and our strength to stop this is an African strength."[3]

Introduction

Central to the peculiarities of the evolution of modern higher education, research and knowledge in Africa, is the lack of indigenous authenticity and identity. This is in spite of historical records which show that, before Africa's subjection to the colonial technology of rule, there were recorded histories of indigenous higher learning in Timbuktu and other parts of Africa. This higher learning from the pre-colonial and pre-slavery period was historically ruptured and disrupted by the colonial-imperial project in Africa that also took the form of enslaving whole communities and forcibly evicting them for the purposes of slave labour in the New World of the Americas. The contributions of this pre-15th century knowledge have not been acknowledged or recognised. In fact, they have been bypassed, ignored, and suppressed rather than being used to serve as building blocs for contemporary higher education development in Africa. Thus, instead of continuity, what has taken place is discontinuity in research, knowledge, higher education and learning. This context of historical rupture and the erasure of pre-existing knowledge remains an issue that cannot be ignored. It has been suggested that the longer one looks back to history, the further ahead one can be inspired into the future. For Africa, its

[2] Julius Gikonyo wa Kiano, 'East Africa: The Tug of War Continues,' 1952 quoted in Bryan G. McLead, *Whither Africa?* Richmond, Virginia, John Knox Press,1961, p.146

[3] Speech on August 21 , 1972 in Julia Stewart in *Stewart's Quotable Africa*, Penguin Books, 2004, pp.301-302

contribution to knowledge before the 15th century has not been explored and its contemporary relevance for revitalising higher education, research and knowledge has not been appreciated.

In 20th century Africa, modern higher education institutions were established when colonialism began to concede political defeat. European powers sent their armies and missionaries when colonising Africa. Later, when the colonial powers recognised that they may have to relinquish direct control, they realised that they had to 'export' a form of their universities to help train civil servants who would be necessary to discharge the administrative burden of running the state in the post-colonial period. They began to establish universities in their African colonies, though these largely took the form of setting up one university to serve a number of their colonies. Thus, three years after the fifth historic Pan-African Congress meeting in Manchester in 1945 at which the Congress passed a resolution and declared to the world the need to liberate Africa by any means necessary, Makerere University was set up as the East African University - not as the Ugandan University as it later (in 1963) became known. In Nigeria, in 1949, Ibadan and Legon were set up as sites for universities. In the French-ruled part of Africa, closer links between the University of Dakar and the University of Bordeaux were established, and Belgium established a link between Université Lovanium in Congo (now University of Kinshasa in the Democratic Republic of Congo) and the Université Catholique de Louvain[4].

The problem is that the modern higher education system in Africa is an export from the former colonizers of Africa and their allies, and has been imported by Africa. From its inception, higher education has not been an African home-grown institution designed to serve the needs, aspirations, well-being and development of the African people. Just as the post-colonial state became largely a legacy of colonialism, the universities also became part of the institutions transmitted through the colonial channel.

The real question relates to the problem of how to make African higher education serve the needs and aspirations of the people of Africa. That colonial powers built universities and left them behind in African countries may not be problem in and of itself. The wholesale acceptance of the universities made in the image of the colonial world uncritically, and without interrogating the need to match them to the transformation challenges of African economies, remains an issue. There has been little or no systematic criticism of the impact the 'export' of universities to Africa has had on the creation and sustained knowledge, research and higher education of relevance to African development and values. This situation is analogous to that of

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[4] Yann Lebeau & David Mills, *From 'Crisis' to 'Transformation'? Shifting Orthodoxies of African Higher Education Policy and Research*, 2009

African economies. That Africa has to modernise has meant that it has to catch up with the former colonial powers. In education, it has meant that universities are expected to 'catch up' to those in the former colonies. The expectation was that the universities in Africa would evolve and join the ranks of the leading universities like London University, which continued to control accrediting the curricula and supplying staff for the early African colleges until the 1960s[5].

The broader historical context for African higher education, research and knowledge

In taking a historical perspective on how higher education, research and knowledge evolved in Africa, four distinct phases can be discerned:

The first is the pre-15th century phase of learning, knowledge and education that remained ignored and rejected largely through the arrogance of the colonial-imperial project that degraded not only learning from indigenous sources but also the very human beings who were the source of such learning making them no more than commodities.

