

**CAPA Conference on “Competency-based Training and Green Skills for Work and Life in  
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**Innovation in TVET for lifelong learning and sustainable development  
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**Abstract**

The potential pivotal role that technical and vocational education and training (TVET) can play in sustainable development is becoming increasingly apparent. The Millennium Development Goals have been a significant force within international development but many countries will not have achieved all these goals by the deadline of 2015. Innovative ways of working together are needed for African economies to intensify efforts towards rapid growth and development of a workforce that is empowered with continuously upgraded skills and knowledge, to enhance the attainment of their development goals. This includes a much stronger focus on innovation for lifelong learning in TVET, and technology for growing and improving TVET programme delivery in particular. This paper considers the role of innovation and technology in the integration of generic and specific skills for sustainable development into the TVET curriculum and asks how can COL support CAPA partners in their contribution to sustainable development.

**Introduction**

In the invitation to the conference, the SG and the CAPA Board remind us of the integral role that TVET plays in sustainable development. They note that many countries have not achieved the MDGs by the deadline of 2015, and they extol us to consider how we can work together to ensure that the post-2015 or sustainable development goals will be achieved. So I will look at the role of innovation and technology in achieving the sustainable development goals and suggest how can COL support our CAPA partners in their contribution to achieving these goals through innovation in TVET teaching and learning.

**Context**

The current MDGs will end in 2015 and the new post-2015 development agenda will begin. Post-2015 Africa is very much in our minds at COL as we prepare our new programme plan for 2015 - 2021. Guided by stakeholders and partners, COL’s new goal is strengthened sustainable development through learning so this is an important topic for us.

We are also coming to the end of the UNESCO Decade of Sustainable Development. The United Nations declared 2005-2014 as the Decade of Education for Sustainable Development (DESD) and recommended that all countries take progressive steps to integrate sustainable development into

their educational policies and plans at all levels and in all education sectors. COL's focus on learning for sustainable development includes formal, non-formal and informal learning – not just education. UNESCO contextualized Education for Sustainable Development (ESD) in this way:

“The concept of ESD is linked to key issues such as poverty reduction, sustainable livelihoods, climate change, human rights, gender equality, corporate social responsibility and protection of indigenous cultures. Its holistic nature makes it a tool for the achievement of the Millennium Development Goals (MDGs) and the Education for All goals”

UNESCO Draft Resolutions, 2010-2011

Note UNESCO talks about *education* for SD and COL talks about *learning* for SD. In the new programme, COL will be seeking to build on the work done in the previous decade by UNESCO and partners with the intention of adding value to their work.

Education for sustainable development (ESD) aims to help people to develop the attitudes, skills, perspectives and knowledge to make informed decisions and act upon them for the benefit of themselves and others, now and in the future. The question is, will they do so? Will people change the way they do things? The assumption here is that there is a causal link between learning new knowledge, skills and attitudes and behavior change leading to improved development. Researchers such as Scott and Gough (2003) suggest that this causal link is not proven.

The Commonwealth Secretariat (2:2013) in their review of Education for Sustainable Development in Small Island Developing States notes that ESD “...consists not only of relevant and necessary content, but also emphasises pedagogical approaches and educative experiences that contribute to the development of learners as citizens who think and act in sustainable ways.” They identify one of the major gaps in ESD has been the lack of TVET programmes and structures which are oriented towards sustainability. It is likely that this is also true in larger developing countries.

## **Conceptual Framework**

A conceptual framework is important, particularly as we are talking about attempts to change human behaviour.

### **What is Sustainable Development?**

There are over 300 definitions of the term sustainable development (Dobson 1996).

Scott and Gough (2003) note that *‘if one is trying to persuade people who are busy doing something else of the significance of a concept like sustainable development, then reducing that concept to a portable form has its advantages.’*

One of the most popular definitions of sustainable development is this landmark phrase which first appeared in 1987 from the World Commission on Environment and Development's (the Brundtland<sup>1</sup> Commission) report *Our Common Future*.

'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'

The UNESCO definition is also useful as it spells out the factors which might be seen as components of sustainable development.

*'Sustainable development seeks to meet the needs of the present without compromising those of future generations. Sustainable development is a vision of development that encompasses respect for all life—human and non-human—and natural resources, as well as integrating concerns such as poverty reduction, gender equality, human rights, education for all, health, human security and intercultural dialogue.'*

Education for Sustainable Development is meant to set a new direction for education and learning for all. It promotes quality education, and is inclusive of all people. It is based on values, principles and practices necessary to respond effectively to current and future challenges. Through education and lifelong learning, lifestyles based on economic and social justice, ecological integrity, sustainable livelihoods and strong values towards social cohesion and collective action are promoted.

