Green Economy Marketing in Technical and Vocational Education and Training in Kenya: A Case of Technical University of Mombasa

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Abstract

Green skills are relevant for Sustainable Development for the modern economy. To adapt green economy, Technical and Vocational Education and Training (TVET) are important in the contribution towards its success and training of skilled workers. With the climate change impact and emerging environmental challenges for sustainable development, businesses, industries and society are required to respond to these detrimental effects. To transit to green economy, the public and private sector should involve TVET institutions to provide green competences required by employers. The objectives of this study were to examine green economy learning for green human capital, and the readiness of TVET institutions in response to green economy and training roles; to investigate linkage between green economy education and training in curriculum; and to determine the relationship between green skills training and jobs placement. This study is based on theories of green growth and green development. The case study of Technical University of Mombasa was selected using simple random sampling technique and analyzed 7 departments with a size sample of 80 out of the population of 116 lecturers in the institution. Secondary and Primary data was collected through document analysis and questionnaires issued to respondents among a selected sample of the academic Practitioners in Technical University of Mombasa (TUM). Descriptive and inferential statistics were used to analyze the primary data. From primary data findings, the study concluded that there is a need to enhance future green skills for green economy and TVET should focus more on green skills education and trainings in Business, Science, Technology, Engineering, Mathematics (STEM) skill related courses. The study recommends that TVET curriculum development should be realigned to embrace green skills for the job market to solve the African and global job problems for sustainable development and educators should be trained on relevant green skills
Key words: *Green skills, green economy, TVET, green skills learning*

Introduction

The shift to green economy and sustainable culture needs innovative set of laws, institutional agenda, regulations and investment. The evolution needs TVET to participate and react to the transformational skills requirements and opportunities for a green growth agenda. It is presumed that greening societies and economies are closely linked to green human infrastructures that have information, skills, and right approaches to perform as catalyst of sustainable transformation in TVET. Accelerating the significance of TVET is crucial, and by incorporating changes in

the sector and specifically conforming to structural transformation in the labour market is ultimate (UNESCO, 2014).

Achieving a 10 percent annual growth is a milestone to Kenya Vision 2030 and Kenya is dedicated to switching to a green economy according to the outcome of the United Nations Conference on Sustainable Development (UNCSD) held in 2012, the Rio+20 Summit; The Future We Want, (UNCSD, 2012) which emphasized on the evolution to a green economy as a way to sustainable development (SD).

However, the Kenya Technical and Vocational Education and Training (TVET) Act that emphasizes the need to improve access, quality and relevance of TVET targets the 80 percent of the unemployed youths (GoK, 2013), that lack the essential middle level marketable skills for the employment market (ADFK, 2015). Kenyan TVET institutions should adopt green economy learning strategy to eradicate poverty, enhanced social inclusion, sustainable growth, human welfare improvement, employment creation opportunities and decency work for everyone as well as having a functional healthy Earth's ecosystems (GoK, 2015).

NEMA (2012) states that activities and actions that assist in the reduction of carbon emission are credit to green economy. Carbon is said to be the main element of greenhouse gases and contributes to global warming, and climate change. Additionally, green economy maintains the responsible usage of natural resources and energy while allowing economy growth that is instrumental in job opportunity creation and improved livelihoods (NEMA, 2012).

However, there is quiet unexploited potential to follow a development path that will generate green jobs, fast-track poverty reduction, assist in growth in a sustainable way and reinstate environmental health and quality. But with proper financial and policy mediation, Kenya would be in a position to create new opportunities and to enhance the real per capita income to about double by 2030 (UNEP, 2014).

This paper focuses on green growth theory approach adopted by the Fifth Ministerial Conference on Environment in 2005, that sought to harmonize economic growth with environmental sustainability, while improving eco-efficiency of economic growth, enhancing synergies between environment and economy and theory of green development achieved on the concept of unity of nature and humanity (Hu, 2017).

Literature Review

In the East Africa Community, Kenya has the 69th largest economy in the world with an estimated GDP of US $ 85.980 billion in 2018 (World Bank, 2018), with a population of 46 million and estimated 8,961,000 unemployed youths of 18.9 years.

The strategy to reduce youthful unemployment rate deficit is through green skills establishment (Majumdar, 2010).

The 8-4-4 education system in Kenya was adopted for primary, secondary school and tertiary education respectively since 1984. The system provided a broad choice of apprenticeship and vocational programmes offered by the TVET subsector to substitute formal education or after school trainings (Chen, Hamilton & Kamunge, 2004). However, Simiyu (2010) argues that Institutes of Technology, Technical Training Institutes, Youth Polytechnics, National Polytechnics in Kenya mainly offer TVET Programmes. Moreover, UNESCO (2007) terms TVET as "a learning system in which both soft and hard skills are developed within a joined–up integrated development and delivery framework that improves livelihoods, promote inclusion into world of work, supports community and individual agencies". In aligning with Vision 2030, and in the economic development agenda of Big four, the challenges of the youthful population will be bridged by the skills gap between market requirements and education curriculum (World Bank, 2018).

