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Knowledge Production and Contradictory Functions in African Higher Education

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CHAPTER 1

ROLES OF UNIVERSITIES AND THE AFRICAN CONTEXT

Nico Cloete and Peter Maassen

The roles of universities in society

After the publication of the final report by the National Commission on Higher Education (1996) in South Africa, the newly formed Centre for Higher Education Transformation decided to contribute to strengthening the knowledge basis on the role and functions of higher education in Africa by combining traditional higher education studies with more general scholarly reflections on the change dynamics of higher education. This led to a first series of seminars, organised around presentations by prominent scholars such as Mahmood Mamdani and Kwame Appiah, and well-informed practitioners such as Peter Scott, Donald Ekong and Malegapuru Makgoba. The series resulted in a book called *Knowledge, Identity and Curriculum Transformation in Africa* (Cloete et al. 1997). This was followed in 2000, and then again in 2009, by seminars involving Manuel Castells – one of the world’s leading social scientists known especially for his research on the network society, communication and globalisation. On both occasions, Castells gave a special lecture on higher education that contributed to the publication of two books. The first, *Challenges of Globalisation: South African Debates with Manuel Castells* (Muller et al. 2001), was primarily about the challenges that South Africa and its universities were facing during rapid globalisation. The second, *Universities and Economic Development in Africa* (Cloete et al. 2011), concerned itself more directly with the roles of the university in development in Africa in relation to the knowledge economy.

In his special lecture at the University of the Western Cape in 2009, Castells provided a typically encompassing, but interlinked view, of higher education in society (Castells 2009: 1):

We live in a global knowledge economy and in societies based on processing information, which is a primary university function. This implies that the quality, effectiveness and relevance of the university system will be directly related to the ability of people, society, institutions, to develop. In the context of a technological

revolution and in the context of a revolution in communication, the university becomes a central actor of scientific and technological change, but also of other dimensions – of the capacity to train a labour force adequate to the new conditions of production and management. They also become the critical source of equalisation of chances and democratisation of society by making possible equal opportunities for people – it's not only a contribution to economic growth, it's a contribution to social equality or, at least, lesser inequality. Something else is their ability to develop new cultures; that is, to be the source of cultural renewal and cultural innovation which is linked to the new forms of living in which we are entering. Universities also have been dramatically affected by technological change itself – being an institution that processes information, its information and communication technologies are affecting deeply the functioning and the culture of the university, sometimes without full knowledge of what's happening and without controlling these processes. Yet, in spite of all these challenges, all these possibilities, all these opportunities for the university system, in many, many cases universities continue to be corporatist and bureaucratic, defending their own interests – particularly in terms of the professors – and extremely rigid in their functioning in terms of their administration.

Castells is referring here to the core functions of the university. He echoes in this the work of many great thinkers on the ideas underlying the university including Alexander von Humboldt, Cardinal Newman and, more recently, Clark Kerr. The latter emphasised that research universities cannot be single-purpose institutions, but rather must be pluralistic in the sense of combining various functions. In his work, Kerr has argued that it is far too simple to claim that the three main university functions are teaching, research and service (see, for example, Kerr 1991: 47–67). Instead, he observes that the university has a series of functions related to production (such as selection of talents, training and research); to consumption (such as general education, community life and a holding operation); and to citizenship (such as socialisation, critical evaluations and democratisation). According to Kerr (ibid.: 65):

The reality is a pluralistic university system in a pluralistic society serving many functions including constant evaluation of society. The single-purpose campus is as unlikely as the single-purpose wife or husband; the nature of both is to serve more than one function. Nor can there be a single model for the multi-purpose campus, since some functions combine better than others and there are a number of functions in totality to be performed by higher education.

Drawing on Kerr and the Castells (2001: 206–212; 2009) lecture series referred to above, the four key roles of higher education could be summarised as follows. Firstly, historically, universities played a major role as ideological apparatuses – that is, as producers of *values and social legitimation*. These institutions were rooted in the European tradition of church-based

theology schools (e.g. Bologna, Cambridge, Oxford, Harvard and Salamanca). Other non-religious universities played a similar role in producing, for instance, imperial values in the case of some of the major universities, and of justifying domination and western superiority in the colonial world. But, as times changed, a key task of these institutions became the shaping of civic values and ‘flexible personalities’ in the development of prospective (re-centring) identities, which uses future-orientated narratives to construct a new basis for social belonging and citizenship (Cross et al. 1999). To this day, the formation and diffusion of ideology is still a fundamental role of universities, despite claims to being non-ideological (ibid.: 206).

