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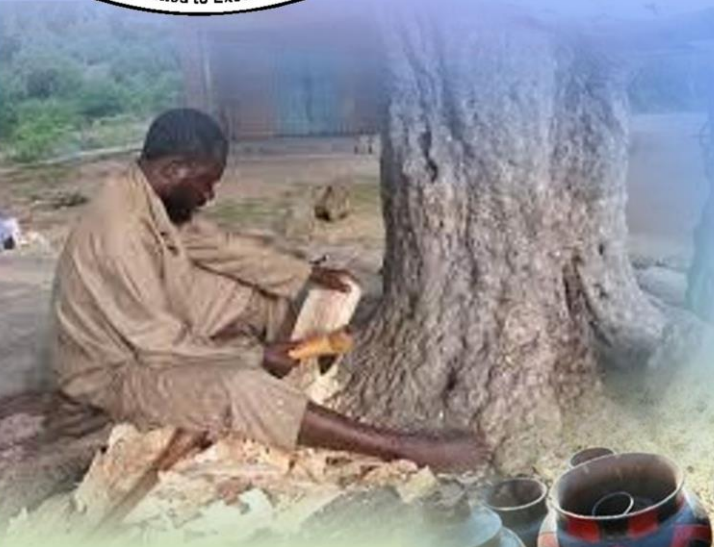

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The *Kuveza neKuumba - Zimbabwe Ezekiel Guti University Journal of Design, Innovative Thinking and Practice* provides a forum for design and innovative solutions to daily challenges in communities.

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The Contribution of Real Estate Training Providers in Botswana 2011-2022

QUEEN KAMOGELO LEATAME, LEBOLE KGAKANA MATLAPENG, PARTSON PARADZA[1], HALLELUAH CHIRISA[2], LLOYD SUNGIRIRAI[3] AND JAIRUS T. NDOMA[4]

Abstract

The contribution of universities as engines of knowledge is measured by the number of graduates and their research output. Previous studies in Botswana focused on the number of programmes offered, but little is known about the number of locally produced graduates and the amount of research output by each real estate (RE) school. This study seeks to bridge this knowledge gap through interviews and document analysis. This study was qualitative in nature, based on a case study of three RF tertiary education and training providers in Botswana, the Gaborone University College of Law and Professional Studies (GUC), the BA ISAGO University (BIU) and the University of Botswana (UB). An archival approach was adopted and documents were accessed online from the websites of the Botswana Qualifications Authority (BQA), the Human Resources Development Council (HRDC) and the three aforementioned universities . RE schools in Botswana have played a critical role in knowledge creation and dissemination. However, a lot more needs to be done on postgraduate research programmes and for graduates. An increase in postgraduate programmes and students can also have a direct impact on the increase in research publications.

Keywords: education, real estate (RE), research, universities.

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INTRODUCTION

At the onset, it is important to define the two key terms for this article which are higher education and training provider. The Botswana Qualifications Authority (BQA) (n.d:03) defined higher education as:

> ...any studies were undertaken beyond the level of secondary education but excluding technical and vocational education and training (TVET).

Also, an education and training provider (ETP) is defined as:

> ...a person or entity that provides or organises a programme of education and training, including the provision of professional development services (*ibid.*).

This brings the two definitions together, RE higher education and training providers (REHETPs) as educational institutions that provide RE education and training beyond the level of senior secondary.

Institutions of higher learning play a critical role in national development since they are engines of innovation and incubation centres for ideas. Tertiary institutions create and transfer knowledge that is relevant to addressing problems at local, national and global levels. There is a global consensus that universities should contribute to national development through the creation of knowledge. In that respect, local universities are expected to be the drivers of Botswana's desire to become a knowledge-based economy as spelt out in its tertiary education policy of 2008. Sections 1.1and 1.2 of the recommendations of the tertiary education policy over 20 years (2006 to 2026) as shown in Box 1.

Box 1: Tertiary Education Policy Recommendations 5.2 and 5.3

1.1 Human Resource Development *(Ministry of Education and Skills Development, 2008)*

This Policy seeks to increase the tertiary education gross enrolment ratio from the current 11.4% (2007/8) to a minimum of 17% by 2016 and then to a further minimum of 25% by 2026.

1.2 Research and Innovation

As a key component of Botswana's Research and Innovation system, this Policy will ensure that the tertiary education system produces inventive, pioneering, high-impact research and educate creative, talented and capable researchers for the successful transformation of Botswana into a Knowledge Society.

Botswana has three registered and accredited HETPs offering RF, namely the UB, the BIU and the GUC (https://www.bqa.org.bw/he-etps/, Accessed: 27-06-2022). According to Kampamba, Nkwae and Tembo (2015), the first RF programme in Botswana was introduced in 2011. Even though REHETPs have been in existence for more than a decade in Botswana, their contribution is under-researched. This study seeks to bridge this gap by answering the question, "What has been the contribution of REHETPs in Botswana over the past decade?" By answering this question, this research hopes to paint a picture of the contribution of REHETPs towards meeting human resources development, research and innovation targets of the 2008 tertiary education policy.

LITERATURE REVIEW

THE ROLE OF UNIVERSITIES IN A KNOWLEDGE-BASED ECONOMY

This study is guided by the Human Capital Theory (HCT). This theory emphasises the importance of a skilled workforce as a driver of economic growth (Sweetland, 1996; Laroche *et al.*, 1999; Stevens, 1999; Bae and Patterson, 2014; Tan, 2014). It is widely accepted that a country's capacity to generate wealth and achieve high levels of well-being is closely linked to its capacity to generate knowledge (Koto, Syukri and Arief, 2018). Brown, Hesketh and Williams (2003) said that people with degrees are seen as the backbone of economic growth on both the micro and macro scales. It is worthy noting that many countries are making great efforts towards exploring RF as a probable field for economic wealth generation. It is a global practice that the contribution of universities to national development is usually measured using three parameters: teaching, research and community engagement (Leal Filho *et al.*, 2015).

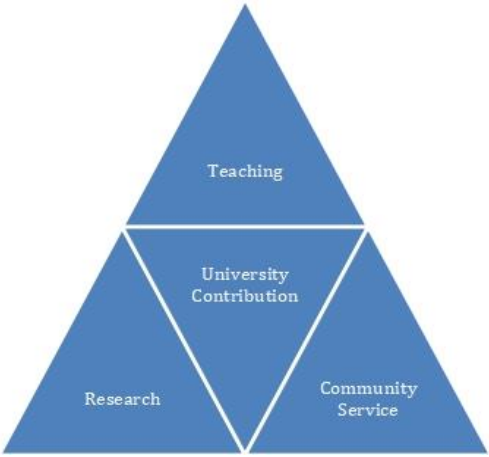


Figure 1: *The Concept of University Contribution to National Development* (Authors, 2022)

As shown in Figure 1, universities are usually expected to contribute through the teaching of students, research output and community service. Though community service is sometimes accorded less time as compared to research and teaching, of late, it has gained more recognition with the spread of concepts such as corporate governance, corporate social responsibility and sustainability. Currently, the contribution of universities goes beyond their traditional core businesses of education, training and research, they are expected to contribute to a broad stakeholder list. Although community service is important, it is outside the scope of this study (Howlett, Ferreira and Blomfield, 2016).

