Two pathways, one destination - TVET for a sustainable future

Virtual conference

October 22 - November 10, 2007

Final report

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UNESCO International Centre for Technical and Vocational Education and Training (UNESCO-UNEVOC)

in collaboration with

Griffith Institute for Educational Research, Australia
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Summary

Background
As governments, industry, NGOs and the general public become more aware of the urgency of sustainable development, a vital role for education in learning and teaching towards sustainability is also becoming more evident. The UN Decade of Education for Sustainable Development (DESD, 2005–2014) seeks to ‘integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behaviour that allow for a more sustainable and just society for all’. Different local and global initiatives in education, such as the inclusion of education for sustainable development (ESD) in pre-service and in-service courses, the reform of curricula and teaching programmes at different levels, sustainable school and university movements and many other activities indicate an increasing commitment towards an ESD agenda in education.

The UNESCO-UNEVOC International Centre has been proactive in working towards the ideals of DESD. A number of important activities have been initiated and organised by the UNEVOC. Some examples of activities include:

- **Consultative Meeting: Engaging the Privat Sector**, Bonn, Germany, 23-25 May 2007
- **Towards Sustainable Global Health**, Bonn, Germany, 9-11 May 2007
- **TVET for All - a Master Key for Sustainable Development?** - Roundtable at the 10th International APEID Conference, Bangkok, Thailand, 6-8 December 2006
- **TVET for Sustainable Development - Opportunities and Challenges**, Ho Chi Minh City, Vietnam, 2-5 July 2006
- **TVET for Sustainable Development - Arab States Regional Workshop**, Bahrain, September 2005
- **Integrating Sustainable Development Issues into TVET: Poverty Alleviation and Skills for Employability, Citizenship and Conservation in Asia and the Pacific**, Bangkok, August 2005
- **UNESCO International Experts Meeting Learning for Work, Citizenship and Sustainability**, Bonn, October 2004
- **UNEVOC Network Meeting on TVET for Sustainable Development**, Bonn, October 2004

An analysis of activities that have happened so far in the context of the DESD has revealed two general approaches towards interpretation of TVET for sustainable development:

- Addressing sustainable development issues through the content of TVET studies;
- Assuming that quality TVET training that prepares students for the knowledge/information society will provide employment, and that employment will be sustainable due to the quality of training and thus, provide social and economic sustainability for communities.

These approaches reflect two sides of the relationships between sustainable development and TVET: on the one hand, sustainable development should be addressed through teaching. On the other hand, there is the assumption that TVET inherently contributes to solving particular issues of sustainable development through alleviating poverty and providing skills for employability, citizenship and conservation.

This conference adds another dimension to the on-going debate concerned with the sustainability of TVET institutions

Objectives
The objectives of the virtual conference were to investigate:

- different interpretations of sustainable development/sustainability
- the relationship between SD and TVET
- the various issues around the economic, environmental and social pillars of sustainable development in the context of TVET
The outcomes of the virtual conference include:

- A better understanding of how SD can be addressed through TVET in different contexts
- Issues that relates to sustainable performance of TVET institutions.

UNESCO-UNEVOC sees great value in the opportunity to hear ‘voices’ and opinions of people involved in practical activities in the area of SD and TVET and consider the conference dialogue as a starting point for possible future collaborations. “Community of practice” is a broad term that described experiences during the conference: a “group of people who share a passion for something that they know how to do and who interact regularly to learn how to do it better” (E. Wenger).

**Discussion map**

The following map was proposed for discussion during the conference:

<table>
<thead>
<tr>
<th>Specific context</th>
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<tr>
<td>Social issues</td>
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<td>Environmental issues</td>
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<tr>
<td>Economic issues</td>
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<td>Content of TVET</td>
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<td>TVET as an institution</td>
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<td>Existing programs</td>
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<td>New qualifications</td>
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<td>Industry-specific skills</td>
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<td>SD concepts</td>
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<tr>
<td>Contribution of TVET to sustainable communities and economy and environment</td>
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Throughout the conference, the participants provided general comments on the background paper and the topic, responded to the questions posed in the paper, issues raised and discussed by participants, and brought to attention new resources and useful links. The following timeframe was adopted for the conference discussion:

- Introduction, Interpretation of sustainable development/sustainability, **22 –25 October**
- Relationships between SD and TVET, **26 – 29 October**
- Issues addressed, **30 October – 2 November**
- Solutions proposed, **3 – 5 November**
- Development of the principles of TVET as a sustainable institution and fill in a discussion map as applicable for your context, **5-7 November**
- General discussion, **8-10 November**

This timeframe was used for guidance only, as very often a number of topics were discussed simultaneously.

**Participants**

“I have to confess that, for the first time ever, I am happily overwhelmed with emails!” Ana.

This conference attracted 106 participants from 49 countries. The richness and breadth of background of the people involved has been overwhelming. This conference, organised by
the UNESCO-UNEVOC International Centre in Bonn, attracted 106 participants from 49 countries from all UNESCO regions. So it was a representative forum of people that are involved in TVET in different ways. Some of them are working for Ministries of Labour and Employment, some for NGO’s, some at different Research and Training Centres, technical institutes, public schools, Ministry of Education, Ministry of Science, Technology and Vocational training; and university academics.

Table 1 and Figure 1 present participation, by UNESCO Regions.

Table 1. Participation by UNESCO Regions.

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<thead>
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<th>Regions</th>
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<td>Africa</td>
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<td>Arab States</td>
<td>3</td>
</tr>
<tr>
<td>Asia &amp; Pacific</td>
<td>31</td>
</tr>
<tr>
<td>Europe / North America / Australia</td>
<td>29</td>
</tr>
<tr>
<td>Latin America &amp; Caribbean</td>
<td>8</td>
</tr>
</tbody>
</table>
In the **first broad area** the main emphases in the discussion were directed to the role of TVET in the development of the ‘whole person’: **skills, values and attitudes relevant to SD to be developed through TVET studies**. Changes in our mindset, students’ development in an holistic way through TVET paying as much attention to values and attitudes as to developing skills; looking closely at the individual level (not only at the political and institutional); examine moral principles; the importance for TVET teachers to ‘re-orient’ themselves were examined by many (e.g. Josefa, Gabriel, Stephen, Yalams, Idem, Richard, Teeluck and others). Some resources developed for ESD were identified by participants and shared with all conference members.

The **second broad area** attracted a lot of discussion, with one aspect in particular, on **what should be done, so TVET institutions can survive in developing countries**; status and prestige of TVET; consideration of upcoming areas such as ICT; ‘strong need to revitalise TVET’, look for bottom-up approaches, association of new occupations such as ICT and electronics with TVET, looking for resources within (Africa), close work with the local industry (Philippines); financial solutions.

In the **third broad area** of discussion issues associated with **relevance of TVET training to local needs**, short courses for rural areas, informal-formal training; flexibility of national qualifications frameworks and local needs, relationships between Higher education and TVET, general education and TVET. All these were issues that would be associated with quality TVET training irrespective of inclusion of ESD. The link to sustainability is through the impact of graduates on local communities in terms of earning a living for them and their families.

A number of important issues that spanned two or three areas were also identified and discussed. For example, the differences between developed and developing countries across all three areas; indigenous issues, good practices and resources developed were identified by participants from Canada (Rhonda) and Australia (Ann); some examples of sustainable solutions that are embedded in particular cultures were explored by Carolina (Indonesia). Among other achievements of the conference were that people from the same counties met (e.g. Rwanda) and started communicating about common problems; some participants felt the need to continue communication.

**Recommendations for further activities**

- Need for more detailed description of a number of case studies of good practice emerged from the conference.
- Need to delegate some participants to describe their practice in a systematic way to illustrate three themes that have been discussed during the conference. And possible to present it in a book format.
- Need to collect/develop more examples/approaches on changing TVET content, so it contributes to ESD.
- Develop a web page where links to an interesting sites with ESD resources can be easy accessible by all.
- Organise a similar virtual conference and invite industry participants to contribute to the discussion on sustainability.
- Set-up a working group to develop SD principles for TVET institutions.
- Continue dialogue through the UNEVOC e-forum.
Part 1

Background paper

Two pathways, one destination: TVET for a sustainable future

Margarita Pavlova, GIER, Griffith University

Introduction

As governments, industry, NGO’s and the general public become more aware of the urgency of sustainable development, a vital role for education in learning and teaching towards sustainability become more evident. This urgency has been reflected in the aim of the UN Decade of Education for Sustainable Development, (ESD) 2005–2014 launched by UNESCO on 1 March 2005 (UNESCO, 2005a). This initiative seeks to ‘integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behaviour that allow for a more sustainable and just society for all’ (UNESCO, 2005b). Different local and global initiatives in education, such as the inclusion of ESD in pre-service and in-service courses, the reform of curricula and teaching programmes at different levels, sustainable school and university movements and many other activities indicate an increasing commitment towards an ESD agenda in education.

In addressing these issues at the TVET level, UNESCO-UNEVOC International Centre in Bonn has been proactive and is playing a significant role. A number of Experts meetings, consultations, conferences and publications have been initiated by the International Centre to forward the sustainability agenda. Among the major events are the UNESCO International Experts meeting in October 2004 on Learning for Work, Citizenship and Sustainability hosted by the UNESCO-UNEVOC International Centre in Bonn focused on the relationships between TVET and the sustainability of the economy, the environment and society. Four days of discussions led to the Bonn declaration that highlighted the need to: “modernize TVET and ensure its enhanced status and sustainability”. The participants asked, that: “particular priority be given to TVET initiatives that: alleviate poverty; promote equity, especially in relation to gender; arrest the spread of the HIV/AIDS pandemic; support youth in crisis; support rural communities and people in excluded groups; encourage north-south cooperation and assist the development of countries in transition and those in and emerging from crises and conflict. These TVET initiatives are pivotal to human-centred sustainable development”.

The topic for this paper and the virtual conference arose from the analysis of papers presented at another event, the UNEVOC meeting on ESD and TVET, held in Bangkok in August 2005. Out of 25 papers presented at the conference, 16 were available for analysis. Content analysis of these papers was undertaken through such issues as: Interpretation of sustainable development/sustainability; Relationships between SD and TVET; Issues addressed; Solutions proposed. The analysis revealed two general approaches towards interpretation of SD:

- Papers that examined opportunities to address SD issues through the content of TVET studies;
- Papers based on the assumption that quality TVET training that prepares students for the knowledge/information society will provide employment, and employment will be sustainable due to the quality of training and thus, provide social and economic sustainability for communities.
These approaches reflect two sides of the relationships between SD and TVET: on the one hand SD should be addressed through teaching (a minority of papers focused on this, probably there is still very limited experiences of this in the area). On the other hand, the idea that TVET could provide the means for addressing particular issues of SD such as poverty alleviation and skills for employability, citizenship and conservation was widely accepted by the presenters. Thus, to some extent, papers were focusing on two different issues: the role of TVET in SD of communities, economies and the content of education for sustainable development (ESD) through TVET. Out of 16 papers analyzed only two papers were focused on content development, 10 – on the contribution of TVET to social, economic and environmental change through human and social capital development, 4 – on current TVET issues without linking them to SD and none focused on the changes required to TVET practices, as institutions.

This paper considers content change and institutional change as two important pathways for achieving sustainable future.

**ESD**

There are a number of dichotomies that are used in discourses on SD and ESD. Two of them are particularly relevant to TVET; conceptualising ESD as a policy and as a frame of mind and through what is known as a technical fix -value change approach.

**ESD as a policy – ESD as a frame of mind**

Olssen, et al (2004) argues that: “Education policy must be contextualised both nationally and globally as a transformative discourse that can have real social effects in response to contemporary crises of survival and sustainability” (p.3). ESD policy formulation within the TVET system requires improvements within its elements such as: qualification standards and specialisation; articulation with general education; assessment and certification for achievements; methods of curriculum development; governance; labour market analysis; financing; legislation, access and admission; provision of training places; special target groups; institutional arrangements for delivery; information and guidance; or improvements in the system as a whole which is known as a systematic reform. Systematic reform is built upon the assumption that changing most or all elements of the system is more likely to lead to TVET improvement in relation to ESD.

In 1999, Benedict developed a model of a systematic approach to sustainable environmental education. Benedict proposed that for change to occur teaching as an activity should take place in a multilevel system: teacher-student level, classroom level, school level, school system level, political level and outside world level. Benedict argued that teachers should consciously act at a range of levels, putting their efforts into a broad perspective. The same argument fits well within the TVET context. However, as argued by Huckle, (2005) ESD as a policy is not enough to achieve substantial change. Huckle made a distinction between two broad trends – (a) ESD as policy, and (b) ESD as a frame of mind and argued that it is extremely important to develop a particular mind set to be ready to behave in a particular way. Huckle (2005) based his position on Bonnett’s ideas (2002):

“If we are to enable pupils to address the issues raised by sustainable development rather than preoccupy them with what are essentially symptoms masquerading as causes, we must engage them in those kinds of enquiry which reveal the underlying dominant motives that are in play in society; motives which are inherent in our most fundamental ways of thinking about ourselves and the world. That such a metaphysical investigation will be discomfiting for many seems unavoidable, but it promises to be more productive in the long term than proceeding on the basis of easy assumptions about the goals of sustainable development as though it were a policy whose chief problems are of implementation rather than meaning.”
What are your experiences/thoughts about policy-frame of mind analysis?

**Technical fix – value change**

Traditionally the unity of humanity and nature was presented within the overall perception of the world by all cultures. Up till now some indigenous cultures have preserved this view by having a number of rules related to respect and protection of spirits and nature. However, the historical development of mankind, particularly in the West, led to an accumulation of technically exploitable knowledge that became a threat to the authority of cultural traditions (Habermas, 1968/1971, p.95). Technological development and an increase of technocratic ideology that is interested in the expansion of human power of technical control (Habermas, 1968/1971, p113) greatly contributed to environmental and social problems and as a consequence to the emergence of the discourse on SD.

Literature on sustainable development records that the concept of SD emerged in the mid 1980 as an attempt ‘to bridge the gap between environmental concerns about the increasingly evident ecological consequences of human activities and socio-political concerns about human development issues” (Robinson, 2004, p.370). Differences in views on sustainable development are rooted partly in different philosophical and moral conceptions of appropriate ways to conceive of the relationship between humanity and nature. A summary of environmental responses proposed by Robinson (2004) identified ‘technical fix’ and ‘value change’ as two major approaches towards SD. The debate about the relative importance of technology and individual human responsibility has been an emerging theme in the environmental literature: individual attitudes towards nature versus more pragmatic and collective approaches, oriented towards efficiency gains and improvements in technology.

Through the content delivery and an institutional change TVET can implement both approaches. Development of more sustainable manufacturing processes, for example, can reduce the amount of water and energy used. Changing students’ attitudes through the sustainable practices of TVET institutions would also help. A close relationship between both approaches can be visible through the concept of appropriate technologies introduced by Schumacher in his book *Small is Beautiful* (1974) defined them as: ‘technologies with a human face’ aimed to enable people to earn a sustainable living. He proposed eight criteria to assess technology:

1. Appropriate technology best suits the needs and lifestyle of the people using it.
2. Appropriate technology should not damage the environment and ecosystem, and should be sustainable.
3. Appropriate technology should keep costs within the economic means of a community.
4. Appropriate technology should use locally available resources as far as possible.
5. Appropriate technology should enable local workers to earn a living.
6. Appropriate technology should increase self-reliance.
7. Appropriate technology should use renewable sources of energy wherever possible, and should be economical in its use of non-renewable resources.
8. Appropriate technology should fit with its social and cultural environment.

As argued by Pavlova (2006b) a dialectic position between technical fix and value change is essential for the effective conceptualisation of SD for educational purposes, however, it will be different for different contexts.

In your context what is/will be a desirable mix between these approaches?
Content of TVET

The influence of an ESD agenda on TVET content is happening in two ways: through existing programs and through the establishing of the new ones.

Existing programs and courses

When developing new content for TVET exiting programs and courses can be shaped to address SD issues and concerns by including new concepts, new processes and new teaching strategies. Introduction of new concepts, processes and the implementation of new teaching strategies would depend on the type of skills being required for particular countries. Estevez-Abe, Iversen and Soskice’s (2001) distinguished three types of skills: firm-specific (Japan, Korea), industry-specific (Germany) and general skills. In any economy all three types of skills will be utilised, however, in some structured economies the production of one of these skills types will predominate over the others. Firm-specific skills are the least portable, industry-specific skills are portable within industry, while general skills can be applied across a range of firms and industries. Each type requires different types of training and assumes particular kinds of economic development strategies. As argued by Lauder, Brown and Ashton (2006) for firm-specific skills a high level of general education is desirable. This is then used as the foundation for the in-house development of skills that firms demand. Industry-specific skills require some interaction between the education and training system and industry for the training to be appropriate and up to date in supplying the skills required. For general skills, education at only a minimum level is required for the lower end of the flexible labour market.” (p.48).

Thus it is possible to suggest that different approaches towards content development would be used for firm-specific, industry-based and general skills.

Firm specific, industry-based and general skills – how are/can they be related to ESD in your context?

Firm specific

Countries around the globe are developing schemes on how to include ESD in the general education, the one that is required for firm-specific training. Some examples presented by Maclean (2007) in his keynote address at the 12th International Business Forum 2007, Business and the Millennium Development Goals in Washington are:

Toyota provides an example of training along the supply chain in the more economically developed world in that Toyota collaborates with the Coordinating Committee for Automotive Repair (CCAR) to host a website called CCAR-GreenLink. This website provides their dealers with environmental information and compliance assistance related to requirements for the storage and disposal of their waste steam materials, the way to implement their own waste management programs and other ways of operating their businesses in an environmentally responsible manner.

