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Environmental Accounting Research in Higher Learning Institution Business Schools: Extent and Areas of Research

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ABSTRACT

The study explores the extent of environmental accounting research and areas of interest the Higher Learning Institutions Business Schools hosting tourism and hospitality departments dedicate to environmental issues. The study involves 200 Universities in Africa ranked in the 2023 global Rankings (UniRank). A sample of 22 universities from the East African Community were selected and their websites were used to extract environmental academic publications in their libraries, repositories, and journals, and analyzed using content analysis approach. The results indicate that the effort of environmental research in business schools is generally very low, indicated by an average of 4%, where 20% of universities have higher than 10% of efforts. The majority of universities, i.e. 50%, have efforts of between 0% and 10%, while a 30% of universities dedicate no efforts indicated by 0% effort. The findings also indicate that the most researched area is renewable energy with 15%, corporate social responsibility with 14% and waste management with 12% followed by water supply and utilization with 8%. This research is among rare studies linking Business Schools hosting tourism and hospitality departments and environmental research as well as their contributions to environmental policy change and their participation in climate change forum. University Business Schools have to invest in environmental accounting research to inform policy and standards makers, practitioners and professional bodies to reposition in the fight against climate change and environmental protection and curricula change to incorporate environmental accounting research, reporting and protection.

KEYWORDS

Environmental Accounting, Environmental Research, Higher Learning Institutions, Business Schools, Tourism and Hospitality, East Africa.

1 INTRODUCTION

There has been a series of efforts by both the local and international community to protect the environment and fight against climate change and global warming which are largely caused by human activities (Lumbanga, 2018) and they affect both cultural and natural tourisn (UNDP, 2022). Before and following the Rio Declaration in 1992, efforts were made to uphold the principle of public access to environmental information in order to achieve sustainable development. This declaration also recognized the right to access data on activities that could harm natural resources and measures taken to protect them, including administrative actions and environmental management programs (UN DESA, 1992). The Paris Agreement of 2015 further enhanced global responses to the threat of climate change by establishing a collective commitment to reduce carbon and hazardous gas emissions to limit the temperature increase (UN, 2015). These efforts continued at the COP 28 conference in Dubai in 2023, where combating climate change remained the primary focus.

Global environmental efforts have evolved in response to safeguarding our planet's well-being and both cultural and natural tourism where human-induced changes have ushered in uncertainties and insecurities, with climate change standing as a prominent issue amid these concerns, as emphasized and reported in the

United Nations Development Programme (UNDP, 2022) and Lumbanga (2018). In its 2020 Poverty and Shared Prosperity Report, the World Bank underscored that climate change poses a challenge that can be addressed through comprehensive environmental information disclosure empowering stakeholders to make informed decisions. This is particularly significant in the context of global poverty, which identifies climate change as one of the three factors exacerbating poverty (WB, 2021). Environmental protection is also beneficial to tourism sector as tourism depend highly on natural environment Jia (2018) as insisted by Emaad (2006) who shows that to achieve best tourism results and growth environmental policies have to be implemented.

Locally, Tanzania and other African countries were not left behind as each country ensured the environment was protected, though the efforts vary from country to country. Tanzania, for example, witnessed significant environmental harm to both its population and natural surroundings. Consequently, the country initiated the National Environmental Policy in 1997, implemented the Environmental Management Act (EMA) in 2004, and established the Environmental Impact Assessment and Audit Regulations in 2005. Furthermore, Tanzania recently introduced the new National Environmental Policy in 2021 to enhance the management and protection of the environment, thereby mitigating adverse repercussions (URT, 2021).

In all these global and local efforts and meetings, different stakeholders participated, including: individuals, governmental, non-governmental institutions and multilateral institutions. The stakeholders showed commitment, though the implementation has been a global challenge for both developed economies and developing countries as commitments are not met (UN, 2023). Specifically, the efforts of stakeholders indicate willingness and signal that there is a problem of climate change and a need to deal with it. Lawyers, policymakers and lawmakers have introduced new regulations and laws; multilaterals have put some finances and commitments; private and government institutions have started working on the resolutions; activists, media and journalists are pushing the agenda forward, and the UN is on the forefront with Sustainable Development Goals etc. all targeting sustainability and also fight climate change and its effects. One could expect business and accounting professionals and their professional bodies and academia in business schools to have taken part in these environmental protection efforts and the fight against climate change.

The efforts from institutions call for budgets to be in place so that the proposed activities are well funded. Budget preparers must be aware of the significance of environmental protection as well as climate change's effects on organizations, society, and the world at large. If the accountants, finance managers and finance officers find that climate issues are not a priority in any institution, that alone may affect climate change or environmental financing efforts. Environmental accounting is deemed necessary by 85% of accountants, who recognize its importance and endorse its incorporation into financial statements to promote accounting reforms (Dellaportas, 2011). However, these accountants are not currently engaged in environmental accounting. Consequently, there is a pressing need to redefine the responsibilities of accountants to encompass environmental reporting and auditing (Dellaportas, 2011). In this case, the efforts towards a safe and sustainable universe may be affected significantly as indicated by little financing commitment since Rio 1992 (UN, 2023) and the invisibility of accounting professions globally and locally, i.e. International Accounting Standards Board (IASB) and National Board of Accountants and Auditors (NBAA) in all these efforts as stakeholders while all other stakeholders are vocal and working for change to happen.

