

Advent of Higher Education Massification in Eritrea

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This study intends to address the advent of higher education massification in Eritrea following the restructuring of higher education in 2004-2005. The study applied both qualitative and quantitative research methods. The target respondents of the survey questionnaire in the study were instructors, graduates, students, administrative personnel of all higher education institutions. The findings reveal that, institutes of higher education in Eritrea are currently confronting low quality of education, shortage of senior national faculties, dependence on fixed government budget, lack of digitalized governance and weak technology infrastructure. The study concludes that, the higher education institutions after reform achieved commendable results in human resource development, narrowing gender inequality, linkage with domestic and external stakeholders in various areas of cooperation. Moreover, students' admission rate and enrollment rate increased steadily, academic programs, departments, courses, research projects and consultancy services flourished and the advent of massification in general brought positive returns to Eritrea.

Keywords: Eritrea, higher education, reform, massification

Introduction

Higher education is all sorts of studies and trainings at post-secondary education level offered by universities or other types of educational establishments officialized as institutions of higher learning by responsible state bodies (UNESCO, 1998). It embraces all activities in a given country including universities, graduate schools, short-term education and training courses (Mohamedbhai, 2008). The revised definition of UNESCO (2011) quoted by Oketch, McCowan, and Schendel (2014), interpreted higher education as formal educational institutions that build above secondary education level. The traditional function of HEIs such as universities and colleges is education, apart from that, these educational establishments also function in research and contribute to society in various areas.

The earliest root of higher education in the world extends to several centuries ago. Similarly, in Africa it traced to Egypt in the previous two or three centuries BC and AD with Alexandria Museum and Library, and monastic system. The education system of Africa experienced tremendous development especially from Islamic and Christian influences in particular to higher education (Ajayi, Goma, & Ampah Johnson, 1996). Meanwhile, Ajayi et al. (1996) argued that due to missionaries and their colonial influence on Africa after many centuries of change and development, the continent exposed to Western system of higher education. Assié Lumumba and Lumumba-Kasongo (1991) firmly posited that all African countries especially SSA (Sub-Saharan Africa) established universities mostly after their independence from their colonial masters that were modeled on the specific institutions of colonial powers during the period spanned from 1930's to 1960's.

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The arguments of these several scholars with origin of contemporary higher education in Africa transcend to post-independence periods as driven by colonial powers. Modern higher education in Eritrea emerged in late 1950's with the founding of University of Asmara (UoA) by Italian missionary congregation Pie-Madri Nigrizi of Verona-Italy (NBHE, 2008; Leonida, 2004; Rena, 2007a).

The term massification of higher education has no universal definition. The term massification is explained as mass adaptation of phenomenon by overpowering its distinctive features. Scott (1995) defined massification as a rapid increase in student enrollment in context of higher education in latter part of 20th century. Likewise, Trow (2000) offered levels to the concept of massification and coined the term elite, mass and universal higher education systems with elite higher education representing a national enrollment rate up to 15%, mass higher education representing a ratio up to 50%, and universal higher education a ratio above 50%. However, Mohamedbhai (2008) refuted the typology of higher education provided by Trow (2000) using national enrollment ratios or participation rates as suitable classification of higher education to developed countries than developing countries. Then, Mohamedbhai (2008) suggested that, the contemporary higher education enrollment ratio has experienced a very fast increment in numbers of students registered at institutes of higher education that can be conceived as massification. The trend of enrollment ratio in higher education of Eritrea also experienced massive improvement from below 15% in early years of independence to 45% in 2017 (MoE, 2018). This portrays that the higher education system in Eritrea falls under mass system.

Rationales for Study

Higher education institutes such as universities and colleges in SSA have been facing several problems. Various studies on higher education institutes of SSA depict that massive enrollment, low quality of education, irrelevance of curriculum, dependence on donors funding, shortage of academic faculties, lack of sufficient physical and technological infrastructures, limited linkages with stakeholders and budget constraints as key problems (Hayward & Ncayiyana, 2014; Mohamedbhai, 2008; Montanini, 2013).