The second role – historically as important as the production of values – was *the selection of the dominant elites*. The selection of the elites is accompanied by a socialisation process that includes the formation of networks for their social cohesion, and the establishment of codes of distinction between them and the rest of society (Castells 2001: 207). Values and elite selection became closely connected networks exemplified by, for example, the Ivy League institutions in the United States, the *grandes écoles* in France, or Cambridge and Oxford in England. But, as demand for access to higher education grew, universities differentiated. And while for some institutions elite selection and formation remained their primary role, large numbers of generalist universities emerged that increased higher education participation rates dramatically. Martin Trow (2007) referred to this as the shift from elite (15% participation rate) via mass (15–40%) to universal (over 40%) higher education; or in Peter Scott’s (1995) terms, the massification of higher education. Scott’s important contribution was to show that massification is not just a linear expansion of participation; it is also an integral part of modernisation, with associated socio-economic, cultural and science and technology changes. For Scott (ibid.: 1), a characteristic of massified systems is that they are ‘endlessly open, radically reflexive with considerable ambiguity and radical discontinuities’.

In these massified systems, the notion of ‘elite’ has changed dramatically – from the university selecting students belonging to a political and/or socio-economic elite class, to the university being an institution for selecting academic talents; that is, an academic elite, independent of (or at least much less dependent on) class or background. However, in established massified systems such as the United States, higher education could also become an iron cage for the elite. John Shaplin (2014), reviewing Thomas Piketty’s work on university endowments, education and social mobility, reports that research shows that the proportion of college degrees earned by children whose parents belong to the bottom two quartiles of the income hierarchy stagnated at 10–20% during the period 1970 to 2010. By contrast, the proportion of college degrees earned by children whose parents are in the top quartile increased from 40% to 80% – meaning ‘parental income is an almost perfect predictor of university access’ (ibid.).

The third role for universities was the *training of the labour force*. The professional university has always had this basic function, ever since it started specialising in the training of church bureaucrats. Both the Napoleonic model (with its introduction of *grandes écoles*) and the Chinese Imperial systems used specific institutions to select and prepare the state bureaucracy

(Castells 2001). However, this role extended to other emerging professions: the schools of medicine, law and engineering were critical as training institutions for industrialisation development. In due course, 'training' changed from the reproduction or transmission of 'accepted' knowledge to 'learning to learn' or becoming 'self-programmable' workers, which refers to the ability to change and adapt to many different occupations and new technologies all through one's professional life (ibid.).

The fourth role for universities is associated with the relatively late invention of the German research university model that emerged in the second half of the 18th century. This saw the development of a different type of university that could be called a 'science university', in which the primary focus is on the *production of scientific knowledge*. While the science orientation seems to be the most obvious function of a university (implying the generation of new knowledge), the true research-intensive university forms a minority institution in higher education systems, and particularly so in developing countries (Altbach 2013).

The popularity of the research-orientated university came from the success of the German universities which, by 1933, had trained and employed twice as many Nobel prize winners as the universities in the US and United Kingdom at the time combined (Watson 2010: 35). After the Second World War, this dominance was taken over by the US university system. In certain respects, the US system combined the classic German research university model with the so-called 'Land-Grant' university model, which had a specific focus on *science with application into society*.¹ Originally, the role of these Land-Grant universities was to develop and apply knowledge for improving the productivity of US agriculture; to contribute to solving specific problems resulting from the rapid urbanisation of the US (Gornitzka & Maassen 2007); and to support the development of specific industries that had regional or national importance. Other key functions of the Land-Grant universities that are seldom mentioned included the requirement of the provision of extension services (especially in the area of agriculture), and the stated intention to provide greater access to higher education throughout the country (Douglass 2007).

As emphasised by Kerr, a challenge for universities is that they cannot specialise in only one function; indeed, many try to fulfil all four roles at the same time. Therefore, a critical element in the structure and dynamics of university systems is to combine and make compatible various, sometimes contradictory, functions. For example, ideological apparatuses are not purely reproductive machines, as Pierre Bourdieu sometimes implied;² thus both conservative and radical ideologies are not only in the system but in individual universities as well. And often, the more the socio-political rule of society relies on coercion than on consensus, the more universities become centres of challenge to the political system. In such cases, universities are still predominately ideological apparatuses, although they work for social change rather than for social conservatism (Kerr 1991: 11).