The second phase is the colonial period, during which higher education was established as an instrument of the colonial-imperial project for maintaining its influence over the colonies, through the creation of elites to maintain and run the state machinery bequeathed by the colonial system.

The third phase represents the period after decolonisation where the newly politically independent states built upon the concept of universities that the colonial powers had set up on the eve of their retreat. The idea of developmental higher education, knowledge and research for nation building took hold with the support European and United States donors. The phase of the 'developmental university' began[6].

The fourth phase is characterized by the crisis of higher education, research and knowledge arising from the imposition of structural adjustment by the Bretton Woods financial institutions. These structural adjustment policies resulted in the decline of university systems because they were regarded as providing little or no social return.

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[5] See note 3
[6] Coleman, J.S. 1994. The Idea of the Developmental University, in Coleman, J.S., *Nationalism and Development in Africa: Selected Essays*, Sklair, R.L.(ed.), Berekely: University of California Press (UCP)

It is now recognised that higher education, research and knowledge is necessary for African development and transformation, but this recognition has not been fully translated into finding ways to organise, strengthen and expand the higher education system in Africa systematically.

Higher education plays a strategic role and that role is dependent on its type, the values in which it is rooted, the cultures and authentic identities of the communities in which it is embedded, and its ability to combine indigenous of knowledge, learning and research with the external, the global and the universal. As Mamdani put it:

> Higher education is where teachers are trained; it is where curricula are developed; more than likely, it is also where the range of leadership of an independent country is cultivated; finally, because it is where research is located, higher education is where we develop the range of choices which make democracy meaningful in different spheres of life. If your objective is to transform general education, you have to begin with higher education. For higher education is the strategic heart of education.[7]

How can Africa create an African higher education system and develop African-centred knowledge? And at the same time promote African-rooted research? These questions remain unanswered largely because the Pan-African vision that should inspire African-rooted higher education, research and knowledge is lacking. In addition the historical practice and dynamics that should have delivered lessons that can neither be ignored nor bypassed, has not done so.

The expectation that individual African universities will attain world-class distinction is unrealistic; assuming aiming for world-class quality is what the existing fragmented states in Africa wish to develop. Until now, there have been no universities in Africa that have managed to reach the status of world-class research universities. The expectation that they would evolve in this way assumes that there is a level playing field where African universities can determine their higher education policy, strategy and agenda with free agency. However, universities did not develop this policy agency, since their resources relied heavily on donors, their research and teaching staff took time to develop as indigenous and national, and the administration, management and governance technologies were often tied to states that saw the universities as symbols of national self-assertion (as was the case with national airlines set up in the post-independence period), regardless of whether these were useful for the development of a national economy.

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[7] Mahmood Mamdani, Higher Education, the State and the Market Place, Council for the Development of Social Science Research in Africa, *Journal of Higher Education in Africa*, Vol. 6, No. 1, 2008, pp.1–10

What makes world-class universities is the achievement of an international reputation in the following areas: research, teaching, staff that are leading in their fields, recognition by the world leaders and those outside higher education, leading departments, leading subject areas, leadership in innovative ideas, groundbreaking research that attains prizes, the best students and graduates, the ability to attract staff and retain them, a higher proportion of postgraduates, large numbers of students from abroad, strong research and teaching networks, a strong financial base with large endowments and income from diversified sources, a supportive research and teaching environment, a strong management, a long history of superior achievement, graduates that become movers and shakers in the real world of politics and economics, contributions to community and society, rankings alongside the best universities, and the confidence to set their own agenda.[8]

No African country, including South Africa, has universities which have these characteristics. What Africa has are universities that are ordinary. Arguably, if there had there been world-class universities in Africa, external agencies like the Bretton Woods institutes would not have been able to dismiss African higher education, research and knowledge, as they did in the 1980s. This lack of distinguished universities was in part seized upon by the international financial institutions to suggest that universities and higher education is not of benefit to African countries. Their recommendation was to concentrate on primary and vocational education and ignore higher education and universities. The very forces that helped to establish universities to meet the needs of a post-colonial civil service, paradoxically, found these universities of little value. Far from making the universities relevant to promote African development, they used rates-of-return arguments to undermine these institutions.

Universities in Africa are now emerging from this assault. What is essential now is to address questions such as what would it take to make higher education, research and knowledge an integrated part of the African educational and developmental enterprise, and how can higher education, research and knowledge be made relevant to Africa?