Eritrea like other SSA countries inherited an ill-equipped higher education institute from consecutive colonizers that built for their political and religious purposes. The GoSE (Government of the State of Eritrea) re-established the UoA soon after independence in 1991 and invested massive national resources to develop it. The post-independence period marked soared enrollment of students at pre-primary and basic education and the country achieved tremendous socio-economic progress especially from 1993-1997 when the Eritrean economy grew by 10.9% per annum. The overall development of Eritrea was however hampered by border war with Ethiopia (1998-2000) and its subsequent two decades of "no-war-no peace political status quo" that forced the country to divest most of its national budget (32%) to defense and security sectors that in turn affected other sectors such as education.

The admission and enrollment of students at the UoA was minimal and limited to 1,200 and 5,000 students respectively per annum. Subsequently, in academic period of 2004/2005, the GoSE reformed the higher education and admission rate of students leaving after ESECE (Eritrean Secondary Education Certificate Examination) raised to around 5,000 and maximum enrollment capacity of students at all HEIs reached 15,000 students that marked massification of students. However, since the reform in 2004/2005, comprehensive studies have not been made so far on the achievements of newly established HEIs and challenges encrusting them.

Research Methodology

The purpose of the study is to explain the advent of higher education massification in Eritrea and address what achievements are accomplished and what challenges are confronting after formal restructuring in 2004-2005. Likewise, the researcher analyzed the prospective strategies to sustain achievements and address those challenges in all HEIs. Data were collected both from primary and secondary sources. Primary data were obtained from unstructured interview with key informants from higher education officials and self-administrated questionnaire were distributed to respondents. The research deployed purposive sampling method in selecting respondents from higher education institutions employees, government ministries and private business employees. Secondary data were obtained from Ministry of Education policy documents, directives and reports, National Higher Education and Research Institute (NHERI) guidelines, regulations, archives, reports and minutes, UNESCO reports, articles of researchers, textbooks of several scholars, documentaries and websites. To ensure validity and reliability gathered from different sources, triangulation model is applied for analytical compatibility.

The unit of analysis of the study are key informants from the NHERI, 60 respondents who are currently working as academic and administrative personnel and employees previously graduated from all HEIs but working with other government agencies and private business organizations. The target respondents of the study are instructors, students, former-students, administrative personnel of higher education.

Literature Review

Theoretical Review

The study found two important theories deemed relevant and consistent with its aims. These are, Human Capital Development Theory and World Institutions Theory.

Human Capital Development Theory

This theory was developed by Theodore Schultz. It argues that, investment in human capital harnesses greater economic returns and labor productivity. Shultz the pioneer of this theory described human capital as, human abilities to be either innate or acquired that require to be augmented by appropriate government investment.

World Institutions Theory

This theory was originated by Charles Tilly in 1986. This theory stipulates that, the key factors to massification of institutions are incentives and pressures. Cited by Corrales (1999), Tilly argued that, the first phase of massification is leveraged by political motives to grip state authority and the need to defuse potential adversaries, thus, to offer services to the population. The tide of massification of higher education at later phases is driven by self-generating economic forces such as squat marginal cost of extension, increase in the demand of jobs, economic progress and mounting households' revenue.

Empirical Review

The importance of higher education is arguable by many scholars from theoretical perspectives. Nevertheless, various empirical studies conducted by development economists portray the positive correlation of development and higher education institutions. HEIs contribute to development by increasing the productivity and efficiency of industries and other government and private institutions through innovation and

technology transfer (Oketch et al., 2014). Likewise, development experts suggest that educating human resources with necessary knowledge and skills for economic and social progress is essential role of higher education institutes; because, higher education extensions support to develop a wide range of human resources. Besides, there are supportive arguments that higher education augments development process of a country through the creation and diffusion of knowledge to endeavors of building knowledge-based society and economy. Higher education also plays a critical role in reforming socio-cultural systems and cultivating healthy civil society organizations that in turn produce democratic values and norms of multiculturalism, empowering political participation and institutionalism. Furthermore, higher education graduates add value to national health and social fabric through employment creation, entrepreneurship, generating tax revenue and other benefits (Rena, 2007c; Psacharopoulos & Patrinos, 2002). Sudha (2013) citing from Kothari Commission (1966) suggested that, HEIs provide the right kind of leadership in all walks of life through identifying gifted talent in universities and support them to realize their talent by cultivating corporeal fitness, developing powers of mind, right interests, moral attitudes and intellectual values.