1 The Land-Grant universities were established via the Morrill Act of 1862 (which was amended in 1890). Interestingly, both the Massachusetts Institute of Technology and the University of California, Berkeley started as Land-Grant universities. See http://www.ifas.ufl.edu/land_grant_history/ for a brief history of the Land-Grant universities.

2 See, for example, Bourdieu and Passeron (1990).

Another tension arose when the developmental potential of universities became apparent and many countries tried to build research universities, technology institutes and university-industry partnerships. After centuries of using universities as ideological apparatuses and training institutions, the university rather quickly came under pressure to be a productive force – implying that universities had to be connected simultaneously to the informational economy and to the socio-cultural changes the society was undergoing (Gornitzka & Maassen 2007). Here, the issue is not to have universities as societal transformers, or to isolate the universities from the social into secluded laboratories or the boardrooms of multinational firms, but to develop institutions that are solid and dynamic enough to withstand the tensions that will trigger the simultaneous performance of possibly contradictory functions. As Castells (2001: 14) put it:

The ability to manage such contradictions while emphasizing the universities' role in generating knowledge and training labour in the context of the new requirements of the development process will to a large extent determine the capacity of countries and regions to become part of the new world economy.

Finally, in the current conditions of the global knowledge economy, knowledge production and technological innovation become the most important productive forces. This requires that every country has at least some level of a *national research system* (comprising universities and other types of higher education institutions, private sector and public research centres, and private sector research and development) in order to be able to participate in the global knowledge economy (Castells 2009). There has been a growing policy focus on the university's contributions to innovation and economic development – the main assumption being that more complex and competitive economic and technological global environments require rapid adaptation to shifting opportunities and constraints. As such, the university is expected to play a central role in this adaptation since, as the main knowledge institution in any society, it is assumed to link research and education effectively to innovation.

This expectation has been the underlying rationale for reforms aimed at stimulating universities to develop more determined institutional strategies and a strong, unitary and professional leadership and management capacity. Furthermore, higher education policies have become increasingly coordinated with other policy areas, such as innovation and technology, as part of national (and supranational) knowledge and innovation policies (Braun 2008: 234). At the same time, there is a growing insight into the simplicity and relative one-sidedness of these policies. As is argued by Mazzucato (2013: 52), in her seminal book *The Entrepreneurial State*, it is crucial to separate the role of the university in the production of knowledge from the role of industry in innovation through the development of early stage technologies: 'Getting universities to do both runs, amongst other things, the risk of generating technologies unfit for the market.'

The African context

Both the British government, following the Asquith Commission (1945), and the French, following the Brazzaville (1944) meeting, saw the universities in the colonies as extensions of the British and French university systems, and assumed that the best students would study in the metropolis (Sherman 1990). The model was not Oxbridge or *grande écoles*. According to Castells (2001: 213), the recruitment of social elites – first for the colonial administration and later for the new political regimes – became the fundamental function of universities in the ‘Third World’ – not only in Africa, but also in Latin America and East Asia. Mamdani (2008) concurs with this by stating that the purpose of Makerere University in Uganda was to train a tiny elite on full scholarships (which included tuition, board, health insurance, transport and even a ‘boom’ to cover personal needs). From the point of view of the students, this was an extraordinary opportunity; from the point of view of the society, an extraordinary privilege (ibid.: 1).

Higher education in Africa is still an elite system, although the private sector has increased access to mainly small, low-quality institutions which, in the majority of cases, should not be called universities.³ The higher education participation rate in sub-Saharan Africa is still much lower than in the rest of the world, currently averaging from 5–10%. Of the eight countries⁴ in the Higher Education Research and Advocacy Network in Africa (HERANA) project specifically, only Mauritius and Botswana had a participation rate above 20% by 2012 (World Economic Forum 2012). There has been a common misconception that a major problem in African higher education is that it has massified without resources. In reality, nowhere on the continent is there a differentiated and massified system; there are only overcrowded elite systems.