The importance of building a Pan-African Higher Education, Research and Knowledge Area

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[8] Jamil Salmi, *The Challenge of Establishing World-Class Universities*, The World Bank, 2009, Washington DC., pp 81-82, see also see Alden J., and G. Lin 2004, *Benchmarking the Characteristics of a World-Class University: Developing an International Strategy at University Level*, Leadership Foundation for Higher Education, London

As discussed above, African higher education has evolved largely through a process of external penetration by the colonial powers. The effect of this penetration has been to create weak universities that are notable only for their absence in any of the international rankings.[9] Although some South African universities are regarded as relatively successful in comparison to universities in other African states, they are not so regarded in relation to those of other countries in the world[10].

What can be done to change the situation for the better? There is a real need for a multi-pronged and at the same time simultaneous approach to motivate development in higher education, research and knowledge. The approach should:

1. Create, along with the efforts for Pan-African Union, New Partnership for Africa's Developement (NEPAD) and other initiatives, a Pan-African open higher education, research and knowledge area.
2. Build on the existing universities' research, higher education and knowledge capacity
3. Foster the conditions that facilitate the creation of innovative curricula, mobility of staff, students and training by opening the free movement of knowledge, research and higher education.
4. Create free movement without borders in higher education, research and knowledge in Africa.
5. Include a vision to create a few strong institutions in Africa that can be ranked as world-class universities.

The obstacles to achieving these tasks and building a knowledge, research and higher education area in Africa remain formidable. The first, and critical, obstacle is the lack of African political will to open a higher education, research and knowledge area. The second is the fear of losing state sovereignty over education, research and knowledge if borders permit a free movement of knowledge, research and higher education along with the free movement of economic activities, labour and capital. The third is the problem related to internal and external resistance to a pan-African framing of the higher education, knowledge and research area.

A fourth problem is that external actors treat South Africa differently from other parts of Africa, North Africa differently from Sub-Saharan Africa, Lusophone Africa different from Francophone Africa and all differently from Anglophone Africa. There is not yet an Africa-phone Africa. As long as in practice this divisive approach

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[9] In the Shangai Jiao Tong University (SJTU) 2008 ARWU Country Ranking, only South Africa has been mentioned within the lower end 201-302 rank. No other African state has been included in this ranking at all. (SJSTU 2008) cited in Jamil Salim, op.cit. p.77

[10] Similarly in *The Times Higher Education Supplement* (THES) 2008 Country Ranking, only South Africa has been ranked as 179 when the lowest in Europe is Greece at 200 and the first is the United States of America with the top rank 1. (See THES 2008) in Jamil, Salim, ibid., pp. 79-80

reigns, a Pan-African research, knowledge and higher education vision that inspires the resolution of the higher education crisis is very unlikely to take hold.

Fifth, states in the different countries may wish to build universities for status and prestige rather than education and development for their people. When such hubris prevails over the much needed solidarity or ubuntu to employ research, knowledge and higher education for development and education, the interest to combine relative strength on an African scale and scope is likely to fail.

The other obstacles are connected to a number of factors that are related mainly to the inability of the existing states to create a strong higher education, research and knowledge area. Some of the prevailing problems that hinder development in higher education, research and knowledge are enumerated below:

- Weak investment from national governments to promote continental knowledge infrastructure.
- Weak mobility of knowledge, research, researchers, curriculum and innovation horizontally.
- Continued movement of knowledge and trained people is largely vertical with the Northern hemisphere.
- Obstacles and lack of incentives to stimulate inter-African knowledge communication.
- Brain migration is a real problem given lack of brain circulation within the continent[11].
- Poor or no representation in national development plans and bi-lateral donor support.
- Continuing 'competition' with universal primary education for popularity and extremely limited resources.
- Migration of good quality staff and researchers, overseas or to the private sector.
- Increasing age and retirement of senior and experienced staff with decreasing candidates for replacement[12].
- National and regional needs for graduates far outweighs current higher education institutional capacity.
- Low interest and too few graduates in science and technology.