Ahmed (2006) and (Bano and Taylor, 2015) point out that there is no universally accepted definition of a knowledge economy. However, scholars agree that knowledge is the cornerstone of a knowledge economy (Harris, 2001; Bae and Patterson, 2014; Bano and Taylor, 2015; Olopade *et al.*, 2019), hence the importance of universities as laboratories where new ideas are conceived and born can notbe overemphasised in any development discourse (Saad and Zawdie, 2011). Breznitz and

Feldman (2012) argue that universities can no longer be relegated to the passenger seat, but should be at the forefront of development-related initiatives.

According to Pastor and Serrano (2016), there is a direct relationship between a country's ability to create wealth and its ability to generate scientific research.

> Performance of educational institutions, universities, in particular, which produce knowledge, skills and capabilities, can be linked to investment in national human capital and enhanced development (Sebola, 2022).

If one is to interpret this view, knowledge can be equated to minerals during the era of resource-based economies.

Universities are incubators of innovation where knowledge is created and disseminated through research, teaching, training and collaboration with industry (Abbott and Doucouliagos, 2004; Pastor and Serrano, 2016; Mahala and Singh, 2021). In Botswana, this role is now more crucial as the Southern African country is striving to attain a knowledge-based economy. Over the years, the Government of Botswana has been investing heavily in the higher and tertiary education sectors through scholarships and sponsorship of tertiary students (Government of Botswana, 2015; Samboma, 2017; Moremi, 2018). This is a testimony that the government acknowledgethat these educational institutions are the drivers of the planned knowledge-based society.

Choong and Leung, (2022) are a conceptual framework that summarises the evolution of economies from a resource based into a knowledge economy as shown in Figure 2.

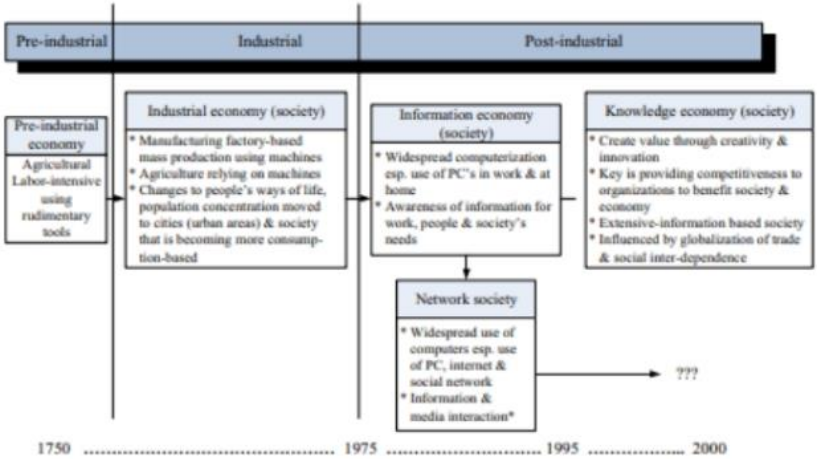


Figure 2: *The evolution of economic and social development* (Adopted from Choong and Leung, 2022:1590)

As shown in Figure 2, the transformation from where Botswana is now (resource-based) into a knowledge-based economy is a process that might take years. Universities exist as catalysts of social and economic development in countries and regions (Daneykin *et al.*, 2021). Therefore, in the case of Botswana, if they play their role, they can speed up the transformation. According to Pastor and Serrano (2016),

> Higher education institutions (HEIs) produce knowledge through research, they disseminate it by training graduates and postgraduates and by publishing the results of the research and they transfer it via collaboration agreements with companies and institutions.

Schiliro (2012) points out that the four pillars of a knowledge economy are: "education and training, innovation, information infrastructure and institutional regime". It can be inferred that the first two pillars are within the constituency of higher and tertiary education providers. Leydesdorff (2010:367) argues that:

> Three sub-dynamics are reproduced as functions of a knowledge-based economy: (1) wealth generation in the economy, (2) novelty generation by organized science and technology and (3) governance of the interactions among this two sub-dynamics by policy-making in the public sphere and management in the private sphere."

If one looks at the preceding position of Leydesdorff (*ibid.*) with a magnifying glass, one can note that the author's second sub-dynamic is within the mandate of universities known as engines of innovation.

Furthermore, Schiliro (2012) postulates that the number of graduates produced in a country is a key indicator of transformation towards a knowledge-based economy. In this case, it can be argued that the more graduates (highly skilled human resources) are produced, the more a country is moving towards attaining a knowledge economy. If a countryis not producing a skilled workforce, it might be trailing behind in terms of moving towards a knowledge-based economy. According to Chikafalimani (2020), there is a relationship between teaching and research output that are key indicators of knowledge generation.

Griliches (1997) points out that productivity growth is the consequence of expenditures on research and development. The author adapted Solow's neoclassical theory of growth model that determines the sources of economic activity are productivity, capital accumulation and population and modified the model to add research and development as central determinants of growth. Research and development contribute greatly to output, leading to spillovers caused by knowledge creation. Griliches (*ibid.*), regards research and development as central determinants of growth because of the technological change resulting from the conscious economic investment in education. Therefore, if investment in research and development is increased, there will be a consequent increase in productivity (*ibid.*).

Blanco, Prieger and Gu (2016) researched the impact of research and development on economic growth and productivity in the United States of America. They concluded that the impact of research and development on total factor production is positive in that it leads to improvements in technology through industrial innovation, which has been the driving force behind inexorably rising standards of living in the developed world over a long time. The researchers posited that research and development led to new ideas, intermediate goods, cost

reduction methods, and ultimately profit. Positive spillovers help not only the original goal of the research group, but also other industries and regions. They also noted that knowledge generally cannot be contained within national borders and firms in one country benefit from industrial knowledge produced by research and development performed in another. In their study, they attempted to quantify the effects that research spending has on economic growth and productivity, thus understanding the role that research plays as a determinant of productivity and, consequently, economic growth

Toutkoushian, Porter, Danielson and Hollis (2003) have pointed out that most studies on the productivity of universities focus on teaching while neglecting research output. The difficulty of measuring research output (Mooya, 2007) and the lack of a universally accepted standard for measuring research output (Abbott and Doucouliagos, 2004; Madue, 2006; Gralka, Wohlrabe and Bornmann, 2019) may be a reason teaching is so important. Teaching productivity can easily be measured using performance indicators like enrolment and graduation rates (Toutkoushian, Porter, Danielson and Hollis, 2003).

Some of the measurements used to calculate research output include calculating the average number of publications by academics at a given tertiary institution or research grants attracted by a university 'quantitative' as well as citation weighting of publication numbers 'qualitative' (Abbott and Doucouliagos, 2004; Madue, 2006; Gralka, Wohlrabe and Bornmann, 2019). According to Qonde (2018), in South Africa, the measurement of research output is guided by the Research Output Policy Act of 2015 and is done through the Research Outputs Submission System an electronic platform/system normally used to capture research publications submitted by universities.

RESEARCH IN REAL ESTATE EDUCATION

Mirembe and VIRULY (2018) demonstrate that RF knowledge has developed over decades to reflect the functions of specific market structures that characterise RF markets in different countries. Kim and Pior (2018) also point out that RF science has helped in bringing solutions to dynamic and complex RF

problems. However, Chikafalimani (2010) noted limited research output in RF.

Azmi *et al.* (2015) defined knowledge as a subset of data and information that has been interpreted, reflected on and contextualised. They alluded to the fact that knowledge can be divided into tacit and explicit knowledge. However, Pawlak (2019) argues that knowledge has three categories: tacit, explicit and implicit. Tacit knowledge is embedded in someone through the internalisation process and is highly personal (*ibid.*). It can be expressed only through actions and skills. Meanwhile, explicit knowledge is formal and written knowledge, which somehow can be extracted through a certain process (*ibid.*9). The combination of the above types of knowledge, through the implementation process will create additional knowledge that can be separated from functional knowledge and procedural knowledge.

