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# Conclusions and Recommendations

The motivation for the study was to determine the productivity, employability and mobility of doctorates trained at Makerere University for the period 2000-2012. This information is critical in determining the trajectory of doctorate training for the University.

## Conclusions

The capacity to train and graduate students at doctoral level at Makerere University has greatly improved over the period 2000-2012. The university has more than doubled its average annual doctoral outputs from 23 graduating in 2000 to 61 graduating in 2012. More than 300 doctorates have been awarded in the same period. Most of this capacity was ambient in the science disciplines. Emerging capacity was evident in the College of Health Sciences from the period 2006 to 2012 with support from the University Development Partners like Sida and Norad.

The training at the doctorate level faced a ravenous thirst; the need for doctorates in the country by far outstripped the capacity to train them. Almost all (97%) of the respondents were employed in fields related to their training. To link the capacity and the demand, there is need for leveraging the latent capacity to produce the doctorates required for the knowledge economy. Funding is required for infrastructure, equipment, recruitment and retention of qualified staff. According to the Directorate of Research and Graduate Training, doctoral students at Makerere University needed on average over 10,000 United States Dollars (approximately PPP USD 25,000) per year for their training. The GDP per capita (PPP) for Uganda was \$1,400 in 2012, which is way lower than the annual cost of training.

The country had not specifically put a number to its aspiration of high-level knowledge production unlike countries such as South Africa and the United States. South Africa aspires to produce 6000 doctorates per year by 2030 from the rate of 1400 in 2012. China produced over 50,000 doctorates in 2009, probably the largest in the world. Uganda produces less than 100 doctorates per year on average giving an annual production rate of 1 doctorate for every 300,000 people. South Africa's average annual rate is 1 doctorate for every 33,000 people whereas that of China is 1 doctorate for every 27,000. United States' annual rate was 1 doctorate for every 15,000 people. The annual doctoral production rate for Uganda needs to be multiplied by 10 to reach the South African current rate. This could be scaled for a period of 10 years to reach 1000 doctorates per year by 2025.



The high cost of doctoral training has hampered effective demand for this training. This may partly explain the average late start of doctoral training, the scanty enrolment, long stay and the sequential lock-ins and lock-outs. Most of the training was externally funded as a consequence. This being a stopgap measure, presents the challenge to the University and Uganda to mobilize internal resources for sustainable growth in doctoral training.

There is a major challenge in retaining the doctorates trained at Makerere University. A large proportion (92%) of the respondents indicated they would leave the country once an opportunity arose. Low salaries and benefits were the major demotivating factors. It is critical that the employers of these doctorates strive to pay emoluments that are fairly comparable to those paid to their colleagues within the region.

The demographic characteristics of the respondents revealed that the proportion of female doctorates was 23%. This low representation reverberates into similarly disproportionate representation in leadership and seniority at decision-making bodies in the institution and the country. There is need for funding that specifically targets female applicants for doctorate training.

## Recommendations

1. The University needs to mobilize external resources for training to supplement the internal resources in the medium term (next 10 years). The doctorate training costs cannot be fully raised nationally considering the low household incomes;
2. The supply for doctorates needs to be increased to meet the increasing demand for doctorates; emanating from the expanding higher education sector, increasing research institutions & statutory bodies and the emerging system of innovations. The country needs to systematically increase its annual doctorate production rate to reach 1000 doctorates per year by 2025. Makerere University has latent potential (in terms of supervision) to produce over 200 doctorates per year. The track to graduation needs to be smoothened to improve the throughput;
3. The gender imbalance in the training should continue being addressed as to promote equitable participation of both men and women;
4. The tendency for doctorate holders to move to better economic zones may create despondency at the work place and lower productivity. This needs to be stymied to minimize brain drain that costs Africa million of dollars .

## References

Auriol, L(2010). Careers of doctorate holders: Employment and Mobility patterns. STI Working Paper 2011/14. Statistical Analysis of Science, Technology and Industry

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<sup>3</sup> Countries in Sub-Saharan Africa have lost a tremendous amount of their educated and skilled populations as a result of emigration to more developed countries, which has harmed the ability of such nations to get out of poverty. Conservatively speaking, "Brain drain has cost the African continent over \$4 billion in the employment of 150,000 expatriate professionals annually ([http://en.wikipedia.org/wiki/Human\\_capital\\_flight](http://en.wikipedia.org/wiki/Human_capital_flight)).