The invisibility, low profile, little financing and unawareness of accountants and financial statements and budget preparers can directly be associated with the Business Schools effort in training accountants and finance managers as well as other managers including tourism firm managers informed by environmental accounting research or any other environmental accounting related to business and environmental protection as good teaching is derived from scientific research and approaches which are founded on research. The question is, are business schools orienting business managers in tourism industry and others, finance managers and accountants on their role in environmental protection? Are there efforts to link accounting research to the environment? Are professional Bodies informed by business schools how research and environmental accounting are vital to the global fight against climate change? Finally, are the professional bodies, i.e. IASB and NBAA, participating in global meetings and forums for climate change?

Therefore, this study explores the extent of the research and areas of interest or themes the Business Schools dedicate for environmental initiatives so that they coach and inform the business graduates whom most become or are accountants, finance managers, general managers and CEOs. The findings will inform the business schools to participate more in environmental issues, accountants, finance managers and all officers in finance units to feel that they are part of society and they have to fight climate change and protect the environment through prioritizing environmental activities and the accounting professional bodies to be active and join other stakeholders in the fight against climate change.

The importance of this study is derived from the National Environmental Management Council's (NEMC) practical efforts to ensure that businesses operate sustainably, as corroborated by Citizen Correspondent (2013). This is exemplified by the NEMC imposing fines on gold mines for causing environmental pollution that threatens biodiversity and human well-being. Furthermore, the country's industrial, mining, oil, and gas sectors have a significantly low level of disclosure, namely at 16% (Ntui, 2021, 2023). This raises environmental issues, together with the recently initiated national initiatives. In 2021, Tanzania has discovered 54 trillion cubic feet of natural gas and the country also accommodates oil pipelines that link it to neighbouring nations, including the 1,710-kilometer TAZAMA pipeline from Dar es Salaam to Ndola, Zambia, the 1,445-kilometer Kabale-Uganda to Tanga-Tanzania oil pipeline, and the MwalimuNyerere Hydroelectric Power Project (URT, 2021). These projects necessitate environmental transparency and disclosure to serve the interests of their users, stakeholders, biodiversity, and the overall environment and society.

2 LITERATURE REVIEW

Environmental Accounting Research

In their study, Qian et al. (2021) conducted a comprehensive analysis of the research efforts of scientists in addressing environmental issues during the era of climate change and global environmental debates. They focused on the period between 2001 and 2020 and aimed to identify key themes, trends, and future research directions in this field. The findings of their analysis indicate that only 43 papers on social and environmental accounting (SEA) have been published in top accounting journals over the past two decades, specifically addressing the contextual challenges faced by developing countries. Furthermore, these publications are primarily concentrated in a limited number of countries and regions. This study suggests that research on Southeast Asian (SEA) topics is significantly less prevalent than other academic disciplines. Mathews (1997) reviewed social and environmental accounting literature spanning 25 years, divided into three periods: 1971-1980, 1981-1990, and 1991-1995. The review concludes that there has been notable progress and improvements in environmental accounting research over this period, giving cause for celebration. The study cautions that the ongoing prosperity of this domain relies on a limited group of researchers, authors, and specialist publications. Without their contribution, there is a risk of a decline in interest and a forfeiture of the progress achieved. The study also suggests that allocating a dedicated space in advanced undergraduate and graduate curricula is crucial as a significant priority for the coming decades. According to the roles of the professional accountants, business schools, and regulatory bodies such as IASB and NBAA, this study suggests that there is a need for skilled and motivated professionals to actively participate in environmental policy and management in both public and private sectors.

O'Connor (2006) states a lack of study on environmental accounting in developing nations. Specifically, Africa and New Zealand each contributes barely 1% to worldwide environmental accounting research, while the Middle East contributes 0.4%. Conversely, industrialized countries have revealed significantly greater amounts of information. Specifically, the United States accounts for 25%, the United Kingdom for 15%, the European Union (without the UK) for 13%, Australia for 16%, Canada and Asia each for 6%, and the remaining countries, or the worldwide community, for 17%. Environmental disclosure (EvD) is present in just a small number of developing countries; even among them, there are significant differences. However, the general level of EvD remains low, as exemplified by the Arabian countries. Despite the Arab world's significant ownership of around 77% of the world's oil reserves and its substantial riches in the oil business, there has been a lack of research projects conducted in this field (Kamal et al., 2012). Consistent with the findings of Beske et al. (2020), it is indeed accurate to state that corporations typically provide just a limited quantity of crucial information in their integrated and sustainability reports.

The Need for Environmental Accounting in Relation to Reasons for Research

Environmental accounting research in business, finance, and accounting mostly centres around the environmental disclosure of an organization's environmental activities. This disclosure results from environmental accounting, which encompasses all environmental activities or operations conducted over a specific period, such as a year. The study is situated due to the significance of green accounting in promoting sustainability. Dillard (2015) argues that green accounting is necessary to promote a more equitable society with genuinely sustainable values. This would require an accounting, management, and reporting system that is genuinely attuned to the needs of both mankind and nature. The Dillard study argues that for social accounting to effectively drive significant social and environmental change, it must empower stakeholders to hold strong institutions responsible for their influence on society.

