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Editorial: Assessing Sub-Saharan Africa's University-Level Geography Resources: A Preliminary Investigation

William G. Moseley and Kefa M. Otiso

Introduction

Past studies have sought to quantify levels of Africa or Global South focused geographic training in the North American academy (Robinson and Long 2005; Moseley and Otiso 2008). These studies are important to assess whether or not adequate numbers of African experts are being trained to serve students and government institutions in the Global North. Remarkably few studies have been undertaken to assess the level of university geography resources within Sub-Saharan African (SSA) countries. While reviews of the state of geography have been done in some African countries, such as South Africa (Mather 2007) or Nigeria (Okpala 1990; Udo 2004), none have been attempted at the continental scale to our knowledge. Such assessments are a starting point for beginning to understand whether or not African students and governments have adequate access to sufficient amounts of geographic knowledge, perspectives and techniques. These skills are critical as they are increasingly crucial for surviving in a world dominated by rapid change (NAS 2010). This study presents and analyzes a simple inventory of geography programs in SSA. The spatial distribution of geography programs across the continent is assessed, as well as the rank of countries in terms of their university-level geography programs. We further seek to explain the observed distribution of geography programs and comment on some broader historical trends within academic geography on the continent.

Data Collection and Analysis

Information for this study was collected over a five month period. We started with a limited number of partial inventories of geography departments in SSA that had been compiled by the International Geographic Union (IGU) and the Association of American Geographers (AAG). Then, from approximately November 2009 through February

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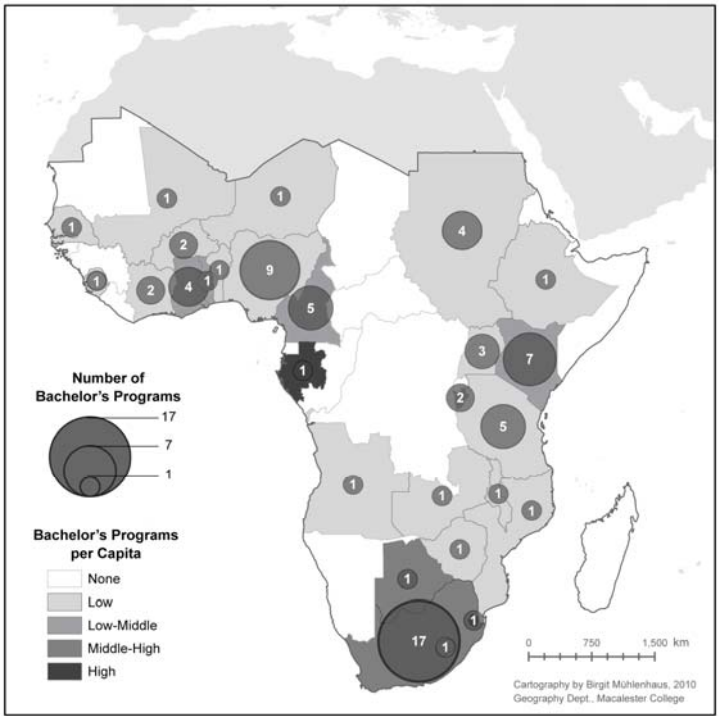
2010, we scoured the internet to identify other geography programs at SSA universities and obtain additional information on the ones previously identified. By late February 2010, we had compiled an initial inventory of geography and geography-related programs at SSA universities. This inventory was distributed on the listerv of the Africa Specialty Group (ASG) of the AAG in early March with a request to provide corrections and additional information where possible. The response to this survey was unexpectedly positive. In a number of instances, we followed up with respondents to seek clarity and additional information. We do not pretend that the inventory we conducted is comprehensive. In fact, we highly suspect that we have missed a number of geography programs on the continent. Nonetheless, we believe that the inventory we compiled is one of the more comprehensive attempted to date and thus is a positive step towards better understanding university-level geography resources in SSA.