There is also wide consensus among development experts and scholars that higher education promotes quality and social justice, and reduces socio-cultural divergences through dissemination of knowledge and skills to society. Teferra (2014) posited that massive expansion of higher education in SSA is not supported by appropriate financial, material, and human resources that adversely affects the quality of higher education system. UNESCO (2005) reported that most African universities suffered from technological divide that probably owes lion share problem to higher education quality. Moreover, emergence of new technology posed new costs and demand on higher education, which is grim to SSA countries. Overall increase in class size, increased course loads, abolition of tutorial classes, low-merit level of teachers, time shortage for preparations by faculty members and failure of higher education bureaucrats to lead with standards are among key challenges (Mugenda, 2009). Montanini (2013) posited that, the growing demand of students for higher education and its subsequent growth in enrollment imposed heavy burden on HEIs. UNESCO report (2012) on higher education of developing countries in general and SSA countries in particular indicates that growth in enrollment of higher education is oriented to undergraduate programs with less emphasis on post-graduate programs.

Mohamedbhai (2008) postulated that physical infrastructure has not increased proportionately with the increased student and, thus; higher education in SSA countries lacks sufficient lecture rooms, laboratories, academic and administrative staff offices, libraries, sanitary facilities, students and staff residences, lack of maintenance for existing infrastructure that results in overall dilapidation of universities and graduate schools' physical infrastructure. Institutions of higher learning in SSA have acute shortage of academic staff to cope with increased enrollment due to scarcity of funds and qualified job applicants. The shortage in academic staff is compounded by teaching overload of full-time staff coupled with increased administrative responsibilities which give limited time for faculties to devote for research and consultancy services (ibid).

Varghese (2006) stated that the proliferation of private higher learning that operates on commercial basis posed challenges to quality and access of higher education. The private higher education institutions vary in nature by which some are: faith-based, local universities, satellite campuses, foreign cross-border providers, non-profit institutions and profit generating private institutes. The significance of higher education internationalization has been growing tremendously in contributing to quality of education, regional and global integration, promotion of research and development, and fostering HRD (Human Resource Development).

Teferra (2014) identified the key elements of higher education internationalization such as but not limited to: mobility of scholars and students, accreditations and ranking bodies, regional and international networks, publication and communication, joint research initiatives, curricular reform and new forms of educational delivery and others. Nevertheless, Africa is the weakest player in internationalization of higher education in taking advantage of it, because, mobility of students within African higher education institutes is limited.

Historical Development of Higher Education in Eritrea

Modern higher education in Eritrea started in 1958 during Federation period with Ethiopia. The UoA—Eritrea's first university—was founded by 'Piae Madres Nigritiae' of Comboni Sisters from Bologna-Italy. In early years, the curriculum of UoA portrayed the Italian educational programs and all courses were delivered in Italian languages. After formal abrogation of federation and annexation by Ethiopia over Eritrea as its province, higher education falls under the imperial yoke of Ethiopia.

The imperial period with Ethiopia resulted in forceful Ethiopianization of Eritrea's higher education and alienation of many Eritreans for their political views and demand of national independence and academic freedom (Leonida, 2004; Kidane, 2016). However, in 1974 a group of military junta (The Derg Military Committee) overthrew the monarchial system, and this scenario brought a state of political instability and economic stagnation in the country and marked a new epoch in higher education of Eritrea. During this period, all schools were nationalized and the educational system totally fell under the heel of Ethiopian administration committed to the forcible Ethiopianization of Eritrea (Leonida, 2004). Moreover, mass arrest and killing of higher education teachers and other educated Eritreans and discrimination on professional development opportunities were common phenomena. Likewise, quality of education and academic freedom were dilapidated by consistent surveillance of university teachers.

All faculty members in UoA were obliged to attend weekly classes of Marxism-Leninism to dispatch their adherence to 'The Derg' political philosophy. Publications and research works were highly censored and funds were mandatory collected from academic staff. Besides, teachers who wanted promotion, sabbatical leave, travel permit abroad were usually required to join the Workers Party of Ethiopia (Rena, 2007a). The UoA was highly controlled by political cadres of Ethiopia and security forces instead of academic senate.