People are becoming more sensitised to RF and it has shown great development over the years. Moreover, it is reflective of the maturity of RF markets and the tools developed reflect specific market structures. According to Kim and Pior (2018), RF education has been the focus of academic debate from as far back as 2000. Many scholars note an increase in studies on RF education in the African context (Cloete, 2002; Chikafalimani and Cloete, 2006; Jay, 2011; Chikafalimani, 2013; Serfontein and Boshoff, 2014; Ashaolu, 2015; ; Kampamba, Nkwae and Tembo, 2015; Osmond, Adesiyan, Olusola and Daniel, 2015; Kampamba, Nkwae and Tembo, 2017; Paradza and Cloete, 2016; ; Gavu, 2018; Kim and Pior, 2018;Mirembe and Viruly, 2018; Paradza, 2021). This trajectory is commendable considering that RF education was in its infancy stage about two decades ago (Cloete, 2002; Kim and Pior, 2018).

Real estate analysts are becoming increasingly interested on the RF markets in emerging economies (Mirembe and Viruly, 2018). This has been visible within the Botswana RF market. There has been an emergence of many RF agencies and learning institutions that saw the need to introduce programmers concerning this case. Kampamba, Nkwae and Tembo (2015) postulate that the variation in the curricula taught by the two

universities is significant and somehow concludes that educators have not agreed on common topics and courses that should be included in the syllabus. This then makes graduates lack some of the principles and necessities of RF education and productivity. This poses a gap in the industry and many discrepancies within the local RF industry.

Medina (2020) posits that knowledge creation is an important activity for every society and economy and further alluded to the fact that the creation and application of knowledge enable economies and individuals to be prosperous in the market. Knowledge is a fundamental factor that improves the quality of the main drivers of productivity in economic business (*ibid.*). Understanding the implications of knowledge creation in a knowledge economy is critical not only for a certain segment of the population, but also for high education providers, graduates and academic pedagogues. These individuals are always engaged in research to expand the RF arena and come up with strategies to drive it to the top.

Kapamba, Nkwae and Tembo (2015) reveal that due to the realisation of the importance of research and knowledge dissemination, countries took to creating programmes in their universities to facilitate growth and development. Botswana started having RF programmes offered at the university level in 2011. However, since the inception of such programmes, there has never been any curriculum evaluation, defying the principles of epistemic function that provide that knowledge creation is continuous. A non-stop knowledge creation process works as a crucial function in assuring organisational performance improvement (Nonaka and Toyama, 2005).

Kapamba, Nkwae and Tembo (2015) proceed to compare the content of the RF programmes offered by the BIU, being Bachelor of Commerce (B Comm) in Real Estate and Bachelor of Science in Real Estate, respectively. Both programmes are accredited by the Botswana Qualifications Authority (BQA). In Botswana, RF practice is governed by two regulatory bodies, namely the Real Estate Institute of Botswana (REIB) and the Real Estate Advisory Council (REAC). These bodies are tasked with the responsibility of licensing RF practitioners in

Botswana. Over the years, the South African Qualification Authority (SAQA) and the National Qualifications Framework (NQF) have tried to get RF practices to be more uniform

Kampamba, Nkwae and Tembo (*ibid.*), further analyze the curricula of the two degree programmes offered by the two respective universities. The study revealed that the curriculum differs in content. The BIU has a commercial approach to study, while the the UB curriculum is anchored on a scientific approach. It was noted that at the degree level, the parity of the curriculum is at 61% between the two universities. These variations turn out to affect the quality of RF production in Botswana meant for the same market industry. Bodies such as the SAQA and the NQF) exist to try and establish unison in curriculum development. These bodies advocate for similarities in the curriculum at different universities, suggesting that the basic elements of RF, including property investment analysis, RF finance, property market analysis and policy and law, should be included in the curriculum as the basis of RF education (Kampamba, Nkwae and Tembo, 2015; 2017).

Koto, Syukri and Arief (2018) allude that, in an analysis of higher education institutions, research output reflects knowledge levels as well as the potential economic growth of a country. Education and research are thus used as an element for measuring the economic development of countries (*ibid.*). Research output is one of the tools used to rank universities, providing a platform for knowledge dissemination (*ibid.*). Usually, standardisation of RF curriculum is more of a far cry, as the course curriculum is normally tailored for a specific market or economic environment, whether it be for scientific or commercial purposes.

With the vast growth realised as RF blossoms over the years, the creation of knowledge dissemination is imperative to facilitate discourse and the mobilisation of informed opinions to influence practice. This has become evident as world organisations have taken to creating symposia to further education, chief among them being the educational proceedings and conferences facilitated by the African Real Estate Society (AfRES). Chikafalimani (2020) argues that the RF curriculum

in South Africa is diverse, depending on the university under study, though there are similarities in content, particularly in property development, property finance, property investment, property valuation, property management and property law.

Property, being an integral aspect of economic growth and development, countries like Botswana are mostly vested in exploring RF for GDP improvement (Delmendo, 2017). It is worthy noting over the years that Botswana has been battling with a plethora of RF-related challenges, including, but not limited to, the mushrooming of unregistered estate agents 'commonly known as fly-by night estate agents in Botswana' (Mosimanegape, 2018), a ballooning housing backlog 'especially for the urban poor' (Mosha, Sungirirai, Dick and Paradza, 2022) and lack of relevant RF data needed for ancillary RF services and decision making (Kampamba, Kachepa and Kgalaletso, 2022).

The government of Botswana (2015) bemoaned a lack of research output in terms of quality and quantity, as shown in Box 2.

Box 2: Lack of Research Output in Botswana (Government of Botswana, 2015)

High-quality tertiary education provides the backbone for knowledge creation and its strategic application. However, there is a lack of research and research outputs in sufficient quantities and quality to generate new knowledge. Equally, the small number of candidates in graduate studies leads to lower research output. Again, research impact is dependent on publication and dissemination. Botswana is well below optimal performance levels in terms of both research output and human capacity development in research.

Concerning Box 2, Kampamba and Munshifwa (2021) somehow explain the reasons behind the lack of research output by academics. They singled out teaching load as one of the main factors limiting research output among RF academics. It is worthy noting that the report by the Government of Botswana (2015) is almost seven years old and was done when RF education in the country was introduced just three years prior. Is the situation still the same, or has it changed with the maturing of RF education? This, therefore, justifies the importance of this study which seeks to provide an updated RF-specific picture of research and graduate output in Botswana.

The next section discusses the research methodology used in this study.

RESEARCH METHODOLOGY

This study was qualitative in nature, based on a case study of three purposefully selected REHETPs. The study was done online, where data was collected from various websites. A list of accredited higher education and training providers was obtained from the website of the BQA. Data from BQA was then used to check programmes offered by the three HETPs (UB, BIU and GUC. Data on enrolment and graduates' output was obtained from the website of the Human Resources Development Council (HRDC) and data only from 2011 to 2019 was available. Also, data on the full-time faculty was found on the websites of the three universities.

A systematic review of the publications was conducted, followed by content analysis. Publications were quantified and classified by institution, type, year of publication and research focus. Also, a standard yardstick to calculate per-capita research output for full-time academics was adopted by the Department of Higher Education and Training (2021) where the total number of publications was divided by the number of full-time faculty. Furthermore, to avoid inflating research output, publications that were co-authored were attributed to only one author. Findings are presented in the form of descriptive words supported by tables and figures and are critically analyzed in the next section.

