

The Integration of Technical and Vocational Education and Training to Sustainable Development Education: A Review of African Case Studies

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Abstract

With the emancipation of the Rio Conference of 1992 and the Johannesburg Conference of 2002, Educational for sustainable development (ESD) has been regarded as the key component of implementing sustainable development. In particular, the Technical and Vocational Education Training (TVET) for entrepreneur have been identified as a vehicle for the implementation of education for sustainable development. To assess the effective integration of ESD in TVET, four of the six case studies undertaken by UNESCO IN 2009 in Eastern and South Africa (i.e., Botswana, Kenya, Malawi, and Mauritius) were reviewed by the author to solicit information as whether the objectives of ESD have been achieved by the TVET programs Given that sustainable development is the emerging challenges of the 21st century, the United Nations Educational, Scientific and cultural organization (UNESCO) in its Second International Congress held in April 1999 in Seoul, Republic of South Korea asserted that Technical, Vocational Education and Training (TVET) programs need to play a pivotal role in developing a new generation of individuals who will face the challenge of achieving sustainable socio-economic development throughout the globe (UNESCO, 1999).

The purpose of this paper is to review 4 out of the 6 TVET case studies that were commissioned to the writers connected with UNEVOC Network as part of capacity building and contributing to knowledge building and sharing in Botswana, Kenya, Malawi, Mauritius, and Zambia. Despite the fact the ESD and sustainable development have become household names; the studies reveal that since the concept of sustainable development is vaguely understood. It has become very difficult to translate the concept into sustainable educational development. Given the vagueness of educational sustainable development and the researcher were not able develop indicators for assessing the implementation of sustainable development and to measure the impacts and outcomes of actions taken, it was nevertheless incoherently concluded that the respondents have little or no understanding of the concept of ESD.

Introduction

In line with this, a special United Nations Decade of Education for Sustainable Development (DESD) under the leadership of UNESCO was established running from 2005 to 2014 at the Summit on Sustainable Development held in Johannesburg, South Africa in 2002. In other words, at the 2002 World Summit on sustainable development in Johannesburg, South Africa, the participants of the summit unanimously agreed that education for sustainability (EDS) be integrated and be made part and parcel of all levels of the TVET programs under the leadership of UNESCO(United Nations, 2002). However, when UNESCO assessed the extent to which the recommendations from Seoul Congress were being implemented by UNESCO Member states in reference to the application of TVET for sustainable development, to the dismay of the members, it was found out that not much progress has been achieved in Africa (Dubois, R. and Balgobin, K. (2010). In Africa in particular, this finding was established because TVET programs were considered as a career path for the less academically endowed. That is, some African governments keep dropouts or “lockouts” students who are unable to move up the educational ladder, not because of poor grades but because of lack of places at the higher level. In addition, the finding established many African governments don’t have the financial means to finance TVET at a level that can support quality training. For instance, while Ghana spends only about 1 percent of its educational budget on TVET, Ethiopia spends only about 0.5 percent of its education and training budget on TVET (African union, 2007).

To overcome the dismal findings about the TVET programs in Africa, the Bonn Declaration on “learning for Work, Citizenship and Sustainability” of 2004 quickened the pace and further stressed that education needs to be “... considered the key that can alleviate

Poverty, promote peace, conserve the environment, improve the quality of life for all and help achieve sustainable development” (UNESCO-UNEVOC, 2004). Therefore, the Bonn Declaration of 2004 issued specifically that there should be a reorientation of TVET and suggested that TVET initiatives need to be tailored to alleviate poverty but also be made to play a pivotal role to human-centered sustainable development (UNESCO, 2004).

After years of benign neglect, fresh awareness arose Africa when policy makers in many African countries became convinced that if reformed TVET could play a major role to train the skilled and entrepreneurial workforce that could enable Africa to create wealth and emerge out of decadence and poverty (African Union, January 2007). As discussed by Hernes, “far from disappearing from the African educational scene, as some observers were predicting, technical and vocational education is undergoing change and modernization in an effort to better meet the needs of the labour market without sacrificing its social function” (Gudmund Hernes cited by the African Union, p. 27, 2007).