In terms of the type of information collected, we limited ourselves to whether or not a university-level geography program exists and the type of degrees it offers (BA/BS, MA/MS or PhD). As such, this is not an attempt to undertake something like the ranking of geography graduate programs done every decade in the USA by the National Research Council (NRC), but rather to simply count the programs which exist. While a simple inventory of geography programs sounds facile, we were immediately faced with a couple of questions. First, what to do about programs which were not geography departments in name, but were dominated by geographers? We opted to count such programs if the majority of faculty in the program were geographers, such as the Department of Environmental Sciences at the University of Botswana. Second, does one count geography programs at universities which have ceased to function? This may seem like an odd question, but one that is not unusual in SSA countries facing turmoil or financial duress. We opted not to count such programs, such as the geography program at Asmara University in Eritrea, a university which has been closed. While we analyze and discuss the findings of our survey in this paper, the actual inventory of programs was far too voluminous to be included. This inventory may be found at: http://www.macalester.edu/geography/agr/agrpdfs/Voulme%2029/SSAGeogDepts. doc.pdf.

RESULTS

A simple mapping exercise reveals that undergraduate geography departments are concentrated in East, West, and Southern Africa (see Figure 1). In particular, the epicenters of undergraduate geography (in terms of numbers of programs) are in South Africa, Nigeria and Kenya. According to our data, which is far from complete,[1] there are hardly any undergraduate geography departments in Central Africa, including Chad, Central African Republic, Democratic Republic of Congo (DRC), and Republic of Congo. A notable exception in Central Africa is Gabon which, due to its relatively small population, stands out as having the second highest number of undergraduate geography programs per capita on the continent (after Swaziland). West African countries without undergraduate geography programs include Mauritania, Guinea and Liberia. There is also a lack of geography programs in Namibia, Somalia and Eritrea, all of which have active or recent war and strife.

Figure 1
Geography Bachelor's Degree Programs in Sub-Saharan Africa



The distribution of graduate programs (Figures 2 and 3) largely accentuates the undergraduate patterns in Figure 1. That is, those countries with more undergraduate geography programs also tend to have more graduate programs. There are, however, some notable exceptions to this general rule. An interesting pair of countries to compare is Nigeria and Cameroon. Nigeria ranks second to South Africa in terms of the number of undergraduate geography programs (with nine such programs) whereas Cameroon has five. However, the number of geography programs in Nigeria granting PhDs numbers only three, whereas Cameroon has no such attrition with all five of its BA/BS granting departments also offering PhDs. Uganda and Sudan also have situations where undergraduate geography programs outnumber PhD granting programs by factors of three or four. This likely reflects fundamental differences in university systems that either emphasize a hierarchy of tertiary education institutions (from teacher colleges to research universities) or a less hierarchical network of regional research universities.