The necessity for green accounting arises from the apparent disconnect between conventional accounting and the social issues and solutions highlighted by

Tregidga (2015). Tregidga identifies capitalist orientation, business focus, reliance on neo-classical economics, numerical quantification, monetary dependence, and technical accounting practices as obstacles that hinder the suitability of conventional accounting for environmental accounting. These obstacles may explain the scarcity of social and environmental accounting and the lack of progress among accountants, auditors, and finance officers in addressing climate change. This is further supported by the limited research and publications suggested by Qian et al. (2021).

Narayanan (2014) emphasizes the importance of corporations being cognizant of, quantifying, and controlling their environmental effects, as well as prioritizing the sustainability consequences resulting from industrial progress, in accordance with earlier studies advocating for environmental accounting research. In addition to the current global transformations and the 17-UN sustainable development goals, several authors (Alewine, 2010; Alewine et al., 2013; Bracci et al., 2013; Dellaportas, 2011; Dillard, 2015; Herath, 2005; Medley, 1997; Narayanan, 2014; Paula et al., 2016; Tregidga, 2015) demonstrate the necessity of implementing environmental accounting in various countries and industries. Alewine (2010) argues that it is necessary to conduct experiments to improve environmental accounting. On the other hand, Medley (1997) emphasizes that the environment provides accountants with a chance to quantify and report data.

Paula et al. (2016) assert that environmental accounting serves as a tool for promoting sustainable development while emphasizing the significance of environmental reporting in achieving economic and social sustainability. Bracci et al. (2013) argue that it is difficult to differentiate environmental expenses. Therefore, there is a need for consistent decisions and environmental actions that accurately represent the facts without any manipulation of environmental accounting.

According to Dellaportas (2011), 85% of accountants recognize and endorse the use of environmental accounting in financial statements to change accounting practices. However, they express dissatisfaction with their lack of involvement in environmental accounting. Therefore, there is necessary to modify accountants' responsibilities to encompass environment reporting and auditing. Conversely, Alewine et al. (2013) argue that it is imperative to incorporate environmental accounting into the Balanced Scorecard (BSC) of companies' CEOs and examine its impact on investments.

The study conducted by Herath (2005) demonstrates the significant importance of environmental accounting. Additionally, Wang'ombe (2005) highlights the stakeholders' apprehension regarding corporate entities' response to environmental challenges. The influence of environmental accounting on the financial performance of organizations is steadily growing. Various authors (Alewine, 2010; Alewine et al., 2013; Bracci et al., 2013; Dellaportas, 2011; Dillard, 2015; Herath, 2005; Medley, 1997; Narayanan, 2014; Paula et al., 2016; Tregidga, 2015) have expressed support for the implementation of environmental accounting in companies. However, there is a lack of comprehensive research on the extent of this support. Environmental disclosure, which is a result of green accounting, can provide insights into how companies respond to stakeholder needs (stakeholder theory), how they utilize information to align their activities with societal expectations (legitimacy theory), and how they adhere to existing rules, guidelines, and norms (institutional theory) (Ntui, 2021, 2023, 2024) and Ntui et al., (2021, 2022).

Reasons for Reporting Environmental Information in Relation to Reasons for Research

Environmental accounting research aims to enrich accounting practices, reporting and disclosure of accounting information in financial statements, budgets and annual reports of organizations. It also informs firms about their responsibilities as corporate citizens to participate in environmental operations, including the protection of nature and the fight against climate change. In the context of disclosure and reporting, there is no specific accounting or reporting standards which mandate organizations to report, disclose, or participate in environmental activities or operations. Environmental disclosure remains voluntary, and organizations or companies choose whether to disclose or not to disclose, and if to disclose, they choose what to disclose as there is no format or guideline to do so (Ntui, 2021, 2023, 2024) and Ntui et al., (2021, 2022). Several studies have provided conflicting reasons or explanations for including environmental activities in annual reports and financial statements. These explanations can be categorized into three groups: firm characteristics (such as size, age, profitability, type, ownership structure, and capital structure), corporate governance structures (including board size, independence, gender diversity, and committee composition), and the business environment (including stakeholder pressure, media visibility, and legal requirements) (Ntui, 2021).

The results of past studies are succinctly elucidated as follows: The study conducted by Ahmadi and Bouri (2017) demonstrates that firm characteristics benefit environmental disclosure. However, other researchers (Chandok & Singh, 2017; Drobetz et al., 2014; and

Shamil et al., 2014) have found evidence suggesting that firm characteristics harm environmental disclosure. Conversely, research conducted by Dienes et al. (2016), Nor et al. (2015), and Nurhayati et al. (2016) indicates that business characteristics do not exert any influence on environmental disclosure.