The construction industry in the North Rhine Westphalia region of Germany comprises over 500 hundred companies. The industry association recognizes the challenges posed by looming energy shortages, climate change and the need for energy efficiency in buildings. It also recognises the business opportunities in responding to the fact that 75 per cent of Germany’s building stock was built before 1949 and is, therefore, highly energy inefficient. As a result, the construction industry has intervened in the curriculum of the Vocational Training Institute of the Construction Industry, North Rhine Westphalia with a goal of “Sustainable development education for every apprentice, trainer, expert and member company”. Thus, it is now compulsory for all in the industry to understand:

- How to use the right materials in order to avoid unnecessary energy consumption
- How to behave and work to minimise energy consumption
• How to identify, source and use new, more efficient materials to save energy.

Through the conference we welcome representatives of firms or former trainees to share their experiences with specific firm’s training that are relevant to ESD.

**Industry-specific skills**

Every occupational activity (manufacturing, maintenance, service) uses resources in natural form (water, minerals, etc) and in processed form (materials, objects, electricity, etc). Thus every occupation directly related to sustainable development in terms of the environmental component. Defining goals for ESD integration in TVET learning is an important step in addressing SD through training. There should be a clear link between occupation-specific skills and SD concepts and practices. In terms of economic component, “the use of environmentally-friendly materials, low energy consumption, environmentally clean and sustainable processes, intelligent transport and logistics procedures and a waste management concept geared to waste avoidance can lead to a reduction in cost and, in the longer term, to an increase in corporate competitiveness” Haertel (2006, p.11).

Social sustainability can be addressed through ethical and legal aspects of particular occupation, e.g. safety, discussions on how technology relates to power, control, access (Pavlova, 2006b).

As stated by Haertel (2006):"The ultimate goal of all environmental training [and I should add ESD] is the acquisition of a thorough proficiency in dealing with the aspects of sustainable development of one’s occupational activity. This proficiency can be described as follows:

- Accepting responsibility for sustainable development and being qualified to take action to protect it;
- Having the ability to apply subject-related expertise and to share this with others;
- Mastering the skills required for properly handling materials and processes which are a hazard for sustainable development;
- Demonstrating sound conduct based on the principles of sustainability at the workplace and in one’s private life, including in situations involving conflicting interests. (p.11).

Industry-based content development should be done for each industry identified in the International Standard Industrial Classification of All Economic Activities, Revision 3.1, (ISIC Rev. 3.1) [http://unstats.un.org/unsd/cr/registry/regist.asp?Cl=17&Lg=1](http://unstats.un.org/unsd/cr/registry/regist.asp?Cl=17&Lg=1)

The following industries are classified:

- Agriculture, hunting and forestry
- Fishing
- Mining and quarrying
- Manufacturing
- Electricity, gas and water supply
- Construction
- Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
- Hotels and restaurants
- Transport, storage and communications
- Financial intermediation
- Real estate, renting and business activities
- Public administration and defence; compulsory social security
- Education
- Health and social work
- Other community, social and personal service activities
- Activities of private households as employers and undifferentiated production activities of private households
• Extraterritorial organizations and bodies

A detailed structure is presented in Appendix 2.

For manufacturing, for example, the following aims identified by Pavlova (2006a,b,c) provided a broad framework for incorporating sustainability through teaching programs:

- To know and understand SD problems/issues;
- Contribute towards the promotion of and increasing awareness about ideas of sustainable development through projects/activities;
- Design and make products in accord with eco-design principles;
- Work in accord with SD practices.
- Discuss and appreciate the relationships between aesthetics and ethics for sustainability;
- Consider aesthetics as a powerful feature of product design closely related to sustainable consumption.

The above aims relate to the systematic framework for developing SD curriculum and teaching materials proposed by Pavlova (in press) that has cognitive, practical and aesthetic dimensions. The cognitive dimension (the first two aims) relates to knowledge and understanding of the principles of sustainable design, understanding of what SD is, why it is important to address. Practical aspect of social life (second two aims) is addressed through designing and making products, systems and the environment. Aesthetics (the last two aims) relate to the appreciation of aesthetics for sustainability (current style, appearance of the product) and reflects upon the important role it plays in influencing young peoples’ identity.

Similarly, the criteria that the sustainable product should meet are:

- **Cyclic**: made from organic materials, and is recyclable or compostable, or is made from minerals that are continuously cycled in a closed loop;
- **Solar**: the product uses solar energy or other forms of renewable energy;
- **Safe**: non-toxic in use and disposal;
- **Efficient**: less material, energy, water;
- **Social**: manufactured under fair and just operating conditions (DEMI, 2003).

For the construction industry, an example of the design sustainability principles developed through the Design for the Environment Multi-media Implementation (DEMI, 2003) approach can be applicable. They include considerations of:

- efficiency - doing more with less
- scale -the right size for the right place involving the right people
- systems - connections within and between society and nature
- appropriateness - choosing the right thing
- sufficiency - how much is enough? do I really need this?
- equity - fairness within and across all systems ... not just human

<table>
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As general skills can be applied across a range of firms and industries, a general understanding of what SD is and how each of us can contribute towards it in the everyday life and the workplace situation, is important and can be addressed through any type of education or training.

A widely used definition comes from the World Commission on Environment and Development (1987), in what is generally known as the Bruntland Report. Sustainable
development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". This has led to a well-known approach for analysing sustainability that includes social, economic and environmental dimensions without any prioritising. Although widely accepted, this approach has been criticised recently. The Forum for the Future, argues that in this form this approach is invalid:

“A popular way of understanding sustainability is the concept of the triple bottom line of economic, environmental and social accountability. This idea proposes that an organisation’s licence to operate in society comes not just from satisfying stakeholders through improved profits (the economic bottom line), but by improving its environmental and social performance…

Whilst this concept is useful, we feel it is limited by giving equal weighting to each of the three bottom lines. We believe that environmental sustainability is pre-conditional, because without it the other bottom lines can’t exist!” (Forum for the Future, 2006)

People in many developing countries might give greater emphasis to the economic or social aspects of development. For Western societies, however, it is important to give the environmental bottom line particular significance. The model of sustainable development described here presupposes that the carrying capacity of the ecosystem (environmental limits) defines and envelops the extent of human action. The economy is tailored to work within this ecosystem’s capacity. The needs of communities to develop and maintain eco-efficient and sustainable technologies or ways of doing things have to work within the limits of natural ecosystems.

Sustainable development can be seen as change for the better in which social, cultural and economic needs are met without plundering non-renewable resources nor threatening ecosystems. The Forum of the Future defines sustainable development as: “A dynamic process which enables all people to realise their potential and improve their quality of life in ways which simultaneously protect and enhance the Earth’s life support systems.” (Forum for the Future, 2006)

New qualifications

As stated in the Boon declaration “increased scope for TVET is recognized in ‘sustainability industries’ such as environmental conservation, cultural heritage site preservation and renewable energy production” (point 4). Such new qualifications as recycling management, regional planning, marketing, waste management, community planning have became increasingly popular world-wide. Training for these qualifications has been undertaken through formal TVET and non-formal training. For example, IWES is Australia’s leading workshop for environment professionals http://www.iwes.com.au/index.php?page=home. Their recent courses include:

- **Principles of Wastewater Treatment**
  The aim of this course is to teach the key enabling fundamentals which underpin wastewater treatment processes. These are taught via real wastewater treatment problems and case studies.

- **Design of Biological and Advanced Wastewater Treatment Plants**
  This course focuses on the design of leading-edge treatment systems for both municipal & industrial settings – the sort of technologies and issues that are not easily found in textbooks.

- **Water Re-use for Urban and Industrial Applications**
  The course covers the tenets of the public health goals that govern water re-use regulations, Non-potable recycling in irrigation and industrial re-use applications; Greywater and stormwater recycling in point of use applications.

- **Odour Assessment and Management**
This course provides a practical grounding in the principles of odour monitoring (ambient and source), assessment and control. Regulatory frameworks for odour assessment and management are examined.

Work of IWES is a good example of providing focused training that is based on new technologies and best cases from practice. This organisation also established close links with WaterAid, which is an international charity. Its mission is to overcome poverty by enabling the world’s poorest people to gain access to safe water, sanitation and hygiene education. WaterAid enables the world’s poorest people to gain access to safe water, sanitation and hygiene education. These basic human rights underpin health, education and livelihoods and form the first, essential step in overcoming poverty. WaterAid works with local partners, who understand local issues, and provide them with the skills and support to help communities set up and manage practical and sustainable projects that meet their real needs. http://www.wateraid.org/australia/about_us/. Thus, a close relationship between training and community help is a good example of a systematic approach towards ESD.

**What are/would be a set of new qualifications appropriate for your context?**

**What are some examples of joint work between TVET, non-formal-training and communities aimed at development more sustainable communities?**

## TVET as an institution

The desirable outcome of TVET work is that its graduates have an impact on social, economic and environmental sustainability within local and global communities. Thus, it is important to recognize how TVET as an institution can perform sustainably. Two examples: school and university movements are considered here to facilitate the discussion. The aim is to identify up to 10 criteria for assessing sustainable performance of TVET institution, set them up as a UNEVOC declaration and invite TVET institutions to sign it as the basis of their commitment to ESD.

### Principles adopted by universities that could be adapted/modified by TVET institutions

The university sector is increasingly being considered as one of the important components in the movement for Education for Sustainability (ES). Universities’ multiple roles in preparing graduates for sustainable economies and life styles as well as generating knowledge about sustainable solutions and visions provide universities a unique opportunity to incorporate sustainability in their programs. Since 1990 more and more universities have signed The Talloires Declaration to state explicitly their commitment to support sustainability efforts (http://www.ulsf.org/programs_talloires.html). As of May 2007, 342 universities from 48 countries have signed the Declaration (http://www.ulsf.org/programs_talloires_signatories.html). The University Leaders for a Sustainable Future (ULSF) is a network of university academics and administrators who work cooperatively to implement a sustainability agenda. ULSF has argued that they have a responsibility to increase awareness, improve knowledge, create technologies and impart the moral vision that lead to a sustainable future and a high quality of life for future generations (Bekessy, et al, 2003, p.4). ULSF identified seven criteria for assessing sustainable university performance. A report on ESD in Australian and some international universities (Bekessy, et al, 2003, p.15) has developed them further and added
one more criterion. A number of characteristics that reflects a mature university approach towards sustainability, as defined in that report (Bekessy, et al, 2003) are as follows:

- Articulation of social responsibility in the institutional mission and structures;
- Integration of social, economic and environmental sustainability across the curriculum;
- academic research on sustainability, and consideration of social, economic and environmental sustainability issues in all other research;
- outreach and services, including the development of partnerships with schools, government, non-governmental organisations and industry;
- sustainable institutional operations, including effective monitoring and reporting;
- staff development and rewards;
- student opportunities;
- cultural inclusively.

These criteria present a list of requirements that can be adapted/modified by TVET system.

In analysing your institution, can you apply/adapt/modify these principles? Can you add another one?

**Principles adopted by schools that could be adapted/modified by TVET**

‘We can all adopt sustainable development, respecting both man and nature - and alter our production and consumption habits. Everyone can make a difference, starting right now’. http://www.teachernet.gov.uk/sustainableschools/framework/framework_detail.cfm

The National Framework in UK introduces eight ‘doorways’ through which schools may choose to initiate or extend their sustainable school activity. They are: Food and drink, Energy and water, travel and traffic, purchasing and waste, buildings and grounds, inclusion and participation, local well-being, global dimension.

The Framework focuses on ways in which sustainable development can be embedded into whole-school management practices and provides practical guidance to help schools operate in a more sustainable way.

Each doorway may be approached individually or as part of a whole school action plan, and the doorways are interconnected. For example, an interest in food and drink may see schools start growing their own fruit and vegetables in the grounds, which ties in to composting and conservation, both of which are features of the buildings and grounds component. This, in turn, may spark an interest in other activities such as waste and recycling (relevant to consumption and waste) or collecting rain water and renewable energy watering systems (the energy and water component). While a collective, whole-school approach is recommended, either track offers opportunities for improvement across the school’s curriculum and campus, and in its relationship with the local community.

Each doorway encompasses a long-term expectation clarifying where the Government would like schools to be by the year 2020. Although every school will start from a different position, with different priorities and needs, all schools can take some immediate action to meet these targets. http://www.teachernet.gov.uk/sustainableschools/framework/framework_detail.cfm

Take, for example, the Energy and water doorway. By 2020, the Government would like all schools to be models of energy efficiency, renewable energy use and water management. They should take the lead in their communities by showcasing wind, solar and bio-fuel energy, low-energy equipment, freshwater conservation, use of rainwater and other measures.

This is the way this doorway is described: The rising demand for energy and water across the planet is storing up problems for future generations. Increased energy use creates green house gas emissions and climate change. Increased use of water is threatening the world’s
underground aquifers, contributing to water scarcity in many parts of the world. For this reason, energy and water conservation are two essential areas for schools to tackle.

Eco-efficiency measures can help schools to reduce their need for energy and water, as well as reducing their environmental impact. Reducing the amount of energy and water a school uses can result in real cost savings. A carefully-managed school may consume only half the amount of water a poorly-managed school consumes.

**Curriculum**
Schools can use the curriculum to cultivate the knowledge, values and skills needed to address energy and water stewardship – both at a local and a global level.

**Campus**
Schools can review their use of energy and water and establish policies for monitoring and reducing their use through good management and the deployment of appropriate technologies.

**Community**
Schools can use their communications, services, contracts and partnerships to promote awareness of sustainable energy and water use among their stakeholders.

In analysing your institution, can you apply/adapt/modify these principles? Can you add another one?

**Conclusion**
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, the equity between countries, races, social classes and genders” (Fien and Wilson, 2005, p.277). Education for sustainable development again can takes different forms and shapes. This paper discusses two ways in which ESD can be addressed through TVET: through content modification and through establishing sustainable practices within TVET as an institution. Both should lead to TVET influence on poverty alleviation and skills development for employability, citizenship and conservation.
References


Pavlova, M. (2006a). Do we value values in technology education? Keynote address at the 4th International Conference on Technology Education Research December 7-9, Gold Coast, Centre for Learning Research, Griffith University.


Related documents

A number of supporting documents were put together as resources for the participants. The links were established to the conference website: http://www.oorg.de/unevoc/susdev/

- Finding the common ground: Is there a place for sustainability education in VET?
- Finding the common ground: Is there a place for sustainability education in VET?: Support document
- Bonn Declaration on the role and contribution of TVET to sustainable development
- Suggestions for TVET and ESD Action Planning to UNESCO
- Final Report of the International Experts Meeting, Bonn, Germany, 2005, 166 pages
- Discussion Paper Orienting TVET for Sustainable Development
- TVET and the ‘Triple Bottom Line’ of Sustainable Development (UNEVOC Forum #5)
- TVET for Sustainable Development: The Challenges of Implementation (UNEVOC Forum #6)
- Annotated Bibliography on TVET for Sustainable Development
Part 2

Analysis of the themes discussed

This part of the report is structured in a way that allows the reader to hear multi-voices of people from around the world. Issues and ideas are summarised with extensive quotes to support them.

Definitions of Sustainable development

At the beginning of the conference participants shared their interpretations of SD. A number of examples are provided below. Using terms introduced in the background paper, some participants put more emphasis on value change, some on technical fix (technical skills) in formulating their definitions.

“... reviews how the concept of sustainable development has played out in developing countries. It examines the theory and practice of sustainable development in the context of three criticisms (it is vague, attracts hypocrites and fosters delusions), and argues for an approach to sustainability that is integrative, is action-oriented, goes beyond technical fixes, incorporates a recognition of the social construction of sustainable development, and engages local communities in new ways. The context concludes with a description of an approach to sustainability that attempts to incorporate these characteristics.

Sustainable development is a socio-ecological process characterized by the fulfilment of human needs while maintaining the quality of the natural environment indefinitely. The linkage between environment and development was globally recognized in 1980, when the International Union for the Conservation of Nature published the World Conservation Strategy and used the term "sustainable development." The concept came into general usage following publication of the 1987 report of the Brundtland Commission - formally, the World Commission on Environment and Development. Set up by the United Nations General Assembly, the Brundtland Commission coined what was to become the most often-quoted definition of sustainable development as development that "meets the needs of the present generation without compromising the ability of future generations to meet their own needs."

The field of sustainable development can be conceptually broken into three constituent parts: environmental sustainability economic sustainability, social-political sustainability".

Buhari, A. Akeem, Nigeria

“Sustainable development as I see is more of the 'quality factor', which should be integrated into the VET system so that the system itself leads to inclusive and prolonged growth - which is through the three dimensions - social, economic and environmental. (Ref policy document - by Margarita). It requires influencing the mindset of people and society leading to the value chain approaches - so that the impact reaches all the sectors and levels of society and makes it more like a movement. I hope I don't sound too taken away by this thought of SD in TVET!".

Anita Sharma, India.

“If we think of sustainable development as 'useful skills with people who need them', we include training in vocational skills and the necessary environmental knowledge in the definition. This may go some way to bridging the gap between large and small, regional/local etc. “To me a sustainable future is sustainable development, which is about transferring skills to raise capacity so that people can do the task (whatever it is) by themselves without external assistance. This leads me to agree with Anita Sharma that sustainability must include skills development in the informal sector, particularly in the rural areas”

Ben Goodman, Solomon Islands
"When I turned to the dictionary three or so weeks ago to look up the words "sustainable" and "sustainability" I found there was not much elaboration of the two in the dictionaries and so I turned my attention to the word "sustain", because if I can understand the word "sustain", I will understand the concept of anything sustainable or the word sustainability. Below are the extracts of the dictionary definitions from http://dictionary.reference.com/browse/sustain, other dictionaries I looked at has similar definitions:

1. to support, hold, or bear up from below; bear the weight of, as a structure.
2. to bear (a burden, charge, etc.).
3. to undergo, experience, or suffer (injury, loss, etc.); endure without giving way or yielding.
4. to keep (a person, the mind, the spirits, etc.) from giving way, as under trial or affliction.
5. to keep up or keep going, as an action or process: to sustain a conversation.
6. to supply with food, drink, and other necessities of life.
7. to provide for (an institution or the like) by furnishing means or funds.
8. to support (a cause or the like) by aid or approval.
9. to uphold as valid, just, or correct, as a claim or the person making it: The judge sustained the lawyer's objection.
10. to confirm or corroborate, as a statement: Further investigation sustained my suspicions.