Furthermore, by 1990, 62% of staff were not Eritreans and 91% of the students were from other parts of Ethiopia (Rena, 2007b). At the same year, the UoA was transferred to central part of Ethiopia due to escalation of war following the EPLF (Eritrean People's Liberation Front) forces progresses for Eritrean independence. As a result, all textbooks (80,000 volume), laboratory and office equipment were allotted to other universities in the interior part of Ethiopia (Leonida, 2004; Rena, 2007b). In addition to that, the number of graduates in UoA was minimal.

Following full independence of Eritrea in 1991 from three decades of struggle against Ethiopia, the newly established GoSE returned and re-established the UoA previously moved to Addis Ababa University with autonomous status. The government has undertaken measures to rehabilitate UoA as a hone of learning and research for new and upcoming Eritrean generations (Leonida, 2004).

The UoA devised the academic programs and curriculum in collaboration with various academic departments of the university, government ministries and other institutions. As part of its social commitment, UoA introduced National Service Program that required students to provide one-year community service before their graduation, and later this program was incorporated into university curriculum as internship program.

Likewise, to promote quality and relevance of higher education, the university formed joint steering committee to build local partnership with government and private institutions in the country and external partnership with foreign universities and development partners. A linkage model also developed that required university professors and staff to have a link with one or two advanced higher education institutions in Europe, Australia and America (Leonida, 2004; Rena, 2007c). This linkage model reflects that the linkages of Eritrea's higher education in post-independence period until reform were mostly with American and European universities, thus the curriculum was emulated from the West.

The higher education institutes in post-independence had also faced acute shortage of academic staff after its revitalization. Notwithstanding, progresses have been recorded as the university started to graduate, widen its partnership with development partners, and initiate invitation of Eritrean intellectual living abroad and recruitment of expatriates (Rena, 2008a). The shortage in academic staff had been improved four times from academic year of 1991/1992 to academic year of 2002/2003 (Leonida, 2004). Moreover, participation of female teachers had increased four times in the period from 1991 to 2003 with parallel increase in the number of male teachers in that duration of time.

Reform and Massification of Higher Education in Eritrea

The Macro Policy and National Charter of PFDJ (People's Front for Democracy and Justice) of 1994, and drafted constitution of Eritrea 1997, all assume education as fundamental human right by which all citizens of Eritrea must be offered equal opportunities to maximize their talent and become all rounded nationals. Most notably, the NEP¹ of 2003 pledges the creation of modern, technologically advanced and internationally competitive national economy through revitalizing citizens with relevant education and appropriate trainings, and thus expanding and opening of new schools in all parts of the country. As part of government commitment to these policies, the GoSE has been investing on opening of new schools up to remote areas of the country and expanding the existing schools to absorb the increment in enrollment of students at all educational levels (MoE, 2018).

Despite the drastic increase in enrollment of students at primary, junior and secondary schools by 400%, the number of students who got the opportunities to pursue studies in higher education was very limited to students from urban areas and well-to-do families (Tsegay, Zegegrish, & Ashraf, 2018). According to UoA records, there were 5,939 enrolled students in 2002/2003 academic year with an admission number of 1,200 of students every annum from the whole country. Apart from that, the higher education was constrained in the capital city of the country.

Knowing these situational facts, the Eritrean Government reformed the higher education system in academic year of 2004-2005 to respond to increasing number of students who seek for higher education and national demand of the country for development. The government then decentralized the UoA and established nine institutes of higher education in four out of the six administrative regions of the country. The newly established nine HEIs are: Hamelmalo Agricultural College (Anseba Region), College of Business and Economics-Halhale (Southern Region), Massawa College of Marine Science and Technology (Northern Red-Sea Region), Orrotta School of Medicine and Dentistry (Central Region), Asmara College of Health Sciences and Technology (Central Region), College of Arts and Social Sciences-Adi-Keih (Southern Region). The Eritrea Institute of Technology (Central region) comprises three Colleges inside it, namely: College of Engineering, College of Education, and College of Applied Sciences (NBHE, 2014).