With this new spirit and energy the African Union Commission spearheaded the development of a new strategy for the revitalization of the TVET programs in Africa. Using the school-based TVET programs, for example, Cameroon has intended to facilitate the integration of TVET with the job market. Lesotho and Rwanda have focus on linking TVET to business. The TVET programs in Malawi are tailoring their TVET programs to emphasize the need to create self-employment based on a solid foundation of a sound general education and also raising the productivity capacity of the learners in collaboration with industry and prospective employers (African Union, January 2007).

Ensuing the mushrooming of the TVET programs in Africa, the effectiveness of the integration of TVET programs to ESD of six case studies from Southern and Eastern Africa were undertaken. Out of the six case studies the following four case studies were reviewed: 1) A survey of experience and practice in current use fore integrating education for sustainable development in TVET in Botswana by Mathews Lebogang Phiri, 2) A study of a current model for integrating education for sustainable development in centers of excellence in TVET in Kenya by John Simiyu, 3) A case study on initiatives in the current use of integrating education for sustainable development in TVET in Malawi by Modesto S. Gomani, and 4) A case study of practices for integrating education for sustainable development in TVET for tourism industry in Mauritius by Roland Dubois and Koontee Balgobin .

The purpose of this paper is to review 4 out of the 6 TVET case studies that were commissioned to the writers connected with UNEVOC Network as part of capacity building and contributing to knowledge building and sharing in Botswana, Kenya, Malawi, Mauritius, and Zambia. Therefore, the study investigates if the TVET schools in Africa are positioned to train future entrepreneurs to resolve environmentally sustainable development issues. The first section of the paper examines the meaning of sustainable development. The second portion of the study asses the effectiveness or lack of effectiveness of the TVET programs in delivering the ESD objectives. The final portion of the study addresses possible policy implications. Briefly, the cardinal questions that were used to review the case studies include:

What does sustainable development entail?

Do the TVET case studies meet the sustainable development requirements?

Are the TVET programs in Africa in line with the ESD requirements?

What lessons can Ethiopia learn from some of the TVET programs in Africa?

Sustainable Development

“In Africa, we are very good at drawing up strategies and plans

But when it comes to implementation, there is always a difficulty.”

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(A common African saying cited by African Union, 2007, p. 41).

It needs to be stated at the outset that it has become clear that development theories generally originate with the subject. The subject being the creator of the industrialized world theorizes that by emulating their colonial masters, the non-industrialized countries would raise their standards of living to match their idols (See for example, Richards, 2006). Bearing this in mind how development theories are established, it needs to be understood that the concept of sustainable development generally arose from the concerns that zealous pursuit for high incomes and economic growth might cause excessive burden and exploitation of natural resources (Rao, 2009). Thus, linking the concept of sustainability with development has served to strengthen rather than question the basic suppositions of economic progress. It has given strength to those whose preference is 'sustainable economic growth'. For this reason, the concept of sustainable development is more pronounced by western industrialists than the developing countries because it retains the principle of development, and developed countries are "seen to offer hope for a better share of the world's wealth" (Smyth 1995 p. 12).

Given this, the commonly accepted definition of sustainable development is a development that "meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). In addition, the United Nations Conference on Environment and development (UNCED), also known as the "Rio Conference" or the "Earth Summit" produced major international documents known as the Rio Declaration, Agenda 21 sustainable development to every corner of the world (Mabratu. D. 1998). In addition to linking development and the environment, *the* goal of sustainable development is that people must share with each other and care for the Earth. Humanity must take no more from nature than nature can replenish. This in turn it means adopting lifestyles and development paths that respect and work within nature's limits. It can be done without rejecting the many benefits that modern technology has brought, provided that technology also works within those limits' (IUCN, UNEP and WWF 1991, p. 8).