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[11] Net immigration from sub-Saharan Africa was 0.57 million in 1995: fell to 0.29 million in 2000; and then rose to 0.7 million in 2005. An estimated one third of these were university graduates… Remittances are US 22 billion dollars for SSA (See World Bank, Accelerating Catch Up: Tertiary Education for Growth inn Sub-Saharan Africa, xxxiv, 2009. "There are more African scientists and engineers working in the United States than in the whole of Africa."(see Henk Molenaar, Louk Box & Rutger Engelhard(eds.), *Knowledge on the Move: Emerging Agendas for Development Orientated Research,* International Development Publications, Netherlands, 2009, p.2) see Book Review, Mammo Muchie and Nal, in the *African Journal of Science, Technology, Innovation and Development*, Vol. 1, No.1, August 2009
[12] Adapted from SARUA's Strategic Plan 2007 – 2012 which identifies some of the critical weaknesses that characterise the HE education system in the region

- Poor levels of quality research and publications.
- Poor communications and transport infrastructure.
- Cross-border regulatory obstacles to regional collaboration.
- High dependence on international donors for the foreseeable future[13].
- In addition, a recent report of November 2008 suggests that African universities still face a looming shortage of PhDs[14].

Whilst there is no longer a major ideological argument suggesting that universities in Africa are unnecessary, there is still a problem in framing higher education, research and knowledge in ways that could meet Africa's challenges requiring Africa's combined energy, resources and management. The reality on the ground is that African universities continue to evince a lack of concentration of talent and resources, and an acute governance crisis across the whole spectrum of higher education, research and knowledge.

Higher education with such characteristics creates not world-class universities but low-class universities. The challenge is how research, knowledge and higher education can be framed as African problems in order to provide African solutions. Left to the way things are now, with the added hazard of donor funding accentuating the divisions and fragmentations that persist, the opportunity to create a few world-class universities will not arise.

African agency and independence is inseparably connected to establishing robust internal research, knowledge and higher education systems. In fact Africa needs something like a higher education revolution for embedding knowledge and research in the communities, economy, state and society. Real decolonisation comes with indigenising a research, knowledge and higher education culture in Africa.

Higher education, research and knowledge for building the African system

'Higher education, research and knowledge are not a luxury, but very essential for Africans' survival, well being and dynamic transformation.'[15]

'Together they constitute productive power.'[16]

Today it has been increasingly recognised that research universities constitute one of the critical levers along with industry and government to shape the knowledge-

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[13] ibid

[14] Op. cit., the Chronicle of HE, November 25, 2008

[15] Berit Olson, Former Director of SAREC

[16] Mammo Muchie, Presentation on Research Universities for Eradication of Poverty, UNESCO's Global Research Seminar, November 27-29, 2008

based economy, community, nation and society in any country in the world. It has been said universities are to the information economy what coal mines were to the industrialized economy. Knowledge production is to the economy, just as labour, capital and money are. It therefore matters very much how the role of universities in the development processes is framed; and how the knowledge and the trained people produced are embedded in economy and society to change the existing conditions of poverty, the crises of nature and the crises of justice especially in developing and transition economies.

The debate must shift, therefore, from whether universities are 'white elephants' or not, to the challenge of how universities can be aligned to the processes of economic development, the eradication of poverty and the sustainability of the environment. In Africa, higher education has not succeeded in addressing these problems because it has continued to mimic the ivory tower institutions of the developed world. The degree of ivory-towering, in Africa, appears to be inversely related to how well the higher education, research and knowledge system addresses issues of poverty, well-being, infrastructure, sanitation, health, water, forestry, biodiversity, food security, agriculture and a host of livelihood problems that African societies face. In Africa both old and new universities need to combine training with research, and research with training. Research should be understood both as the knowledge and the training of people with the capabilities to create further knowledge.

At the rhetorical level, this conceptual twinning of research with teaching is not difficult to achieve. The real problem has been in putting in place the policies, the resources, the concentration of talent, the governance arrangements and the incentives suitable to bring about the specific translation of this relationship into practice. The deficit also lies in the capacities, capabilities, and competences needed to carry out deployment and implementation of the results of research and training into practice with consequential impact to peoples' livelihood and well-being in Africa. The task of creating a pan-African community of researchers is part and parcel of a knowledge-creating strategy to solve poverty and to prepare to cope with unexpected emergencies and disasters. Thus research and knowledge, far from being ivory tower pursuits, are critical inputs to make poverty history and prepare to cope with disasters.