Figure 2
Geography Master's Degree Programs in Sub-Saharan Africa

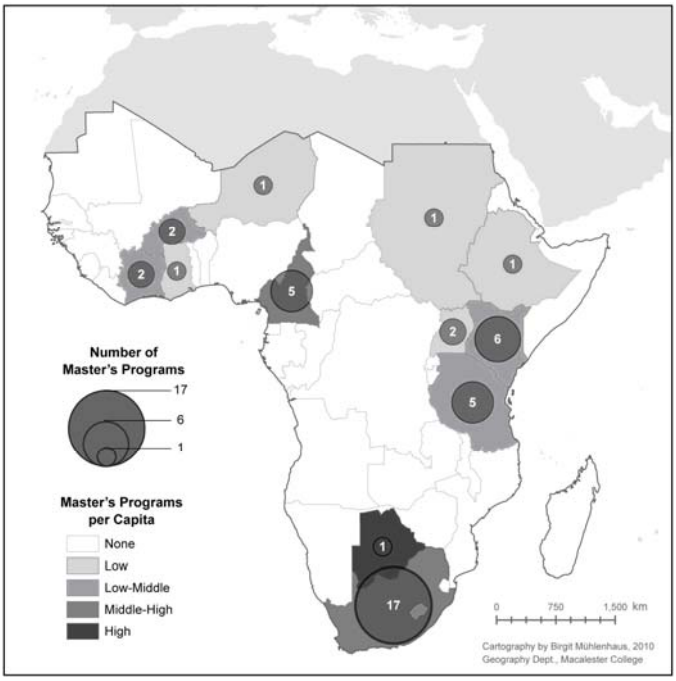
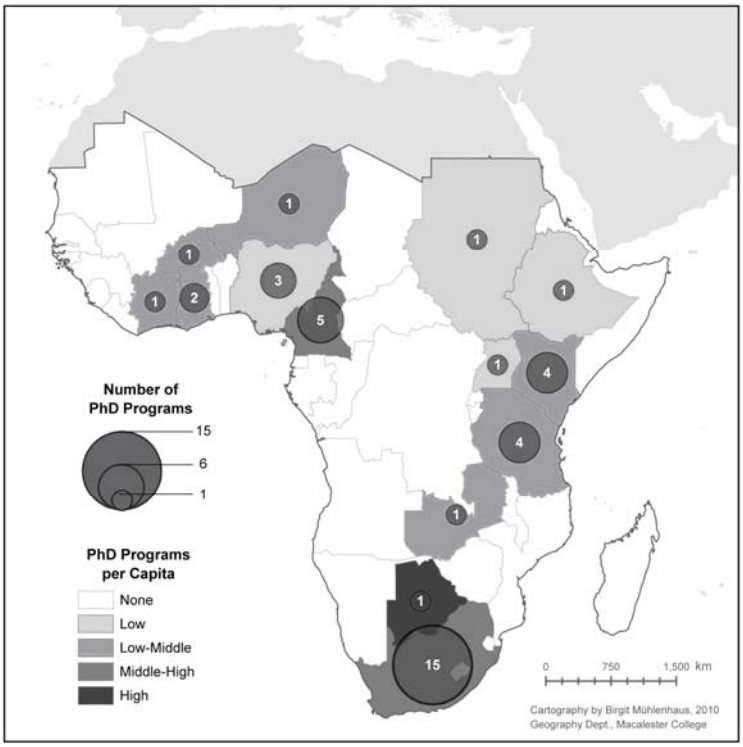


Figure 3
Geography PhD Degree Programs in Sub-Saharan Africa



While a cartographic presentation of the distribution of geography programs reveals interesting spatial patterns, a tabular presentation gets at the overall rank of university-level geography resources by country (see Tables 1 and 2). We chose to do this in two different ways. First, we simply summed all of the geography and geography-related programs in a country (weighting BA/BS, MA/MS and PhD programs equally) and then ranked countries according to the total number of programs. On these terms, South Africa is by far and away the most well endowed country in terms of university-level geography resources. It has three times as many programs (49 programs) as the next tight group of Kenya (17 programs), Cameroon (15 programs), Tanzania (14 programs) and Nigeria (12 programs). There are clear advantages to having a large number of universities within a country that offer undergraduate and graduate degrees in geography. For starters, a critical mass

of geography programs may allow for the creation and sustenance of national level geography societies (such as the Society of South African Geographers, Nigerian Geographical Association or Ghana Geographical Association), or journals (such as the South African Geographical Journal or the Bulletin of the Ghana Geographical Association).

Table 1
Rank Order in Terms of Geography Programs Per Country

Country	BA/BS Programs	MA/MS Programs	PhD Programs	Total Geog Programs	Rank
South Africa	17	17	15	49	1
Kenya	7	6	4	17	2
Cameroon	5	5	5	15	3
Tanzania	5	5	4	14	4
Nigeria	9	0	3	12	5
Ghana	4	1	2	7	6
Uganda	3	2	1	6	7
Sudan	4	1	1	6	7
Burkina Faso	2	2	1	5	9
Cote d'Ivoire	2	2	1	5	9
Botswana	1	1	1	3	11
Niger	1	1	1	3	11
Ethiopia	1	1	1	3	11
Burundi	2	0	0	2	14
Zambia	1	0	1	2	14
Swaziland	1	0	0	1	16
Gabon	1	0	0	1	16
Lesotho	1	0	0	1	16
Togo	1	0	0	1	16
Benin	1	0	0	1	16
Mali	1	0	0	1	16
Angola	1	0	0	1	16
Zimbabwe	1	0	0	1	16
Senegal	1	0	0	1	16
Malawi	1	0	0	1	16
Mozambique	1	0	0	1	16
Sierra Leone	1	0	0	1	16