One aspect of sustainability that the above definitions brought out for me, that is not always talked about when discussing SD, is the act of sustaining suffering/enduring pain without yielding. Assuming we succeed in getting every single man on the planet to join the SD/sustainability crusade, would mankind be totally and completely free from suffering of any sort? The fact remains that we live with suffering all the time, whether rich or poor, educated or not educated, young or old, and to live a sustainable life amidst all that requires the ability to endure all the suffering, temptations, highs and lows of life without yielding to the pressing temptations to give up or give in to ways and means that are not sustainable. For example, how do people in some developing countries survive serious surgical operations without any form of anaesthetic? I believe, by bearing up, suffering without giving up. How do girls and women from really poor families survive the temptation to go into prostitution amidst alarming hunger and other deprivations? Again, by learning to endure the pain without yielding. How can a highly educated and well placed professional, occupying a sought after position in a country that is extremely corrupt, resist pride, the lure of power, the temptation to enrich himself through his position, and instead remains honest, genuinely meek, satisfied only with his salary? I believe he has to endure a lot of pain and suffering of not giving up to pride of achievement and authority, endure the "shame" and "persecution" that goes with choosing integrity and simple lifestyle, especially when his peers are far ahead of him in wealth, fame, etc. He must be courageous when a beloved family member says, "we are tired of you Mr. Integrity, why don't you bend the rule a little bit, at least for the sake of your family?"

So, I don't think sustainable development and sustainability is something separate from our daily living, something we have to try and link to our compartmentalised endeavours. Rather, it is starring us in the face all the time, demanding us to practice (act) it and live sustainably or reject it (as we often do) and live unsustainably. I am greatly tempted to give my own definition of sustainable development/sustainability but I must resist the temptation and instead invite us all to ponder on the key words like support, bear up, suffering without yielding, endure, encouragement, supply, provide, keep, hold etc, etc, in the above definitions. Do they have any relevance in our practice and concept of sustainable development/sustainability? Do they have anything to do with the frame of mind?"

Idem Udoekong, United Kingdom

"Under the rubric "development" technology increases the distance between man & nature. Man is a part of nature. Increasing distance may one day see the end of mankind. Your motto of TVET sustainable development tries to reduce the distance between mankind & nature, thus making technology eco-friendly".

Sadhana, India
“For a start, we should consider this personal definition of sustainability: At different operational levels namely: individual, community, micro and macro level national and international, sustainability simply means using today’s resources (human capital, material & environmental) in a manner that accounts for their further use tomorrow and a day after tomorrow”.
Benjamin A. Ogwo, USA

“For me I add to the definition of Sustainable development, it should include inclusive education, market relevancy and links, political and economical stability. We can't define sustainability of TVET for the poor same as for others, for women, special needs, refugees, youth in conflict same as others”.
Randa Hilal, Palestine

These definitions exemplify participants’ views on how to interpret the ‘political definition’ of the Brundtland Commission Report to their own contexts.

**Content change of TVET**

In the first broad area the main emphasis in the discussion was directed to the role of TVET in the development of the ‘whole person’: *skills, values and attitudes relevant to SD to be developed through TVET studies.* Changes in our mindset, students' development in an holistic way through TVET paying as much attention to values and attitudes as to developing skills; look closely at the individual level (not only at the political and institutional); examine moral principles; the importance for TVET teachers to ‘re-orient’ themselves were examined by many (e.g Josefa, Gabriel, Stephen, Yalams, Idem, Richard, Teeluck and others).

Participants agree that inclusion of ESD in TVET has not been a priority for developing countries.

Majority participants view it as a challenge. They have agreed that social sustainability, which might be a result of TVET training, is a priority compared to environmental aspect that might be included in TVET teaching. Anita Sharma from India stated that the discussion on how to articulate idea of SD in TVET programs “has been raised more by people from 'developed' countries, but I think that we should think about some solutions that are applicable for developing countries as well. So far we have a clear indication that environmental issues are nice, but not a priority, social sustainability might be a priority”. Anita argues that TVET should be considered as a tool leading to sustainable development: “it is more of mindset which needs to be built - how do we shape the TVET so that it can contribute to SD? Is it the framework of TVET which needs to be seen or the tools of TVET – training curricula, didactics, approaches, etc.”

Participants from developing countries see the challenge of linking SD and skills development. “From having worked in very poor areas (rural and urban), where people are most concerned about whether they will eat and have a shelter that protects them from the elements, I know that environmental concerns are not a priority, but rather a “nice-to-have”. This is the conundrum of policy implementation in a way that is meaningful to the majority of people” Fiona Cameron-Brown, South Africa.

Participants recognise the need to address sustainability in TVET.

“I believe that 'sustainability in VET' (as more commonly referred in India) is a crucial need and would be good if looked upon as a mind set” Anita Sharma, India.

“I do agree with you that environmental aspects unfortunately is not a priority and whatever training is being done today, I believe is highly focused on skills related to new technologies and new emerging economical sectors. Sometimes, it is a pity to note that it is too late when we realise our adverse effect on our environment, while the principle of sustainable development requires us as individuals and as a society to think through decisions about how we live our lives, about development and social advances by considering all the
consequences of our actions and along trying to come up with solutions” Fiona Cameron-
Brown, South Africa.

Participants discussed importance of ESD as a frame of mind, so that the right values and attitudes can be developed in the students during their studies.

Many participants were talking about the importance of ESD as a frame of mind, changing the mindset should be a priority. A number of participants argued that frame of mind and policy paradigm should be both used as they work at different levels:

“In line with the ESD topic, my question is could the two broad trends be combined? In my mind, the second approach [frame of mind] is at a bit higher-level compare to the first approach [technical change]. The first approach is more technical and “easy to understand” in the implementation side. The first approach could be used by the community directly, while the second approach more to the level of decision makers. The second approach could be introduced to the community only after they understand and can see the fact that Sus Dev is really needed and they have great influence toward Sus Dev, then how to implement it” Carolina Lasambouw, Indonesia.

“The shifts in mindset are particularly important” and this can be achieved only “with an ability to look at the wider picture” Ben Goodman. He continues: “ESD as policy or frame of mind? Frame of mind are the words that ring a chord with me. A policy may set a framework for operations, but positive attitudes lead to better implementation. However, to a considerable extent, sustainability depends on the intangibles that come as a result of the education and training process. For example, a person having increased confidence as a result of their training”. This view have been supported strongly by participants: “I totally and fully support the thesis by which ESD is first and foremost a frame of mind, which will eventually inform policy, among other things - but is not policy in itself. TVET would provide the specific skills and tools to implement or put in practice such frame of mind. Canadian community colleges and institutes have several international projects, many of which have the overarching goal to facilitate a process towards a new or renewed frame of mind”. Dominique Van de Maele, Canada.

Development of ‘the whole person’ by the means of TVET was supported by many.

“I believe TVET has a lot to offer in preparing the ‘whole person’. Human dignity and dignity of labour - health and harmony with nature - truth and wisdom - love and compassion - creativity - peace and justice - sustainable development - national unity and global solidarity - global spirituality. These are eight core values that are crucial for the development of the whole person. Integrated into TVET, these values can prepare workers and citizens with the knowledge, values, attitudes, behaviours and skills they need to be able to participate fully in their economy and work effectively and responsibly in a globalised world”. Josefa Natau, Fiji.

“Unless the basic mind set of all policy makers, academicians, and development workers change happens, “what progress we would make in the newly emerging scenario of holistic approach for development?” Gandhi, UK.

“Young people and adults need life skills that will allow them to engage in sustainable livelihoods. Young people and adults need life skills that will allow them to engage in sustainable livelihoods”. Benjamin A. Ogwo, Kenya/USA.

One of the major concerns that participants expressed was related to the need to change the perception of TVET as training in technical skills only. As a participant from India (Anita) put it: “More emphasis should be given on developing attitudes and knowledge skills rather than technical skills; - this can be the first priority in TVET”. This change of the teaching paradigm brings TVET closer to general, where education includes broader aspects such as values and attitudes.

Possibility to develop general principles for developing and developed countries.
Although there was discussion about the difference between developed and developing countries, some participants believed that there are some general principles applicable for both contexts: “It is understood that “one shoe does not fit all” however, there are principles that have worked for the profession. The concept of TVET and SD is nothing new going back to the philosophy of TVET, what will be new is articulating the idea in our programs. How we do that becomes the issue. I would like to see suggestions thrown out there with some factual bases of principles and philosophy of TVET” Hassan B. Ndahi, U.S.A. He supports the ideas of urgency to “re-evaluating our program (TVET) vis-a-vis sustainable development. SD is not a new concept in TVET. What has happen in many cases is the failure to articulate the idea in our programs (whatever the TVET program may be). As I mentioned yesterday, great educators, i.e. Pestalozzi, Rousseau, and Dewey, all advocated for meaningful educational programs that will develop the individual, community, and society in general, and the development must be sustainable”.

**Some solution for integrating SD into TVET curricula was proposed.**

Participants presented a number of examples to support their arguments. They see the danger in just preparing people mainly for jobs, “forgetting that the same person would have to interact with nature and people in other complex /dynamic aspects of living” (Idem Udoekong, UK). For example, the following modules were included in the informal training of Palestinian youth from Jerusalem:

- Life skills
- Civic awareness: Democracy & Human rights
- Gender awareness

“The integration of these elements into curricula has developed based on the long years of experience, ongoing participatory evaluation and planning process the institution goes through. These elements are kept flexible as outline and trainers materials to assist the trainer in his/her facilitation roles during these sessions” Randa Hilal, Palestina. These modules were adopted by other VET institutes that are run by non-governmental organizations in the country.

Another type of solution was proposed by Carolina Lasambouw from Indonesia. She proposed to **analyse culturally rooted decisions that can be explored through TVET programs.** “We need to deeply research and consider any available wise "cultural" habit/regulation etc which used to exist in the relevant society. It's like Bottom Up ways in developing strategic "SusDev". Currently most of the way was Top down...... Developing countries learn from developed country, or given from donor country to the recipients countries. Sometimes without we realized, we influenced others to used and implement our parameter which we think "good" or "best".

“As you might be aware, Indonesia consists of more than 18 thousand island with many tribes. Each tribe has their own cultural regulation. If we are patient enough to deeply research their cultural regulation, we could find so many "wise" regulations which hold and implement by those tribes' community. And sometimes this regulation already in itself contains sort of what we called as "sustainable development". To choose one among them as an example is cultural law implemented in Maluku (Eastern Indonesia). To protect people from exploiting the fish in the sea, there is a regulation that in six month (I think first six month) of the year the tribe priest will announce the closing of the sea (Known as "Tutup Sasi"). People are prohibited to catch fish from the sea. The reason is to provide enough time for the small fish to get larger. Then the next six month, the high priest will announce the opening of the sea (Buka Sasi). People are free to catch fish again. Based on the regulation, people manage to catch large size fish, which in turn has economic value compare to the reverse. People who break the law will be penalties by the high priest and announce to the community. Generation to generation this cultural law is implemented. But the more generation become "educated" and off course "cleverer", the more this kind of cultural law is questioned. This is one small example to show that so called "sustainable dev" sometimes already culturally blended. The community will protect their surrounding with their proper way. I mean proper for them according to the nature and environment around them”.

Participant from Rwanda have already used indigenous knowledge in TVET training. “Actually I am running a Technology Training Centre where the development of technological know -
how starting from **ICT to indigenous knowledge** is at the centre of our work, the centre is based in Huye district, South Province” Cleophas Kanamugire, Rwanda.

Idem Udoekong, UK shared his experience of establishing ethics module in his training: "As an NGO working in Nigeria, I can remember when after three years of developing and implementing projects to help alleviate poverty and improve people’s academic/vocational education, it suddenly dawned on us one day that a lot of the dictators and corrupt practitioners in Nigeria, as in most other countries, did not have the word "dictators" or "corrupt practitioners" written on their faces when they were young or, for some of them, when they started out very poor. But that after they became empowered (one way or the other) and grew out of poverty, became adults, got into positions of power, they had no clue how to handle the temptations of life and they end up destroying their societies, their people and themselves. Suddenly we realised that even if we were able to give someone the best food, best clothing, best shelter, best academic/vocational education etc, unless we help him/her to also develop and abide by sound moral principles, we have not done much good for the person. So, as a matter of urgency, we quickly developed and introduced ethics and character development project tagged "Be a Life model" which we are introducing to communities and schools wherever and whenever we can, and we now have the habit of making ethics and character development a feature of any project that we are implementing, whether it’s ICT, agric or vocational skills development etc. If any of you is interested in a copy of the "Be a Life Model Handbook", please feel free to download it at www.sdnetwork.kabissa.org/ethics.htm. It's totally free for anyone, and no strings attached. Idem Udoekong, UK

Ann from Australia shared resources developed for Indigenous people (http://toolboxes.flexiblelearning.net.au/preview/index.html#T) where some specific Indigenous packages such as Conservation and Land Management; Cultural Resource Management; Learning about Native Title, Indigenous Ecotourism and others were developed. These new ways of developing content for TVET proposed by participants would help to include ESD in TVET.

Examples of unsustainable decisions can be also included as case studies in a TVET content: “As a comparison I would like to share with you one other example which is based on the policy maker decision. Previously most of the tribes in Indonesia have their own staple food. Usually the staple food is in line with the climate and nature of environment around their location. Eastern Indonesia used to have various kind of sweet potatoes, sago or corn as their staple food. However one time (I think around 1970s) the policy makers introduce rice as a common staple food to all Indonesia regions including the eastern area. So bit-by-bit people learn to eat rice every day and nowadays it becomes a habit. Previously Indonesia could self provide the rice for the community, even used to be known as one of rice exporting country. But currently we have problem with providing enough rice for the society, then we become rice's importing country. In my mind (with minimum experience and knowledge), this case have a close link with so called "sustainability development". Carolina Lasambouw, Indonesia

A similar case happened in Borneo when people choose a short cut to burn the waste (peat moss/turf) when they opening an area of land for plantation. When the policy maker provide settlement in the area without proper policy, and people who settled there need to survive of fulfilling their basic need, they will try to find the cheapest and shorter ways and neglected the so called "SusDev". Carolina Lasambouw, Indonesia

This re-orientation of TVET towards development of the whole person that includes cultural learning and broad knowledge brings it closer to the broader educational agenda. Although the importance of developing new frameworks, attitudes and values relevant to SD, introduction of SD concepts and strategies were identified from participants from both developed and developing countries, many contributor have agreed that it is not a priority for the developing countries now. Some resources developed for ESD and solutions were identified by participants and shared with conference members.
Sustainability of TVET as an institution

This area attracted a lot of discussion, with one aspect in particular, on what should be done, so TVET institutions can survive in developing countries.

Status and prestige of TVET

“I have been following the discussions by conference members who are expert in VET and other educational fields. I indeed agree with their observation, which stated that in developing countries, TVET in particular is suffering from misconception, mis-match and mishandling. I think especially when VET is far away from the workplace/industry, no long term strategic planning and measurement is available for all stakeholders to take part and no consistency in the implementation side. The issue is how to overcome this, even with the changing in education globally”.

Carolina Lasambouw, Indonesia

“In almost all of the countries, TVET is the second or third or the last option for youth. In India too, vocational training has been looked down upon as the options for those who are not able to take up higher education. White colour jobs are the most sought after - blue colour are for people with no other options. The dignity of labour is quite ‘missing’. In the second one come issues which were also raised by one of the participants - capacity building of trainers/management; financing of TVET; attracting more trainees; improving its status in society”.

Anita Sharma, India

“The reason why TVET and SD are not valued in developing countries is just because the educated rate it to be for failures. There is very little involvement of skills training in the early years of children's education which makes them hate technical education. In most of the developing countries like in Uganda where I am, this type of education is regarded as for failures in the academic path and the parents only resort to it when their children fail. This is a very bad perspective and we need to change it now”.

Stephen Lwalanda, Uganda

“In Nigeria TVET is not embraced technically as most of our people even the educated ones still believe that TVET is an essentially tools for the dull minds and this is more disastrous for the development of African nation's in all ramifications”.

Buhari, A. Akeem, Nigeria

“I am very much aware of the situation with regards to TVET in Africa and indeed other developing countries. One can say some of the programmes have lost their prestige, not because they are no longer relevant, but because they have been treated as secondary, compared to other programmes. In Africa and indeed other developing countries, TVET in particular is suffering from this misconception, mis-match and mishandling. A lot of people are yet to see anything good in Vocational technical education; this is perhaps why it is not getting the desired sustainability treatment. An ongoing discussion on the UNEVOC e-forum recently reported that, some countries are closing down technical schools”.

Simon M.Yalams, Trinidad and Tobago

“Most of the participants were discussing about TEVT institutions not being sustainable because of many consider it as alternative education for nonachievers. Nepal also has the same situation as rest of the world”

Dhruba Dhungel, Nepal

“I don’t see a problem of having low achievers at TVET if this is their only chance, our problem is with the stigma and the perception that we have against those people, and I think from experience that middle class university graduates that are at top positions in governments, and other organizations have this perception and look down at the (blue colours)”.