If indeed research and knowledge are important to eradicate poverty, building a few world-class research universities then should not be an issue. It will be necessary to generate both the knowledge and trained people to discover novel ways to eradicate poverty. It is a mistake to think poverty will be solved without a strong research base to discover resourceful ways to deal with its manifold causes. Research universities should and can emerge as part of a nation's strategy to create capacity to eradicate poverty and deal with and respond to complex uncertainties with foresight.

The neglect of science, technology and innovation in building universities in Africa is a major blockage that needs to be cleared. This is compounded by the disconnection of research and knowledge creation with the African biological, mineral, health, water and food data that has been ignored for far too long. The universities have to build knowledge and research that takes as paramount local resources, people, problems and opportunities. The relevance of the university can be judged on whether or not its research and knowledge building are embedded in the African environment. Only when the universities are carrying out the best research on the problems of Africa can they become a relief, rather than a burden, to poverty eradication. Studying European Classics may be tolerated, but should not be a priority, both in terms of the relevance of the research and the trained personnel needed in Africa, although such curricula still exist in many post-colonial universities. There is a thus a need to reform the universities and to build the research and knowledge foundation by investing and gearing research to solve Africa's main problems.

There have been two initiatives recently in building research universities that are worth mentioning. The first is from Addis Ababa University which opened a campus to train 5000 PhDs in the next ten years. The strategy used is to invite some 60 foreign universities to cooperate in helping to train the new PhDs. The vision of changing an existing university into a 'pre-eminent research university' appears ambitious. A down-side is that it is resourced mainly from donors and through expected support from other universities in Europe, America and Canada. Another critical problem is that the existing university staff in Addis Ababa is expected to do 70 percent of undergraduate teaching, with an annual expected growth in intake. These constraints perhaps may be overcome. But this will not address the concept of creating a world-class university geared to solving the problems and disasters in Ethiopia, from food to energy, unless the policies, resources, talent, governance arrangements, and incentives are synchronized to indigenize research and knowledge creation.

The second initiative, the African University of Science and Technology (AUST) in Abuja, Nigeria, is part of the Pan-African university initiative, with satellite campuses in Arusha and other regions of Africa. It is not yet clear how this Pan-African university might evolve. It was set up by the Nelson Mandela Institution for Knowledge Building and the Advancement of Science and Technology in Africa. It has been described as an accredited and independent university, and as the first of a network of Pan-African Institutes of Science and Technology and Centres of Excellence. The advantage of this new university is that it can evolve as a research university from its inception, and indeed the framers had this in mind in founding it. It does not need to undertake the painful transition from an existing teaching to a research university that Addis Ababa University wishes to embark upon! A good

opportunity exists to create an African research university, provided the policies, resources, talents, incentives and governance systems are put in place to address the real problems of Africa and create both a stream of knowledge and researchers.

Most research universities are concentrated in one country namely the United States of America and it is not easy for poor countries to create research universities. Some countries like Nigeria and China are adopting a dual system of widening access to higher education whilst trying to creating research capacity. Since it is not easy for each African state to create a world-class university, it is necessary to think in terms of building an inter-African knowledge and research infrastructure by sharing values to create a robust African science and technology system. There is thus a need to take a bold initiative to set up at least five regional science and technology universities with five major laboratories that can focus on specific specialization from nano-technology, biotechnology, environmental technology, medical technology, food technology, energy technology and information technology and the convergences that bring new syntheses and synergies. This is an approach that is now being adopted by the African Union.

The main actors that drive the knowledge and research in Africa must be Africans. Africans have to learn to think through their problems and find solutions without blaming others for anything that may go wrong. They can work with others, but donors must not work for them or build research universities for them. The proper relationship must be to work with others rather than allowing others to work for Africans. It is precisely to assist and change this asymmetric relationship between donors and Africans that knowledge and research generated and owned by Africans to solve African problems must be promoted. There is a need to create both world-class research universities and the researchers imbued and motivated entirely to solve African problems with knowledge and innovation by mobilizing and using mainly Africa's own knowledge infrastructure where resources and capabilities are mobilized principally from within Africa by employing African ingenuities, thinking, reflection, foresight, perspective and imagination.

In conclusion, a research university for every African country may not be possible but a few world-class universities shared and built by Africans to create researchers that think deep, think to create knowledge, think with humility to serve Africans with commitment and non-elitism, are necessary to make poverty history.