The second way we chose to rank countries in terms of university-level geography resources was to sum up the total number of programs

(weighting BA/BS, MA/MS and PhD programs equally) as we did before, but then to express this as a ratio of programs per capita. What this reveals is that Botswana actually has more university-level geography programs per capita than South Africa (which ranks second). Swaziland (another small country) then ranks third, followed by Cameroon (4th), Gabon (5th) and Lesotho (6th). While one university geography department within a country may be limiting in terms of national level scholarly exchange, this analysis shows that such countries (if small or sparsely populated) are actually more richly endowed in terms of university geography resources per capita than larger nations. The limited nature of scholarly exchange in small or sparsely populated countries may be overcome by regional level associations (such as EIS-Africa) and journals (such as the African Geographical Review).[2]

Discussion of the Spatial Distribution of Geography Programs

There are several explanatory factors for the spatial pattern of geography programs shown in Figures 1–3. Here we explore three potential explanatory factors: colonial history, relative level of socioeconomic development, and population size.

Colonial History

Figures 1–3 depict a belt of higher levels of university geography resources in countries stretching from Sudan through Uganda, Kenya, Tanzania, Malawi, Zambia, Zimbabwe, Botswana and South Africa. These are all former British colonies. The same is true of Nigeria and Ghana. The geography programs in these countries were initiated in the first half of the 20th Century when colonial authorities created constituent colleges of various British universities, especially the University of London. This was often done in response to agitation by Africans for university education as the colonial authorities were not keen on providing tertiary education to colonial subjects (Kithinji 2009). By this time, geography was well established in the British academy, having been a university discipline in Britain since the 1880s. As a field, geography contributed to and benefitted from, British colonial expansion (Withers and Mayhew 2002). European colonial expansion in Africa heightened the need for geographic knowledge among colonial gov-

ernment officers, many of whom played a leading role in mapping the continent (Barbour 1982; Austen 2001). British officials who played a role in creating African universities are likely to have had geographical training, a factor which may have contributed to the presence of geography programs at these new institutions of higher learning. Many of

Table 2
Rank Order in Terms of Geography Programs Per Capita

Country	BA/BS Programs	MA/MS Programs	PhD Programs	Total Geog Programs	Population 2007	Programs per capita	Rank Programs/ Capita
Botswana	1	1	1	3	1,639,131.00	1.83024E-06	1
South Africa	17	17	15	49	43,997,828.00	1.11369E-06	2
Swaziland	1	0	0	1	1,133,066.00	8.82561E-07	3
Cameroon	5	5	5	15	18,060,382.00	8.30547E-07	4
Gabon	1	0	0	1	1,454,867.00	6.87348E-07	5
Lesotho	1	0	0	1	2,012,649.00	4.96858E-07	6
Kenya	7	6	4	17	36,913,721.00	4.60533E-07	7
Tanzania	5	5	4	14	38,139,640.00	3.67072E-07	8
Burkina Faso	2	2	1	5	14,326,203.00	3.49011E-07	9
Ghana	4	1	2	7	22,931,299.00	3.0526E-07	10
Cote d'Ivoire	2	2	1	5	18,013,409.00	2.77571E-07	11
Burundi	2	0	0	2	8,390,505.00	2.38365E-07	12
Niger	1	1	1	3	12,894,865.00	2.32651E-07	13
Uganda	3	2	1	6	30,262,610.00	1.98264E-07	14
Togo	1	0	0	1	5,701,579.00	1.7539E-07	15
Zambia	1	0	1	2	11,477,447.00	1.74255E-07	16
Liberia	1	0	0	1	6,144,562.00	1.62746E-07	17
Sudan	4	1	1	6	42,292,929.00	1.41868E-07	18
Benin	1	0	0	1	8,078,314.00	1.23788E-07	19
Nigeria	9	0	3	12	135,031,164.00	8.88684E-08	20
Mali	1	0	0	1	11,995,402.00	8.33653E-08	21
Angola	1	0	0	1	12,263,596.00	8.15422E-08	22
Zimbabwe	1	0	0	1	12,311,143.00	8.12272E-08	23
Senegal	1	0	0	1	12,521,851.00	7.98604E-08	24
Malawi	1	0	0	1	13,603,181.00	7.35122E-08	25
Mozambique	1	0	0	1	20,905,585.00	4.78341E-08	26
Ethiopia	1	1	1	3	76,511,887.00	3.92096E-08	27

the geography departments initiated in the colonial era later expanded when these colleges became autonomous universities after independence. Geography was similarly well established in the French academy at the time of colonization. The difference in levels of university geography resources between former French and British colonies may relate to the fact that the French did not invest in tertiary educational institutions to the same degree as the British (White 1996).