Randa Hilal, Palestine
**Issues within this problem**

**Status of University graduates and TVET graduates**

“Academics and TVET should be taken on the same level and should move together. Most University graduates lack technical skills to help them carry out simple repairs at their homes and even at work. The same applies to the TVET graduate; this person is trained to interpret schematic drawings which were designed by the University graduate. He/She should have the competence of reading and implementing the design. This calls for high understanding. This person should be able to consolidate, synthesize and apply the ability to use the head, the heart and the hands towards innovation and modernization. He should be able to link institutional programs and activities in technical education that is between what is taught about the principles, processes, materials, machines to development”.

*Stephen Lwalanda, Uganda*

“A technical college/TVET student shouldn't be the one who has failed academically. If so, the world will keep on having substandard materials which will greatly affect development. The gap that exists in technical/vocational training should be bridged to help the young individual to choose an occupation, prepare for it, acquire it, maintain it and progress in it. There should be a clear career path to higher qualifications like in academics”.

*Stephen Lwalanda, Uganda*

**TVET teachers**

This is one of the important aspects of the problem that should be addressed to make TVET sustainable. There was a tension in participants’ view on the emphasis in criteria for a good TVET teacher. Some (e.g. Ben Goodman, Solomon Islands) believed that high quality technical skills are the main requirements for a good TVET teacher: "I hear contributors raising the issue of academic qualifications required to teach TVET. To me this seems to be the wrong direction for sustainable TVET as it restricts TVET teaching to the minority who are comfortable in both academic and skilled worlds (with an emphasis more on the academic as qualifications rise)".

Others believed that the quality of TVET teachers relates to HE qualifications they have and that contributes to the quality of TVET and its image. For example, Teeluck Bhuwance (Senegal) stated: "If we limit TVET to providing or training for particular skills and not expect the trainers to have “academic qualifications”, then we are facing an uphill battle. I am not saying that ALL trainers SHOULD have the highest academic qualifications. I have had many discussions on “education” versus “training” and at times there seems to be a mindset that sees education as “opposed” to training. This is an inappropriate, not to say wrong, mindset, according to me... “

Thus, although the tension was visible through the discussion, a majority of participants agreed that the quality of TVET teacher training is a priority and could be achieved through HE. As summed up by Simon Yalams (Trinidad and Tobago): " There is this saying that goes: “no educational system can rise above the level and quality of its teachers”. It therefore follows, that, no TVET teacher or Practitioner can do better or bring a change that he or she has not experienced, received or tested. What is happening with regards to TVET in some developing countries are typical evidences of backwardness, poverty, lack of orientation and lack of attaching values to educational development. Changes could come: If the agents of the change themselves are changed”.

**Facilities and finance**

Problem of supporting existing facilities was raised by a number of participants.

“In last march 07 I conducted my personal survey in 3 schools as sample to see how school based computer labs are working and it seems that we share the same view. In some school they were unable to pay the electricity bill, or there was lack of technician to repair the damaged materials or softwares”.

*Cleophas Kanamugire, Rwanda*

“We have great problems in sustaining our education facilities especially in ICT. As a result many facilities that are provided by central government to enhance education run down after a short while creating constraints teaching. On realizing this, I have managed to create a few
income-generating projects that also enhance our education leading to sustainability of our education facilities. In this conference I would like to address ESD from a perspective of the sustainability of our educational institutions. I believe that in order to address the larger question of ESD we need to question how sustainable are our schools and universities? Can school and colleges that rely purely on government and donors be agents of change for ESD? 

John Kamwengu, Rwanda.

“Thanks … for raising the issue of finance. We haven't talked much about this, but without adequate finance nothing is sustainable”

Ben Goodman, Solomon Islands.

Solutions

Some participants highlighted that we cannot “lay the blame of the status of TVET on others. I think it is real time to do a proper mea culpa and ask whether TVET professionals have done all that is needed to make it popular and interesting” Teeluck Bhuwanee, Senegal.

Participants proposed a number of solutions to the above issues.

New occupations in TVET

“Some new occupations related to ICT and electronics are giving new message to the world in relation to TVET sector as a whole”

Dhruba Dhungel, Nepal.

Facilities and finance

“Let me share our experiences in making our TVET program sustainable. Since Ben Goodman mentioned on "the issue of finance"… We do advocacy to our local industry partners, which are "end-users" of our TVET graduates by asking them to share the cost of TVET program per trainee. We successfully do this since we told the industry to think about their CSR, and besides we are all stakeholders for TVET anyways. This is a win-win condition”

Edwin N. Heredia, Philippines

Bridge general education & TVET- vocationalisation of curriculum

“I think integration of general education and TVET would be in the best interests of many nations (at least in Africa). Generally, general education concentrates on academic qualifications or preparing pupils for the next level of the educational ladder. The curriculum in gen. education needs to have skills and attitudes that youths can use should they not go much further in their education”. “My thoughts on education and training is that vocational education stands a danger of "academising" its curricula. This will then make TVET not to be sustainable. Gen education on the other hand needs to vocationalise its curricula. Frankly most of what is taught in general education just prepares pupils for next level of learning. If one fails, too bad they would not have skills to survive in the world. So vocationalising the curricula would help in giving useful skills for survival. To some extent Tanzania and Ethiopia have done something in that regard. I believe this would lead to ESD”

Gabriel Konayuma, Zambia.

“Introducing technical skills, relevant to the local area, into mainstream schooling, and we can break away from the expensive "technical college" model of delivery. That has implications for the large Technical Education bureaucracies and government policy, but it may be more sustainable”

Ben Goodman, Solomon Islands

“I also tend to believe that the more we will embark on continuing to think of education as different to training then the problem will be an eternal one. In the context of sustainable development, it might be now the right time taking into consideration all the experiences of the
developed countries that we try to reconcile Training and Education and stop dissociating them. I do agree with some participants who mentioned that sometimes learners might view that training only provide specific skills for certain occupation on the other hand some view academic qualifications as more appropriate to enter the labour market. I do believe that if education and training could be reconciled and learners given the opportunity to acquire the skills while obtaining appropriate academic knowledge, they would be as resourceful as needed by the industry. The National Qualifications Framework as implemented in certain countries is meant to bring a parity of esteem between the TVET and the Education system”.

Rani Domah, Mauritius

“Let me agree with Domah who shared the view that education and training can't easily be divorced. In less developed countries emphasis is placed purely on academic, or straight education and not training. Some authorities feel that training is much more difficult and expensive than ordinary academic. When u look at training and education, it appears difficult to draw line between them. I hope we can provide working definition that would be quite suitable”.

Yonton B. Kesselly, Liberia

“I really liked your bridge between GE & TVET - would like it more if we could extend it on the left to cover the ages right from 6 yrs onwards - which means that the attitude and knowledge and awareness on skills should be initiated from day 1 of the child's learning. This might be one of the solution to the world-wide problem of TVET being looked down - only for those who drop out from school or are not able to cope with GE. Looking from the employability point, the industries want to have employees who are 'trainable' - not those who have learnt some obsolete skills and believe they know all”.

“I believe if all rich and poor compete for competencies and proficiencies in skills (as a compulsory achievement in schools), then the dignity in taking up TVET as profession would also improve... TVET should be not a separate stream of learning for people who have no options for higher education & training. It needs to be integrated into the National education and human development policies and systems - as a part of the general school system. It has to begin from primary schooling itself and each year, the schools should assess both the academic achievements as well as competencies in skills gained by the trainee /student”.

Anita Sharma, India

“The training vs education debate: the two are not mutually exclusive if, as I suggest in the first bullet point, people in trades and occupations must be flexible and adaptable and continue learning. A case has been made for short, bite-sized courses that are easily managed in the workplace and/or in rural areas: there is no reason why these courses could not be the building blocks to achieving a trade/occupational qualification if the learner so chose. This would provide an incentive to continue learning, while at the same time equipping him/her with marketable skills that will enable him/her to work, contributing to the economy and supporting a family. The point I made in my posting the other day, about being able to use an occupational/trade skills/qualification as a stepping stone, was about those people who wish to continue, who should not be prevented from doing so. It seems that this is another area of agreement, but that it is the policy makers that often stymie us in achieving this: yet another challenge”. 

Fiona, South Africa

“I do agree that vocational examples could be used in teaching the language used in the country, for example, forms in business; incident reports and so on. However the requirements at various levels of TVET might vary enormously, so more complex examples could be provided at differing educational levels? And vocational maths can be quite complex, for example in electricity. So you could organise Maths around vocational areas - purchasing, for example, would test money and simple operations. It's a well-known research fact that learning processes or operations across differing content areas will lead to better learning that transfers from general to specific instances; this could well be an argument for general education using vocational examples to practise skills”.

Ann MacCann, Australia
Another way of vocationalisation of secondary schooling is introduction of technology education in secondary schools.

“As we discuss these issues, let us also think of the current trend of shifting from Technical and Vocational education to "Technology education", not just in the name, but by context and content. Making TVET all-inclusive through introducing critical thinking, creative, and problem-solving skills I think will make it more sustainable to stand the emerging challenges of the day technologically”.

Simon M. Yalams, Trinidad and Tobago

Pathways – Higher Education and TVET

System of accreditation between TVET and HE were discussed by participants as another important issue for increasing sustainability of TVET institutions. Fiona from South Africa expressed the shared view that there is a need: “for a continuum enabling trades people, if they so choose, to use a trade/TVET qualification as a stepping stone to a further qualification, whether it is in the same field or in a training/education environment in which pedagogical knowledge and skills would add value to their teaching/training. Too often, and this is a challenge we are facing in South Africa, a TVET qualification does not provide entry into a university course, except under exceptional circumstances, further perpetuating the split between "training" and "education". To my mind, this is counter-productive: who is to say that a person with a trade qualification does not have academic potential or interest? This may be something s/he develops over time. Barriers such as the stigma attached to the trades, as well as the unwillingness of academic institutions to consider applicants with these qualifications as potential students this are contrary to the principle of encouraging lifelong learning and innovation, as well as sustainability”. These measures will help to sustainable development in terms of social capital and capacity building.

“VET suffers as it is looked down upon mainly as options of livelihood for the socially excluded and economically weaker sections of society. In India, TVET is seen as the terminal point; those who opt for TVET have very few options for furthering their academic achievements or qualifications. Only open school systems accept these trainees for further qualifications. TVET delivery is mainly the responsibility of Government and NGO/charity organizations - only few entrepreneurs have come forward to contribute in the system. And this could be one reason why only 6% of workforce in India is vocationally trained”.

Anita Sharma, India.

“In order to sustain the TVET program (career for TVET graduates in a manufacturing organization The HR system has biased already to nominate BS degree holders can take-in supervisory function without considering the competence of a TVET graduate) so-called Recognition of Prior Learning (RPL) shall be adopted and be agreed both academe and HR system in the industry”.

Edwin N. Heredia, Philippines

“Thank you for that last comment which summarises a crucial aspect which we currently face as tertiary institutions - many HE and TVET institutions co-exist or have merged with outdated preconceived and stubbornly held ideas regarding programmes, staffing, students, qualifications, status quo and much more. However we can only begin to change if we try to work together in order to move together. There is a lot of deconstruction that needs to take place regarding knowledge and skills and their intrinsic value. Only then can we ourselves (in tertiary education) begin to change and influence the thoughts and perceptions of the younger generation not to have the prejudices, inherit the myths and perceptions which have come through the history of societies, nations, institutions and PEOPLE”.

Emma Kruse Vaai, Samoa

“All TVET courses are slotted into the Australian Qualifications Framework (see http://www.aqf.edu.au/), so the student can work towards a higher qualification at any point in the process, from finishing their Year 10 (Certificate 4) qualification, to being assessed as having completed the first two years of a university course (completing an Advanced Diploma through Technical and Further Education). In this way, students from disadvantaged backgrounds can work their way towards a degree gradually, while working. Or if someone
has started a lower-level qualification and does really well, or is interested in progressing, they are not locked out of the system at a lower level.

In addition, we have recognition of prior learning (RPL) - usually the student pays for this, but if they are employed and the employer wishes to verify that they have part or all of a qualification. In some cases, this can be started online (see www.proveit.edu.au).  

Ann MacCann, Australia

Some participants warn that the links between HE and TVET should also consider the high cost of TVET training compared to some HE degrees: “But we have a problem in some of the devolving countries in their image towards academic education and with open systems (although I am with open systems) some times they could use it as a bridge towards academic education rather than the market, in some experience some students have used the system to go through university as such education would require lower marks to get in, they ended up same as graduate from other academic stream, the problem here is not can they do it or not as some universities think, the problem is that vocational education costs at least 5 times academic education, some people are using it as a bridge, the system is trying to upgrade itself for university satisfaction rather than market needs, and then we end up with students wanted to go to university, majority could not, but not prepared enough for the market. I believe in the open system between education and training but it would need awareness of its risks and opportunities, it would need people at the policy level taking that into consideration and value both education and training, and it would need clear strategizing”.

Randa Hilal, Palestine

Teachers for TVET: Education/ training/ communication

The notion of academic-vocational were put in opposition by some participants in terms of TVET teacher training. “If we limit TVET to providing or training for particular skills and not expect the trainers to have “academic qualifications”, then we are facing an uphill battle. I am not saying that ALL trainers SHOULD have the highest academic qualifications. I have had many discussions on “education” versus “training” and at times there seems to be a mindset that sees education as “opposed” to training. This is an inappropriate, not to say wrong, mindset, according to me.

I think we should instil the idea that academically oriented people need to be “reflective practitioners” and skilled people need to practice on the basis of learning and not “experience” or “trial and error”. Putting academic education skill set in opposition to the technical skill set is not the right perspective. They need to be reconciled and a real compromise needs to be found, in a way that one does not negate the other. I also do not agree with the premise that the most skilled workers and industry trainers are not comfortable with academic work – that is why they are working in the trades. This statement is not only dangerous but also very damaging. It once again puts in opposition the “head” to the “hand”. I agree that we are still looking at TVET with an academic lens. I agree that we still seem to give higher importance to the academically oriented rather than the skilled oriented. But we should not throw the baby with the bathwater. While struggling to develop national or qualification frameworks, especially for TVET, we need to be careful to develop tools that do not formalise ONLY academic approaches and don’t make it difficult for skilled persons to see these as a hindrance rather than a facilitator”.

Teeluck Bhuwanee, Senegal.

Ann MacCann from Australia shared with participants an ‘Australian approach’: “In Australia there is a move to ensure that all TVET teachers, including those who are teaching at night and working in industry during the day, have minimum qualifications in teaching as well as their career qualification”. Another point made by Ann is the importance of TVET teachers network: “Definitely TVET teachers are trainable: if there is sufficient motivation, I believe anyone can be trained. However what KIND of training do they need, and how is it to be delivered? Australia has a national online resource collection and collaborative network called edna (http://www.edna.edu.au) which provides people with information AND allows them to form groups that communicate with each other. TAFE teachers in Australia are the heaviest users
of this moodle setup! The Australian federal government has also funded a flexible learning website for TVET teachers (http://www.flexiblelearning.net.au/) that I have found to be very useful with hints on both practice and research, while the NSW government has TaLe (Teaching and Learning exchange http://www.tale.edu.au/) which contains a library of teaching resources for online use and plc (professional learning community) forums for teachers to exchange ideas.”

Advertise TVET programs
“I feel that we have done very little in the advertising of the programs in technical/vocational institutions and this has led to the young students hating the trades. Let us come up with advertisements which are aimed at safe ways of doing work, Let us take this down to primary schools and show the young ones different ways of getting sustainable employment, show them video films, projectors etc, Let the industries have an employee to lecture at an Institute at least for 2 hours in a week so as the students and the Instructors can pick on the new skills and technologies. Let the environmental authorities come out to give some lectures at the Institutes even if it is done once a month.

As the world is now going renewable energy, let experienced renewable people come down to institutes to give alternatives to energies which are destructive to the world. Let us have the Area Ambulance and Police to hold topics at the Institutes on emergency preparedness, first Aid, Fire fighting and so on. Students should also be trained on starting and running of small enterprises and also be urged to be job creators rather than seekers.

By doing the above, the outcome from the Institutes will be well knowledgeable and self-sustaining after training. I am already implementing this in my Institute and if we could join hand, then we would move together. My Institute can be accessed on www.nati.ac.ug”.
Stephen Lwalanda, Uganda

Integrated approaches
Some participants present their views on the integrated approach that should be used to resolve the problem of TVET’s sustainability.

Approach A
The concept of TVET needs to be packaged differently -
• More emphasis should be given on developing attitudes and knowledge skills rather than technical skills; - this can be the first priority in TVET
• Technical skills, specially as these are expensive components of TVET, should be dealt with only for those who need it - at the second level;
• Marketing and entrepreneurial skills could be at the next level of training - or something like that.
The entire idea is not to train the skills which are not required by the market - training is expensive and resources are few.

Another important aspect which seems to be common among most of the countries is capacity building of the TVET planning and implementing agencies. The professional touch in the entire system of TVET somehow seems to be missing - we believe that poor and needy do not require quality training. The TVET institutions require capacities for:
• Training needs assessment
• Curricula development/revision or adaptation
• Monitoring and evaluation
• Assessment and review
• Documentation and promotion
• Linkages and networking
• Management of Skills training institutions
• Marketing, etc.

Can we move out of the clutches of poor quality institutions for the poor people run by poor managers and trainers?????
Anita Sharma, India

Approach B
In my opinion we should mitigate the shortcomings in technical education by:

- Promotion of quality and relevancy of trainees through availing equipment to enhance training skills with the aim of reversing the trend where technical graduates have to learn most practical aspects after officially being recruited (on job) which position most employers complain about,
- Ensuring that the curricula offered caters for the development needs of a particular country,
- Production of self-confident, visionary manpower with entrepreneurial skills which are meaningful to the employers in a competitive market.
- Endeavouring to establish linkages with industrial establishments in the country so as to enhance the industrial training of students prior to joining the world of work.