The studies conducted by Fernandez-Feijoo et al. (2014), Khan et al. (2013), Michelon & Parbonetti (2012), Rao et al. (2012), and Rouf (2011) demonstrate a positive impact of corporate governance structures on environmental disclosure. Conversely, Li et al. (2013) and Shamil et al. (2014) indicate a negative influence of corporate governance structures on environmental disclosure. The remaining studies (Al-Shaer et al., 2017; Amran et al., 2014; Bowrin, 2013; Dilling, 2010; Khan, 2010; Nurhayati et al., 2016) suggest that corporate governance structures do not affect environmental disclosure. Several studies (Adusei, 2017; Dobbs & Staden, 2016; Hossain et al., 2017) suggest that elements, referred to as the business environment, impact firms beyond their characteristics and corporate governance frameworks. However, limited studies have been conducted in this particular area.

Studies examining the impact of the business environment on environmental disclosure have produced mixed results. Some studies (Gamerschlag et al., 2011; Wang et al., 2013) indicate a positive effect, while others (Adusei, 2017; Charl & Chris, 2012; Cho et al., 2012; Daniel & Dianne, 2013; Dienes et al., 2016; Dobbs & Staden,2016; Jason et al., 2014; Hossain et al., 2017; Lodhia et al., 2012; Qian et al., 2011) suggest that firms disclose more environmental issues due to pressure from the business environment and related stakeholders.

Environmental Information Disclosed in Relation to Areas Researched

The study identifies the major areas or themes researched by higher learning institutions (HLIs) business schools about the environment. In doing this, it links the research done by business schools that teach and train preparers of financial and annual reports (accountants, auditors, financial officers and CEOs) and what is disclosed in practice in financial and annual reports. Qian et al. (2021) researched the topics covered by HLIs business schools and discovered that social accounting challenges are the primary focus, while environmental accounting receives less attention. This is concerning because developing countries are especially vulnerable to climate change, water pollution, and biodiversity loss.

Before delving into the topics explored by business schools regarding environmental accounting, it is crucial to comprehend the information companies disclose in their annual and sustainability reports. This is because the training provided to accountants and report preparers by business schools may have influenced the disclosure practices, or the practices of these individuals may have influenced the research focus of the business schools. The study conducted by Bracci et al. (2013) demonstrates that the environmental activities disclosed in company reports encompass preventive measures integrated into the production process, standalone preventive actions, costs associated with restoring environmental damage, defensive expenses for compensating harm caused, and compensatory measures for mitigating negative effects that have already occurred. Additionally, it demonstrates that there are expenses associated with waste management, prevention, security, protection, and remediation, reduction, and restoration. The study additionally demonstrates qualitative data, namely, the presence of an environmental strategy, the substance of the environmental strategy, indications about the primary environmental issues, the inclusion of environmental audits, and the firms' capabilities to execute environmental and prevention costs. Moreover, insurance coverage is provided for environmental tasks and potential legal proceedings. The report provides a quantitative analysis of the funds allocated for environmental losses, costs, prospective environmental responsibility, variations in fund levels, and their underlying causes.

Dascalu et al. (2014) state that companies reveal the expenses associated with equipment, raw materials, supplies, obstacles, unpredictable costs like future spill clean-up, costs related to reputation and relationships, intangible costs such as tree planting, costs related to environmental degradation, and costs associated with human impact. In contrast, Herath (2005) specifies the elements that ought to be revealed, including environmental policy, environmental activities, environmental effects, environmental expenses related to environmental programs, environmental provisions, environmental contingencies, soil loss, land degradation caused by salinity, forestry value, and the value of assimilative environmental capacity. Mohamed and Aziz (2010) demonstrate that environmental reporting is governed by specific guidelines, including IFRIC 5, which emphasizes the establishment of funds for decommissioning restoration and environmental rehabilitation, and IAS 37, which pertains to reporting contingent assets, liabilities, and provisions as well as IAS 41 and IAS 1 require inclusion of biological assets in financial statements. However, there is no consistent or legally mandated structure for disclosing environmental actions in company financial statements and annual reports. Reports typically adopt either a monetary or physical format to convey information. However, quantifying environmental activities, such as pollution,

externalities, noise, land and biodiversity damage, deforestation, and land degradation, poses challenges for management accounting.

The Tanzania Extractive Industry Disclosure Index (TEIDI) established by Ntui (2021) includes 20 elements revealed by mining, oil, and gas companies in Tanzania. The results shown in the index indicate that the industry generally agrees on the priority of the first 10 disclosed items, as shown in *Table 1*.

Table 1: Items Disclosed

1.	Air Emission Information
2.	Oil Spills
3.	Research and Development
4.	Solid/debris Wastes Disposal Information
5.	Declaration of Environmental Policies
6.	Environmental Conservation
7.	Environmental Management Program
8.	Conservation of Natural Resources
9.	Environmental Expenses/Costs
10.	Water Effluent/Discharge Use/Re-Use
11.	Risk Management
12.	Land Rehabilitation
13.	Establishment of Environmental Goals
14.	Noise Pollution
15.	Education and Training
16.	Environmental Investment/Expenditure
17.	Environmental Litigation/Fees/Penalties
18.	Environmental Auditing
19.	Visual Pollution
20.	Awards and Recognition

Extent of Disclosure of Environmental Information in Relation to Extent of Research

The extent of environmental accounting research in business schools may be linked to the extent of environmental disclosure by organizations. Poor research efforts are believed to lead to poor knowledge, inadequate instruction and training of accountants and preparers of financial statements and annual reports. This leads to limited participation and disclosure of environmental operations or reporting and the opposite is also true. Firms include environmental information in their annual reports, while the level of disclosure is limited (Bowrin, 2013; Monteiro & Guzman, 2010; Nurhayati, 2016), and the motives for disclosure are subject to debate. Understanding the level of disclosure is important for researchers and stakeholders to comprehend the scope of the studied topic, considering the impact of a company's activities on the environment and the significance of this information for stakeholders.