Because geography has been a university discipline from the beginning of tertiary education in SSA, its place in the university curriculum has rarely been questioned. This is in stark contrast to the often uncertain place of geography in the US, especially since the elimination of the discipline from Harvard and other elite institutions in the 1947–1951 period (Smith 1987). Although there has been a resurgence of geography in the US over the past two decades, there are still those who question whether or not it is a core university discipline (Murphy 2007).

Relative Level of Socioeconomic Development

All the countries with significant geography resources (South Africa, Nigeria, Kenya, Cameroon, Tanzania, Ghana, and Sudan) have medium 2009 Human Development Indexes (HDIs) of between 0.52 and 0.68. The giant of the group, South Africa, has the highest HDI of 0.68. Since HDI takes into account measures such as literacy and income, it is not surprising that the more developed SSA countries also have a relative abundance of geography resources. Relatively good human and financial resources are needed to develop geography and other academic resources. This link is supported by a strong correlation coefficient (0.88) between the number of undergraduate programs and HDI scores (among the subset of countries with high numbers of undergraduate geography programs).[3]

Population Size

One might expect SSA countries with high populations to have more geography resources as they are likely to have a greater need for them. For the countries shown in Table 2, there is a relatively strong correlation coefficient (0.54) between the number of undergraduate programs and a country's population size.[4] While we expected the relationship between the two variables to be stronger, this was not the

case. Indeed, there are many countries with significant geography resources and high populations (e.g., South Africa, Nigeria, Kenya, Cameroon, Tanzania, Ghana and Sudan), but there are also SSA countries, such as Ethiopia and the DRC, that have low geography resources despite their high populations. Moreover, South Africa has far more geography resources than any other SSA country even though its population is about one-third the size of Nigeria's population and significantly less than that of the DRC or Ethiopia. Other factors, such as the components of the HDI index (e.g., literacy and income) and colonial history, are also important determinants of geography resources at the national level in SSA.

Broader Trends in African Geography

As geography was well established in British and French academic structures a few decades before the high period of European colonialism in Africa, the continent has contributed significantly to the development of geography in general, and especially in Europe. Africa has been "the scene of both practical and theoretical advances in geography since the last years of the eighteenth century" (Barbour 1982, 317). While important geographic research took place in subtropical Africa in the late 1800s, it was the founding of SSA universities in countries such as Nigeria (1948), Ghana (1948) and Uganda (1949) that led to the explosion of geographic research on the continent, first by expatriate scholars and later by African scholars after independence. These contributions were not only a result of growing numbers of African scholars, but by sustained state expansion and financial support of geography departments as part of the larger state effort to expand and support university education in Africa in the decades following independence (Barbour 1982, 321). Other overseas financial and technical support of African universities also benefited African geography departments during this time.

Overall, this support led to significant scholarship by such leading African geographers as Akin Mabogunje of Nigeria (University of Ibadan), and R. B. Ogendo and S. H. Ominde of Kenya (both formerly at the University of Nairobi). Much of this scholarship emanated from Nigeria, Ghana, Sierra Leone, Senegal, Kenya and Tanzania (Barbour 1982, 323). South Africa would also have been a major contributor to the development of geography in SSA prior to 1994, but it was barred

from doing so by international sanctions on the apartheid regime in the 1948–1994 period. Moreover, a significant part of the country's apartheid era geographic research effort was influenced by the National Party's racial policies (Barbour 1982; Ramutsindela 2007).