As pointed by one of the fathers of ecological economics, Daly (1996) "although there is an emerging political consensus desirability of something called sustainable development, this term - touted by many and even institutionalized in some places --is still dangerously vague to be used as a guide for making the desired changes." Also, one of the protagonists Tryzna (1995) argues that sustainable development is "*an oxymoron*". While Holmberg (1992) reduces the definition of sustainable development to a *cliché*. Esty turns the definition of sustainable development into buzz-word largely devoid of content (2005).

In addition as stated by Rauschmayer et al (2011), though sustainable development is generally understood as a societal issue related to policy decisions, in the Brundtland's report needs are generally linked to psychological and to decisions made by individuals in their everyday lives ". In the Brundtland report, needs are stated in terms of basic material necessities (such as food, water, and shelter, "and are therefore readily associated with the issue of more economic growth and – to a lesser extent – a more equitable distribution of resources in the present and the maintenance of natural capital to secure ecosystem services in the long run "(Rauschmayer, F. et al.(2011). Finally, Rauschmayer, F. et al. argue that making needs a key concept requires a thorough going conceptual shift in core elements of economic, sociological, philosophical and environmental paradigms often understood (2011). Thus, according to Gasper (1996), needs have to be operationalized into three types of generic analysis which include a) descriptive type of analysis that involve some forms of want or desire needed for needs for subsistence, protection, affection, participation, creation, identity, and freedom (see Max-Neef *et al*, 1991, b) instrumental types of analysis that could be understood as requisites for meeting a given end, and c) capability approach (i.e., what people do or able to do or normatively find the life that people find valuable to be (See A. Sen, 1985).

More over, what is economically optimal for current decisions may improve or limit the sustainable for the future generation? That is, though current generation may leave rent or dividends for the future generations (i.e., the capacity to be as well of as the current generation) given the current rate of market fluctuations, the dividends accumulated using the current resources may not be sustainable for future generations. Contrary to the ecologists point of view that natural and created capital are fundamentally complementary (used together in production), neo-classical economist like Solow argue that

A natural resource are substitutable and states that the obligation to the future is “not to leave the world as we found it in detail, but rather to leave the option or capacity to be as well off as we are.” (2000).

Moreover, instead harboring the triple bottom lines or triangle of sustainability such as 1) economic, maximizing income while maintaining a constant or increasing stock of capital, (R. Repetto, 1986); 2) ecological or environmental, the preservation of genetic diversity, and sustainable utilization of species and ecosystem (M. Redclift, 1987); and 3) socio-cultural, increasing the standard of living of the poor (E. Barbier, 1987), the concept of sustainability has been used increasingly in policy rhetoric rather than transitioning to actual sustainable development (Rauschmayer, F. et al. 2011).

Due to the participation of major stakeholders, the Brundtland’s definition of sustainable development has contributed to diverse spectrum of definition and interpretation. As stated by Mabratu (1998) “the effort of interpreting the concept is, to a large extent, influenced by the fundamental tenets of the specific group or organization. This has resulted in a narrow framework of interpretation that does not capture the whole picture.” Therefore, before assessing the African case studies it is worth seeing how the UNESCO has defined and applied the concept of sustainable development to meeting the requirement and objectives of education for sustainable development (ESD).

UNESCO’s Definition of Sustainable Development

There is a wide agreement that education has an important role to play in motivating and empowering people to participate in the changes towards more sustainable lifestyles. For instance, the Brundtland Report, (WCED 1987) argued that teachers had ‘a crucial role to play in helping to bring about the extensive social changes’ (p.xiv) necessary for sustainable development. Agenda 21, the internationally agreed report of the Earth Summit, committed countries to promoting environmental sustainability through education. It states that:

Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues...It is critical for achieving environmental and ethical awareness, values and attitudes, skills and behavior consistent with sustainable development and for effective public participation in decision-making’(See UNSECO, 1992).