Furthermore, Chandok and Singh (2017) discovered that environmental disclosure amounts to 14% and 30% on websites and annual reports, respectively. They also observed that this information is dispersed among different portions of the websites and annual reports, lacking designated locations for disclosure. Consistent with Paula et al. (2016), it is evident that environmental practices, in general, are significantly lacking, as only a small number of recorded actions are observable. This is further evidenced by the minimal participation of accounting departments in the creation of environmental reports or engagement in environmental management, as affirmed by Dellaportas (2011), who asserts that there is limited reporting on environmental accounting.

Barbu et al. (2012) found that the extent or level of environmental disclosure is positively correlated with the firm's size and varies across different industries. In contrast, Minga (2012) argues that voluntary disclosure is impractical for monitoring public goods like the environment. Moreover, Ullah et al. (2014) discovered that 69% of companies did not address any environmental concerns while examining the textile businesses listed in Bangladesh. Additionally, the researchers found that the environmental information provided by these companies was generally inadequate, with significant discrepancies in the level of disclosure.

In general, the literature critically reviewed suggest that limited data is revealed. Still, they lack the courage to demonstrate the level of disclosure across different industries fully. The present study holds significance in the contemporary era, as there is a demand for environmental accounting due to climate changes and the rapid expansion of industrial activity and population growth. Another significant aspect of this study is the persistent demand for a cohesive framework. Currently, a consistent framework for reporting environmental concerns is lacking, resulting in the reliance on voluntary disclosures. The main driving agenda currently and the reason for this study is the participation of accounting professional bodies and business schools academia in the global forum for environmental protection and the fight against climate change so that they join other stakeholders and add value and professional voice which may change the status of commitments in climate change financing as well as form relevant standards in relation to changes agreed.

3 METHODOLOGY

This is a descriptive study involving a population of the top 200 Universities in Africa Ranked in the global University Rankings (***UniRank***) of the year 2023, where a sample of 22 universities, all from the East African Community were used as multiple case study

to find out the extent of environmental accounting research and the areas researched by the business schools. University websites were used to extract publications in their libraries, repositories, journals and all other publications published on the websites. The focus is on environmental related publications or papers mainly from staff, and all were sorted from other specializations. Proportions of the environmental papers in relation to all other papers were computed, and themes of the sorted environmental research were also analyzed using content analysis approach. The papers and research of target were only those from business schools, and if there was no business school, then accounting and finance or general management departments were used as all are business departments.

Therefore, to establish the extent of environmental accounting research and the areas of interest in the research, a total of 22 Universities were included in the study,where 2 universities were Health and Allied Sciences medical Universities lacking business schools and hence were excluded from the analysis. The findings were specifically derived from staff publications sites, library repositories and journal articles from university journals.

4 FINDINGS

The Extent of Environmental Accounting Research

The results indicate that the effort of environmental research is generally very small compared to other areas, as indicated by an average of 4% of research efforts. Although this average is not promising, 4/20 (20%) of universities have higher than 10% of efforts in environmental research, with a minimum of 13% and a maximum of 33% of the efforts. It is also found that the majority of universities, i.e. 10/20 (50%), have efforts of between 0% and 10% with a minimum of 0.3% and a maximum of 8% of the efforts and finally a 6/20 (30%) of universities dedicate no efforts in environmental research as indicated by 0% effort measured by the proportion of environmental research in comparison to other areas of research. The 20 universities indicated various efforts in environmental accounting research and other research, where the extent of research and the areas researched are indicated in *Table 2*.

Table 2: Extent of Environmental Accounting Research

Higher Learning Institutions	Environmental Papers	Non-Environmental Papers	Total Papers	Environmental Papers Percentage
U1	09	105	114	08%
U2	02	011	013	15%
U3	44	734	778	06%
U4	08	372	380	02%
U5	00	000	000	00%
U6	01	339	340	0.3%
U7	05	109	114	04%
U8	03	020	023	13%
U9	00	003	003	00%
U10	09	173	182	05%
U11	03	237	240	01%
U12	03	012	015	20%
U13	00	000	000	00%
U14	03	006	009	33%
U15	15	379	394	04%
U16	00	023	023	00%
U17	00	000	000	00%
U18	05	140	145	03%
U19	00	000	000	00%
U20	02	071	073	03%
EAC HLIs	**112**	**2734**	**2846**	**04%**

The findings in summary indicate that though maximum effort is 33% for U14 followed by 20% for U12 and 15% for U2, it is still not significant compared to other research areas and the current efforts of environmental stakeholders as well as effects of climate change and environmental harm in the society and worldwide.