Further, the United Nations Environment Programme (UNEP) elaborates that green economy as an outcome leads to improved 'human well-being and social equity', whereas it considerably reduces risks in environment and environmental shortages (UNEP, 2011). Currently, the government, development partners and other non-state actors are supporting and implementing initiatives on green economy laws and policies (GoK, 2017).

For national development goals, sustainability and speedy growth in the economy, the Green Economy Strategy and Implementation Plan (GESIP) was formed for external environment, infrastructure modernization, a higher manufacturing contribution to GDP, extensive accessibility to African and global markets, access to quality education and medical care, unemployed youth job opportunities, better housing, improved water sources and sanitation provision to households in Kenya. Essential are alternative policy that enrich and exploit collaborations between economic growth, social equity and environmental sustainability. Estimates show Kenya shall achieve an increased economic progress and the GDP is predicted to surpass 6 to 19 per cent by 2030 (GoK, 2017).

On sustainable growth, the advent of a green economy program creates extra requirements on employability skills in nearly all jobs. The basic skills aid employees to have the know-how on green growth, and understand environmental laws and resource efficiency to allow the procedures in greening the economy (Pavlova, 2011). The green skills concept also enables the classification of various competencies that are applied to achieve a specific environmental action (OECD, 2014). Further, CEDEFOP (2010) view green skills as "the information,

capabilities, beliefs and attitudes desired to live in, develop and support a sustainable and resource-efficient society.

Green Economy agenda is a surety to profits and eco-efficiency (Okoh, 2014). Evidently, the green economy goal is to deliver the common requirements of a person and additional the creation of a conducive environment for SD (World Bank, 2012). The policy concept "Green growth" origin was at the fifth Ministerial Conference of Environment and Development (MCED) in the Republic of Korea during the ministerial declaration. According to OECD (2011), "Green growth is about fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies". The World Bank (2012) states that green growth "is perceived as an economic growth in a sustainable environment and depicts efficiency in the utilization of natural resources, cleaner ecosystem and environmental impacts, and it accounts for natural hazards and the role of environmental management. However, GTZ (2013,) avows green growth as fundamental in the recent development dialogue: 'Promoting qualitative economic growth as well as poverty reduction in developing and emerging countries'.

UNEP (2011) substitutes the term "green economy" for green growth. The main goal for a shift to green economy is to support economic growth and investment while increasing environmental quality and social inclusiveness". Though, developing countries are not at high risk to change in climate the side effects of degradation of environment are crucial to them and hinder their progress. Therefore, green growth targets to deal with the challenge in development (OECD, 2012).

Regardless of expanded roles attributed to TVET in attaining the developmental goals, its accomplishment is expected to be subdued without economic and political enabling support. Besides, the significance of skills for attaining sustainable likelihoods requires to be enforced if it is to be receptive to developmental concerns (UNESCO, 2017). The economic role attributed is stressed at the cost of the more essential human development influences which propose that TVET and skills are critical for human competences (Sen, 2009).

AFD (2015) states that through the establishment of the green jobs initiative in 2007 by UNEP, ILO, IOE, and ITUC, the green jobs and green skills have gained more attention. Hamn (2010) describes a job to be any earnings in exchange of labour.

To drive the shift to green economy, green economy learning would need wider competencies and skills (PAGE, 2016). A more professional educated workforce with specialized training in Science, Technology, Engineering and Mathematics (STEM) disciplines is important for green economy growth (UNEP, 2011). In

merging green economy and training in existing curricula, green skills training are offered in key sectors through TVET to deal with climatic and environmental changes (ILO, 2017). To achieve training needs, the development of modules and curricula should be a dynamic process on green skills needed in business, industry and community (ADB, 2018). According to GIZ (2013), TVET institutions should offer continuous professional development with teaching materials through workshops, technical trainings, apprenticeship and practical skills.

In aligning the green shift of skills for green jobs in the labour market, sectorial skills investment for green jobs should be supported and aligned by enabling policies for sustainable development. Public and Private investment should focus in STEM (World Bank, 2012). On challenges of green practices, ILO (2011) states 'green skills shortages are hampering the transition to greener economies. Many countries lack teachers and trainers in environmental awareness'. However, to close the gap, appropriate training needs to be put in place promptly (ADB, 2018).

Objectives of the Study

The objectives of the study include:

1)   To examine green economy learning for green human capital

2)   To examine the readiness of TVET institutions in response to green economy and its training roles

3)   To investigate the linkage between green economy education and training in existing curricula.

4)   To determine the relationship between green skills training and green jobs placement in the labor market.

Methodology

The data collected for this study was both qualitative and quantitative. The population of study targeted lecturers at TUM departments of Mathematics and Physics, Environmental and Health Sciences, Medical Sciences, Pure and Applied Sciences, Management Science, Accounting and Finance, and Business Administration. Sample size of 80 lecturers was identified through simple random sampling technique. Krejcie and Morgan Table (1970) was used to select 80 respondents out of 116 lecturers in the departments for the study. The study adopted a Case Study design. Oso and Onen (2011) state that a 'case study is the intensive, descriptive and holistic analysis of a single entity'.