According to UNESCO, sustainable development is a culturally-directed search for a dynamic balance in the relationships between social, economic, and cultural systems, a balance that seeks to promote social equity (UNESCO-UNEVO, 2004c. p. 8).

Given that the 21st century is an era of knowledge, information and communication and is signaling the need for a new human – centered development paradigm, as a result, educational policies and programs around the world, are taking on board the new vocabulary of sustainable development and acknowledge the need to all sectors of the educational system (See for example, Agyeman et al. 1996). For instance, the TVET has been seriously considered “...an integral component of lifelong learning and TVET must play the master key that can alleviate poverty, promote peace, conserve the environment, improve the quality of life for all and help achieve sustainable development (UNESCO-UNEVOC, 2004). Therefore the reviews given below attempt to analyze the extent to which the four case studies integrate their Education for Sustainable Development (EDS) to their TVET programs, particularly the objectives of the case study are to:

determine how TVET providers define ESD;

assess the relevance of ESD in TVET;

determine approaches (delivery methods) used to deliver ESD in TVET;

Find out some barriers to ESD in TVET.

Table 1: The Integration of Education for Sustainable Development (SD) to TVET

Programs in Four African Countries

<p>Brundtland’s Definition of SD “meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987).</p>				
<p>UNESCO’s Definition of Education for Sustainable Development (ESD): UNESCO’s vision of education is that “ seeks to balance human economic well-being with cultural traditions and respect for the earth’s natural resources (UNESCO, 2005). In short, according to UNESCO, sustainable education is the process of learning about how to make decisions about the long-term future of the economy, ecology, and equity of all communities and about the capacity building for future-oriented thinking.</p>				
	<p>TVET in Botswana</p>	<p>TVET in Kenya</p>	<p>TVET in Malawi</p>	<p>TVET ifor Tourism in Mauritius</p>
<p>Official Definition of sustainable development</p>	<p>1.SD is an inclusive of skills for survival and its importance is associated with economic growth and social advancement.</p> <p>2. SD means ensuring today’s development without compromising the ability of future generations to meet their own needs.</p> <p>3. SD is a purpose-driven activity.</p> <p>3. SD is also meant to equip people with the right skills and knowledge in order to live in a sustainable way, even during a time of unfavorable conditions.</p>	<p>1. Sustainable development concurs , with the three pillars of sustainability : environment, society, and economy.</p> <p>2. International Labour our Organization (ILO) defines three aspects of sustainable development: the social, the economic and the environmental. Social aspects include respect for acceptance of other cultures, taking into consideration distributional equity, adequate provision of social services including health and education, gender equity, establishing a suitable working</p>	<p>1.SD means ensuring today’s development without compromising the ability of future generations to meet their own needs.</p> <p>2.Technical, entrepreneurial and vocational education and training (TEVET) the country’s guide to sustainable development</p> <p>3. Education is a foundation for sustainable development.</p>	<p>This case study on ESD has come at a timely moment with the Climate Conference (Copenhagen, December 2009). Sustainable development revolves around a) a balanced economy, b) society, c) the environment, and the future.</p> <p>Sustainable development is one of the main ways through which socio-economic development meeting present needs can be achieved without endangering our future.</p>

		atmosphere and working within a group.		
The objectives of TVET disciplines as component of sustainable development in the curricula	The parameters by which ESD must be understood to extend the identification of specific skills and knowledge.	<p>The objectives of TVET are for the trainees to:</p> <ol style="list-style-type: none"> 1) improve access, quality and relevant skills development; 2. prepares people for employment; 2) adjust to changes in the nature of conditions of work caused by technological evolution or advances in industrial processes 3) optimize the environment and instill integrity for the present and future generations. 4. provide and promote lifelong education and training for self-reliance. 	<p>1. TEVET is to create an adequate and sustainable generation of internationally competitive skilled workforce capable of spreading the country's production and export-led-socio-economic growth in a socially responsible manner.</p> <p>2. In 2004, all public colleges replenished the stocks of their beds, classroom chairs and desks using the production of the training process..</p> <p>3. The main objective of TEVET is shift the mind-set of people from livelihood based on exploitative forestry to sustainable forest-based enterprises.</p>	As indicated by the UNESCO International Experts Meeting in Bonn in October 2004, there is a need to re-orient TVET curricula to better prepare students and trainees about the conservation and sustainable use of resources, social equity and appropriate development, as well as with competencies to practice sustainable tasks at the workplace.