On a more somber note, geography programs in SSA often were hurt when African universities suffered because of externally imposed cuts or internal political turmoil and corruption. As discussed above, tertiary education was initially well supported by donors. For example, from 1985 to 1989, 17 per cent of the World Bank's worldwide education-sector spending was on higher education (Bloom, Canning and Chad 2006). However, the Bank's structural adjustment programs of the 1980s and 1990s gradually eroded the finances of many African universities as the Bank redirected it financing towards primary education and urged African states to do the same. By the 1995 to 1999 period, the proportion of World Bank funding allotted to higher education had declined to just seven per cent of total, down from 17 per cent a decade earlier (Bloom, Canning and Chad 2006). Higher education in Africa suffered from such reductions in spending, including geography programs, and many African countries struggled to service extremely high numbers of students. The 1980s were also a period of political turmoil and high corruption in many African countries, a so-called lost decade that undermined much of the progress that had been made during the first two decades following independence (Udo 2004). As a consequence, academic research output in the region dropped drastically and now ranks among the world's lowest.

Since the end of apartheid in 1994, South Africa has quickly become a major epicenter of geographic research and resources in SSA. This, in part, reflects the reality that the South African university system is the most healthy and productive on the continent, with the region's three top ranked universities (University of Cape Town, Witwaterstrand University and University of KwaZulu Natal) (ARWU 2010). Overall, the development of geography programs in Africa since their inception in the first half of the 1900s shows that where "African academics are well trained, well regarded by the authorities in their respective countries, and well rewarded, they … are making substantial contributions to intellectual and national development, both by their publication and by contract and consultancy work" (Barbour 1982, 323). Many of the SSA countries with substantial geography resources

are also well represented in the North-American Academy by scholars who have immigrated to these institutions. This last trend is a mixed blessing. While it means that African geography is well-represented in the North American academy, this "brain drain" of African intellectuals ultimately undermines tertiary education, and geography departments, on the continent (Udo 2004).

Conclusion

In terms of sheer numbers of programs, most of SSA's geography resources are in South Africa, Nigeria, Kenya, Cameroon, Tanzania, Ghana, and Sudan. We suggest that this concentration may be a result of the respective countries' colonial history and relative level of socio-economic development. The pattern is somewhat different if one considers the number of programs relative to population size. When this is taken into account, a number of smaller countries, including Botswana, Swaziland, Gabon and Lesotho, appear much stronger.

Since its introduction in SSA during the colonial era, geography has grown and is well entrenched in the African academy, perhaps more so than in the USA. Many SSA geographers have contributed significantly to the theoretical development of geography internationally, and will continue to do so if they are well supported by their home institutions. Nevertheless, geography in SSA is faced with many challenges, including insufficient funding for many national university systems. In some instances, a lack of state funding has led to a growth in financing of geographic research by donor agencies and nongovernmental organizations. This could result in the capture of geography by external interests and hinder the production of pure academic or theoretical work (Awumbila 2007).

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Endnotes

1 It is worth noting that many of the countries where we were unable to identify undergraduate geography programs also happen to be places where little dissertation level research in geography has been undertaken by North American PhD students (Moseley and Otiso 2008). As such, it is possible that there are geography programs in these countries, but they were not brought to our attention given the North American bias of experts we surveyed to collect data on African geography programs.

2 The *African Geographical Review* was originally known as *East African Geographical Review*, a journal founded by the Ugandan Geographical Society at Makerere University in 1963 (Bakamanume and Mutabuza 1997). The journal changed names in 2000 when it broadened its focus beyond East Africa to the entire continent.

3 The correlation coefficient between the number of undergraduate programs and HDI scores for all the countries in Table 2 is a weak 0.36 even after excluding countries with no HDI scores such as Liberia and Zimbabwe.

4 We have limited our analysis to the countries in Table 2 as these are the countries for which our information is the most certain. Undertaking correlation analysis on all SSA countries would be problematic as we may be missing data on geography programs for some countries. We further chose to measure the relationship between the number of undergraduate programs and population size, instead of that between total programs and population size, because the latter inflates the sample size due to double and triple counting (since many of the departments that offer BA/BS degrees also offer MAs and PhDs). However, because some of the programs that offer BA/BS degrees do not necessarily offer MA and PhD degrees, we note that the relationship between the number of MA programs and PhD programs and population size is even weaker at 0.20 and 0.34 respectively.

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