RESULTS

According to the BQA, currently, there are a total of 178 registered tertiary HETPs in Botswana (https://www.bqa.org.bw/he-etps/) and, as highlighted before, only 0.02% (three HETPs) are offering RF. This section analyzes the contribution of RF HETPs in terms of programmes developed and offered, student enrolment, several graduates and research output.

PROGRAMMES OFFERED BY REHETPS IN BOTSWANA

This study established that currently, HETPs in Botswana are offering RF programmes at National Certificate (National Qualification Framework (NQF) Level 5)), National Diploma (NQF Level 6) and bachelor's degree (NQF Level 7) as summarised in Table 1.

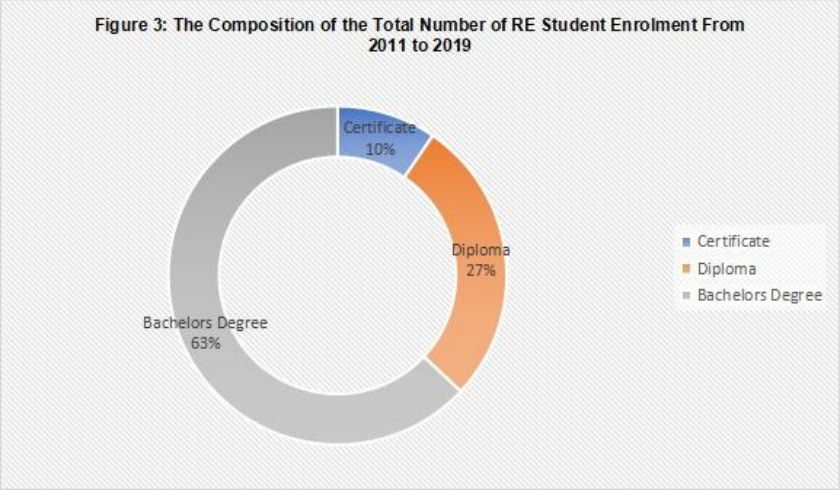
Table 1: *RE Programmes Offered by HETPs in Botswana (*https://www.ub.bw/discover/faculties/engineering-and-technology/architecture-and-planning (Accessed: 27-06-2022), https://www.guc.ac.bw/programme-streampage (Accessed: 27-06-2022), https://baisago.ac.bw/faculty-of-the-built-environment-arts-and-science/ (Accessed: 27-06-2022).

Institution	Number RE Learning Programmes Offered				
	National Certificate	National Diploma	Bachelor's degree	Master's degree	Doctoral Degree
GUC	1	0	0	0	0
BIU	1	1	1	0	0
UB	0	1	1	0	0

As shown in Table 1, RF is offered at NQF Level 5 by two ETPs the (BIU and the GUC) and the same number of REHETPs offer property programmes at NQF Levels 6 and 7. This can be a positive contribution by local REHETPs, given the fact that a decade ago, local students had to go to foreign countries to pursue RF education. However, it must be noted that a postgraduate qualification is yet to be introduced locally, hence graduates who want to further their studies still face the same predicament. Also, it was not clear why all RE programmes offered by REHETPs in Botswana were not appearing on the list of BQA-accredited learning programmes (https://www.bqa.org.bw/learningprogrammes/ (Accessed: 27-06-2022)). Furthermore, only the BIU Certificate in RE appeared on the BQA list of registered qualifications (https://www.bqa.org.bw/qualifications/ (Accessed: 27-06-2022)).

STUDENT ENROLMENT BY RE ETPS IN BOTSWANA 2011-2019

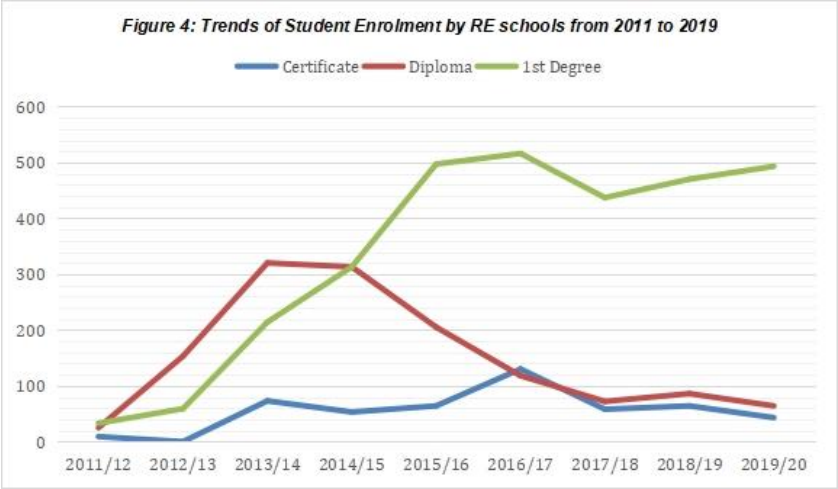
It was established that a total of 4 733 students were enrolled in RE programmes during the study period. More than half (63%) were enrolled in bachelor's degree programmes, while 27% were enrolled in NQF Level 6 programmes and 10% were enrolled in certificate programmes (Human Resource Development Council, 2015; 2020; 2021) as shown in Figure 3.



Human Resource Development Council, 2015; 2020; 2021

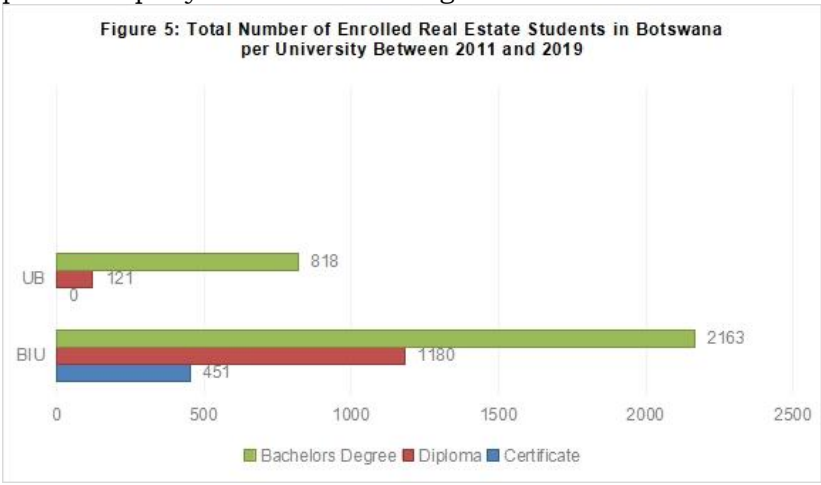
Student enrolment by RE universities in Botswana has been fluctuating, a peaking in the 2016/17 period as shown in Figure 4. However, the number of students enrolled in degree programmes keeps on increasing. It must be noted that tertiary education in Botswana is mainly government-sponsored. Over the years, the government has reduced the number of students and programmes under government sponsorship. As such, both the diploma and certificate programmes in RE were affected and most of the current students are self-sponsored. The reason enrolment by degree students keeps on increasing is that it is still under government sponsorship. Hence, REHETPs can attract and maintain large numbers of new students. Also worthy noting is that the GUC's RF programme is new, hence

its enrolment data is not available since it was introduced after the period covered by this study.