However, when it came to the ideological apparatus function, things unravelled very quickly owing to the instability of the conflicting and competing political elites, and the universities were cauldrons of conflicting values ranging from conservative-reformist to revolutionary ideologies. The contradictions between academic freedom and political militancy, and between the drive for modernisation and the preservation of cultural identity, were detrimental to the educational and developmental task of the university. These new universities could not merge the formation of new elites with the ideological task of forging new values and the legitimisation of the state (Castells 2001: 213).

This ‘hindsight’ analysis of Castells does not mean that there was not an intention for or a discourse about the university contributing to professional training and, more broadly, to development. A basic assumption following independence was that universities in Africa⁵ were expected to be key contributors to the human resource needs of their countries: in particular, the development of human resources for the civil service and the (public) professions. This was

3 One of the most bizarre examples of this is Mauritius where, with a population of less than 1.5 million, there are more than 60 ‘universities’.

4 Botswana, Ghana, Kenya, Mauritius, Mozambique, South Africa, Tanzania and Uganda.

5 At the time of independence, higher education in most African countries was mostly limited to a single national university. It is thus not possible to speak of a higher education ‘system’ at that time.

to address the acute shortages in these areas that were the result of the gross underdevelopment of universities under colonialism, as well as the departure of colonial administrators and professionals following independence. The training function in Africa has become more important – although not as important as the ‘explosion’ in Asian universities, which have increased their enrolment and technical training on an unprecedented scale (Carnoy et al. 2013). African universities have also grown, but much more moderately than their counterparts in the rest of the world, and mainly at the lower degree or diploma levels. Furthermore, much of the growth in student numbers has taken place in traditional fields such as law, humanities and the social sciences, rather than in science, engineering and technology (Bunting et al. 2014; Kapur & Crowley 2008).

Soon after independence, a ‘development’ discourse emerged and 1960 was heralded as the ‘Year of Africa’ and the beginning of the so-called ‘development decade’. In September 1962, UNESCO hosted a conference on the ‘Development of Higher Education in Africa’. A decade later, in July 1972, the Association of African Universities held a workshop in Accra which focused on the role of the university in development (Yesufu 1973). The importance of the university in newly-independent African countries was underscored by the now-famous ‘Accra declaration’ that all universities must be ‘development universities’ (ibid.). Controversially, workshop participants agreed that this was such an important task that the university could not be left to academics alone; it was also the responsibility of governments to steer universities in the development direction.⁶

While many nationalist African academics enthusiastically supported the role of the ‘development university’, seeing it as a plus in their contestations with the expatriate professoriate that dominated institutions, it sat uncomfortably with expatriates and some ‘globally orientated’ African academics. This latter group was more comfortable with the traditional model of the university as a self-governing institution (i.e. governed primarily by scholars) that predominated in the UK and the US at the time. This self-governing model was the dominant model during the first two decades following independence and there was considerable agreement between universities and ‘liberation’ governments⁷ that the role of elite universities was to produce human capital for the new state.

Despite the rhetoric about the ‘development university’, African governments did little to promote the development role of these institutions. In part this was because many of these governments had not developed a coherent development model, with notions of what the role of the universities would be. Instead, many had become increasingly embroiled in internal power struggles, as well as the external politics of the Cold War and the politics of funding agencies such as the World Bank. Instead, ‘not leaving the universities alone’ became interference by government, rather than steering (Moja et al. 1996). Furthermore, universities

6 Arguably, this was the last time, until 2009, that governments in Africa agreed, at least in continental statements, that universities are important for development (MacGregor 2009).

7 Many of the liberation leaders had studied at foreign universities.

became sites of contestation – partially around the development model of the new state, and partially around the lack of delivery which included inadequate funding for the institutions. The result was that many governments, other stakeholders and academics became sceptical, if not suspicious, of the university's role in national development.

It was during this period that the World Bank in particular – in part based on the infamous 'rate of return to investments in education' study (Psacharopoulos et al. 1986) – concluded that development efforts in Africa should be refocused to concentrate on primary education. This is clearly evident in the dramatic decreases in per capita spending on higher education in Africa, as reported in a World Bank report: 'Public expenditure per tertiary student has fallen from USD 6 800 in 1980, to USD 1 200 in 2002, and recently averaged just USD 981 in 33 low-income SSA [sub-Saharan Africa] countries' (World Bank 2009: xxvii). This was a staggering decrease of 82% (Hayward & Ncayiyana 2014). At a meeting with African vice-chancellors in Harare in 1986, the World Bank went so far as to argue that higher education in Africa was a 'luxury' and that most African countries would be better off closing their universities at home and training graduates overseas instead. When the Bank realised this position was unsustainable, they modified it to arguing that universities should be trimmed down and restructured to train graduates only in the skills that the market required (Mamdani 1993). This was followed by a number of privatisation drives which in 1997 at Makerere University led to the creation of part-time and temporary staff, competition between faculties for vocational (income-generating) courses, and, later, the introduction of private and public students in the same public university. The cumulative effect of this was, according to Mamdani (2008), the commercialisation of the university at the expense of quality and research.