Themes or Researched Areas

The findings indicate that environmental research in business schools varies from university to university. The trend indicates that the themes and areas of study are scattered,signalling that there is no research agenda related to environmental accounting in business schools. Though their main focus could be environmental accounting, there are diverse angles each researcher focuses on with no clear trend. This trend is confirmed by the low efforts and low frequencies in each theme researched by the business schools as follows: The most researched theme is renewable energy, with 17/112 (15%) of environmental-related papers, followed by the corporate social responsibility research areas related to the environment 16/112 (14%) of environmental related papers. The third area of focus is solid and liquid waste management, with 13/112 (12%) of papers related to the environment, followed by water supply and utilization, with 9/112 (8%) of environmental related papers.

Most of the themes attracted low papers below 8% as detailed hereunder: Themes which attracted some environmentally related papers at 4/112 (4%) are environmental disclosure, natural resources management and climate change and variability, while those with 3/112 (3%) of the paper related to the environment are: integrated reporting, environmental sustainability, green procurement and supply chain, soil and water conservation and health environment and food security. There are themes which scored only two papers related to the environment, i.e. 2/112 (2%), namely: sustainability disclosure/reporting, e-wastage, social and environmental safeguards and disclosure, environmental costs, land acquisition, settlement action plan, i.e. land use and planning and use of recreation resources for tourism. The themes which attracted only one paper 1/112 (1%) are the majority, i.e. 15% of all papers and are listed as follows: fossil fuels risks and clean development, sustainable housing construction, construction materials, public sanitary facilities, wetland conservation, green financing, accounting for environmental resources, environmental impact on trade sectors and green IT audit. Other themes lowly scored with 1% are carbon trade financing, forest protection, soda ash mining, illegal wildlife trade, wildlife management, board education on environmental disclosure, sustainable agriculture and carbon emissions. The details of themes in each university are detailed in *Table 3*:

Table 3: Themes or Researched Areas

Higher Learning Institutions	Themes
U01	Sustainability disclosures, e-wastage, renewable energy, environmental disclosure, natural resources, fossil fuels risks and clean development, social and environmental reporting, environmental costs, sustainability reporting
U02	Integrated reporting, integrated reporting
U03	Water supply, sustainable housing construction, waste management, CSR, land acquisition, settlement action plan, construction materials, land acquisition process, environmental sustainability, environmental sustainability, water utilization, land use and planning, environmental and social safeguards, solid waste management, biogas technology, biogas as potential renewable energy, public sanitary facilities, unreliability of water supply, water sanitation and hygiene, energy management, renewable energy policy, resources recovery, energy audit, managing energy projects, corporate social investment, safe water supply, waste management, CSR, energy policies, electronic waste management, land management, solid waste management, hazardous waste collection, CSR effectiveness, solid waste management, energy consumption, solid waste management, energy efficiency for water treatment, flood mitigation, sustainability of wood fuel on cooking, solid waste management, solar energy, environmental performance, alternative energy
U04	Voluntary environmental disclosure, sustainable development goals, socially responsible investments, green procurement, socially responsible investment, corporate social responsibility, wetland conservations, effect of climate change
U05	None
U06	Green financing
U07	Use of recreation resources, accounting for environmental resources, environmental impact of trade sectors, climate variability, natural resources management
U08	Green audit, solid waste collection, carbon trade financing
U09	None
U10	2CSR, forest protection, soda ash mining, soil and water conservation, soil and water conservation, illegal wildlife trade, physical soil, climate change variability
U11	Environmental governance, solar energy, CSR
U12	Green energy consumption, wildlife management, green supply chain management
U13	None
U14	Future water demand, waste incinerators, solid waste
U15	Resources attraction in tourism, education on environmental disclosure, determinants of environmental disclosure, 8CSRs, sustainable agriculture, soil erosion management, integrated reporting, renewable electrification, health and environmental effects on fruits, environmental Kuznets curve hypotheses, carbon emission, recycling of wastes, green procurement, water resources projects.
U16	None
U17	None
U18	Solar lamp lighting, food security, solar energy system, resources and value creation, climate change and food insecurity
U19	None
U20	Social, environmental responsibilities disclosures, CSR internal

The findings indicate that some universities generally had a wide range of themes while others had a very narrow range of themes and others none. The wide range and majority of themes are visible in U3, U15 and U1 in order of the highest to the lowest respectively, signaling an effort towards environmental protection and climate change fight research.

5 DISCUSSION

The study links environmental practices by financial statements and annual reports preparers, i.e. accountants and finance professionals, to the business schools' environmental research, which is assumed to carry knowledge used to develop accountants, auditors, finance officers and the CEOs. It is expected that the higher the research in environmental accounting, the more knowledge and skills accountants and auditors have and the more effort they make to disclose environmental operations in their financial statements and annual reports as well as more professional visibility and participation in all environmental and climate change forums.