Human Resource Development Council, 2015; 2020; 2021

It is also crucial to discuss the number of enrolled RF students per HETP per year as shown in Figure 5.

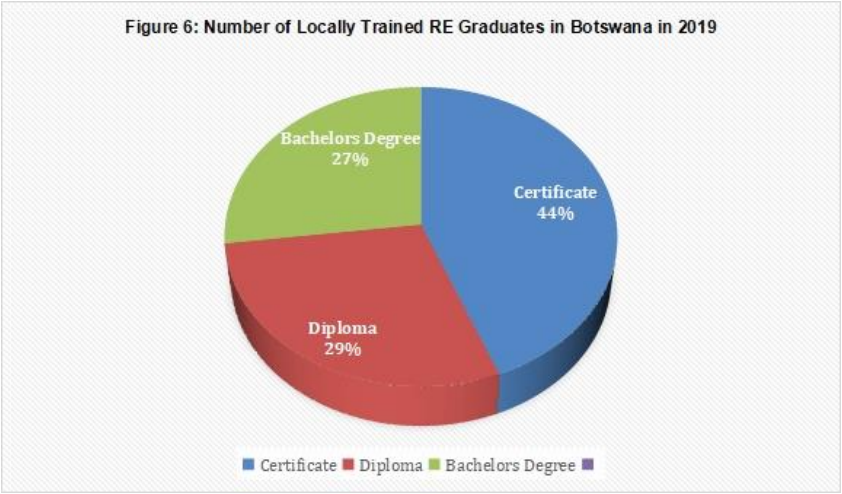


Human Resource Development Council, 2015; 2020; 2021

As shown in Figure 5, the BIU has been playing a leading role when it comes to training RE students. The RE school at the BIU is bigger (in terms of the size of faculty and number of campuses) when compared to the one at the UB. At the BIU, the RE department has a total of 11 academics stationed at its three campuses (Francistown, Gaborone and Maun) (https://baisago.ac.bw/about-us/ (Accessed: 27-06-2022)) whilst at the UB, RE is a section under the Department of Architecture and Planning and it has a complement of four academic staff, less than half that of the BIU. RE at the UB is taught only at its Gaborone campus (https://www.ub.bw/discover/faculties/engineering-and-technology/architecture-and-planning (Accessed: 27-06-2022)). This might have given the BIU a comparative advantage in student enrolment. Another possible explanation is that the UB, as a public university, might be restricted to enrolling a limited number of students per academic year, while the BIU, as a private university, might be seeking to maximise its enrolment numbers for revenue purposes. However, what is important for this discussion is that the BIU is playing a leading role in terms of contribution to knowledge, specifically in student enrolment figures.

REAL ESTATE GRADUATES 2011 – 2019

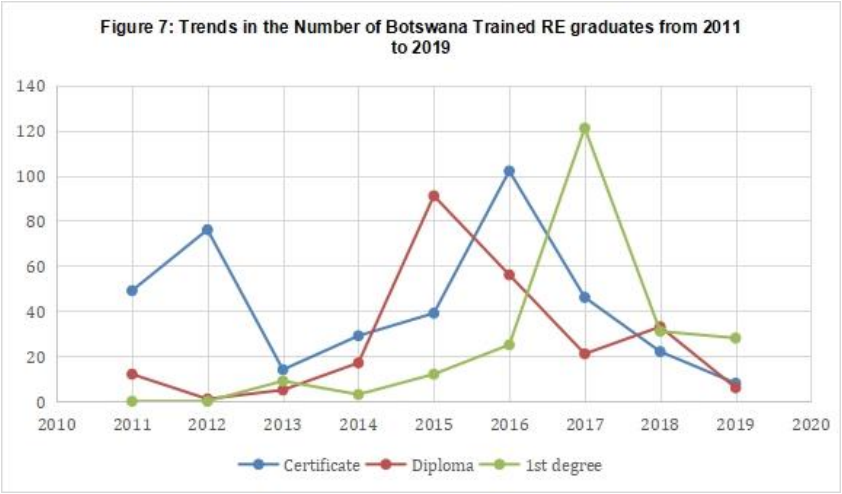
This study established that during the study period, a total of 856 graduated in RE programmes offered by local REHETPs. Therefore, the graduate-to-lecturer ratio as of 2019 was 57, meaning that, on average, each teaching academic has assisted 57 students through to graduation over a period of eight years. The bulk of these locally trained REgraduates (44%) are certificate holders. As shown in Figure 6, graduates with diplomas constituted 29% and those with first-degree qualifications made 27%.



Human Resource Development Council, 2015; 2020; 2021

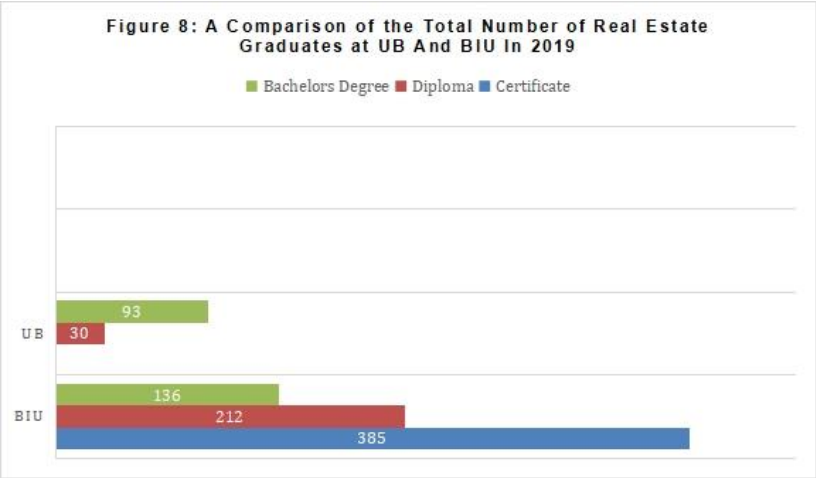
It can be noted from Figure 6 that most locally trained REgraduates can qualify for registration and practice only as estate agents. Certificate holders cannot practise as property valuers, property auctioneers, or property managers in Botswana as stipulated by Section 20 of the (*Real Estate Professionals Act (Chapter 61:07),* 2003). They can qualify to be registered and practise only as estate agent,s subject to fulfilling the requirements of the Act, REIB and REAC.

One might be tempted to argue that tertiary RE education institutions in Botswana are not doing enough since 856 seems to be a very small number. However, if one takes a closer look at the Botswana market, it can be notde that the market is relatively small. With an estimated total population of 2 346 179 people (Bank, 2018; Statistics Botswana, 2022), 856 graduates constitute 0.0004% of the total population. Having managed to increase the cohort of locally trained RF graduates from 0 to 856 over a period of eight years is a commendable contribution of skilled human resources to the job market. Figure 7 is a summary of how many graduates of local REschools there were from 2011 to 2019.



Human Resource Development Council, 2015; 2020; 2021

As shown in Figure 7, the number of locally trained RE graduates in Botswana has been fluctuating over the period of study. The highest number of certificate graduates was registered in 2016, while for diplomas it was in 2015 and the number of graduates with a first degree reached its peak in 2017. These results relate to the admission data presented in Figure 2. The two graphs for certificate programmes on student enrolment and graduates (Figures 4 and 7) show most of the enrolled certificate students managed to finish their studies and graduate. The relationship between enrolment and graduation for certificate programmes can easily be noted because the programmes are done within one academic year. It is also important to narrow this discussion of student output down to the university level. Figure 8 shows the number of graduates per university per year.