Reliability and Validity Tests

Factor analysis was used for constructs validity. The measures used are Kaiser-Meyer-Olkin and Bartlett's Test of Sphericity. A KMO acceptable value for a factor to be significant ranged from 0 to 1 and an index above 0.5 is very good. The Bartlett's Test of Sphericity relates to the significance of the study as regards to validity and suitability of the factors for a study. The Bartlett's Test of Sphericity acceptable index must be less than 0.05. Results of Kaiser-Meyer-Olkin measure of sampling adequacy were found to be .492, which is between 0 and 1.0, hence acceptable. However, Bartlett's test of Sphericity had a p-value .941, which is above 0.05, and is insignificant. Therefore, the instrument was valid.

Reliability Test

Cronbach's coefficient Alpha tested reliability of constructs (Nunnaly, 1978). Cronbach's Alpha measures how well a set of items or variables, measure a uni-dimensional latent construct that is a coefficient of reliability or consistency. Reliability is expressed as a coefficient between 0.0 and 1.00. The higher the coefficient the more reliable is the test. A threshold of a Cronbach Alpha of 0.7 and above is acceptable (Cronbach, 2004). The value of 0.724 was found to be acceptable.

Findings

The response rate was 70 percent for the study. The respondents were 45 male, representing 80.4 % of the total sample and female were 11 representing 19.6 %.

Table 1 Population*, Sample and Respondents by Departments*

Department	Population	Sample	Respondents
Mathematics and Physics	14	10	6
Environment and Health Sciences	13	9	6
Medical Sciences	17	11	8
Pure and Applied Sciences	32	22	18
Accounting and Finance	9	7	4
Business Administration	20	13	7
Management Science	11	8	5
Total	116	80	56

Source: Researchers, 2018

Green Skills Training and Green Jobs Placement in the Labor Market

At two tail significance and a threshold of a p value at 0.005, all the lecturers in the departments responses had a value greater than 0.05, indicating that there was

a correlation between green skills training and job placement. In Environment and Health Sciences, the score was -0.88 and Management Science 0.042 implying a need for more green skills training. Business Administration was 0.069 which implies that an increase in green skills training leads to increased chances in job placement. In Accounting and Finance, the Pearson Correlation was -0.045, meaning that an increase in green skills training reduced chances in job placement. For Medical Sciences and Mathematics and physics Departments, the values were 0.061 and 0.075 respectively, which implies that increase in green skills training leads to increased job placements in these sectors. Pure and Applied Sciences had a value of -0.10 indicating that increase in green skills training leads to reduced job placement.

Green Economy Learning

With a (M= 2.66, SD =1.083)   most respondents agreed that they were aware of green economy learning efforts in the TVET institution. Asked on the knowledge on green economy the results showed (M= 2.32, SD= .716) implying that the respondents agreed to having knowledge on the green economy.

Merging Green Economy Education and Training in Existing Curricula

The data showed that learning materials with adequate green skills concepts had (M = 2.55, SD = .807), on the content relevance on green learning skills relevant to Vision 2030 goals, the results showed (M=1.96, SD= .687), on the green skills transfer, learning was delivered through apprenticeship, while technical training, practical skills and workshops the findings were (M=1.96, SD= .687).

Green Jobs Placement in the Labor Market

Asked on new employee graduates with green skills on specific sectors to the labour market compared to traditional employers, the lecturers indicated that the construction sector had (M=2.64, SD=.903). Education scored (M= 2.46, SD= .852). IT and Engineering tied with (M= 2.45) but IT had (SD=.893 while Engineering (SD=.913) respectively. Management scored (M= 2.43, SD= .931). Hospitality had (M= 2.36, SD=) and Agriculture had (M= 2.07, SD= .759).

Challenges Faced in Practicing Green Skills

Lecturer's responses revealed green skills challenges. Twenty three point two percent of the respondents attributed to insufficient awareness on green economy best practices. Obsolete, slow adoption of technology and capacity to leverage private sector investment were supported by 16.1percent. Identifying needs and market demands for green jobs attained 10.7 percent. Insufficient incentives, low rate of return on green investment had 8.9 percent respondents. Designing,

delivering dedicated curriculum and identifying opportunities in green economy achieved 7.1 percent.

Limitations of Study

The research was based on skills relevance and practice but did not focus on policy issues. The scope was on a single TVET University and the study should extend to more institutions before a conclusive generalization is made on the viability of green skills transfer in TVET for the green economy growth.

Conclusion and Recommendations

From primary data findings, the study concluded that there is a need to enhance future skills for green economy and TVET should focus more on green skills education and trainings. Further, green skills are relevant in Business, Science, Technology, Engineering, Mathematics (STEM) skills related courses. The study recommends that TVET curriculum development should be realigned to embrace green skills to solve the African and global job problems for sustainable development. Finally, it suggests that education providers and managers need to acquire relevant skills on green economic policies.

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