Data collection methods	A qualitative approach was used for data collection through personal and focus-group interviews.	Purposive sampling was used to select 6/20 TVET institutions that have centers of excellence in Kenya. The participants consisted of 6 principals, 6 heads of departments and 18 instructors.	The study is based on stratified random sampling. While 30 informants were targeted only 24 were involved. In addition to data analysis focus group and document analysis was performed.	The respondent consisted of : Dean of faculty (5%); Director/manager (14%); Training officers, Trainer (52%); University lecturer (29). Data was collected using structured questionnaire.
Definition of SD and ESD by respondents to find out the extent of their knowledge about SD	<p>1.ESD means training learners to achieve their desired objectives in terms of career goals, creativity, and market needs.</p> <p>2. . ESD entails conserving natural resources and protecting the environment.</p>	<p>1. improvement in poverty reduction and , living conditions;</p> <p>2.job creation , equipping people and health environment ;</p> <p>3. use of resources to meet present and future need;</p>	<p>1. Respondents understood the term sustainable development but are not able to express it in such simple term as is found in the literature.</p> <p>2. Most administrators (67%) define sustainable development as setting up education systems that are able to produce relevant and marketable courses and trainees.</p> <p>to colleges instructors (67%) .</p> <p>3) Sustainable development can exist and be maintained for a long period of time.</p>	<p>1.Sustainable development Is development of the present resources in the view so that the future generation can also benefit from the resources.</p> <p>2. SD is keeping a good environment at work while at the same time helping oneself to achieve in our career.</p> <p>3. A holistic approach to development where emphasis is laid on all components (economic, socio-cultural and environmental) contributing to economic growth of a country where resources are used in an efficient/optimal way so as to meet the needs of the future generations.</p>
The Relevance of ESD in TVET as perceived by training providers	1.the relevance of ESD was found by all respondents for	1.The respondents found the relevance of SD	TEVET'S Strategic Plan for 2007-2012 mentions	Sustainable development is crucial to tourism studies and is

	<p>the purpose of quality assurance and developing skills matching economic needs.</p> <p>2. to be effective ESD needs to be integrated in program and curriculum development.</p> <p>3. the training system is divorced from the actual activities that the country needs for economic growth and employment creation.</p> <p>4. graduates lack skills.</p> <p>5. entrepreneurship subjects are deemed good examples of education for ESD as they equip learners with business skills.</p>	<p>crucial in training for skills development, quality assurance and social and economic development.</p> <p>2. TVET curricula have the ESD components.</p> <p>3. There is a lack of awareness among instructors of how to teach it effectively.</p> <p>4. About 90% of the respondents asserted that sustainable development is relevant to the discipline offered by TVET institutions.</p>	<p>sustainability in its mission statement. Thus, sustainability in the skills imparted and the approach encourages life-long learning.</p> <p>TVET provides the necessary human resources available for enhanced productivity, both at society and country level.</p> <p>TVET is not an integral part of existing and revised curricula.</p>	<p>fully integrated in them.</p> <p>The name of their faculty is indicative in that it is called the of Sustainable Development and Tourism.</p>
<p>Pedagogy used to Delivery the Methods used to integrate ESD</p>	<p>1. Delivery is mostly through traditional means, i.e. Lectures, seminars and tutorials..</p> <p>2. The qualifications of trainers and assessors are not satisfactory.</p> <p>3. Some intuitions send their learners to South Africa for on the job-training.</p>	<p>1. The teaching approaches used are both theoretical and practical.</p> <p>2. Trainees are taught the concept of cutting down one tree and replacing it by planting two.</p> <p>3. Trainees demonstrate role-play exercises, group discussions, presentation reflecting real-life situations,</p>	<p>The following delivery approaches are used in ESD:</p> <ul style="list-style-type: none"> *lectures *practical lessons *group discussions *industrial or site visits *group demonstration *role modeling 	<p>1. All the respondents agreed that whatever ESD elements are perceived to exist in their training provision are being delivered through traditional education, namely through lectures, seminars and tutorials.</p> <p>2. other approaches used to deliver ESD are like, placement in</p>