¹ NEP is the first educational policy after independence of Eritrea in 2003.

NHERI and Higher Education Governance

As stated above, after decentralization of UoA into nine HEIs, the government of Eritrea attempted to link them with affiliated government ministries and agencies. The attempt to link HEIs with affiliated ministries caused lack of coordination of guidance and harmonization of activities between HEIs (Tsegay et al., 2018). Therefore, PCCHE (Provisional Consultative Committee for Higher Education) under the auspices of President Office was established in 2006 to supervise and guide the new higher education arrangements and deepen reform programs. In 2008, PCCHE transformed into NBHE (National Board for Higher Education) then NHERI in 2017 to lead the development path of higher education in Eritrea. The six objectives of NHERI are: (i) gathering and disseminating knowledge; (ii) enhancing quality and accessibility; (iii) undertaking theoretical and applied research; (iv) spearheading development efforts through producing qualified graduates; (v) consistent updating of relevant curricula and research programs; and (vi) ensuring sustainability of all HEIs (NBHE, 2014).

Administratively, NHERI is vertically structured under President Office and horizontally connected with other Ministries, specially the Minister of Education serves as chairperson of the Board of Regents. The Executive Director is the highest management organ to oversee and coordinate the overall functions of HEIs and guide their development. In 2017, NBHE renamed as NHERI to embrace autonomous research institutes that lie outside the jurisdiction of higher education in the country with an aim to create coherence between HEIs and research institutes (Tsegay et al., 2018). In collaboration with HEIs, NHERI has formulated 17 standardized management guidelines and procedures to uniformly supervise and execute their activities (NBHE, 2014). Furthermore, NHERI and HEIs have also similar organizational structure that extends from top to bottom lines and reversely.

Summary of Findings & Analysis

Respondents of the study were asked on what could be the rationales for GoSE to massify higher education in the country through the decentralization of UoA into nine HEIs and relocating them into four out of the six administrative regions of the country. The findings displayed that, provision of equal access of higher education to all citizens, higher enrollment of students in post-independence at all levels of basic education, limited enrollment and admission capacity of UoA and aspiration to create knowledge-oriented society as main rationales for higher education reforms and its subsequent massification. Notwithstanding, some respondents conceived the restructuring of higher education as politically motivated move by government that needs further research in the future. In an interview with one of key informants, the rationales for the massification of higher education concurred with respondents' views that: "the previous higher education (until 2004) system was limited and didn't respond to the development demand of the country. Moreover, the enrollment after independence at all levels of education was high and the Eritrean government conceived education at all levels as fundamental right to all citizens and restructured it thereafter".

Respondents were requested if massification of higher education in Eritrean context is a good phenomenon or not. The findings revealed that, 80% of the respondents considered massification and reform of higher education as positive phenomenon; whereas 20% of the respondents conceived massification scenario as adverse trend. One respondent stated that: "with massification of education at higher level, it will contribute greatly in long run in overall economic performance of Eritrea by producing skilled and educated workforce". Likewise, other respondent also conceived it as: "the reform in higher education of Eritrea paved the way to

greater proportion of students especially to those who are from rural areas and female section of Eritrean society". The study found that, the massification of higher education as consequence of reform is viewed as positive phenomena. Moreover, the distribution of HEIs to four regions brought positive externality to people and young generation residing there, and created employment opportunities and stimulated business enterprises around these localities.

An interview with key informant about the accomplishment of HEIs in HRD of Eritrea stated that: "HEIs are supplying thousands of graduates to different government ministries and other organizations; and those skilled and educated manpower are contributing to the development process of the country". NHERI report (2019) also proved that, the HEIs since the reform have already graduated around 30,000 students, supplying them to responsible government body for further placement. In Eritrea, higher education is provided freely to all students and when students completed their studies, they are placed by HRD department to various government ministries and agencies. The study found out that, HEIs are contributing greatly in HRD effort of Eritrea by graduating students from different part of the country without exclusion and sending scholars abroad for further studies.