The findings suggest that the level of effort put into environmental research is generally minimal, with an average of 4%. This aligns with the disclosure of environmental issues in annual reports by accountants, where only 16% of the disclosed information was found in extractive industry and was considered very small compared to what was expected, as reported by Ntui (2021, 2023). Furthermore, the results are in line with Ullah et al. (2014) who found that 69% of companies did not address environmental issues. On average, the environmental information provided is of very poor quality, with significant variations in disclosure. The findings indicate that the research efforts regarding environmental accounting in the African continent are similar to those in other parts of the world. Specifically, in support of this study, only 1% of the global research on environmental accounting is focused on developing nations, as demonstrated by O'Connor (2006) suggesting that there is still a lack of research on environmental accounting in developing nations, with Africa contributing only 1% to the global research in this field. The findings are consistent with Qian et al.'s (2021) research, which indicates that a few developing countries and areas have published a tiny proportion of publications on Southeast Asian (SEA) topics.

While Ntui (2023) and Mathews (1997) suggest that there has been progress in environmental disclosure and environmental research, this success appears to rely on a limited number of researchers, writers, and specialized journals. Without their contributions, there is a risk of a significant decline in environmental research efforts by business schools, which currently average at only 4%. In line to this study, Kamal et al. (2012) shows that extensive study studies on enterprise architecture in business schools are lacking. The limited investigation on the incorporation of environmental accounting in business schools may have influenced the perceptions and practices of business and tourism graduates and accountants who, as shown by Beske et al. (2020), observe that corporations disclose just a minimal portion of crucial data in their integrated and sustainability reports. There is limited research on environmental accounting, particularly in relation to the disclosure of environmental accounting information by companies in their financial statements and annual reports. This is supported by studies that have found a low level of disclosure (Bowrin, 2013; Monteiro & Guzman, 2010; Nurhayati, 2016), and there is ongoing debate about the reasons for this disclosure.Similarly, Chandok and Singh (2017) discovered that the extent of environmental disclosure ranges from 14% to 30%. They also observed that this information is dispersed across different sections of websites and annual reports, which aligns with the findings of Paula et al. (2016) who found that environmental practices, in general, are quite limited, as only a small number of reported activities are evident.

This calls for more efforts to be made so that business schools prepare accountants and finance officers who can be environmentally friendly, participate in environmental operations, and finally disclose all the activities in their financial and annual reports, implementing the recommendation made by Mathews (1997) to include a dedicated space for environmental studies in both undergraduate and graduate curricula as a significant challenge that needs to be addressed in the coming decade. Similarly, the limited research in this area aligns with the minimal participation of accounting departments in preparing environmental reports or involvement in environmental management, as highlighted by Dellaportas (2011), who notes the scarcity of information on environmental accounting. More efforts by business schools are needed so that coaching and training are imparted to graduates including specialized in tourism and future academicians and researchers so that the fight against climate change gains more stakeholders, including the Business Schools and their graduates, most of whom become accountants, finance managers, finance controllers, finance officers and also the CEOs.

The low extent of research in environmental accounting issues may signal that there is low demand and use of environmental accounting in society, accountants and

other stakeholders, but the UN, (2023) in COP 28 indicates that it is time to rescue our planet as the situation is bad and also WB, (2021) shows that climate change is among the major 3 global causes of poverty calling for immediate solution. Despite the low level of environmental research, Dellaportas (2011) highlights the importance of environmental accounting by stating that 85% of accountants recognize its necessity and endorse its incorporation into financial statements.

Despite this, they admit to not being actively engaged in environmental accounting. Therefore, there is a pressing need to redefine the role of accountants to encompass environmental reporting and auditing. The study by Dillard (2015) affirms the necessity of environmental accounting by highlighting the requirement for a more equitable society that embraces genuine sustainable values. This would be facilitated by an accounting and reporting system that genuinely prioritizes the well-being of both mankind and nature. Contrary to the findings of this study, Tregidga (2015) argues that green accounting is necessary because traditional accounting does not adequately address social issues and their solutions. Similarly, Narayanan (2014) emphasizes the importance of organizations being cognizant of, measuring, and managing their environmental impacts, with a focus on sustainability while Alewine (2010) argues that there is a necessity to conduct experiments to improve environmental accounting and Medley (1997) asserts that the environment allows accountants to quantify and publish their findings.

In line with this study, Paula et al. (2016) emphasize the importance of environmental accounting, asserting that it serves as a tool for sustainable development. Additionally, they argue that environmental reporting is crucial for achieving economic and social sustainability. In a separate study, Bracci et al. (2013) highlights the necessity for environmental activities that are transparent, quantifiable, and free from manipulation to ensure accurate environmental accounting.

The lower extent of environmental research is in line with the results on the need and reasons for environmental accounting research for why business schools do environmental accounting research may be a matter of discussion. Still, for academicians, there are both public and self-interest motives. There is no rule, guideline or order forcing business schools to research environmental accounting issues, like in the accounting profession, where there are no accounting or reporting standards which mandate organizations to report, disclose or participate in environmental activities or operations. Environmental disclosure remains voluntary, and organizations or companies choose whether to disclose or not to disclose and if to disclose they choose what to disclose as there is no format or guideline to do so (Ntui, 2021, 2023) and Ntui et al., (2021, 2022). Various studies have given mixed reasons for disclosure or reporting environmental activities in their annual reports and their financial statements and group them into three groups: firm characteristics, corporate governance structures and the business environment (Ntui, 2021).