Sustainable development implies some sort of change from the status quo, so there needs to be a theory of how this change might happen. Theory of Change is an interesting approach to development which requires development actors to elucidate how their activities lead to change. At COL our programme planning is based on a theory of change which guides our work in building capacity to support learning which leads to behavior change for sustainable development.

Sustainable development is not a fixed concept; rather it is a culturally directed search for a dynamic balance in the relationships between social, economic and natural systems, a balance that seeks to promote equity between the present and the future, and equity between countries, races, social classes and genders. The interdependence of people and the environment requires that no single development or environmental objective be pursued to the detriment of others. The environment cannot be protected in a way that leaves half of humanity in poverty. Likewise there can be no long-term development on a depleted planet. Appropriate sustainable strategies must be developed for both rich and poor nations. (Bhuwane 2012)

Sustainable development is not limited to a concern for the natural environment. It is a concept based on integrating socio-cultural, environmental and economic considerations – often referred to

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<sup>1</sup> Dr. Gro Harlem Brundtland. Dr. Brundtland was the former female Prime Minister of Norway

as the 3 pillars of sustainable development; environmental protection, social justice and economic growth.

Sustainable development is about balancing diverse and often conflicting issues. Economic issues such as how do we generate wealth? Environmental issues such as how can we reduce our greenhouse gas emissions? How can we conserve the environment? How can we minimise the depletion of natural resources? Social issues such as how can we improve the quality of life especially for those living in poverty? Intergenerational issues such as how do we balance the needs of the present without compromising the ability of future generations to meet their own needs?

## Innovation

Innovation is about creating something new. It might be an adaptation or an improvement on something already existing – or it might be a brand new invention. Innovation can be thought of as a process rather than an event. And it is a process of change.

A most useful definition of innovation is given by Senge (1999:5) in the Fifth Discipline who says, 'An idea becomes an innovation only when it can be replicated reliably on a meaningful scale at practical costs'.

Scaling up is an important component of innovation and COL seeks to support innovation in approaches to learning and technology for learning but always with a view to developing contextualized models to be used at scale and replicating it in other country contexts.

## What do we mean by lifelong learning?

In 380 BC in *The Republic*, Plato described different educational requirements associated with various life stages which could be seen as an early conceptualization of lifelong learning. But in Plato's time, it was a luxury only afforded the guardian class. In the 1920s, 'adult education' was described by the British government as a permanent national necessity, an inseparable aspect of citizenship and should be universal and lifelong. In the 1970s, UNESCO took up the idea of lifelong education.

Like sustainable development there are myriad definitions of the term lifelong learning. This definition from the European Lifelong Learning Initiative is particularly useful:

*"...a continuously supportive process which stimulates and empowers individuals to acquire all the knowledge, values, skills and understanding they will require throughout their lifetimes and to apply them with confidence, creativity and enjoyment, in all roles circumstances, and environments."*<sup>2</sup>

It is this aspect of the lifelong learner being continuously supported which makes it of interest to TVET institutions. The demand for self-directed formal and non-formal learning is increasing in most countries and is often linked with a desire for improved skills training for livelihoods. The TVET

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<sup>2</sup> [www.llcq.org.au](http://www.llcq.org.au)

curriculum is changing and will continue to change in responsive and demand-driven systems. The rate of change is directly related to technology developments in industry and in teaching and learning.

In their Guidelines for the Recognition, Validation and Accreditation of the Outcomes of Non-formal and Informal Learning, UNESCO Institute for Lifelong Learning offers this:

*'Encompassing formal, non-formal and informal learning, lifelong learning emphasises the integration of learning and living – in life-wide contexts across family and community settings, in study, work and leisure, and throughout an individual's life', (UNESCO 2012)*

### **Why are we interested in lifelong learning for sustainable development?**

Both lifelong learning and sustainable development are seen as routes to empowerment. They can be supported and facilitated by government and institutions, but both require participation and self-initiated action by individuals and communities.

Lifelong learning for sustainable development has consistently been viewed by the UN and its agencies, national governments and NGOs, as a key component of innovation and social change. Both lifelong learning and sustainable development have been promoted as policy instruments particularly in relation to enhancing economic competitiveness (Scott & Gough 2003). But neither can be maintained solely through the actions of government and necessarily involve the participation of citizens. And of course, policy on sustainable development and learning must compete for resources with other policy areas and neither currently enjoy the highest priority in most countries.