Human Resource Development Council, 2015; 2020; 2021

From Figure 8, it can be deduced that the BIU is leading in terms of the production of RE graduates at all levels as compared to the UB. As earlier mentioned, it is also of paramount importance to note that the RE school at the UB is less than half of BIU in terms of staff establishment. At the BIU, RE is a stand-alone department under the Faculty of Built Environment Arts and Science (FBEAS) and it has 11 lecturers, including the head of the department (https://baisago.ac.bw/faculty-of-the-built-environment-arts-and-science/ (Accessed: 27-06-2022). On the other hand, at the UB, RE is a section under the Department of Architecture and Planning and it has a staff establishment of only four lecturers (https://www.ub.bw/discover/faculties/engineering-and-technology/architecture-and-planning).

Research is also one of the expected key contributors to institutions of high learning. As highlighted before, universities as engines of ideas are expected to occupy the driver's seat in a knowledge-based economy.

RESEARCH OUTPUT OF RE TERTIARY EDUCATION INSTITUTIONS IN BOTSWANA 2011-2019

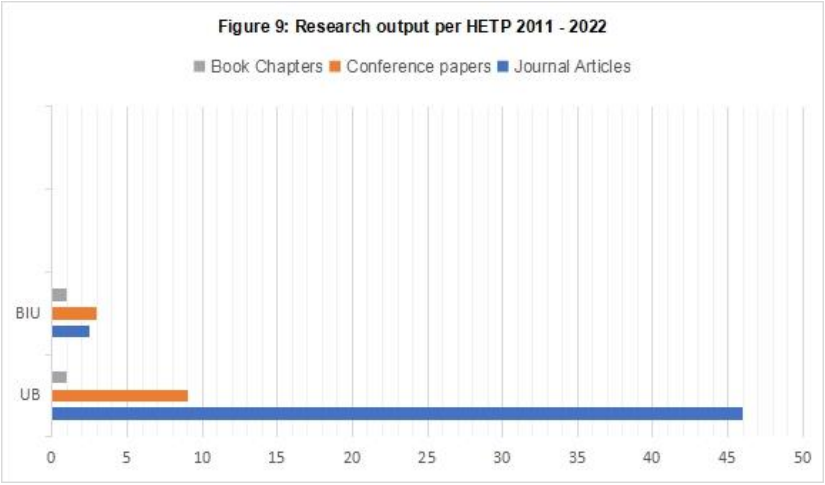
A search on Google Scholar revealed that a total of 69 peer-reviewed papers (journal articles, book chapters and conference proceedings) were published by local RE academics at REHETPs in Botswana as shown in Table 2.

Table 2: Per-Capita Research Output of RE Faculty in Botswana 2011 - 2022

University	Number of Publications	Number of full-time Faculty	Publications to Full-Time Faculty Ratio
UB	56	4	14
BIU	13	11	1.18
Total	69	15	

Table 2 shows that 81% of the publications were published by UB and the remainder (19%) were published by academics at the BIU. The published full-time faculty ratio for the UB is 14 and for BIU it is 1.18. This means that, on average, at the UB, each academic published 14 research papers between 2011 and 2019, whereas an average faculty at the BIU published 1 publication over the same period. It is important to note that out of the 11 academics at the BIU, only four were found on Google Scholar and the researchers assumed that those not on Google Scholar did not publish between 2011 and 2022. However, this assumption might not be true, as highlighted by the fact that Google Scholar might not provide an exhaustive list of all publications.

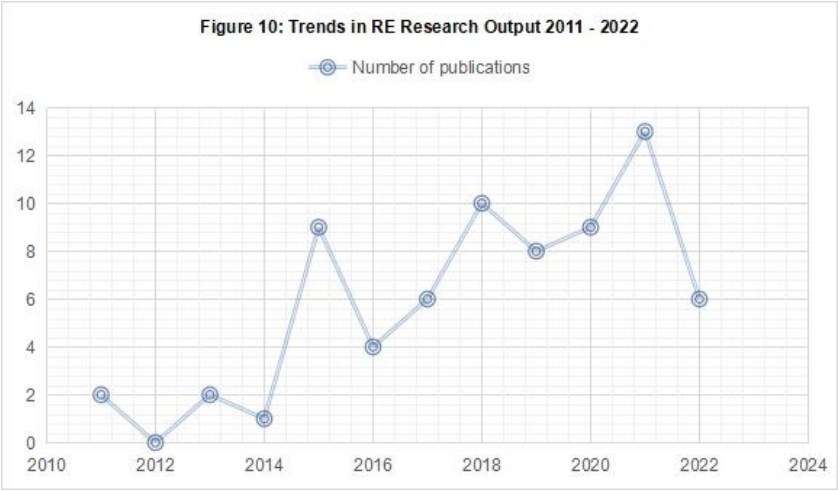
A closer analysis of the data revealed that there are very few active researchers at both institutions who are doing extremely well on publications and there is a sizeable number of faculty who are not on Google Scholar and were therefore considered to not have published anything over the eight years. Figure 9 is a summary of the total RE research output in Botswana by type of publication per REHETP from 2011 to 2022.



(Accessed: 27-06-2022)

If one refers to Table 2 and Figure 9, it can be inferred that the UB is championingRE research in Botswana. This can be attributed to the presence of senior academics among its staff establishment that they have have established a research culture. A significant difference in research output can also indicate the philosophy of the two universities, with the UB being more research-oriented and the BIU being more teaching-oriented. This is supported by the previous discussion that shows that the BIU produces a fair number of students at certificate, diploma and first-degree levels. This can also be explained by the difference in philosophies. The UB, as a scientific-based university, might be attracting scientific research-oriented academics, whereas the BIU, as a commerce-based REHETP, might be attracting commercially-minded faculty. Chances are that the titles of programmes offered by these two REHETPs are testimony to this view. At the UB, the RE programme is a Bachelor of Science Degree, but at the BIU it is a Bachelor of Commerce Degree. Furthermore, one might be justified in assuming that since the UB enrols a limited number of students, the teaching load of academics might be lower than that of the BIU academics; hence they (UB academics) might have more time dedicated to research.

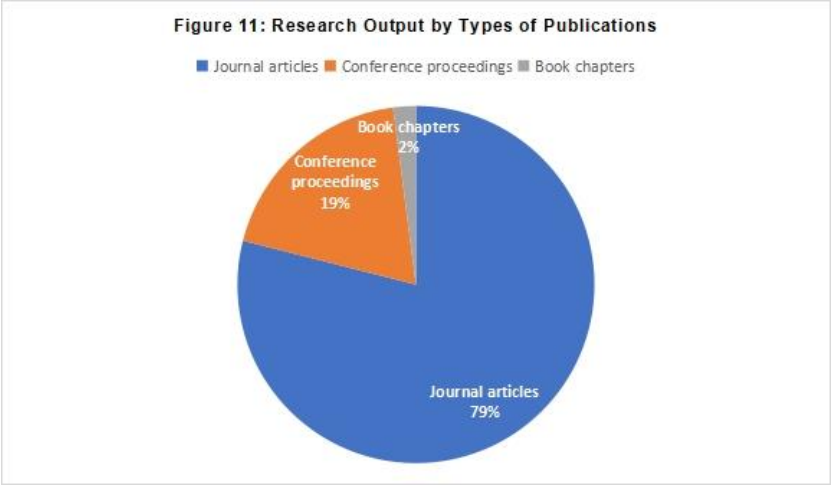
It can be inferred from this discussion that the two REHETPs in Botswana somehow complement each other as one contributes more through research and the other through teaching towards meeting the country's quest to achieve a knowledge-based economy. A good number of the papers were co-authored, with the majority of the the UB faculty writing the majority of their publications together. There was also evidence of academics in Botswana publishing with other researchers outside Botswana, for example, those in South Africa, Zambia, Nigeria and Zimbabwe. This is commendable as it promotes the cross-pollination of ideas. However, there was limited collaboration on research between academics at the UB and the BIU. Only one paper was co-authored by academics from the two institutions. Figure 10 shows trends in research output by RE faculty at the two RE HETPs in Botswana from 2011 to 2022.