Castells (2001) argued that the major area of underperformance in Africa and, to some extent, Latin America is in the research or 'generation of new knowledge' function. Africa is at the bottom of almost every indicator-based ranking and league table in science and higher education. For instance, in 2002, Africa's share of publication output was 1.6% and of researchers by region/continent was 2.2%. By 2008, Africa's share of publications had risen to 2.5% although the share of researchers declined slightly, from 2.2% to 2.1% (Zezeza 2014). However, there have been further positive improvements since 2008 which will be discussed in the next chapter.

In his 2000 lecture, Castells presented a number of structural and institutional reasons which might explain the lack of progress in research. These included low funding levels and 'the cumulative character of the process of uneven scientific development' leading to, amongst others, a lack of centres of excellence that were at the cutting edge of a specific area of specialisation (Castells 2001: 215–217). In other words, the academic environment in African universities is not attractive enough for talented national scholars who, as a consequence, move to universities abroad (especially in North America and Europe) which offer more attractive academic environments. In addition, the main institutional reason for a lack of progress is argued to be the difficulties African universities have in managing contradictory functions (i.e. managing the political and ideological functions alongside the academic activities of the university).

However, as we will show in the next section, there was a revitalisation of higher education in the post-2000 period and a number of the accepted reasons for poor performance no longer held. Over the last 10 to 15 years, universities and university systems have gone through far-reaching quantitative and qualitative changes in many developing countries and emerging economies such as the so-called BRICS⁸ countries. In general, though, sub-Saharan universities appear to be lagging. The transformation of universities worldwide is discussed by Altbach and Balán (2007) who, in their book *World Class Worldwide*, focus on the transformation of research universities in Asia and Latin America. According to these authors, their analysis did not include Africa because they believed that 'Africa's academic challenges are sufficiently different from those of the nations represented here that comparison would not be appropriate' (ibid.: vii). Strikingly, the authors did not provide any arguments or data to support their claims.

The revitalisation of higher education in Africa

The gloomy analyses of higher education in Africa by Castells and Mamdani presented above were largely based on the four decades from 1960 to the end of the 1990s. During the late 1990s and early 2000s, some influential voices started calling for the 'revitalisation' of the African university and for linking higher education to development (Sawyer 2004). From this followed a series of revitalisation initiatives and this issue will be revisited again in 2015 at an all-Africa higher education summit in Dakar.

Perhaps a brief reflection on the term 'revitalise' is appropriate. The Collins dictionary defines revitalise as 'breathe new life into, bring back to life, reanimate, refresh, rejuvenate, renew, restore, resurrect'. This raises questions as to what has to have new life breathed into it or to be restored or resurrected. Mamdani provided an evocative reflection during the 1990 symposium on academic freedom held in Kampala and organised by the Council for the Development of Social Research in Africa, which suggests that the revitalisation needed had to do with 'relevance' (Mamdani 1993: 11):

We discovered local communities, communities which we had hitherto viewed simply as so many natural settings. Forced to address these communities, we were compelled to look at ourselves from the stand-point of these communities. We came to realise that universities have little relevance to the communities around us. To them, we must appear like potted plants in greenhouses – of questionable aesthetic value – or more anthropological oddities with curious habits and strange dresses, practitioners of some modern witchcraft. To academics accustomed to seeing ourselves as leaders-in-waiting or students accustomed to be cajoled as the leaders

8 Brazil, Russia, India, China and South Africa.

of tomorrow, these were indeed harsh realities. We were forced to understand the question of relevance, not simply narrowly from the point of view of the development logic of the state, or even narrower market logic of the IMF and the World Bank, but broadly from the point of view of the needs of surrounding communities. But we had always resisted any demand for a broad relevance in the name of maintaining quality. Faced with popular pressures for democracy in education, universities and independent states were determined, not only to preserve intact those universities inherited from colonial mentors but also to reproduce replicas several times over to maintain standards.