Among key issues of higher education in SSA countries according to Mohamedbhai (2008) and Teferra (2014) is gender inequality in access and ascendancy of higher education by male pupils. Accordingly, the finding from the survey questionnaires revealed that, the massification and reform in higher education narrowed gender inequality. NHERI applied positive discrimination approach to encourage female students to join higher education by lowering scale of ESECE-GPA than their male counterpart (NBHE, 2014). According to MoE (2015) reports, female enrollment rate at all HEIs at the academic year of 2014/2015 has reached 37.14% with Social Sciences, Business and Economics, Health Sciences and Agricultural Sciences. HEIs enrolled 44.1% female students on average (MoE, 2015). On the same academic year, the enrollment of female students in the areas of Engineering and Technology, Medical Sciences, and Marine Sciences enrolled on average of 29.4%. This portrays that, female students in hard sciences are less, while in soft sciences are comparatively high in Eritrea's HEIs. The study found out that, massification of higher education in Eritrea is playing vital role in narrowing gender inequality.

The study taken into consideration the current HEIs linkages with their internal stakeholders such as government ministries and agencies, private businesses and other international organizations in various areas of cooperation. Hence, the findings depict that, HEIs are moderately linked with domestic stakeholders and loosely linked with international stakeholders in areas of research, training and consultancy.

The study found out that quality of higher education is a serious challenge of HEIs. An interview with key informant also confirmed that: "the main challenge now in all HEIs is the quality of higher education and the current higher education system is quantity oriented, measures are taken to balance the quality-quantity dichotomy in HEIs". The massive enrollment of students in higher education are not proportionately amplified with construction of physical infrastructures in Eritrea and all HEIs lack sufficient lecture classrooms, students and staff residences, academic and administrative faculties offices and others. An interview with key informant on the issue of physical infrastructure reported that: "all HEIs are facing shortage of physical infrastructure; and the GoSE in collaboration with development partners such as ADB and the Government of China is building various infrastructures and expanding all HEIs". According to UNESCO campaign of 'Education for All' (1990), Dakar Framework of 'Education as Fundamental Right' (2000) and NEP (2003), starting from basic to technical and vocational education and higher education are embedded on the principle of 'Free Education for

All' in Eritrea. Thus, all HEIs in Eritrea render free higher education services for all students. Students are not obliged to pay tuition and accommodation fees in course of their study. The study found out that, finance and budget constraints remain as serious challenges of Eritrea's HEIs. Moreover, the HEIs usually depend on the budgetary allocation of the GoSE and do not have adequate source of financing apart from it. Each HEI has some income-generation mechanisms; nonetheless, the revenues are collected by MoF (Ministry of Finance). Likewise, the study of Mengesha and Tessema (2019) found that the share of total educational expenditure in annual national budget is minimal that accounts for 4.6% since 2006. This portrays that, HEIs are subjects of finance and budget constraints. The presence of sufficient local senior faculties in higher education is indispensable factor to effectiveness of teaching and learning process. However, Eritrea's HEIs suffer from acute shortage of qualified local faculties with Master and PhD status. This reality is affirmed in 2014, in an interview with National broadcasting media (Eri-TV), the then Executive Director of NHERI stated that: "the main challenges in all HEIs is the inexistence of adequate national senior faculties and dependence on expatriate and junior local faculties". Likewise, an interview with key informant reiterated that: "the shortage of local academic staff are acute challenges of all HEIs, and thus, endeavors are in place to overcome these challenges by sending junior faculties abroad to pursue further studies and return back home after completion of their studies".

The essentialities of ICT in the 21st century are quite greater in crystallizing teaching-learning process, introduction of online and distance education, coordination of activities with other HEIs and stakeholders, intra- and inter-networking of HEIs activities and digitalization of offices. The findings discovered that HEIs lack proper ICT infrastructure such as internet services to students and faculties, networked office system, online learning and grading system, online registration systems, and digitalized platforms. The study also identified that, EIT (Eritrean Institute of Technology) possesses relatively moderate technology infrastructure of free internet services to faculties and students and digitalized academic governance. All HEIs possess internet services and annually subscribes thousands of ERN to Eri-Tel, nevertheless the availability of internet services is limited in coverage to faculties and the technology infrastructure is weak. Despite the effort of the government, there is not a unified network/platform that enables all HEIs to communicate with each other.