Business schools may be affected by the same groups of variables on why they do research in any area, like environmental accounting. Academicians in business schools publish for promotions and work for knowledge so that both students and society benefit in terms of knowledge and environmental solutions. Business schools have to ensure that they focus on the environment so that they help in the efforts of fighting climate change and helping the human species as human-induced changes have ushered in uncertainties and insecurities, with climate change standing as a prominent issue amid these concerns like sustainable natural and cultural tourism (UNDP, 2022 and Lumbanga, 2018). The climate change has been a threat to human lives and is currently mentioned as one of the three factors exacerbating poverty (WB, 2021). The university business schools must align their research agenda with national policies. For example, in Tanzania, there is a new National Environmental Policy 2021 to ensure that the environment is managed to avoid negative consequences (URT, 2021). These efforts by business schools may produce knowledge which, when imparted to the graduates who, most of them become or are accountants and finance officers, can help in both local and international environmental decisions to avoid what has been happening since the Rio Declaration in 1992 COP 28 where financial commitments are not met (UN, 2023).

The need for environmental accounting research is in line with the Rio Declaration in 1992, demanding the rights of public access to environmental information in achieving sustainable development (UN DESA, 1992) and the Paris Agreement of 2015 responses to the threat of climate change to reduce carbon and hazardous gas emissions (UN, 2015) to the COP 28 of 2023 which was held in Dubai and fighting climate change was the main agenda. All these agreements will only be achievable if research is done and information for decision-making is widely available to stakeholders. Therefore, more research must be done and disseminated to the learners and society so that every individual in any position can contribute to the protection of the environment. It is of special importance to the accountants and finance officers because they are the ones who participate and decide budgets and their priorities. Environmentally friendly

accountants or financé officers may affect budget decisions towards environmental spending and investments and even ensure that the investments are environmentally friendly.

The primary areas of research focus primarily on renewable energy (15%), social responsibility (14%), and waste management (12%). This differs from the findings of Qian et al. (2021), who discovered that the topic areas are primarily centred around social accounting challenges, with less emphasis on environmental accounting. However, it is worth noting that developing countries are particularly vulnerable to the risks posed by climate change, water pollution, and biodiversity loss.

Other themes vary from university to university, with no clear trend of what is the focus of the business schools' environmental accounting research, where one would expect that the issues of climate change, green or clean energy and sustainability would be the main areas featuring in research and published papers by the universities like Bracci et al. (2013) and Dascalu et al. (2014) who lack clear trend of what is disclosed unlike (Ntui, 2023) who finds a clear trend and created the Tanzania Extractive Industry Disclosure Index (TEIDI), with 20 items disclosed by mining, oil and gas firms with the 10 mostly listed being: conservation of natural resources, environmental management program, declaration of environmental policies, air emission information, solid/debris wastes disposal, land rehabilitation, education and training, and environmental conservation.

6 CONCLUSION AND RECOMMENDATION

The study indicates that there is little effort in environmental accounting research in University Business Schools compared to other areas. It is evidenced that some universities have no effort as indicated by no single paper or research about the environment while others have a very low average. It is also evident that though the general picture indicates that the efforts are very low 4%, there are some universities with high efforts between 13% and 33%. This may be a confirmation of why accounting professional bodies and academia in business schools are missing in the efforts to fight environmental issues and climate change debates going on in the world. Little research means little knowledge and, hence little learning by business graduates who become accountants, auditors, finance officers, and CEOs. These environmental accounting skills, awareness and output significantly impact organizations' decisions, including involvement in environmental operations and budgeting.

The findings also indicate some environmental research in business schools,with themes varying from one university to another. Though themes are very few, like the number of research or publications, there are some universities that have more themes and research than others. In contrast, some have no single theme related to the environment. In business schools, one could anticipate that their main focus could be environmental accounting, but there are diverse angles each researcher focuses on with no clear trend. This is confirmed by the low efforts and low frequencies in each theme researched by the business schools, as the most researched theme is renewable energy, followed by the corporate social responsibility research areas related to the environment, the third area being waste management, both solid and liquid followed by water supply and utilization. The trend indicates that the themes and areas of study are scattered, with no clear trend signalling no research agenda related to the environment in business schools. It also indicates that calls for fighting climate change and debates going on from the Rio Declaration 1992 to COP 28 have not awakened Business Schools to participate in this global initiative.

This, therefore, calls for Universities to wake up and join the efforts to fight climate change by attending meetings, airing their views in an accounting context and investing in environmental accounting research so that they inform policy and standards makers, academia and accounting practitioners to meet and liaise on how the profession can reposition itself in the fight against climate change and environmental protection. It is also important that the environmental regulators, professional bodies and policymakers understand that curricula in universities and other levels of schools, especially business schools, have to change and incorporate environmental accounting, research, reporting and protection. Future studies should focus on interviewing business schools about the reasons for the low level of research on environmental issues, ask accountants and auditors how they are affected by the trainings on campus in terms of environmental accounting and participation in their daily operations and finally have the position of accounting, business, finance and professional bodies in relation to environmental accounting and their organizational involvement in environmental protection and climate change efforts as well as their disclosures or reporting in their financial and annual reports

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