(Accessed: 27-06-2022)

It was established that research output by RE faculty in Botswana has increased by 97% between 2011 and 2022. Furthermore, generally, research output has been increasing over the past 11 years with a sharp increase being recorded in 2015 and 2021. It is also important to note that several

research articles were expected to be published in 2022, given the fact that at mid-year, the papers published were equal to the total number of papers published in 2017, slightly half of the ones published in 2021 and more than the total number of papers published in 2011, 2012, 2013, 2014 and 2016. This is a positive trajectory that if maintained, there is no doubt that RE faculty in Botswana might make a valuable contribution towards meeting a knowledge-based economy. However, as discussed before, this study did not consider the total amount attracted by RE academics at RE schools and, citations of the published articles were not taken into consideration which are important parameters normally used to measure the quality of publications. Figure 11 shows the RE research output in Botswana by type of publications.



(Accessed: 27-06-2022)

As shown in Figure 11, journals are the most preferred platforms for communicating research findings by RE faculty in Botswana, followed by conference papers, and book chapters are the least used vehicles for communicating research findings. Table 3 is a list of journals where academics at RE schools in Botswana published their papers.

Table 3: Number of publications per journal (Accessed: 27-06-2022). (Accessed: 27-06-2022)

Journal		Number of papers published
1.	*American Journal of Social and Management*	2
2.	*Advanced Research in Scientific Areas*	1
3.	*Civil and Environmental Research*	1
4.	*International Journal of Civil Engineering, Construction and Estate Management*	2
5.	*Research Journal of Finance and Accounting*	1
6.	*Int. Journal of Engineering Research and Applications*	1
7.	*International Journal of Civil Engineering, Construction and Estate Management*	2
8.	*International Journal of Finance and Accounting (IJFA),*	1
9.	*Mediterranean Journal of Social Sciences*	2
10.	*Global Journal of Advanced Research*	1
11.	*International Journal Advances in Social Science and Humanities*	5
12.	*Tropical Built Environment Journal*	1
13.	*International journal of development and economic sustainability*	1
14.	*Property M**anagement***	2
15.	***International Review of Education Journals***	3
16.	*Iconic Research and Engineering Journals*	1
17.	*Journal of Property Tax Assessment & Administration*	1
18.	*International Journal of Housing Markets and Analysis*	2
19.	***PM World Journal***	1
20.	*Real Estate Finance*	2
21.	*British Journal of Environmental Sciences*	3
22.	*Current Urban Studies*	1
23.	*Journal of Advances in Economics and Business*	1
24.	*International Journal of Project Management and Productivity Assessment*	3
25.	*Journal of Real Estate Finance*	2
26.	*American Research Journal of Civil and Structural Engineering*	1
27.	*Environmental Review*	1
28. 29.	*International Journal of Housing Markets and Analysis*	2
30.	*International Journal of Science and Research (IJSR)*	2
31.	*Journal of Economics and Sustainable*	1

	Development	
32.	*Journal of Urban Systems and Innovations for Resilience in Zimbabwe-JUSIRZ*	1
33.	*International Journal of Innovative Research in Science, Engineering and Technology*	1
34.	*Journal of African Real Estate Research*	1
35.	*Journal of Property Research*	1
36.	*Real Estate Management and Valuation,*	1

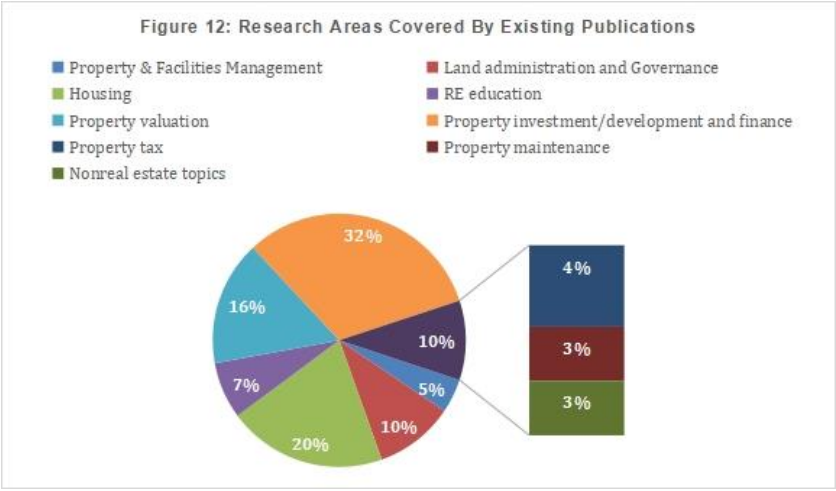
As shown in Table 3, RE faculty in Botswana publish in various journals, with most papers being published in the *International Journal of Advances in Social Science and Humanities*. It was also determined that all journals in which RE faculty in Botswana published appear to be internally reputable peer-reviewed journals, indicating that the published work is of internationally acceptable quality. Table 4 shows conferences where RE faculty in Botswana presented papers.

Table 4: Number of publications per conference (Accessed: 27-06-2022)

Conference	**Number of papers presented**
FIG Conference	1
African Real Estate Society (AfRES) Annual Conference	6
National Conference of the School of General Studies	1
The Commonwealth Association of Surveying and Land Economy (CASLE)	2
Southern African Development Community (SADC) International Conference on Postgraduate Research for Sustainable Development	1
Namibia University of Science and Technology (NUST)/Network of Excellence on Land Governance in **A**frica Conference	1

One can see from Table 4 that most publications by RE academics in Botswana were presented at the AfRES Annual Conferences. AfRES is a regional voluntary association of RE academics and practitioners in Africa and most of the papers presented during its annual conferences are subject to a double-blind peer-review process. Other conferences were also done by regional institutions like SADC and NELGA. This might

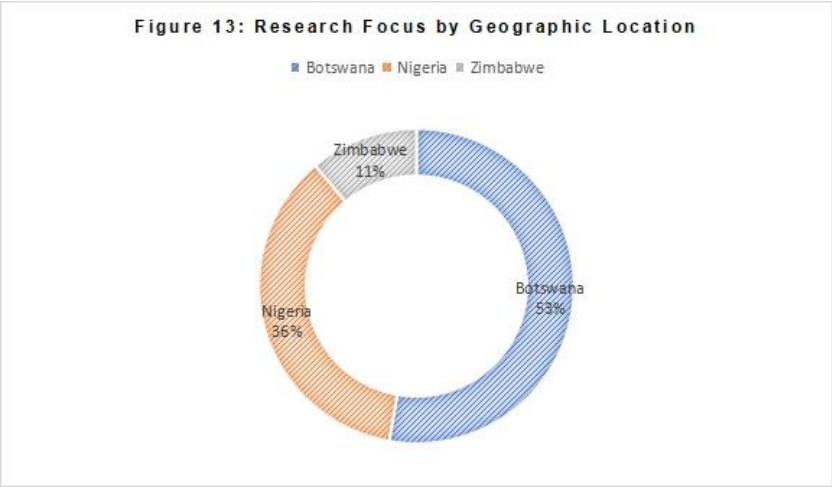
be translated to mean that the research output of RE scholars in Botswana is shared beyond the national spare. In retrospect, over the years only a few papers of research have seen the light of publishment at external fora from universities within our country's boundaries. However, it suffices to note that it was not clear why conference papers presented by RE scholars during international conferences hosted by BIU and UB in 2019 and 2021 respectively, were not on Google Scholar. As highlighted before, this means that this study was not based on exhaustive research output of RE faculty in Botswana. Figure 12 shows the percentage contribution of research publications by research area.