The demand for TVET is increasing both for youth and for lifelong learners. The youth bulge in population and increasing focus on basic education causing a surge in secondary completers in many countries. Current public TVET systems cannot provide for the majority of young people seeking skills training. In addition, the growing demand for continuing professional development from lifelong learners requires a new response from TVET institutions. A flexible approach which will enable people to 'earn as they learn' will meet learners' needs. More working people are seeking learning opportunities for re-skilling and up-skilling. If sustainable development becomes an integral part of TVET programmes then more people are exposed to new knowledge, skills and attitudes which might lead to sustainable changes in individual and community behaviour. Local community and religious leaders need to be reached to bring sustainable development to the attention of the people so they may learn under the guidance of their leaders.

### **What is the role of TVET in sustainable development?**

During the Decade of Education for Sustainable Development the focus was mainly on basic and non-formal education. If countries are to achieve sustainable development then the pivotal role of

the TVET subsector must be realised. Governments are increasingly recognizing the key role that TVET plays in national economic development so for development to be sustainable the role must be widened to include social justice and environmental protection.

TVET can play an instrumental role in developing a new generation of individuals who will face the challenge of achieving sustainable socio-economic development. TVET is seen as an effective tool to realize the objectives of a culture of peace, environmentally sound sustainable development, social cohesion and international citizenship.

### **The challenges of Sustainable Development in TVET**

ESD has been in focus for UNESCO for nearly 10 years. Prof Shyamal Majumdar, Head of UNESCO UNEVOC, outlined the major challenges in integrating Sustainable Development in TVET.

1. Understanding the meaning and scope of ESD
2. Identifying generic skills for Sustainable Development
3. A model to integrate SD in the TVET Curriculum

#### **1. Understanding the meaning and scope of ESD**

There is still limited awareness and understanding of education for sustainable development resulting in a limited support base which may keep people from recognizing the value of education for sustainable development. Regional, national and local differences means that ESD may be interpreted in many different ways. The impact of climate change, for example, is felt most keenly in low lying island states such as those in the Pacific. However, the major causes of climate change – creation of greenhouse gases – are not found in those countries. TVET policy makers and institutional managers are charged with first understanding sustainable development and then finding a way to integrate the ESD approach into TVET programmes, activities and systems.

#### **2. Identifying generic skills for Sustainable Development**

Because TVET is seen as playing an instrumental role in developing a new generation of individuals who will face the challenge of achieving sustainable socioeconomic development, new subjects or issues need to be incorporated into TVET teaching and learning. Majumdar classifies the generic skills in 3 groups:

- strategic & leadership skills – for initiating and promoting change
- process skills – for enabling change
- practical skills – for delivering change

Proper generic work related skills can sensitise all learners to the over-exploitation of natural resources, ill-health and grinding poverty that threatens the ability of future generations to satisfy their needs and wants. The challenge for generic work related skills is to re-orient and re-direct curricula to imbue students and trainees with respect for the conservation and sustainable use of resources, social equity and appropriate development, including competencies to practise sustainable tasks at the workplaces of today and tomorrow. (Bhuwanee 2012).

### **3. Is there any model to integrate SD in the TVET Curriculum?**

There are two main ways of looking at sustainable development in the TVET curriculum; as a stand alone subject or integrating the generic components of sustainable development into the different conventional subjects. Most competency based education and training systems already have a set of core (key, employability, catalytic) skills. These vary between countries but usually include subjects such as IT, communications, numeracy, problem solving, teamwork entrepreneurship and so on. It is possible to include another subject on sustainable development. Assuming, of course, that appropriate teacher training had been available.

It is likely that a problem or project-centered approach would be more appropriate than a subject or discipline approach for ESD so ESD might fit well into the suite of generic skills for employability. Majumdar stresses that the most important aspect of ESD is the teaching methodology which must focus more on learning than on teaching and emphasis participatory techniques rather than didactic, one-way instruction. He calls for innovative pedagogy in the integration of SD in the TVET curriculum – and this is where the Commonwealth of Learning comes in.

#### **COL approach to innovation and sustainable development in TVET**

COL conceptualises sustainable development in relation to learning as opposed to education. For us, this incorporates a broader set of processes which include non-formal education and informal learning. Because we are mandated to support governments and institutions to leverage technology to improve quality and access to learning, we are inevitably involved with innovation for learning. This will likely include the use of appropriate technology and innovative teaching approaches which are participatory and interactive. In TVET we promote the flexible and blended model which aims to increase access whilst improving the quality of skills training. Technology is integrated into teaching and learning which focusses on learner-centred and competency-based approaches. The COL flexible and blended (FaB) model seeks to improve gender mainstreaming in TVET institutions and target learners who have previously been locked out of the system.