Stephen Lwalanda, Uganda

Another set of solutions proposed by Stephen:

- High quality training materials;
- Governments should also remove taxes on technical Institutes in an effort to allow them train more. Institutes material and teaching aid should be tax-free.
- SD can only be achieved through communities. All communities should sit down and identify their needs. The introduction of Universal Primary Education in Uganda was a very good start but at the end there are many dropouts from this system due to various reasons. Take an example of where the student has lost all the parents due to HIV/AIDS, the elder brother in the family will have to take on the young ones. In an effort to feed the family, he will have to leave school. Communities should identify such cases and help the ones in need through provision of increase in household income. Study loans through microfinance should be extended to these children and payable back after gaining employment.
- Master artisans should be brought together to take on such dropouts on apprenticeship programs which are modular and having a feature that at whatever level the student drops out, he/she should have mastered a module and can use the knowledge to help him/her earn a living. The programs should be short and last not more than a calendar year.

Stephen Lwalanda, Uganda

Learn from the other countries

Participants expressed a variety of opinions on how examples from other countries could be used. Developed and developing countries should learn from each other. It should not be one-way teaching/learning: “Currently most of the way was Top Down..... Developing countries learn from developed country, or given from donor country to the recipients countries. Sometimes without we realized, we influenced others to used and implement our parameter which we think "good" or "best"” Carolina Lasambouw, Indonesia. Bottom-up approach was advocated by her.

“…I personally observed that Asia continent and the Pacific are progressing educationally, scientifically, technologically and even culturally due to the encompassing ways TVET sectors is being embraced and powerful nations of the world like the USA, UK Germany etc now sees the importance of TVET and they are particularly exploring the advantage of this even to improve their economy” Buhari, A. Akeem, Nigeria. Randa Hilal, Palestine, believed that developed countries should learn from developing countries: “The rich experiences in integration of SD elements in TVET in the developing countries although directed towards social development, are worthwhile learning from. We have been exposed to some experiences in Africa, Indonesia, India, Fiji and Palestine that integrate these elements. I think its time to document TVET Best Practices worldwide and to make such information available for all. Some of these experiences could be further developed and modelled elsewhere”.

Many participants warning that the countries should be cautious in borrowing each other experiences.

Using resources within the country

Nwaobasi O.A. Denis, Senegal shared his belief that the key role in solving problems within Africa should be played by Africans: “working for the development of Africa with Africans”
from diverse backgrounds”. In this regard, he “wrote a document in French on a new approach to the Economic development of Africa described as Internal sourcing approach”. Nwaobasi O.A. Denis with another person set up a network African solutions network, “the underlying philosophy being that Africans should first seek and find internal solutions to their problems before calling for external assistance. External assistance should be sought only when all reasonable efforts had been exhausted with out success. My internal sourcing approach has received positive reactions from intellectuals including Francophone university lecturers both in Africa and beyond. The outcomes of the use of this approach and changes observed after sharing knowledge with qualified Africans, whose views were totally different initially made me seek a wider forum within which to expose this concept for consideration, dissemination and, where possible, implementation.

Moved by our stated belief and conviction, we created a commercial company, SOPCOPROL, with the aim of promoting and commercializing local products while at the same time offering employment opportunities to Africans from diverse social and educational backgrounds. We started in Senegal, with the hope of establishing subsidiaries throughout the Africa Region”.

Institutional structures and policies should be strengthened
“I would argue that anchoring the processes into the structures and policies of institutions is necessary for development to be sustainable. Institutional strengthening, thus beyond the individual, is required”.

Dominique Van de Maele, Canada.

“And TVET need not be looked upon as isolated stream for it to remain sustainable - if it becomes a part of the entire education and training framework, the sustainability would certainly be increased and it gets a better place in government or the national policies too”

Anita Sharma, India

Sustainable indicators
“If we reach to the conclusion that we should render TVET sustainable,… then sustainable indicators would have to be developed to measure such an endeavour”.

Idem Udoekong, UK

Thus, through discussion, a number of proposals were put on how to increase status and prestige of TVET: ‘strong need to revitalise TVET’, look for bottom-up approaches, association of new occupations such as ICT and electronics with TVET, looking for resources within (Africa); financial solutions.

“Sustainable TVET has so many dimensions that we are unlikely all to agree on a single solution” Ben Goodman, Solomon Islands
Contribution of TVET institutions to sustainable communities, economy and environment

The third broad area of discussion was introduced by participants: Contribution of TVET institutions to sustainable communities, economy and the environment through capacity building and poverty alleviation. In the third broad area of discussion issues associated with relevance of TVET training to local needs, short courses for rural areas, informal-formal training; flexibility of national qualifications frameworks and local needs were discussed. All issues that would be associated with quality TVET training irrespective of their inclusion of ESD. The link to sustainability is through the impact of graduates on local communities in terms of earning a living for them and their families.

The need to develop a coherent, flexible, demand driven TVET system.

"One of the major challenges that we face, especially speaking for nations that were colonised by Britain is, is developing a coherent, flexible, demand-driven education and TVET system. We seem to still believe in the myth that a good education (mostly theoretical learning) will open doors of success for our youths. Surely how much of what are our children learn in schools especially primary and secondary school is relevant for them to survive outside the classroom should they not qualify to the next level of education? Our universities too don’t seem to value integrating entrepreneurship in their training which would in my view lead to SD. Sometimes we accuse of politicians of lacking political will but we trainers and policy makers need to have a new mindset and political will to ensure that we have a relevant education and TVET system that is useful to its recipients. This requires hard work. It requires change management. It requires commitment. It requires collaborative efforts among education systems at lower levels and universities and the TVET system. Are we ready for that?"

Gabriel Konayuma, Zambia

If education is to be made sustainable in the life of the beneficiary, then it has to be delivered in an all-inclusive, multi-disciplinary and holistic manner, using the Integrated Education Program approach. Unless education is delivered as one integrated package instead of the fragmented approach that appears to be widely adopted in the sub-region, sustainable development will remain fragmented. An Integrated Education Program approach will comprise, but not limited to literacy, vocational and life skills (including critical-thinking skills, skills to organize and interpret data and information skills to formulate questions as well as the ability to analyse issues that confront local communities), ethics and civic education, environmental protection, HIV/AIDS awareness through family planning programs, peace and conflict resolution awareness, information and communication technologies (ICT), democracy and human rights (especially children’s rights), and gender issues.

However, for this type of program to be sustainable, it must be contextualized in the culture, language, value, habits and traditions of the people. It must also be rural or community based, using non-formal approach. There is also the need to create linkages between these initiatives in order to achieve results. But more importantly, such education that is provided could be internalized and absorbed, and hence capacitates the recipient to use the knowledge for the overall development of himself/herself and the global society in a progressive and irreversible manner”.

Teeluck Bhuwanee, Senegal

Quality of TVET system and courses

"Besides, from the various other messages, it is becoming clear that TVET expertise really needs to be collated and formulated - at the top level. We can see that most of the TVET curriculum are obsolete, trainers are not well trained, resources are few and Government policies are not favourably promoting TVET".

Anita Sharma, India

“(...)"
national manpower policy? TVET and Entrepreneurship? Is TVET responding to the changing needs of society?”

Teeluck Bhuwanee, Senegal

“The key to develop a successful TVET reform strategy and the improvement of the quality of TVET system is the realisation of decentralised and demand-driven enterprise training partnership. These partnerships are developed between training providers and the enterprises. The TVET project will initiate in 12 sectors Enterprise Training Partnerships (ETP). The ETPs will identify the needs of industries, develop training programs and initiate the demand driven training within the TVET institutions and companies training centres. The TVET reform with the help of ETPs will but the private sector in the driving sit and strengthen the existing and future workforce. It will also contribute to close the gape between demand and supply of skilled labour to Nigerian industries and modernise TVET system and institutions.

The TVET project will make sure that the private sector and public TVET institutions and training providers jointly with the companies organise through the ETPs demand driven training, upgrade the trainers and master trainers. The ETPs also should assist the companies to get systematic access to school leavers and existing work force in the labour market.

To make sure that needs of the private sector is respected by training suppliers, ETP Committees are formed which act as sectors’ bodies representing the stakeholders. They are closely linked to the structure of the sector’s chambers and of the Federation of Nigerian Industries (FNI), the Federation of Nigerian Builders and Contractor Industries (FNBCI), the Federation of Nigerian Tourism (FNT), their perspective chambers and associations and to the Investors Association Union (IAU) as the organisations of the private sector.

Each ETP is planned to have a technical secretariat that is charged to initiate the local Task Force perceptively distributed to regions and industrial clusters/locations, to ensure the bottom-up and PPP approach at operational level. The PMU of TVET will support and monitor the implementation of the TVET project within the ETP environment”.

Buhari, A. Akeem, Nigeria

“For India the following strategies for increasing quality of TVET were proposed: The Government alone can not continue to flush resources in meeting the huge goal of skilling its manpower. To sustain TVET we need :

- TVET to be considered as essential input for the National Human resource development;
- TVET to be looked upon by entrepreneurs who then finance the TVET implementation in institutions
- Increased participation from employers in design, implementation and assessment of skills training to make it effective, efficient and successful;

India has been able to achieve almost 100% school enrolment of children below 6 years of age”.

Anita Sharma

Access to TVET

“How is access available? What are the minimum requirements to join TVET courses? What is done to ensure gender equality access to girls, marginalised groups?”

Teeluck Bhuwanee, Senegal

Alison Mead Richardson from Botswana where she was involved in introducing distance and e-learning into the government technical education programme was “ particularly interested in how the introduction of new technologies can help to increase access to VET and also the impact on quality and costs”.

“Let me share as well on the connection of TVET to higher education curricula. In the Philippines, we have an Expanded Tertiary Education Equivalency and Accreditation Program
(ETEEAP), a program which is intended for TVET graduates with five year actual working experiences in the plant (company) who are willing to earn a degree without leaving their job post. The accreditation is by way of a portfolio and to be assessed by a university. The university then will confer the bachelor's degree depending on their chosen field of specialization and their TVET preparations. In fact, I am a beneficiary of this equivalency program. I graduated machine shop technology (machining) and then applied for a degree equivalency in a university. Within one academic year I was able to complete my learning modules then successfully conferred with a BS degree in mechanical engineering. Then, I took the licensure exam for mechanical engineer and passed. And I would like to tell you that my experiences in TVET curricula and my actual work experiences allowed me to become licensed mechanical engineer”.

Edwin N. Heredia, Philippines

Support youth entrepreneurship
Barry Sesnan from Ivory Coast raised a number of issues that relate to youth entrepreneurship:

- How do we build on youth's own initiatives and enterprise, and the fact that they have often found their own niches in a difficult market, simply for survival;
- in particular therefore, what can be done to help new skills, such as mobile phone repair, that have no 'master' older than 25, how to encourage the spirit of innovation while trying to keep our eye on the 'formal ladder';
- how to recognise peer vocational training;
- how to get flexibility built in so that the young entrepreneur can survive in a very changing environment;
- considering, but not imposing, sustainable 'working together' without imposing artificial structures (i.e. not forcing them into unwilling cooperatives that 'look good' but will collapse in recriminations).

“This has led to reflections and actions on providing support to young entrepreneurs in the form of reference materials (repair manuals, tailoring books, subscriptions to fashion or computer magazines, for example) and tools which they cannot individually afford (e.g. a welding set that can be hired from a centre). Also administrative support (as simple as an address, a post office box etc). It has also led to me strongly supporting short course solutions over long ones”.

Industry –TVET relationship

TVET responding to the new patterns of work structures
The change of paradigm in the world of work becomes visible by globalisation in the increasing importance of process management, caused by enterprise clustering and international electronically linked value chains. Process responsibility and leadership in processes along the value chains become a matter of survival of the fittest, whatever the products or services are. TVET should enable all companies and individuals to join this new pattern of work structures.

Products and services were well defined in each sector or section or in each enterprise as partner of an integrated value chain. ICT systems as technical solutions are easy to install and to be handled in shared services. That covers already the traditional TVET. A key role of TVET in future comes from the demand to enable the different employees and stakeholders running the electronically-linked decision-making and daily doing in linked value chains of numerous individual companies around the globe

Prosperity sharing instead of traditional work sharing by the UN Global Compact Business Models for “Outperformance and Sustainability” supports an accepted development by most governments and leads to a new relation between societies and enterprises. Companies might be mandated with more process responsibilities in the future.

That needs educational abilities and a learning platform for exchange of dispositive skills for common involvements in transparency and governance - based on universal principles, like the UN Global Compact 10 principles and the code of conduct of its participants. Some sources that might be helpful beside the well known range of ILO papers or national regulations available in EU:
Out performance + Sustainability + Transparency

- ICT Structure (e.g.: ISO 12207, 27001, 15504)
- Quality (e.g.: ISO 9001, 16949)
- Environment (e.g.: ISO 14001)
- ILO (e.g.: OHSAS 18001)
- Supply Chain Services, Brand Protection
- Risk management (e.g.: ONR 49000)
- Governance (e.g.: Anti-Corruption, Compliance Management)
- CSR (e.g.: SA 8000)
- Global Compact (e.g.: OECD, ILO, Human Rights, Environment)
- ICT Shared Services
- ICT Provider Services, ASP, Content Management

Achim Deja, Germany

Apprenticeship model

“The LWF has been training in school based model with production related training for over 55 years, in its center in Jerusalem. The Israeli policy of annexing Jerusalem and building a Separation Wall over the 1967 land was announced in the year 2002-2003, which means depriving Palestinian students from reaching to Jerusalem and exercise their right to education. Upon such changes the LWF did a study and planning for the emergency to ensure its services to continue. The LWF continued with its VTC in Jerusalem, directing its services to Palestinian youth from Jerusalem and helping other youth to access Jerusalem. On the mean while a new model of training in a new centre started working in Ramallah- the West Bank were students can access, running the apprenticeship model.

The model was able to increase the capacity LWF could train annually, it added the dimension of the dual responsibility into TVET, by introducing the training in the enterprises as part of the training, 60% in enterprises, 40% in school. Apprenticeship is run in various countries, but with the Palestinian economy that is mostly SMEs, and with economy in crises the model was able to succeed, starting from the VTC itself, based on increased quality training and strong monitoring system. The model was able to cut the expenses of the training by 2/3 and to increase the employment rates of the graduates by 15%. The graduation employment rates are always above the national employment rates.

Both LWF- VT centres were able to:

- Integrate market related elements within the curricula:
- Attitudes and behaviour for better adaptation of the working environment
- Work Ethics
- Entrepreneurship and starting your own business skills (full curricula)
- Career guidance (at entry and exit)
- Career guidance for women, and skills to organize and maintain their career”.

Randa Hilal, Palestine

Industry training

“In order for technical and vocational education to be current and relevant it must be carried out within close range of the activities carried out in industry in the world of work. Curriculum should be reviewed with constant feedback and input from industry and business. Vocational training centres should be modernized to replicate industry.

Students should be involved in more work study programmes and projects that take them to industry to gain new experiences Teaching Staff should also be involved in industrial attachments regularly to update their skills and knowledge”.

Buhari, A. Akeem, Nigeria

“To solve the problem of shortage of skills, most countries set up a technical education system which mirrors formal schooling in terms of gaining credentials, and offering long
courses. In the countries where I have worked, technical education is a separate system from general education, and the technical education system is generally not adequately funded.

Now let us consider industry. The pace of innovation and change in this century is fast and getting faster. Unless there is massive and continuous support from government, technical education facilities do not have the resources to buy and maintain state of the art equipment, or to pay and keep staff who can operate the equipment at the level necessary to train others properly. Training for these high level skills happens in the workplace on the expensive modern equipment. As the pace of change increases, it is likely that more high level training will have to take place in industry, as that is where the equipment is. (There is a link here with industry’s demand to have people with education that they can train themselves).

If training for the high level skills leaves the TVET system, then TVET institutions will only offer basic skills training. So, why have a separate TVET system? Basic skills could be learned in the formal school system, which might change the perception of learners that skills training is a poor relation. It will get basic skills training with the people who need it. Then, I think skills training will be sustainable (but that probably will not do much for the TVET system as presently constituted). I think this could be the link that Anita refers to”.

Ben Goodman, Solomon Islands

National skills system – flexibility
Anita raises a critical point. How can you have a National Skills system which is responsive to the needs of the people, and flexible and quick enough to keep up to date with modern technology, at a time when resources are limited?

In my experience, most National Skills systems require a large bureaucratic apparatus, and are extremely expensive to operate. They consume a large proportion of the available TVET funds. Because they are concerned with the avoidance of legal risk (to the bureaucracy) they are slow and cumbersome to respond to change. At the bottom end of the scale, the unemployed do not necessarily need a “qualification” - they need the bits of skills that make them employable, or help with their self employment. National skills systems are not really relevant to most of them - although skills systems create pathways for a few.

At the higher end of the scale, National Skills systems may trail behind the needs of industry. The cutting edge skills tend to reside in industry which can finance them from profits… Within TVET the skills certification system is just one of the various entrenched bureaucracies that will resist change. They will attempt to sustain themselves. How do we deal with this when we consider the sustainability of TVET as a system?

Ben Goodman, Solomon Islands

Marginalised groups
Just the same, there are real problems of the mismatch between the supply and demand on the labour market which could be encountered by a more flexible education system that would allow greater curricula diversity and build bridges between different types of education: between formal and non formal, between working life and further training. TVET as a life long undertaking for all would thus be initiated for programs to be comprehensive and inclusive so as to accommodate to the needs of all learners through flexible access to lifelong learning; assuring the participation of women and girls and those marginalized and excluded from educational opportunities”.