From another perspective, is the university that needs to be revitalised the ‘commercialised’ Makerere University referred to earlier? Mamdani (2008) described this commercialisation as reform that devalued higher education into a form of low-level training that lacked a meaningful research component. And, while Makerere is a case study of market-based reform at a single university, it raises larger issues about neo-liberal reform of public universities globally (ibid.: vii). Or, does revitalisation mean that new life must be breathed into university systems where the ‘generation of new knowledge’ function is the major area of underperformance (Castells 2001)?

Interestingly, most of the revitalisation reports were produced in preparation for major donor-driven events. Both the Sawyerr (2004) publication and the African Union/NEPAD (2005) workshop report, *Renewal of Higher Education in Africa*, contributed to the Gleneagles G8 summit. Similarly, the United Nations University project report (2009), *Revitalizing Higher Education in Sub-Saharan Africa*, but particularly the Pityana (2009) paper, *Revitalisation of Higher Education: Access, equity and quality*, were prepared for and delivered as proposals to the 2009 UNESCO World Conference on Higher Education. No systematic assessment of the outcomes of these pleas for revitalisation has been done. However, in an overview of the public donor dimension in Africa, Maassen and Cloete (2010) wrote that while the G8 summit certainly created a momentum for a new focus in Africa, the G8’s renewed commitment to Africa was far from uncontroversial: not only did part of the British government react negatively, but agencies such as the United Nations Envoy for HIV/Aids and even the International Monetary Fund responded critically to some of the proposals.

Regarding higher education in particular, two of the most important documents to be released following the G8 summit were the *Africa Action Plan* and the *Report of the Commission for Africa*. The *Africa Action Plan* focused broadly on developing research and higher education capacity as well as information and communication technologies. The Commission for Africa report identified four priorities in the sector, namely professional skills, physical infrastructure, human resources and research capacity. It specifically called for a fund of USD 500 million to be created for revitalising African institutions of higher education and a fund of

USD 3 billion for strengthening science, engineering and technological capacity.⁹ Of the call for USD 500 million, only the USD 10 million allocated by the UK Department for International Development (DFID) to the Association of African Universities during 2006 could be seen as a direct outcome of the G8 meeting. However, what did change was that DFID, in responding to the UN Millennium Development Goals and the UK Prime Minister's enthusiasm during the G8, finally abandoned their rather slavish support for the outdated World Bank policy to not support higher education – long after the World Bank itself had abandoned this position (Maassen & Cloete 2010).

As for the UNESCO World Conference, the most positive outcome was the unanimous expression of support for the importance of higher education by a group of 16 African ministers of education at a preparatory meeting in Dakar entitled 'New Dynamics on Higher Education and Research: Strategies for Change and Development.'¹⁰ In particular, the ministers 'called for improved financing of universities and a support fund to strengthen training and research in key areas' (MacGregor 2009). Perhaps more importantly, MacGregor (ibid.) reported that there had been considerable awareness about the role that should be played by knowledge as the driving force of development with an emphasis on reforming higher education systems. Ironically, however, soon after committing to an increased emphasis on strengthening higher education at the World Conference, UNESCO itself then devalued the status of higher education by merging the higher education division with the general education division within its own structures. Since then, not much has emerged from this structure which, in 2014, is without a director.

Concurrent to the revitalisation discourse, other voices arose to support higher education in Africa. The World Bank itself, influenced by Castells' (1993) 'engine of development' paper, started to embrace the idea of the role of higher education in the knowledge economy and for development in the developing world. In 2002, the World Bank report *Constructing Knowledge Societies: New Challenges for Tertiary Education* described how tertiary education contributes to building a country's capacity for participation in an increasingly knowledge-based world economy, and investigated policy options for tertiary education that had the potential to enhance economic growth and reduce poverty (Salmi 2002). This amounted to a 360-degree turnaround from the Bank's earlier notion of higher education as a 'luxury'. However, in personal communications, Salmi admitted that the Bank had neither the political will nor the capacity to implement a programme to build capacity in African countries to participate in the knowledge economy. To its credit, the World Bank did sponsor studies such as Bloom et al. (2006), which empirically demonstrated a relationship between investment in higher education and an improvement in gross domestic product in Africa. Additional evidence has been generated by subsequent studies by the African Development Bank (Kamara & Nyende 2007) and the World Bank (2009).