Enhancing quality, productivity, capability and utility

Historically, Africa has had a raw deal, and the effects of this have not yet been fully reversed. It was 125 years ago that Africa was scrambled over and split up by the powers of Europe. This legacy of division and fragmentation, including the negative

European influence, has not yet left Africa. The place that has had the raw deal must get a fair deal, if not a new deal.

There is a need to engage the broadest possible mobilisation of all involved in higher education, research and knowledge from both inside and outside Africa to contribute to training and research capacity building. In addition, the link between the quality of higher education, research and knowledge, the productivity of the researchers, and the trainees and knowledge producers must be improved. This should enable African academics to continuously enhance their capabilities and ensure that their outputs serve real and tangible problems in a systematic and consequential manner.

The ability to achieve this requires organising quality and capability-enhancing academies. One such academy could take the form of a global knowledge network and support system to stimulate and inspire cooperation and purposeful engagement by mobilising talents, skills, knowledge and goodwill, and communicating effectively with the issues, problems, needs and aspirations of ordinary people and communities. Such a network will go a long way in contributing to changing society, mind sets and attitudes in Africa. It could create real organic connections and meaningful, hopeful and productive interactions between the Diaspora and the people, communities and societies in Africa for generations to come.

It is proposed that such a network is established in the form of an African Global Higher Education, Research and Knowledge Observatory. The objectives of this observatory would be:

i) the creation of a knowledge and virtual training centre, and the dissemination of knowledge to empower African learners and assist in transforming individuals, communities, society, and institutions by facilitating networks that interlink Africa, including the Diaspora.

ii) the sustained democratisation of African society by means of the use of knowledge and its effective dissemination to bring about sustainable, irreversible and democratic transition, democratic governance, rule of law, protection of the basic freedoms, and separation of powers.

iii) to help the structural transformation of African society, economy, politics, ecology by bringing together into a network the best available knowledge and knowledge workers through research, training, capacity building and creative forms of dissemination of knowledge

Along with this Observatory, it is proposed that there is a need to set up an African Doctoral Academy for research, quality and capability enhancement that can be organised as a key component to enhance the higher education landscape in Africa. This could build on the model established by the Global Network on the Economics of Innovation, Competence Building and Innovation (GLOBELICS), which aims to aid in reversing brain drain by encouraging top researchers from the North to interact with and help build research and knowledge capacity in the South[17].

There are three main activities that need to come together in order to create such a Doctoral Academy and enhance research capacity building and training, and knowledge creation to stimulate and enhance African higher education system.

The first is establishing academic research networking and training that connects inter-African research communities with each other and with the best international research networks globally.

The second is to identify cognate fields from social and technical sciences with research programmes and research themes to create, acquire, build and use a body of knowledge for both the enhancement of research and quality training.

The third is the organisation and strengthening of Africa's higher education landscape to provide immediate outlet in Africa which can develop within a few years to attain international ratings, and which can serve as a publishing node in addition to others to disseminate effectively analytic work, research results and newly acquired knowledge and also facilitate mechanisms for policy learning and knowledge-dialogue and interchange amongst all the relevant stakeholders. The establishment of journals like the African Journal on Science, Technology, Innovation and Development can open the knowledge world to African penetration challenging in part the knowledge monopoly by the dominant knowledge leaders now[18].

For both academies suggested above, it is important to build on regional strengths where these exist. South Africa must play a special role in this regard, since research in Africa appears to be concentrated mainly in South Africa. Only Egypt attains similar levels of research. According to Pouris, 'These two countries produce just above 50% of the continent's publications and the top eight countries produce above 80 percent of the continent's research'[19]. South Africa, in addition, has a ten-year innovation plan[20] (indicating that national leadership has understood the importance

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[17] See www.globelics.org for more information.

[18] See the AJSTID published by Adonis-Abbey Publishers and supported by SARCHI-IERI and TUT.

[19] Pouris, A., and Pouris, A 2007, The State of Science and Technology in Africa (2000-2004), a Scientometric Assessment 79, 2009, *International Journal of Scientometrics*, In Proceedings, ISSI 2007.

[20] Department of Science and Technology, South Africa, *South African Ten Year Innovation Plan*, Pretoria, South Africa, 2008

of research and knowledge), and has five research universities recognised in international rankings.