John Simiyu, Kenya

SD, TVET and GENDER
This is yet another area that is also facing the problem of sustainability in TVET, just as Anita Sharma rightly observed a short while ago. I feel that, it is high time something more realistic be done on this gender imbalance in education generally, and TVET in particular. I used to think that, this is a Nigerian or just an African problem, but studies by the UNESCO-UNEVOC, and indeed my being to the Caribbean recently have also shown that the female folks are far lagging behind in this area of education (TVET). One wonders why in this age?”
Simon M.Yalams, Trinidad and Tobago

Develop relationships TVET - ICT with caution

"I believe that new approaches should be examined but not on the expenses of the real needs of the people and the market. I think we are lacking the possibility of documenting best practices around the world and studying best approaches to develop it further".

Randa Hilal, Palestine

"I do agree with Dr. Gandhi that the focus should not just remain with traditional 'manufacturing or service sector' but has to move in line with upcoming areas - example ICT. But this would be possible if one has the right 'target group'.

I have been working closely with migrant communities - some of which are also in the neighbourhood of our national capital. If I am asked to take the ICT to these people - the very first hurdle would be the long training duration. For a school drop-out to get into ICT, training course would require integrating literacy, spoken English, communication, numeracy, science etc. along with technical skills. Just training them on operating the system would lead to a quick solution but a risky and not sustainable one. The fast changing technology would easily throw them out. Looking at the 30+ age group men who have migrated from rural areas in search of job - time is money. Short and smart solutions – something that puts them on wages immediately are the demand. It is for the children of these first generation migrants that one can successfully offer courses leading to IGA in ICT.

There has been many successful pilots led by ICT companies, where they selected the best of the school performers from the deep rural belt and trained them for employment in ICTs. But looking at the tough competition these people face from the urban graduates, the issue of sustainability remains a question. And even if they continue to work in the same company for longer time, the next issue that comes up is – with what possibilities of career advancement? To make it a sustainable option it is not only remaining in job but also having opportunities of career advancement”.

Anita Sharma, India

The above discussion was summarised by Fiona from South Africa:

"I have found this a very interesting and insightful debate, and clearly some of us feel very strongly about these issues. Reflecting on the conversation over the past couple of days, it seems that we are all saying similar things, but in very different ways. I have taken the liberty of trying to summarise the themes that I have seen:

Agreement on

- The need for vocational training and related skills that also enable "graduates" to continue learning and adapting to new demands in the workplace and economy
- The intrinsic value of trade and occupational qualifications, and therefore, also the value of the people who pursue these careers
- That occupational training needs a good general education foundation, but often that is missing-mathematics and science skills & knowledge and other fundamental literacies
- The need for quality which requires rigor, but also flexibility (quite a conundrum)
- The need for the training to meet local/contextual needs, economic and socio-political
- Opportunities for mutual learning between emerging and developed economies/ countries

I would have thought that acceptance of these principles would also suggest sustainability. Where we seem to come to some sort of disjuncture, is in how to apply these principles. Many postings tell us of successes in different parts of the world-perhaps what we need to do is to analyse these successes in relation to our own contexts to see what we can learn. What is different, what is similar, etc., in the broadest sense, including looking at contextual and local issues and how they have impacted on the success of projects, what can be applied elsewhere, why and how. What a potentially fascinating and challenging project!"

Fiona, South Africa
Conclusion

Three broad themes discussed in this part of the report represent the discussion that occurred during the virtual conference. It is possible to sum up that TVET could contribute a lot towards sustainable future in terms of **preparing people who understand issues related to SD and behave in the manner that supports SD**. Sometimes it means ‘to suffer without yielding’: to think about other people and environment first even that this can affect you negatively. To develop this type of person TVET should be re-oriented towards development of the ‘whole person’, thus ethical courses are as much important as skill-development ones.

To be able to do so, **TVET as an institution should survive, especially in the developing countries**. A number of solutions and things to consider were proposed. Another issue is that **TVET practises should be sustainable** (e.g. electricity usage, water usage). This topic was just touched by participants.

**TVET could also contribute to the social sustainability of communities and individual.** Quality TVET system and courses prepares graduates able to find employment and have a decent life. Participants identified a variety of challenges that were put forwards from the discussion: value change vs. technical skills training; pathways from TVET to HE vs. the cost of TVET training; developing vs. developed countries; TVET teacher with academic qualifications vs. TVET teacher with industry qualification only; education vs. training; industry training vs. TVET training.

**Recommendations for further activities**

- Need for more detailed description of a number of case studies of good practice emerged from the conference.
- Need to delegate some participants to describe their practice in a systematic way to illustrate three themes that have been discussed during the conference. And possible to present it in a book format.
- Need to collect/develop more examples/approaches on changing TVET content, so it contributes to ESD.
- Develop a web page where links to an interesting sites with ESD resources can be easy accessible by all.
- Organise a similar virtual conference and invite industry participants to contribute to the discussion on sustainability.
- Set-up a working group to develop SD principles for TVET institutions.
- Continue dialogue through the UNEVOC e-forum.
Part 3.

Automated text analysis of e-mails data

After analysis of e-mail/data on the basis of proposed and emerged themes (see previous section), e-mail/data were analysed using the Leximancer automated text analysis software program. This involved analysing the data to identify significant themes and concepts and relationships between these.

**Leximancer automated text analysis**

Smith and Humphries (2006) have demonstrated the utility of Leximancer for textual analysis. *(Note. Leximancer can process a variety of file types, including .doc, .html, .htm, .txt, .xml, and .pdf.)* Leximancer software is highly automated, extremely easy to use, and produces readily interpretable output from default settings. Thus, this kind of analysis is particularly beneficial as an additional way of validating the results of, for example, a manual analysis of data, because it provides a fairly unbiased and objective method of reviewing complex text and a clear process of justifying decisions about text selection.

**Content analysis phases**

Leximancer commences content analysis by undertaking a conceptual analysis (thematic analysis) in which it detects and quantifies predefined concepts within the text. It continues this content analysis by undertaking a relational analysis (semantic analysis) in which it quantifies relationships between identified concepts within text.

During the initial conceptual phase, Leximancer scans the text to identify frequently used terms (concept seeds) from which it generates a thesaurus of terms. It also identifies names (e.g., start-of-sentence). It excludes nonlexical and weak semantic information (e.g., 9, &), and nontextual material such as menus. This phase of analysis can be turned off, so that self-defined concepts can be used instead. As part of this phase of content analysis, Leximancer identifies frequently used terms around which other terms cluster. For example, “fleas” and “bite” cluster around “dog”, “hound”, and “puppy”. An iterative process ensues in which some of the potential concepts are eliminated. This process converges on a stable state containing most highly relevant concepts, in which a shortlist of concepts is defined by a longer list of thesaurus terms.

In the second phase of relational analysis, Leximancer measures the co-occurrence of concepts within text. It does so by specifying a set length of words or sentences (called window). It moves this window sequentially through text, noting co-occurring concepts (usually in three-sentence blocks). Results are stored in the co-occurrence matrix, which stores the frequency of co-occurrence of all concepts against all others. The results of this analysis can be accessed via a spreadsheet (spreadsheet.txt). The final stage of relational analysis (cognitive mapping) represents information visually for comparison (concept map).

**Concept mapping and other protocols for descriptive outputs**

The reporting of results utilises a series of descriptive analyses, the most immediate of which is provided by the concept map. The concept map provides a visual summary of concepts and their co-occurrences. The concept map provides information about the results of the content analysis in a number of ways, accessible via three slide bars (i.e., concepts, theme, and rotation). The concepts slide bar allows the viewer to vary the number of visible concepts to show only the most frequent or to include by increments those less or least frequently used. The rotation slide bar allows the viewer to rotate the array of visible concepts to optimise their interpretability, usually by aligning one of the most frequent – and conceptually relevant – concepts with the horizontal or vertical axis. The theme slide bar allows one to identify what might be described as prototypical concepts (i.e., highly frequent concepts around which others cluster). The size of thematic circles can be varied from (a) a minimum setting (Figure 1 where only the concepts are visible), through (b) intermediate settings where

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1 The following outline of Leximancer methodology is closely based on Grimbeek et al. (2005).
overlapping thematic circles identify locally distinct but related concepts (Figure 2), to (c) a maximum setting in which one or two thematic circles encompass all concepts (Figure 6).

**Results**

The analyses reported below summarises all e-mails sent by participants during the conference. The moderator’s e-mails are not included. In some cases when the particular e-mail was a response to a specific e-mail (some times in the form “Yes, I totally agree with such and such”), this specific e-mail is included in the analysis again. This approach might influence the result by emphasising some ‘popular’ concepts even more.

**Initial analysis**

Initial analysis of the concepts used by participants demonstrates as would be expected, that the following concepts were used by participants more frequently than others. As illustrated in Table 2, they include: TVET, education, skills, training, development, sustainable, people, should (to emphasis the necessity of actions), countries and sustainability.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Absolute Count</th>
<th>Relative Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVET</td>
<td>217</td>
<td>100%</td>
</tr>
<tr>
<td>education</td>
<td>169</td>
<td>77.8%</td>
</tr>
<tr>
<td>skills</td>
<td>151</td>
<td>69.5%</td>
</tr>
<tr>
<td>training</td>
<td>150</td>
<td>69.1%</td>
</tr>
<tr>
<td>development</td>
<td>141</td>
<td>64.9%</td>
</tr>
<tr>
<td>sustainable</td>
<td>116</td>
<td>53.4%</td>
</tr>
<tr>
<td>people</td>
<td>89</td>
<td>41%</td>
</tr>
<tr>
<td>should</td>
<td>77</td>
<td>35.4%</td>
</tr>
<tr>
<td>countries</td>
<td>75</td>
<td>34.5%</td>
</tr>
<tr>
<td>sustainability</td>
<td>70</td>
<td>32.2%</td>
</tr>
<tr>
<td>system</td>
<td>60</td>
<td>27.6%</td>
</tr>
<tr>
<td>policy</td>
<td>60</td>
<td>27.6%</td>
</tr>
<tr>
<td>think</td>
<td>59</td>
<td>27.1%</td>
</tr>
<tr>
<td>work</td>
<td>58</td>
<td>26.7%</td>
</tr>
<tr>
<td>technical</td>
<td>54</td>
<td>24.8%</td>
</tr>
<tr>
<td>conference</td>
<td>52</td>
<td>23.9%</td>
</tr>
<tr>
<td>school</td>
<td>49</td>
<td>22.5%</td>
</tr>
<tr>
<td>working</td>
<td>49</td>
<td>22.5%</td>
</tr>
<tr>
<td>learning</td>
<td>49</td>
<td>22.5%</td>
</tr>
<tr>
<td>years</td>
<td>49</td>
<td>22.5%</td>
</tr>
<tr>
<td>level</td>
<td>49</td>
<td>22.5%</td>
</tr>
<tr>
<td>developing</td>
<td>47</td>
<td>21.6%</td>
</tr>
<tr>
<td>Sd</td>
<td>45</td>
<td>20.7%</td>
</tr>
<tr>
<td>issues</td>
<td>45</td>
<td>20.7%</td>
</tr>
<tr>
<td>provide</td>
<td>42</td>
<td>19.3%</td>
</tr>
<tr>
<td>vocational</td>
<td>41</td>
<td>18.8%</td>
</tr>
<tr>
<td>academic</td>
<td>41</td>
<td>18.8%</td>
</tr>
</tbody>
</table>
Figure 2. Concept map for all e-mail data, with the concept, TVET aligned to horizontal axis
The concepts in Figure 2 were rotated so that the most frequent of them, TVET, aligned with the horizontal axis. Training, learning and sustainable then fell into alignment with the vertical axis. This arbitrary alignment facilitated the following descriptive analysis.

Based on this rotation, the four quadrants can be understood as follows: The upper left quadrant reflects talk about TVET in relation to structural organisational settings (school, work, systems) as well as the links of learning to academic studies and the market. The upper right quadrant reflects talk about TVET and education in terms of context-related aspects (countries, national policy, years). The lower right quadrant reflects talk about the relationships between TVET and sustainability (SD, development, society, issues, developing countries). The lower left quadrant reflects talk about the relationships between TVET and the need to change our mindset about the world, environment, sustainable life (sustainability, sustainable, world, people, should, think, life, time).

A more general reflection on the content of these e-mails is that they focus on a range of aspects that are closely interconnected with TVET. The top half of the concept map is closely related to the quality of TVET and thus represents the third theme identified by the manual analysis: contribution of TVET institutions to sustainable communities, economy and environment. The bottom half of the concept map is closely related to sustainable development and the importance of changing the mindset to the first theme identified by manual analysis: content change of TVET. The second theme identified through the manual analysis: sustainability of TVET as an institution, is visible in both, top and bottom parts of the map.
Leximancer includes an option that further highlights the influence of major concepts by overlaying thematic circles. As shown in Figure 3, the four quadrants, with the concept, TVET, aligned as previously along the horizontal axis, can be summarised in terms of people, training/education, sustainability and development as the major concepts. That is, another way of summarising the talk across these many e-mail is that they concerned TVET itself, the people, sustainability, training/education and development. It is also evident that participants were talking about the conference itself, and from the manual analysis it is known that they welcomed the opportunity set-up by the conference and that they enjoyed the dialogue and ideas/practices exchanged.

Refined analysis (concepts merged/deleted)
With the idea of selecting for relevance, semantically similar concepts such as sustainability, SD, & development were merged under Sddev. Technical, vocational, training, vocation, were merged as tvet. Work and working were merged as work. The concepts, time, and conference were excluded from this analysis based on their narrow application (identified as part of the initial analysis).

Table 3. Tagged Text Analysis: Ranked Concept List

<table>
<thead>
<tr>
<th>Concept</th>
<th>Absolute Count</th>
<th>Relative Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>tvet</td>
<td>449</td>
<td>100%</td>
</tr>
<tr>
<td>sdev</td>
<td>197</td>
<td>43.8%</td>
</tr>
<tr>
<td>education</td>
<td>169</td>
<td>37.6%</td>
</tr>
<tr>
<td>skills</td>
<td>151</td>
<td>33.6%</td>
</tr>
<tr>
<td>work</td>
<td>102</td>
<td>22.7%</td>
</tr>
<tr>
<td>people</td>
<td>89</td>
<td>19.8%</td>
</tr>
<tr>
<td>should</td>
<td>77</td>
<td>17.1%</td>
</tr>
<tr>
<td>countries</td>
<td>75</td>
<td>16.7%</td>
</tr>
<tr>
<td>system</td>
<td>60</td>
<td>13.3%</td>
</tr>
<tr>
<td>policy</td>
<td>60</td>
<td>13.3%</td>
</tr>
<tr>
<td>think</td>
<td>59</td>
<td>13.1%</td>
</tr>
<tr>
<td>school</td>
<td>49</td>
<td>10.9%</td>
</tr>
<tr>
<td>learning</td>
<td>49</td>
<td>10.9%</td>
</tr>
<tr>
<td>years</td>
<td>49</td>
<td>10.9%</td>
</tr>
<tr>
<td>level</td>
<td>49</td>
<td>10.9%</td>
</tr>
<tr>
<td>developing</td>
<td>47</td>
<td>10.4%</td>
</tr>
<tr>
<td>issues</td>
<td>45</td>
<td>10%</td>
</tr>
<tr>
<td>provide</td>
<td>42</td>
<td>9.3%</td>
</tr>
<tr>
<td>academic</td>
<td>41</td>
<td>9.1%</td>
</tr>
<tr>
<td>world</td>
<td>40</td>
<td>8.9%</td>
</tr>
<tr>
<td>basic</td>
<td>36</td>
<td>8%</td>
</tr>
<tr>
<td>national</td>
<td>36</td>
<td>8%</td>
</tr>
<tr>
<td>believe</td>
<td>35</td>
<td>7.7%</td>
</tr>
<tr>
<td>market</td>
<td>32</td>
<td>7.1%</td>
</tr>
<tr>
<td>society</td>
<td>30</td>
<td>6.6%</td>
</tr>
</tbody>
</table>
The list of frequently used concepts in Table 3, is as before, with the merged concepts. Now the most frequently used concepts are: TVET, Sustainable development, education, skills, work, people.

Figure 4. Concept map with the concept, TVET, aligned to horizontal axis.

As shown in Figure 4, TVET is now aligned with the horizontal axis as well as provide and SD, showing a close relationships between these concepts. Now the left half of the concept map shows the relationships between structural organisations as well as links to work, education and learning. The right half of the concept map relates SD to social, environmental issues, life of people, strong beliefs (should, believe) and developing countries.
Figure 5. Concept map for all interviews, with the concept, TVET, aligned to horizontal axis, and intermediate level thematic overlay.

The addition of a thematic overlay in Figure 5 makes the links between TVET, skills, policy and SD even clearer. Based on these clusters, one could conclude that they were the main concepts used by participants of the virtual conference.
As indicated in Figure 6, participant emails focussed primarily on TVET and sustainable development.

More details on the links between the following concepts: tvet and sddev; tevet and years; tvet and school; tvet and policy; tvet and skills; sddev and issues; sddev and skills; sddev and policy can be obtained from logbook extracts (see Appendix 5).

References

Part 4.

Evaluations

Although conference participants were not asked to evaluate the conference formally, many expressed their satisfaction with the conference and desire to continue the dialogue. Some examples are presented below:

*I feel very privileged to be part of this wonderful forum of exchange and it is good to read comments and contribution to the various aspects of the conference theme topics. TVET is itself a very challenging topic as many countries would appreciate they are still trying to grapple with and view this with the issue of sustainability has drawn a lot of interesting recommendations, solutions and views that showed the two cannot be matched.*

The wonderful results is we have shared many good points on the topic and those of us who participated would be very appreciative to the way you and your team have organised this conference. I would like to convey our gratitude to the wonderful manner in which this conference was organised using technology allowing everyone to feel free to participate without leaving their workstations.