	3. Distance learning and educational tours, are used as delivery systems.	seminars and tutorials. Environmental clubs. 4. Tree nursery projects are income-generating activities.		hotels and travel agencies, participation in educational tours, focus-groups interviews, distance learning, e-learning, case-studies, talk by professionals, study trips, etc.
Some Barriers Encountered by learners to the implementation or enactment of ESD	1. irrelevance perceived by students; 2. inability of the students to grasp the issues; 3. future career conflicts	1. awkward fit with subject area and confusion over what and how to teach sustainable development; 2. financial restrictions; 3. lack of perception of environmental problems; 5. limited internal accreditation and, institutional commitment.	1. An overcrowded curriculum with too little time to update courses; 2. lack of staff expertise and the need to acquire new knowledge; 3. Internal accreditation, validation systems and benchmarks; 4. financial restrictions; 5. instructors feel ownership and entitlement be given.	1. Financial restrictions; 2. lack of internal accreditation, validation and benchmarks; 3. reality of future careers conflict with Sustainability teaching; 4. lack of staff expertise and the need to acquire new knowledge; 5. lack of labor markets for students.
Interviewers' Conclusion	Significant development has taken place to improve access, including the expansion of technical colleges and the setting up of Brigades. But the process is constrained by several factors, including the selection process, institutional structures, staffing, funding, traditional	1. The findings have uncovered the naked truth that the institutions' definitions of sustainable development are: 1. centered on improvements in poverty reduction, living conditions, education, job creation, health and the environment; 2. the TVET institutions are	1. There is a great misconception about sustainable development among TVET providers. 2. Currently TEVET curricula in Malawi do not explicitly cover sustainable development issues. Students feel that they could be self-reliant at the end of their training and including	1. A high proportion of the student respondents have identified right attitudes and responsibility towards sustainable development as one of the key factors that graduates need to live and work in a sustainable way. 2. Mostly academics indicated that technical knowledge of

	<p>attitudes and perceptions of the work place.</p> <p>Community-based natural resources management programs are at a formulation stage.</p>	<p>making a contribution to the trainee' awareness of sustainability;</p> <p>3. while there has been some effort to include ESD in teaching and learning in the centers of excellence of TVET institutions, the process appears to be uncoordinated.</p>	<p>initiatives that would sustain these students after training.</p> <p>3. Sustainable development issues are introduced through best practices in working settings and construction project sites.</p> <p>4. The construction projects have adopted environmentally friendly methodologies by using sun-baked bricks instead of fire-baked bricks.</p>	<p>sustainability is a prime importance to sustainable developmet.</p>
Recommendations	<p>The perceptions of students on the relevance of the acquired knowledge, skills, and attitudes need to change to support sustainable development initiatives.</p>	<p>To make ESD more attractive, it is recommended that instructors should receive support in terms of materials, knowledge, suitable teaching methods, awareness in terms of joining professional bodies and carrying out research.</p>	<p>1. Curricular review and different effort of incorporating ESD in all spheres of TVET;</p> <p>2. Staff should attend capacity-building programs that would empower them to deliver curricula effectively by comprehending ESD issues;</p> <p>3. Effective links between employer's' contribution and demands towards curriculum development and ESD should be established.</p> <p>4. The study reveals that there is a</p>	<p>1. Sustainable development should be seen as the third wave of industrialization but dedicated trainers should be chosen to teach ESD, since some respondents mentioned that their future careers might be jeopardized by the teaching of this subject.</p>