9 It has to be noted that the Commission charged with making recommendations to the G8 did not directly represent the G8.

10 This title is arguably a considerable improvement on 'revitalisation'.

A much stronger political voice came from Kofi Annan, the then Secretary General of the United Nations, who strongly promoted the importance of universities for development in Africa (quoted in Bloom et al. 2006: 2):

The university must become a primary tool for Africa's development in the new century. Universities can help develop African expertise; they can enhance the analysis of African problems; strengthen domestic institutions; serve as a model environment for the practice of good governance, conflict resolution and respect for human rights, and enable African academics to play an active part in the global community of scholars.

While the above statements clearly demonstrate support for the role of higher education in development, they do little to clarify what this role is. There seem to be two different notions hidden within the idea of a 'development tool' – a direct instrumentalist or 'service' role and an 'engine of development' role that is based on strengthening knowledge production and the role of universities in innovation processes.

The instrumentalist role is arguably the more dominant of the two notions in Africa. For instance, the demands for university revitalisation by, especially, foreign donors and multilateral agencies such as the United Nations and UNESCO are, in many cases, underpinned by the assumption that universities are 'repositories of expertise' that should be applied to solving pressing development issues, such as poverty reduction and education for all. This thinking of 'university as service provider' in Africa is also strongly present within academia itself, and particularly in certain postcolonial contexts. *University World News* reported that at the Association of Commonwealth Universities conference (April 2010) it was stated that: 'Universities must be "citadels not silos", defending communities around them rather than being inward-looking, if they are to actively advance global development goals' (MacGregor & Makoni 2010), and that universities must 'orientate their activities more directly towards supporting UN Millennium Development Goals' (MacGregor 2010). The chief executive officer of the Southern African Regional Universities Association, Piyushi Kotecha, argued that in recent decades, higher education has assumed growing importance for both personal development and for driving social and economic development: 'Now more than ever before, higher education in developing nations is being expected to take on the mantle of responsibility for growth and development, where often governments fail' (ibid.). This 'direct' instrumentalist notion assumes that universities have a concentration (surplus) of expertise, and presumably spare time, that must be applied directly, or in partnership, to pressing socio-economic issues such as poverty, disease, governance and the competitiveness of private firms or companies.

The second role for higher education embedded in Annan's 'development tool' is Castells' 'engine of development' notion which, as highlighted earlier, has become the dominant discourse for many developed countries. The underlying vision of this notion is the need to create a

university that is dynamic and responsive to socio-economic agendas and that gives priority to innovation, entrepreneurship and competitiveness. Supporting Annan (perhaps on the other end), the high-profile African scientist at Harvard University, Calestous Juma, has promoted the role of higher education in science-led development through, amongst others, the UN Millennium Project Task Force on Science, Technology and Innovation (Juma & Yee-Cheong 2005). In addition, the African Ministerial Council on Science and Technology, established in November 2003 under the auspices of the African Union and the New Partnership for Africa's Development, created a high-level platform for developing policies and setting priorities on science, technology, research and innovation for development in Africa.

In conclusion, in developing countries, and especially in sub-Saharan Africa, there are different forces and policy arguments driving university dynamics. Here the university is positioned in a development cooperation policy arena where the dominant actors are operating in policy frameworks co-determined by ministries of foreign affairs and development cooperation agencies. The development mission of the university is primarily linked to poverty reduction and community support, rather than economic competitiveness, entrepreneurship and innovation. This raises two key questions: What are the consequences of these different policy frameworks for African universities? And, how do they affect the circumstances under which African universities are expected to contribute to economic development?

The HERANA project: Empirical evidence on the African higher education context

While Castells' analyses of the functions of universities outlined above provide an innovative, sociologically based framework for discussing the development of universities around the world, in the case of Africa, these analyses were not informed by strong empirical evidence. Many negative stories are told about African universities when it comes to their facilities, research output, overcrowded lecture halls, weak leadership and so on. But are these stories all there is to tell? The HERANA project did not take these factors as given but instead conducted detailed empirical analyses of the change dynamics in the eight African flagship universities included in the study¹¹ and their socio-economic and political contexts, guided by an analytical framework developed as part of the HERANA project.¹²

This book reports on a set of interlinked studies that have been undertaken as part of HERANA Phase 2 since 2011. In so doing, it brings to bear empirical evidence relating to the various factors that are currently influencing the ability of Africa's flagship universities to transform themselves into research-intensive institutions. Where appropriate, the chapters also

11 The universities of Botswana, Cape Town, Dar es Salaam, Eduardo Mondlane, Ghana, Mauritius, Makerere and Nairobi.

12 For details of the analytical framework, see Cloete et al. (2011).

reflect on the empirical evidence presented in relation to Castells' thesis on the contradictory functions of contemporary universities, as outlined in this introductory chapter.