Josefa Natau (Mr)
Director TVET
Ministry of Education
Fiji

****
Many thanks for a worthwhile conference

Dr Emma Kruse Vaai
National University Institute of Technology
SAMOA

****
*I have found this a very interesting and insightful debate, and clearly some of us feel very strongly about these issues.*

Fiona
FIONA CAMERON CONSULTING
Cape Town

****
*It’s great participating in such important conference. Thanks for this opportunity and the fruitful discussions.*

Eng. Randa Hilal
TVET Consultant
Chairperson of NGO-VET League
Member of the Higher Council of TVET Palestine

****
*The shifts in mindset are particularly important, and they only seem to come with an ability to look at the wider picture, which is why conferences like this one are important.*

Ben Goodman

****
I have read most of my colleagues’ messages (I have to confess that, for the first time ever, I am happily overwhelmed with emails!) and I am positive this will be a very enriching conference. I am looking forward to being part of it and to learn from you all. I look forward to continuing this fruitful debate.

Ana

****

This is my first time to participate in a virtual conference, and I feel blessed to have the opportunity to participate in the discussion of a topic that is near and dear to my heart. I am looking forward to the next few days of this conference. I have been enjoying the on-line conversations. The intellectual wealth already shared is immeasurable. We have discussed the global perspective and the country perspective, and in my opinion, ESD definitions need to include a fundamental concept at the personal level … Sometimes we forget to take a close look at the individuals involved.

Richard E. Shepperd, Ed.D
Professor of Education and Regents Professor
Texas A&M University-Corpus Christi
Department of Educational Administration & Research
College of Education

****

I look forward to exchanging information with you my co-learners in this very important virtual conference.

Gabriel S Konayuma, Zambia

****

I am following with great interest the ongoing discussions and exchange of experiences this forum makes possible. It is a great and lively event.

Theo Vink, Chile

****

I believe that this online conference would help me to understand the concept of SD viewed outside the environmental perspective. Not to forget that SD is largely associated with environment and arises from the World Commission on Environment and Development which presented their report entitled Our Common Future in 1987.

Rani Domah, Mauritius

****

It is really interesting to observe various ‘intellectual reflections’ of members on sustainable/sustainability of Development.

Dr. G. Gandhi, UK

****

I will be very grateful in sharing information in this conference and I trust it will be a success.

Stephen Lwalanda, Uganda

****

It was an interesting week to follow discussion, views and information among you and the conference members. I learned many things from you all. Have a great success for the future discussion!

Carolina Lasambouw, Indonesia

****

It’s a great pleasure to be joining this conference.

Ramon Iriarte, Japan
The current ESD Conference on the Internet is very timely. We are able to attend and share knowledge, experiences and lessons learnt from different countries from where we are - a grand idea indeed. This is overwhelmingly a breakthrough.

John Simiyu, PhD, Kenya

****

Dear Margarita,
Many thanks for your excellent guidance in the e-Congress on TVET. We will support UNEVOC in this task.

Achim Deja, Germany

****

I like to thank everybody for his involvement and the broad range of impacts given to me as participant. Input and outcome will be more structured, methods and instruments will follow more precisely the demand and last not least the basic mega-trend to connect people by knowledge for global aspects and local best practice is overwhelming.

Achim Deja, Germany

****

Thank you Margarita. I was out of contact with the proceedings of the conference for some time and I am just in time to see your last comment. I feel very privilege to be part of this wonderful forum of exchange and it is good to read comments and contribution to the various aspects of the conference theme topics. TVET is itself a very challenging topic as many countries would appreciate they are still trying to grapple with and view this with the issue of sustainability has drawn a lot of interesting recommendations, solutions and views that showed the two cannot be matched.

The wonderful results is we have shared many good points on the topic and those of us who participated would be very appreciative to the way you and your team have organised this conference. I would like to convey our gratitude to the wonderful manner in which this conference was organised using technology allowing everyone to feel free to participate without leaving their workstations.

Josefa Natau (Mr)
Director TVET
Ministry of Education
Fiji

****

Kindly allow me to thank all the participants and mostly our moderator Margarita, It was nice sharing ideas with you. I like you, You are great, I love you all and please stay in touch.

Stephen Lwalanda, Uganda

****

Margarita,

Thank you for that last comment which summarizes a crucial aspect which we currently face as tertiary institutions - many HE and TVET institutions co-exist or have merged with outdated preconceived and stubbornly held ideas regarding programmes, staffing, students, qualifications, status quo and much more. However we can only begin to change if we try to work together in order to move together. There is a lot of deconstruction that needs to take place regarding knowledge and skills and their intrinsic value. Only then can we ourselves (in
tertiary education) begin to change and influence the thoughts and perceptions of the younger generation not to have the prejudices, inherit the myths and perceptions which have come through the history of societies, nations, institutions and PEOPLE.

Many thanks for a worthwhile conference

Dr Emma Kruse Vaai
National University Institute of Technology
SAMOA
## Appendixes

### Appendix 1. The list of countries of the participants

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<td>The Gambia</td>
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Appendix 2

International Standard Industrial Classification of All Economic Activities, Revision 3.1, (ISIC Rev. 3.1)

A standard classification of economic activities arranged so that entities can be classified according to the activity they carry out. The categories of ISIC at the most detailed level (classes) are delineated according to what is, in most countries, the customary combination of activities described in statistical units. The groups and divisions, the successively broader levels of classification, combine the statistical units according to the character, technology, organization and financing of production. Wide use has been made of ISIC, both nationally and internationally, in classifying data according to kind of economic activity in the fields of population, production, employment, gross domestic product and other economic activities (Source: United Nations). ISIC is a basic tool for studying economic phenomena, fostering international comparability of data and for promoting the development of sound national statistical systems. Thus, despite the word "industrial" in its name, ISIC is not just a classification of industries.

(http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=17&Lg=1)

Click on any code to see more detail. Click here for top level only.

- A - Agriculture, hunting and forestry
  - 01 - Agriculture, hunting and related service activities
  - 02 - Forestry, logging and related service activities
- B - Fishing
  - 05 - Fishing, aquaculture and service activities incidental to fishing
- C - Mining and quarrying
  - 10 - Mining of coal and lignite; extraction of peat
  - 11 - Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction, excluding surveying
  - 12 - Mining of uranium and thorium ores
  - 13 - Mining of metal ores
  - 14 - Other mining and quarrying
- D - Manufacturing
  - 15 - Manufacture of food products and beverages
  - 16 - Manufacture of tobacco products
  - 17 - Manufacture of textiles
  - 18 - Manufacture of wearing apparel; dressing and dyeing of fur
  - 19 - Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
  - 20 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plating materials
  - 21 - Manufacture of paper and paper products
  - 22 - Publishing, printing and reproduction of recorded media
  - 23 - Manufacture of coke, refined petroleum products and nuclear fuel
  - 24 - Manufacture of chemicals and chemical products
  - 25 - Manufacture of rubber and plastics products
  - 26 - Manufacture of other non-metallic mineral products
  - 27 - Manufacture of basic metals
  - 28 - Manufacture of fabricated metal products, except machinery and equipment
  - 29 - Manufacture of machinery and equipment n.e.c.
  - 30 - Manufacture of office, accounting and computing machinery
  - 31 - Manufacture of electrical machinery and apparatus n.e.c.
  - 32 - Manufacture of radio, television and communication equipment and apparatus
  - 33 - Manufacture of medical, precision and optical instruments, watches and clocks
- 34 - Manufacture of motor vehicles, trailers and semi-trailers
- 35 - Manufacture of other transport equipment
- 36 - Manufacture of furniture; manufacturing n.e.c.
- 37 - Recycling
- E - Electricity, gas and water supply
- 40 - Electricity, gas, steam and hot water supply
- 41 - Collection, purification and distribution of water
- F - Construction
- 45 - Construction
- G - Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
- 50 - Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel
- 51 - Wholesale trade and commission trade, except of motor vehicles and motorcycles
- 52 - Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods
- H - Hotels and restaurants
- 55 - Hotels and restaurants
- I - Transport, storage and communications
- 60 - Land transport; transport via pipelines
- 61 - Water transport
- 62 - Air transport
- 63 - Supporting and auxiliary transport activities; activities of travel agencies
- 64 - Post and telecommunications
- J - Financial intermediation
- 65 - Financial intermediation, except insurance and pension funding
- 66 - Insurance and pension funding, except compulsory social security
- 67 - Activities auxiliary to financial intermediation
- K - Real estate, renting and business activities
- 70 - Real estate activities
- 71 - Renting of machinery and equipment without operator and of personal and household goods
- 72 - Computer and related activities
- 73 - Research and development
- 74 - Other business activities
- L - Public administration and defence; compulsory social security
- 75 - Public administration and defence; compulsory social security
- M - Education
- 80 - Education
- N - Health and social work
- 85 - Health and social work
- O - Other community, social and personal service activities
- 90 - Sewage and refuse disposal, sanitation and similar activities
- 91 - Activities of membership organizations n.e.c.
- 92 - Recreational, cultural and sporting activities
- 93 - Other service activities
- P - Activities of private households as employers and undifferentiated production activities of private households
- 95 - Activities of private households as employers of domestic staff
- 96 - Undifferentiated goods-producing activities of private households for own use
- 97 - Undifferentiated service-producing activities of private households for own use
- Q - Extraterritorial organizations and bodies
- 99 - Extraterritorial organizations and bodies
Appendix 3. Examples of the contexts described by participants.

India

As most of you might know, almost 93% of the workforce in India works in informal sector. The literacy level in the country is 65% (as per census 2001) and though most of the children enrol in school, almost 65% drop out before completing 14 years of schooling. Extending vocational training to the school leavers is still a challenge specially when the number is so huge and are marked by diversities in culture, language, societal, etc. In this context, I believe that 'sustainability in VET' (as more commonly referred in India) is a crucial need and would be good if looked upon as a mindset.

Anita Sharma

Uganda

It is true that the traditional trades are now too old and as the world is changing, the trades too have to change. This change is not too big, it is just a modification on the traditional trades. Traditional trades still give a base to the new trades. Take an example of vehicles being produced these days and those of the 70s, the only difference is in the fuel injection and the electronics used but the pistons and other engine parts stay intact. The only catch here is the steady development of the trades. Most of the Instructors in Institutions in Africa have been training students from the 70s and are still doing so. The teaching aids haven't changed and there has not been any training organized for the upgrading of these Instructors. This calls for research programs in TVET about the new technologies and their transfer and exposure to the Instructors in different fields. Most of the students in Africa who take on technical/vocational courses think that from day one of joining the institution, he/she will be involved only in the practical part of it. This is wrong, as you have to build the brains first then later on the hands. Most of those who have acquired the skills but have failed the theory part tend to work very unprofessionally that they even make the young ones hate the trade. Take an example of a motor vehicle Mechanic, he will be the dirtiest man available as all the oil, grease and other fluids will fill his overall. The plumber will also pour water each and everywhere to show that he has done something too big. Young people hate that.

Stephen Lwalanda

Indonesia

There are lots improvements happened in here, although in some stages still in progress level. For instance, increase in VET prestige. Previously VET was seen as secondary compare to the general education. But nowadays, many students and their parents choose VET as their first choice because they aware that after leaving the schools they could straight away go to the workplace. On the other hand, workplace are more receivable to the schools leaver because they new that the student poses skills to work. Competency Certification was one among many mechanisms that being used to prove (as well as to push) skill poses by the graduate. Competency Certificate in turn becoming a bridging between schools and workplace to understand each other needs. The TVET in Indonesia is getting better. People appreciate their achievement and industries acknowledge them too. This achievement (although still at the processing level) was happened because all stakeholders and decision makers wisely sit down and "talk" together. Previously the activities were done partially by each department. Competency based certification and the establishment of National Professional Certification Agency is one among the good things happened in here.
Palestine

The LWF has been training in school-based model with production related training for over 55 years, in its center in Jerusalem. The Israeli policy of annexing Jerusalem and building a Separation Wall over the 1967 land was announced in the year 2002-2003, which means depriving Palestinian students from reaching to Jerusalem and exercise their right to education. Upon such changes the LWF did a study and planning for the emergency to ensure its services to continue. The LWF continued with its VTC in Jerusalem, directing its services to Palestinian youth from Jerusalem and helping other youth to access Jerusalem. On the mean while a new model of training in a new centre started working in Ramallah- the West Bank were students can access, running the apprenticeship model.

Randa Hilal
Appendix 4.

Resources

"Thanks also to all who have given references and addresses for sharing of resources. These are very much appreciated".

Dr Emma Kruse Vaai, Samoa

Draft of Strategy of Education for Sustainable Development in Sub-Saharan Africa
http://www.ooorg.de/unevoc/up/8.doc

All TVET courses are slotted into the **Australian Qualifications Framework** (see http://www.aqf.edu.au/), so the student can work towards a higher qualification at any point in the process.

**ICT for Development**
One of the issues they are considering is 'ICT4D Policy and social Inclusion - a Framework for evaluating policy outcomes: "The goal of national ICT policy in developing countries has until recently focused on access. There is however, a growing movement towards social inclusion as a targeted outcome." Other key documents - ICT4D Policy and social Inclusion: a framework for evaluating policy outcomes - Part 1
http://topics.developmentgateway.org/ict/rc/ItemDetail.do~1097631?intcmp=916

- ICT4D policy and social inclusion: A framework for evaluating policy outcomes - Part 2
http://topics.developmentgateway.org/ict/rc/ItemDetail.do~1117495?intcmp=916

- Key issue "ICT Governance & Institutions"
http://topics.developmentgateway.org/ict/rc/BrowseContent.do~source=RCCo ntentUser~folderId=3121?intcmp=916

- Key issue "Monitoring and Evaluation"
http://topics.developmentgateway.org/ict/rc/BrowseContent.do~source=RCCo ntentUser~folderId=3050?intcmp=916 "

The Toolboxes (collections of multimedia) that have been developed for Australian Indigenous learners:
http://toolboxes.flexiblelearning.net.au/preview/index.htm#T is the general page, and the specific Indigenous packages are:

Conservation and Land Management  518  
<http://toolboxes.flexiblelearning.net.au/series5/518.htm>
Cultural Resource Management  
<http://toolboxes.flexiblelearning.net.au/series5/518.htm>  [For Indigenous Learners]

Local Government  423  
Learning about Native Title  
Equity Toolboxes
Equity Toolboxes are developed to meet specific groups. Thus far those groups include Indigenous learners, visually impaired learners, youth and Toolboxes aimed at improving learners literacy and numeracy skills.

Indigenous Learners
422 <http://toolboxes.flexiblelearning.net.au/series4/422.htm>
516 <http://toolboxes.flexiblelearning.net.au/series5/516.htm>
517 <http://toolboxes.flexiblelearning.net.au/series5/517.htm>

Indigenous Ecotourism
Learning about Native Title
Deadly Jam Music Festival
Building Skills
Cultural Resource Management
Interactive Ochre

Note that the packages are mentioned in 2 different places – against content area, and against indigenous learners. If you wanted the content against which they were written, the training package curricula are at http://www.ntis.gov.au/

There are great struggles with the provincial government but we are extremely successful and the benefits for our families are real as families move off social assistance into self sustaining employment with our industry partners.
Our website is www.cahrd.org <http://www.cahrd.org/>

I work with the Indigenous people of Canada (Aboriginal people's). Currently, there is a greater focus on training than on education (ie skill development as opposed to degrees and diplomas).
An expanded vision of basic education for Africa
HIGH LEVEL seminar on basic education
Kigali – September 25th to 28th 2007

THE KIGALI CALL FOR ACTION

Since Jomtien (1990) and after Dakar’s Forum on EFA (2000) most of the stakeholders have invested mainly in primary education, and carried out reforms in lower and upper secondary levels without looking at education as a system in a holistic manner.

Recently, UNESCO and its Education partners, among others, the African Union, ADEA and the World Bank, have supported different initiatives and have organized regional consultations on important themes, including Regional Seminars on Reforming Secondary Education in Africa (Addis Ababa, Ethiopia, November 2005 organised by UNESCO/BREDA and Accra, Ghana, April 2007 organised by the World Bank), and came to the conclusion that a thorough, sector-wide reform of basic education in African countries is required. Introducing a basic education of a minimum of 9 years, that is holistic, inclusive, coherent and seamless, and giving priority to the preparation of clear policies and national plans towards its implementation is considered urgent for the achievement of EFA goals and the Millennium Development Goals (MDGs). This reform consists of two major points:
- A necessary extension of basic education to a minimum of 9-10 years duration viewed in a holistic vision, and
- An indispensable reform of basic education, responding to the evolution and exigencies of the African societies. UNESCO and its partners have supported initiatives to reform education systems in Africa, and more recently have articulated visions and formulated proposals to mobilize national authorities in charge of education to commit themselves to promoting the development of a holistic, integrated and inclusive competency based spiral curriculum framework relevant to the needs of children and youth in Africa for an uninterrupted period of 9 to 10 years for life-long learning.

The 115 participants from 15 countries, including Ministers of Education or their representatives, Directors and Policy makers, curriculum specialists, teacher trainers, United Nations officials, development partners and civil society organisations, gathered in Kigali, Rwanda from 25th to 28th September, pledged commitment to reorienting and/or creating a new architecture or strengthening efforts towards expanding basic education in Africa.

Several presentations on overviews, experiences and perspectives on enlarging and expanding basic education based on the right to education and democratisation of education from countries in Africa, Asia and Latin America enriched the discussions, mainly, focusing on critical issues of content, developing curriculum frameworks for basic education that are skills and competency-based, as well as on strategies for mobilization of financial partners to ensure full implementation.