			<p>favorable attitude towards integrating ESD in TVET. However, the effectiveness of this integration will depend on the way barriers are dealt with.</p>	
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Conclusions and Policy Implications

With the emancipation of the Rio Conference of 1992 and the Johannesburg Conference of 2002, Educational for sustainable development (ESD) has been regarded as the key component of implementing sustainable development. In particular, the Technical and Vocational Education Training (TVET) for entrepreneur have been identified as a vehicle for the implementation of education for sustainable development. To assess the effective integration

of ESD in TVET, four of the six case studies undertaken by UNESCO IN 2009 in Eastern and South Africa (i.e., Botswana, Kenya, Malawi, and Mauritius) were reviewed by the author to solicit information as whether the objectives of ESD have been achieved by the TVET programs.

Despite the fact the ESD and sustainable development have become household names, the studies reveal that the concept of sustainable development is vaguely understood. It has become very difficult to translate the concept into sustainable educational development. Thus, as unearthed by the investigators the trainers in the four African countries, Botswana, Kenya, Malawi, Mauritius have little or no understanding of the concept of ESD.). Given the vagueness of educational sustainable development, the researcher were not able develop indicators for assessing the implementation of sustainable development and to measure the impacts and outcomes of actions taken. Most of the respondents, referred to ESD as an add-on-subject and for example in Malawi, there is a “great misconception about sustainable development among TVET providers (Gamani, 2010).

Despite these problems and little understanding and training in sustainable development, the managers, lectures and instructors suggested to the researchers that TVET could be very relevant to the spreading of sustainable education. Students, by and large, claimed that since the subject is nebulous and most of the instructors are semi-trained their future careers might be jeopardized by adhering to teacher-centered method of teaching. Instead, the students would have preferred modern integrative pedagogical methods that include learner centered that could adhere to reflective, experiential and practical-oriented methods. As succinctly stated by Munjanganja (2010) “improving the relevance of TVET programmes to the world of work seems to be behind the efforts to integrate ESD in TVET. ...TVET is hampered by lack of expertise, lack of relevant learning materials, and lack of updated course, among other barriers.” Similarly, Dubois and Balgobin (2010) stated that “though the concept of ESD was coined some ten years ago at the second UNESCO Congress on TVET in Seoul, it is unfortunate that up to now not much has been achieved regarding its inclusion in TVE, despite an action plan drawn up in 2004....There should be a training-of-trainers programme on how to implement ESD incorporating:

An agreed definition of sustainable development;

The contents of sustainable development;

The methodology to integrate ESD IN TVET;

A pedagogical approach too the training of ESD;

Case studies.”

Some policy implications that could be drawn for Africa from the four case studies with TVET programs are: 1) sustainable educational development needs to be enhanced through a strategic framework for the development of national policies, 2) sustainable development needs to be operationalized to include social, economic, environmental and meet cultural standards, 3) the current teaching staff need to be trained and re-trained in pedagogy and current knowledge of ESD so that they can conceptualize sustainable development and apply current pedagogical delivery methods for effective and efficient implementation of ESD in their training centers. 4) the teacher need to be given further training to prepare the students to have internship while at school and encourage them to be effective entrepreneurs and be involved in productive employments after they graduate, and 5) tailor TVET schools for lifelong learning i.e., on-job training, and in worker upgrading and retraining that are very vital for human capital investment and self-reliance purposes. Otherwise, having TVET programs as a window dressing mechanism that graduate students with worthless qualifications is unproductive. To overcome the flooding of markets in Africa with all manner of foreign cheap goods and technology, TVET needs to be strategically developed and made competitiv , “...as a passport to a well-paid job or self-employment or higher education and not as an alternative educational opportunity fit only for early school leaver, the less academically endowed or the poor” (African Union, January 2007).

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