(Accessed: 27-06-2022)

If one analyzes Figure 12, it is glaring that 32% of publications by RE faculty in Botswana focused on property investment/development and finance and the least RE-related research area was property maintenance (3%). There was also a very small percentage (3%) of research areas that were classified as not RE- related. A good example of one research paper that was classified as not RE-related is the one focusing on local governance during the COVID-19 era. It was also of paramount importance to classify the research focus by considering the

geographic location of the study. One might be tempted to challenge any research output that was done outside Botswana not to be a contribution to the local market. However, this line of thinking might be challenged because academics usually contribute to the international body of knowledge and with globalisation, the contribution of universities can no longer be limited to within national boundaries. Figure 13 is a summary of the research focus of RE faculty in Botswana by geographic location.



(Authors, 2022)

As shown in Figure 13, Botswana took a lion's share (53%) of research publications done by RE academics at its universities. This is an encouraging picture where most of the studies are done locally, but at the same time, some of the publications are also done in other countries. Thirty-six per cent of the publications were done in Nigeria and studies focusing on Zimbabwe constituted 11%. If one is to consider publications only done in Botswana and exclude those done in other countries, the total research output from 2011 to 2021 will be reduced from 69 to 37 and the total per capita research output will be 2.5 for the same period. Figure 13 is a visual representation of the research focus of Botswana's RF faculty by geographic location.

DISCUSSION

Teaching productivity was measured in this study using the performance number of RE programmes, students' enrolment and graduation rates in line with Toutkoushian, Porter, Danielson and Hollis (2003). It was established that there are currently three REHETPs providing RE programmes in Botswana, namely the UBthre BIU and the GUCs at national certificate, national diploma and first-degree levels. This shows that a new player (GUC) came in as an RE school after the publications of Kampamba *et al.* (2015 and 2017) posited that the variation in curricula taught by the universities is significant and somehow concludes that educators have not agreed on common topics andcourses that should be included in the syllabus.

This study also established that there are 856 graduates, 44% being certificate holders, 29% being diploma graduates and 27% being degree graduates (231 graduates). Certificate and diploma graduates are not capable of undertaking research studies. With respect to the curriculum of RE, only degree students and above \carry out research. The study picked out that more is expected from the few degree graduates, but research output cannot be significantly recognised due to this factor. Only degree and above graduates understand composites of research and in this study, there is only a handful of them. Therefore, not much RE research output is expected from from the few degree graduates. However, considering the population dynamics in Botswana, the number of graduates can be considered sufficient since the degree programme is relatively new in the country. Schiliro (2012) affirms that the number of graduates produced in a country is a key indicator of transformation towards a knowledge-based economy.

There is a paradigm shift from a situation where research, in general, was low, as shown by the Government of Botswana (2015) to a steady increase in research, especially journal articles. This is a positive move, especially considering the importance of knowledge generation and dissemination in the much-aspired knowledge economy as noted by Choong and Leung (2022). The key factor in this economy is being able to provide competitiveness to benefit society and the economy. In

this case, if RE faculty in Botswana create and transfer knowledge, they can bring innovative solutions to its RF problems and help improve the attractiveness of Botswana on the global property market.

The research also established that there are 69 research outputs published by local RE scholars, 81% of these are from the UB and the remainder (19%) from the BIU. Journal articles account for 79% of research output, conference proceedings account for 19% and book chapters account for 2%. The researcher picked out that theUB could be producing more output as it has a wide array of senior academic staff who have a high level of educational background. Another contributing factor could be the availability of resources because it is a public-based institution, thus having a robust backup from the government. The results of the study concurred with that of Chikalafami (2010) that there is limited research output in RF.

The research study identified the research areas of published journals. It was noted that the majority of the research is on property investment, development and finance (32%), housing (20%), property valuation (16%) and land administration (10%). Property investment has been on the rise as many people are now investing heavily in property. Investors are now investing in RF, for example the emergence of CBD and CBD 2 which is being built in Gaborone Block 8. As a result, more research will be done to find out what is the attributing factors towards property investment. In other areas, housing has always been a challenge in Botswana, thus there should be more research on it to bring light to this crucial matter. This is another area that is more researched in Botswana's RF sector. Botswana has been shifting to property as a form of investment, hence property investment, housing and valuation form part of the most researched areas.

It is notable that with the steady growth of Botswana's RF profile, RF education is seeing a growth in academic societies/clubs, that is the recent establishment of educational societies such as the the BA ISAGO University Real Estate Society as well as the University of Botswana Real Estate Society that help nurture RF education to maximum heights. It

is worth noting that there were several conferences where scholars were able to present their research papers to build a research culture in Africa. These are inclusive of the AfRES Conference and SADC International Conference where most of the local publications were presented. Investments and efforts are being made akin to RF, for instance, institutions turn to host annual research days in attempt to encourage and yield education and knowledge transformation at different themed topics as seen at the BIU. This is done to drive to knowledge-based economic system spearheaded by the government.

It is also vital to note that even though three REHETPs contributed meaningfully towards the targets of the tertiary education policy of 2008 in terms of the graduate and research output, challenges noted by Mosimanegape (2018), Mosha, Sungirirai, Dick and Paradza (2022) as well as Kampamba, Kachepa and Kgalaletso (2022) have not lessened. Instead, challenges keep on changing their colour and texture, thereby becoming more complex. The complexity of Botswana's RF challenges is compounded by the new dimensions brought by a spike in inflation and unemployment, inequality, climate change and corruption.

CONCLUSION

This study was done based on the case study of three REHETPs teaching RF in Botswana. The researcher managed to answer the research question: What has been the contribution of REHETPs in Botswana over the past decade? It was concluded that currently, RF schools in Botswana have played a critical role in terms of producing local graduates and publications as a contribution to the development of the country and the region at large. Howevermuch more still needs to be done on postgraduate research programmes and graduates. An increase in postgraduate programmes and students can also have a direct impact on the increase in research publications. Current students (undergraduate) do not normally publish the findings of their research projects (dissertations).

Even though no relationship analysis was done, it is surprising to note an increase in graduate and research output by REHETPs does not seem to have reduced the challenges that

were faced before their existence. This might be an indication that there is need for a shift in the impact of higher education in society. An important question for academics and policy-makers should be: After publishing tonnes of papers and graduating multitudes of graduates, what is the real impact on challenges currently ravaging the communities?

Further studies can be done on the competitiveness of "home-made" graduates on the regional and global job market. Other important areas that were left out by this study are the contribution of REHETPs to community engagement/service and registered patents, hence future studies might need to focus on this area as well. Limitations of this study, as discussed in the methodology section, can be addressed in future studies by triangulation where a combination of the archival approach is supported by surveys.

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