Almost all HEIs are located in their strategic geographical location compatible to their academic programs; however, the College of Business and Economics is frequently displacing from one place to another place since the reform. Likewise, the higher education system in Eritrea has not specifically designed higher education policy or academic charter that contemplates its autonomy and right, and is guided by general national education policy and directives. Another urgent challenge confronting HEIs is lack of academic freedom and presence of organizational politics in all HEIs. It is limited in Academia-Industry-Government in various areas of cooperation and the present collaborations are between Academia and Government agencies. Apart from the Journal of Eritrean Studies and Journal of Science and Engineering-EIT, there are no other optional journals for publication of articles and research outputs in Eritrea and usually researchers in HEIs are forced to publish their articles and research outputs in foreign journals paying hundreds of hard currencies.

Conclusions

Massification of higher education in Eritrea coincided as consequences of reform and brought positive returns as well as posed hurdles to Eritrea. Massive enrollment of students at all educational levels in post-independence and minimum capacity of UoA to absorb the excessive higher education demand of citizens,

government commitment to decentralize HEIs to all regions of the country, and policy of equity in access to all citizens are key rationales for reform.

HEIs are contributing greatly in graduating thousands of students every year and playing their part in HRD process of Eritrea. HEIs are playing commendable part in reducing gender inequality in admission and enrollments of female students. Likewise, HEIs are edifying sound linkages with government ministries and organizations in specific areas of cooperation, such as: supplying graduates, graduate employment, research and consultancy services. Notwithstanding, Academia-Industry-Government Triple collaboration almost leaned to Academia-Government collaboration. Moreover, HEIs underway concerted effort in linking themselves with foreign universities in areas of scholarships, staff exchanges and joint research.

Furthermore, HEIs are supporting junior faculties to realize their career dreams through sending abroad to pursue further studies. Most notably, academic programs and departments in all HEIs are increased and the decentralization of higher education in Eritrea into four out of six administrative regions created positive externality on young generation residing over there and stimulated business enterprises to proliferate.

Based on our survey questionnaires and interviews, the study concluded that HEIs encountered numerous challenges. Among others, HEIs are suffering from low quality of higher education due to disproportionate increment in human, material and financial resources. At the same time, the GoSE with development partners is working in building physical infrastructures to overcome the shortages of physical infrastructure. Nonetheless, inadequate physical infrastructures remained a serious challenge of all HEIs. Dependence on government budget allocations subject to fluctuations of economic volatility and absence in sources of financing posed greater hurdle to all HEIs. Another key challenge facing HEIs in Eritrea is inexistence of sufficient senior faculties with Master and PhD status and dependence on inexperienced young junior national faculties and expatriates. Despite the presence of linkages with domestic stakeholders, the areas of collaboration are limited. Moreover, linkages of HEIs with private businesses are almost non-existent and merely inclined to Government ministries and agencies. Correspondingly, linkages with external stakeholders are also constrained to specific areas of collaboration.

Furthermore, absence of digitalized governance and weak technology infrastructure such as internet services and unified digital platforms with exception of some HEIs is serious challenge. The grading, registration, documentation and communication systems are executed manually in most HEIs. Most HEIs in Eritrea are located strategically in convenience with their academic programs; however, some HEIs especially the College of Business and Economics has been displaced several times. Currently, higher education has no clearly specified policy and facing higher politicization that restrains academic freedom though certain measures are underway. Students' exchange and internship programs are not common practice in most HEIs. Extracurricular intervention programs such as conferences, forums, seminars are rarely hosted. Except the Journal of Eritrean Studies and Journal of Science and Engineering-EIT, acute shortage of journals for publications of articles and research outputs is eminent.

The study recommends the following to higher education officials and state policy makers:

- Explicitly Designed Higher Education Policy;
- Shifting from Quantity to Quality;
- Building Sufficient Physical Infrastructures;
- Full-scale Salary Adjustment and Provision of Fringe Benefit to Academic Faculties;

- Introduction of Digitalized Governance and Provision of Inclusive Internet Services;
- Opening Postgraduate Programs and Sending Scholars Abroad Extensively;
- Widening and Strengthening Linkages with Stakeholders;
- Autonomy for Revenue Generation;
- Introduction of Student Exchange and Internship Programs.

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