Whilst South Africa has its problems, in relation to much of Africa it has built up a relatively functioning higher education system, research and knowledge system that has been embedded in the country. Arguably the South African system is also bifurcated. It has not reached the whole country as it should have been due to the peculiarities of the apartheid period. However, it is clearly an important knowledge and research resource. The challenge is how to create research and researcher mobility to link this energy from South Africa to benefit other African countries building efforts of both research and researchers. This requires a double transformation: South Africa emerging to promote a higher education, knowledge and research African area by opening its borders; and the rest of Africa welcoming South Africa to engage in research and knowledge activities beyond its own shores. Such a double change is critical to create a wider and deeper Pan-African higher education area.

The argument for higher education, knowledge and research on African economic development, economic transformation and African economic integration that can connect through productive and innovative activities the producers and users in Africa, is compelling. However, achievement of this vision still leaves much to be desired. Capacity building is essential to strengthen and communicate the research and knowledge from studies in science, technology and innovation to various stakeholders such as the decision-makers at various levels, businesses, civil society organizations and various sectors in education, health, agriculture and engineering. This capacity building could be greatly strengthened if scholars from African and international institutions, universities and networks could come together and creatively organize research capacity training together.

Concluding remark

We have come a long way. At a conference in Harare in 1986 the World Bank recommended to the Vice-Chancellors of African universities that they should shut down the universities. The arguments used were based on rate-of-return analysis on investment in higher education, research and knowledge, using neo-classical understandings that price equals marginal cost based on 'circulation or exchange-value allocative economics'[21]. This World Bank claim could not stand scrutiny even with its own neo-classical terms. African economists, using panel data for over the

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[21] See Mammo Muchie, Building Research Universities in Africa: the Challenges, in Heather Eggins(ed.) *Selected Papers on Sharing Research Agendas on Knowledge System*s, Occasional Paper no.16, www.unesco.org/education/researchforum, 2009 pp. 16-25

1960 - 2000 period and a dynamic panel estimator to investigate the effect of higher education human capital on economic growth in African countries, found that at all levels of education, human capital has a positive and statistically significant effect on growth rate of per capita income in African countries, thus debunking the argument that claimed no significant effect of Higher education human capital on the per capita incomes of African countries. They found that human capital developed through higher education has as large a growth impact as physical capital investment[22].

Despite being rejected based on science and commonsense, this narrow allocative economics of existing factors of production and goods and services based on the market could return due to the global economic and financial crises confronting countries and national economies today. Thus there is a particular need in Africa to locate higher education, research and knowledge within alternative theories, such as looking at productive powers and the capability sets needed to create them, rather than the circulation of the produced commodities. Africa must oppose a neo-classical exchange economy theory by promoting theories of productive power in order to develop and protect the African higher education, research and knowledge area.

The building of Africa's national economic space requires that higher education, knowledge and research become critical components of the making of African innovation systems[23]. It has been suggested that the creation of a global African Knowledge, Research and Higher Education Observatory, along with networks that are inter-African and global, for enhancing quality, productivity, capability and utility of knowledge and trained human capital would enable this. Practical measures that can access strengths in order to build what is currently weak across Africa must be tried. South Africa can play a big role in this. The Diaspora can create knowledge, research and higher education bonds and links by broadening the African network well beyond Africa to abroad. The Diaspora can be Africa's 'near abroad'.

There is a need to create a few world class Pan-African universities, at least one in each region of Africa, in addition to the possibility of strengthening the existing universities from South Africa to Nigeria. But work for these world-class universities must be conceptualised differently from those in the West. In order to tower as world-class universities in Africa, they must immerse themselves in the African locale and problems.

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[22] See Kwabena Gyimah-Brempong, Oliver Paddison & Workie Mittku, *Journal of Development Studies*, Vol.42, issue no.3, April 2006, PP.509-529

[23] See Muchie et al, *Putting Africa First, The Making of African Innovation Systems*, Aalborg University Press, 2003

Finally there can be no apologies in putting Africa first. All those who argue for 'one united humanity' acting in solidarity must recognise that the aspects of humanity that others 'othered', enslaved, degraded and rejected cannot remain in the state it has been since the humiliations of the 15th century. 'One united humanity' can only be achieved if those who rejected Africans learn to acknowledge and open the opportunities for to provide the fair deal that is owed to Africa. For 'one humanity' to be formed, Africa's dignified and non- humiliated inclusion is a necessary condition, if not sufficient. Only when the excluded is included, when the former recipient of the raw deal has a fair deal, can 'one united humanity' finally emerge.

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