Outline of chapters

Chapters 2 to 5 assess the *performance of the eight African flagship universities* according to different indicators related to knowledge production:

- Chapter 2 follows directly from Chapter 1 by presenting core data on research productivity in each of the HERANA universities, with a specific focus on masters and doctoral enrolments and graduations, the proportion of academic staff with PhD degrees, and research publication outputs.
- Chapter 3 builds on the empirical analyses discussed in Chapter 2. It describes and explains the steps taken in developing a methodology for assessing the performance of the eight universities. It then provides an assessment of these institutions against a set of goals and output targets for the academic core of South Africa's category of 'traditional university', and presents these assessments in the form of radar graphs, which can be used as diagnostic tools.
- Chapter 4 describes a bibliometric case study of the eight HERANA universities. Focusing on the internationalisation of their research activities, bibliometric data are presented on general trends over the period 2006–2012 in terms of growth of internationally co-authored journal articles and the citation impact of those publications in the Web of Science.
- Chapter 5 presents data on the internationalisation of the doctorate in South Africa, with a specific focus on PhD enrolments and graduations by nationality, field of study, gender and university for the period 2000–2012. It analyses the trends in average growth rates among doctoral students from South Africa and the rest of Africa. The chapter discusses a range of factors and policy implications that relate to the possibility of South Africa becoming a PhD hub for the continent.

Chapters 6 and 7 relate to *research incentives in African universities*:

- Chapter 6 presents the main findings of a study on faculty perceptions of the factors that influence research productivity at Makerere University. The chapter describes the environmental and individual factors that have shaped the research function at Makerere University through four major perspectives: individual factors, organisational factors, funding and research culture.
- In seeking to understand how financial incentives shape academic productivity as measured by academic publishing and the successful supervision of postgraduate students,

Chapter 7 presents and analyses data from two case studies, namely the incentives in place and the remuneration of selected public sectors in Mozambique, to establish how the professoriate at Eduardo Mondlane University is paid compared to other professions, and the incentives at the University of Nairobi and how these shape academic productivity.

Chapters 8 and 9 turn to *system-level governance arrangements for higher education*, with a specific focus on the roles and functions of government agencies:

- Chapter 8 reports on the findings of a study on the strategic priorities, objectives and practices of science granting councils in 17 countries in sub-Saharan Africa. The chapter describes the organisations and their institutional arrangements for supporting science, technology and innovation in the various countries; analyses subsequent strategies for funding of STI in countries where science granting councils do not exist; and assesses the science granting councils' partnership modalities and collaboration.
- Chapter 9 reports on the findings of the study into the roles and functions of higher education councils and commissions in the eight HERANA countries. The chapter explores the reasons for the establishment of these agencies as well as their legal frameworks, structures and resources. It considers the mandated and de facto functions undertaken by the councils/commissions and the (potential) roles they were playing in the governance (steering and coordination) of their respective higher education sectors.

Chapters 10 and 11 focus on aspects of *universities' third mission of engagement*:

- Chapter 10 reports on research into devising indicators on university engagement activities by conceptualising engagement as 'interconnectedness'. Interconnectedness describes the relationship (in tension) of academics engaging with those outside of the university, while simultaneously linking back to the university's core functions of research and teaching and learning.
- Chapter 11 explores which aspects of student engagement effectively develop high-level citizenship competences among undergraduate students in African universities. It presents and analyses data collected via the Student Experience in the Research University survey, with its additional Citizenship Module, that was conducted at the University of Cape Town and Makerere University.

Finally, Chapter 12 returns to Castells' four functions of the university, discussed in Chapter 1, and presents data on three of the universities in the HERANA project (Mauritius, Nairobi and Makerere) in order to illustrate the kinds of problems that African universities may face in managing these possibly contradictory functions. The chapter concludes by highlighting a range of systemic and institutional policy issues that could be gleaned from the evidence and analyses presented in the book.

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