The new Flexible Model includes increased flexible access reflected in institutional strategic plans new organisational structures. There is less focus on full-time face-to-face contact with more resource-based, individual and group learning. We have introduced media components that can be used in the classroom or at a distance and this includes elements of online programme delivery and formative assessment. An important part of the model is support from the national training authorities.

Innovation in our context is about changing the way we provide TVET. It is about new methods of teaching and learning and student support. It is about using appropriate technology to offer better quality skills training to more people – but without endangering the future of generations to come.

Sustainable development demands that we ensure the system progresses and grows but without having a detrimental effect on the future.

### **How TVET students and institutions can benefit from innovation in which supports lifelong learning and sustainable development**

Flexible learning offers a range of benefits to both institutions and learners. COL's partners in the INVEST Africa partnership provide evidence of increased capacity of staff to deliver quality learning opportunities, confidence and skills in use of emerging technologies for both teaching and administration, new organisational structures which support new teaching approaches and enhanced ICT infrastructure. In addition, substantial numbers of people in the informal sector have benefitted from new skills training opportunities, particularly women.

By introducing part-time, distance and elearning, institutions are making skills training available to people employed in both formal and informal work, for re-skilling and up-skilling. Learners benefit from flexible approaches by being able to 'earn as they learn'. Teachers claim more interest and passion for their work as they have developed professionally. They claim their students are achieving better learning outcomes and are more motivated for classes when ICT is integrated. Institutions are reporting increased enrolment which is reflected in improved revenue.

*'Flexible teaching has impacted me as a teacher in terms of efficiency and effectiveness because I do not have to dictate notes in class which is time consuming but I send the notes before the class the student download them and read through making short notes so in class we have a more informed discussion with very good student participation'.*

Freda Kibata Masai TTI.

Teachers have expanded their knowledge and skills of new technologies by continuing their studies through COL sponsorship and are able to provide consulting services in this field.

*"Capacity building by COL has enabled me to extend FSD initiatives to the Government of Kenya. I designed three courses for the Directorate of eGovernment, trained content developers, supervised the process of content development, quality assured the courses developed, and, worked hand in hand with the system developers.*

Robert Okinda, KTTC

The new focus on sustainable development requires us to consider a whole range of new concepts – new generic skills, core training and green technologies. This is surely the realm of TVET institutions. This approach fits well with the FaB model which already seeks to help institutions to meet the labour and development needs of their local community. A focus on sustainable development provides an opportunity for TVET institutions and learners. New industries and occupations are being developed, such as alternative energy, ecotourism, environmental assessment, sustainable community development, eco-design, recycling, land rehabilitation, pollution control, waste water treatment and reuse. All require workers who have developed generic skills and knowledge of – and commitment to – sustainability, as well as the requisite technical knowledge.



## Conclusions

As we draw near the 2015 timeline for the achievement of the United Nations' Millennium Development Goals (MDGs), many African countries are still far off the realisation of the targets. The 2012 UN Conference on Sustainable Development held in Rio de Janeiro, Brazil (Rio+20), coming 20 years after the Rio1992 UN Conference on Environment and Development, decided to launch a set of Sustainable Development Goals (SDGs) which will build upon the MDGs and converge with the post-2015 development agenda. The concept of Rio+20 UN's Sustainable Development Goals envisions universally applicable goals that balance the environmental, social and economic dimensions of development. The current and future social, economic and environmental challenges facing African countries are intertwined and mutually reinforcing. Thus, they need to be tackled through an integrated approach in order to achieve a truly sustainable development that can secure long-term human and environmental well-being.

It is incontrovertible that African economies must intensify efforts towards a rapid growth and development of a workforce that is empowered with necessary and continuously upgraded skills and knowledge, to enhance the attainment of their development goals. However, workforce training should be competency based, learner focused, flexible and closely oriented to workplace practices that are derived from carefully selected competencies. Also, production activities should take care to replenish and not to endanger the environment. Based on these concerns, the Commonwealth Association of Polytechnics in Africa (CAPA) has chosen to deliberate on the theme "Competency Based Training and Green Skills for Work and Life in Post-2015 Africa: The Role of TVET"

Moving towards the goal of sustainable development requires fundamental changes in human attitudes and behavior – in our personal lives, in our community activities and in the work place. The challenge for COL and our partners in CAPA will be to understand this new focus on sustainable development, master the key components and infuse them into our work and our training programmes. We must also look to the new occupations and technologies involved in a more sustainable approach to development and provide lifelong learning opportunities for qualified people to work in these industries. This will require a new paradigm in teaching and learning and an innovative approach which blends technology into the new curriculum. COL intends to integrate sustainable development into the FaB model of TVET and the INVEST Africa model of capacity building so that we can scale up the achievements and replicate the gains already achieved. But without endangering our future.

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