The expanded basic education will provide the knowledge base and competencies to the learners to improve their lives and facilitate their entry into the world of work, prepare them through skills training to contribute to social and economic development of their country and/or continue to further studies. The participants expressed commitment to creating the necessary conditions for establishing a minimum of 9-10 year basic education in their respective countries, both in formal and non-formal settings, and identified a range of important priorities for national, regional and international actions.

All the participants commit themselves to the following:

I. NATIONAL ACTIONS
To reform education systems in Africa and in line with the decisions taken by the Ministers present at the Conference on Secondary Education in Ghana (Accra, April 2007), we urge Governments
- To launch a reform and expansion of basic education making it a seamless system based on a holistic and inclusive approach to achieve EFA goals and MDGs;
• To adopt and apply appropriate legal and policy frameworks to respect, protect and fulfil the right to education for every learner;
• To ensure that the national educational objectives respond to local and global challenges;
• To create the necessary policy environment that will enable the introduction and/or scaling up the existing good practices in offering basic education through a clear understanding, articulation of visions and shared conviction among all stakeholders on the importance of a free and compulsory basic education, of at least 9 years, which allows uninterrupted period of learning from early childhood to end of the basic education cycle;
• To prepare national plans, guidelines, strategies and strengthen public-private and civil society partnerships to support the full implementation of the policy;
• To develop or reform their national curriculum and curriculum frameworks, methodologies and assessment tools that are flexible, adaptable, inclusive and promote a solid foundation for knowledge acquisition, skill development and life-long learning;
• To train planners, managers, curriculum developers and implementers (teachers, facilitators, teaching/learning material developers) on approaches that enhance learning, such as the use of research findings on neuroscience, mental health, nutrition guidance and counselling and teaching using the most appropriate language of instruction and developing the education curriculum through national and regional institutions such as universities, research institutes and centres of excellence
• To promote communication and advocacy strategies, including dialogue within and among all sectors (education, finance, planning);
• To increase existing resources allocated to education, mobilise additional resources from public and private sectors and development partners.

II INTERNATIONAL AND REGIONAL ACTIONS

UNESCO

• To distribute to all Member States in Africa the Kigali Call for Action and the Final Report of the Conference;
• To promote education as a right based on all the principles embedded in UNESCO and other UN conventions;
• To promote the African Community of Practice in Curriculum Development as a platform to facilitate policy and social dialogue and collective action on education and curriculum issues linked to the reform of Basic Education and to the attainment of an inclusive, skills and competencies-based curriculum;
• To provide technical assistance to countries for standard setting, quality assurance, and developing monitoring and learning assessment tools;
• To accompany participating countries in their education reform process for the expansion of basic education (HQ, IBE, UNEVOC, BREDa, IICBA, FOs);
• To advocate and assist countries in formulating legal, policy and curriculum frameworks for the expansion of basic education of 9-10years;
• To provide technical assistance and reinforced support for developing the capacity of education planners, managers, curriculum and assessment tool developers, teachers and teaching/learning material developers (IBE, UIL, UNEVOC, IICBA, FOs);
• To provide technical assistance and policy advice to countries in training of teacher trainers, and professional development of teachers and facilitators for inclusive basic education through the TTISSA (BREDa, IICBA, HQ)
• To mobilize Global partnership under the E-9, EFA flagships, African Union Second Decade of Education for Africa ( HQ, BREDa, COMEDAF, Regional Economic Communities);
• To engage in advocacy and awareness raising through meetings, the use of ICTs and other channels around a broad concept of Inclusive Education to attain all the EFA goals, and as a preparatory activity of the 48th Session of the International Conference of Education (ICE 2008) (HQ, IBE, BREDa);

• To facilitate cooperation within the Africa Region and with other Regions through information and experience exchange, study visits, networking and south-south cooperation;
• To facilitate networking of research institutes, universities, professional associations and development partners committed to developing education in Africa
To organize roundtables of partners at Regional and Global levels
To promote regular consultations and collaboration among all education stakeholders at all levels in both formal and non-formal education.

III. UN AGENCIES

To work together with the UN System and in the framework of UNDAF to develop the necessary synergies to enhance learning through interventions in areas such as health, nutrition, water and sanitation (WASH), HIV/AIDS, environment, peace and school humanitarian emergency interventions, in both formal and non-formal education.

IV. ADEA

To set up a Regional education network in collaboration with other such regional networks in other Regions, and in coordination with UNESCO African Community of Practice in Curriculum Development;
To disseminate the Kigali Call for Action in the ADEA biennale of 2007, the Education Ministers’ meeting and other important meetings;
To foster political dialogue, analytical research, information and dissemination on basic education of a minimum of 9 years;
To support all efforts in setting up a basic education cycle of at least 9 years in both formal and non-formal education in African countries.

V. WORLD BANK AND AFRICAN DEVELOPMENT BANK

To support Governments in implementing basic education policies and national plans, as well as provide policy advice and technical assistance to countries for the design of new policies, adopt feasible financial strategies and other aspects of national plans to execute the reforms and new policy orientations;
To provide the necessary financial support to all countries that have developed national policy/reform and national plans and introduced a minimum of 9-10 years basic education.

VI. CIVIL SOCIETY ORGANIZATIONS/COMMUNITY

To network and promote social dialogue to facilitate the sharing of information and experiences on a 9-10 years basic education;
To reinforce the relationship between schools and communities, support non-formal education and create synergies between formal and non-formal education.

For further information please contact:
Teeluck Bhuwanee (Ph.D.)
Programme Specialist
Secondary, Technical & Vocational Education
12, Avenue L.S. Senghor
P.O.Box 3311
Dakar
Tel: (221) 849 23 47/849 23 23
Fax: (221) 823 83 93/823 61 75
E.mail: t.bhuwanee at unesco.org
Appendix 5.

Logbook extracts from Leximancer analysis

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<tr>
<th>Location : Name of the file</th>
<th>Text</th>
<th>Comment</th>
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<tbody>
<tr>
<td>Ben Goodman plus.doc~1.html#S1_43</td>
<td>1. Existing programs and courses (p.6). To me there seems to be some tension between the requirements of a well developed industrial system and its training apparatus (a &quot;training-industrial complex&quot; perhaps) and the needs of the developing world. Lauder, Brown and Ashton seem to be referring to the sustainable development of the former.</td>
<td>Concepts: tvet AND sddev</td>
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<tr>
<td>Ben Goodman plus.doc~1.html#S1_75</td>
<td>It will get basic skills training with the people who need it. Then, I think skills training will be sustainable (but thatprobably will not do much for the TVET system as presently constituted). I think this could be the link that Anita refers to.</td>
<td>Concepts: tvet AND sddev</td>
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<tr>
<td>Ben Goodman plus.doc~1.html#S1_101</td>
<td>As the Call for Action is aimed at policy makers who are all academically trained, it is written in terms they understand. There are references to research (an academic exercise) but not much about skills, which is what TVET is about. This is one of the problems with making TVET sustainable.</td>
<td>Concepts: tvet AND sddev</td>
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<tr>
<td>Ben Goodman plus.doc~1.html#S1_122</td>
<td>If we can think of Vocational education as (B) then we can think of introducing technical skills, relevant to the local area, into mainstream schooling, and we can break away from the expensive &quot;technical college&quot; model of delivery. That has implications for the large Technical Education bureaucracies and government policy, but it may be more sustainable.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Anita Sharma .doc~1.html#S1_20</td>
<td>Just training them on operating the system would lead to a quick solution but a risky and not sustainable one. The fast changing technology would easily throw them out.</td>
<td>Concepts: tvet AND sddev</td>
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<tr>
<td>Anita Sharma .doc~1.html#S1_28</td>
<td>To make it a sustainable option it is not only remaining in job but also having opportunities of career advancement.</td>
<td>Concepts: tvet AND sddev</td>
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<tr>
<td>Anita Sharma .doc~1.html#S1_40</td>
<td>Sustainable development as I see is more of the 'quality factor' which should be integrated into the VET system so that the system itself leads to inclusive and prolonged growth - which is through the three dimensions - social, economic and environmental. (ref policy document - by Margarita). It requires to influence the mindset of people and society leading to the value chain approaches - so that the impact reaches all the sectors and levels of society and makes it more like a movement. I hope I don't sound too taken away by this thought of SD in TVET!</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Gabriel and Rnada Hilal.doc~1.html#S1_33</td>
<td>The education and TVET sectors need to re-define SD in a more coherent and simple manner. The African interpretation of SD may not necessarily be the same as that found in the west. So dialogue (such as in this forum) is necessary in order to share knowledge and best practices.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Gabriel and Rnada Hilal.doc~1.html#S1_64</td>
<td>Someone has said that those who rely on their jobs are 1 month away from being broke should their jobs end! That's why TVET is useful so that trainees acquire entrepreneurial skills that will create jobs and wealth leading to SD.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Gabriel and Rnada Hilal.doc~1.html#S1_133</td>
<td>The rich experiences in integration of SD elements in TVET in the developing countries although directed towards social development, are worth while learning from. We have been exposed to some experiences in Africa, Indonesia, India, Fiji and Palestine, that integrates these elements.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Gabriel and Rnada Hilal.doc~1.html#S1_179</td>
<td>We also have this problem of attitude of our youth toward TVET, although one main reason for growing unemployment is the mismatch of skills in the labour market. We here in the department are trying to develop a VET system which is attractive for school leavers and also sustainable in terms of relevancy, financing, a good system which will provide our target group with income generating skills so that they can lead a decent life in their society. Please share your thoughts on this...</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Ann MacCann.doc~1.html#S1_1</td>
<td>I work in learning design in Sydney, developing learning resources for technical education. I found the idea of sustainable development very useful - when I read the document attached, it seemed to me that the organisation that I work with thinks about sustainable development in the first sense, ESD as policy, where the second way of thinking about it - &quot;reveal the underlying dominant motives that are in play in society&quot; - is far more usable and will lead to a better outcome.</td>
<td>Concepts: tvet AND sddev</td>
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<tr>
<td>Ann MacCann.doc~1.html#S1_55</td>
<td>In the first one, it is more of mindset which needs to be built - how do we shape the TVET so that it can contribute to SD?? Is it the framework of TVET which needs to be seen or the tools of TVET - training curricula, didactics, approaches, etc. In the second one comes issues which were also raised by one of the participants - capacity building of trainers/management; financing of TVET; attracting more trainees; improving its status in society....</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Dominique.doc~1.html#S1_108</td>
<td>Integrated into TVET, these values can prepare workers and citizens with the knowledge, values, attitudes, behaviours and skills they need to be able to participate fully in their economy and work effectively and responsibly in a globalised world. To view TVET against the values in the ethics of sustainability may not be workable since TVET is; according to UNESCO is one of the four pillars of education (Chapter 4 Learning: The Treasure Within). These four pillars of knowledge cannot be anchored solely in one phase in a person's life or in a single place.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Dominique.doc~1.html#S1_122</td>
<td>It is understood that &quot;one shoe does not fit all&quot; however, there are principles that have worked for the profession. The concept of TVET and SD is nothing new going back to the philosophy of TVET, what will be new is articulating the idea in our programs. How we do that becomes the issue.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Gender.doc~1.html#S1_22</td>
<td>Where I am in Rwanda, we have great problems in sustaining our education facilities especially in ICT. (perhaps you have noted) As a result many facilities that are provided by central government to enhance education run down after a short while creating constraints teaching. On realizing this, I have managed to create a few income generating projects that also enhance our education leading to sustainability of our education facilities.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Ylams Simon.doc~1.html#S1_56</td>
<td>Thanks for the interesting discussions so far. My name is Idem Udoekong. I am neither a sustainable development nor a TVET expert, but picked interest in both when I co-founded Sustainable Development Network Ltd five years ago basically to see what we can do in small ways (with little or no financial resources) to help contribute to sustainable development in Africa, starting with Nigeria.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Ylams Simon.doc~1.html#S1_143</td>
<td>There is also a very interesting programme I found only recently which I think can provide a starting point for teachers and educators wanting to include sustainable development in all facets of the curriculum of their schools/institutions, and I sincerely recommend it to you all. It is the &quot;Teaching and Learning for a Sustainable Future: a multimedia teacher education programme&quot; published by UNESCO. It is available on CD-Rom, and also on the internet at <a href="http://www.unesco.org/education/tlsf/index.htm">http://www.unesco.org/education/tlsf/index.htm</a>.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Ganda.doc~1.html#S1_2</td>
<td>I am currently working for a regulatory body in Mauritius which regulates training at the TVET level 2. I am enrolled for an MSc in Sustainable Environmental Management and actually working on my project which focuses on skills development for poverty alleviation in a sustainable context. The title is not yet finalised.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Ganda.doc~1.html#S1_47</td>
<td>However, to a considerable extent, sustainability depends on the intangibles that come as a result of the education and training process. For example, a person having increased confidence as a result of their training.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Ganda.doc~1.html#S1_128</td>
<td>There is also that aspect of sustainability which comes back, the question has been asked by several members, do we need to train people to be sustainable and or do we need to render TVET sustainable?</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Ganda.doc~1.html#S1_172</td>
<td>So, members, kindly think of sustainable development which is wholistic in approach that would sustain human lives and endeavours for ever in a peaceful manner on earth.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Last bits.doc~1.html#S1_55</td>
<td>Now, if those coming from the trades do not have a minimum academic standard, they will always be marginalised. That is why there is a need for higher education institutions to be seen as partners in making TVET sustainable, in the very conception and design of courses to provide for bridges. This is a long term action that requires patience, understanding and determination.</td>
<td>Concepts: tvet AND sddev</td>
</tr>
<tr>
<td>Last bits.doc~1.html#S1_209</td>
<td>And TVET need not be looked upon as isolated stream for it to remain sustainable - if it becomes a part of the entire education and training framework, the sustainability would certainly be increased and it gets a better place in government or the national policies too.</td>
<td>Concepts: tvet AND sddev</td>
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<tr>
<td>Last bits.doc~1.html#S1_222</td>
<td>666 I'm not sure whether the forum is closed. But I was wondering what sort of partnerships can be formed by TVET providers e.g. those involved with Carpentry or Tailoring with other stakeholders in the community to promote SD? I'm thinking of say a carpenter who needs wood ensuring that the wood they are using is being replaced so that there is a reliable supply of wood and that future generations will not find stocks depleted?</td>
<td>Concepts: tvet AND sddev</td>
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<tr>
<td>Ann MacCann</td>
<td>I set up my own company in 2005 and over the last 3 years I have worked in Skills Development in South Africa - <a href="http://www.dmachard.com">www.dmachard.com</a> I find the discussion on skills development most interesting as we have concentrated on in South Africa probably mostly on the formal sector however with emphasis on the informal in particular out of school youth through various training interventions known as learnerships and skills programmes. The points raised by Ben are in fact some of the most important issues we are crabbing with in SA.</td>
<td>tvet AND years</td>
</tr>
<tr>
<td>Gender</td>
<td>Writing from Rwanda, my name is John Kamwengu currently the head of Computer Section at ETO Kibungo, (a technical school in Rwanda). I am a Technology Education graduate from Kenya and have a masters degree in computer science from China and professional ICT training in India. I have been involved in TVET for the last 10 years as a teacher in various capacities.</td>
<td>tvet AND years</td>
</tr>
<tr>
<td>Ylams Simon</td>
<td>In terms of how we here have addressed these issues let me share a little experience with you. As an NGO working in Nigeria, I can remember when after three years of developing and implementing projects to help alleviate poverty and improve people's academic/vocational education, it suddenly dawned on us one day that a lot of the dictators and corrupt practitioners in Nigeria, as in most other countries, did not have the word &quot;dictators&quot; or &quot;currupt practitioners&quot; written on their faces when they were young or, for some of them, when they started out very poor.</td>
<td>tvet AND years</td>
</tr>
<tr>
<td>Ganda</td>
<td>I am an independent consultant based in Cape Town. Over the years I have worked in both development and training in a range of contexts, but over the past number of years have focused largely on adult education and training in the work place. I work at a number of levels, with (and through) associates at the macro (policy development, analysis and implementation), meso (quality assurance, mostly, as well as some curriculum development) and at micro levels with providers of work place based training.</td>
<td>tvet AND years</td>
</tr>
<tr>
<td>Gabriel and Rnada Hilal</td>
<td>One of the major challenges that we face, especially speaking for nations that were colonised by Britain is, is developing a coherent, flexible, demand-driven education and TVET system. We seem to still believe in the myth that a good education (mostly theoretical learning) will open doors of success for our youths. Surely how much of what are our children learn in schools especially primary and secondary school is relevant for them to survive outside the classroom should they not qualify to the next level of education?</td>
<td>tvet AND school</td>
</tr>
<tr>
<td>Gabriel and Rnada Hilal</td>
<td>The Apprenticeship model: The LWF has been training in school based model with production related training for over 55 years, in its center in Jerusalem. The Israeli policy of annexing Jerusalem and building a Separation Wall over the 1967 land was announced in the year 2002-2003, which means depriving Palestinian students from reaching to Jerusalem and exercise their right to education. Upon such changes the LWF did a study and planning for the emergency to ensure its services to continue.</td>
<td>tvet AND school</td>
</tr>
<tr>
<td>Ann</td>
<td>Students leave secondary school from Year 9, to start either</td>
<td></td>
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<table>
<thead>
<tr>
<th>Document</th>
<th>Text</th>
<th>Concepts</th>
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<tr>
<td>MacCann.doc~1.html#S1_30</td>
<td>a 4 year apprenticeship which is funded by the employer (or group of employers) or a traineeship which can be 1 year or more, also funded by employers.</td>
<td>tvet AND school</td>
</tr>
<tr>
<td>Ann MacCann.doc~1.html#S1_134</td>
<td>There are education faculties at all Australian unis, but not all, as far as I am aware, do vocational education and training - the vast number of teacher trainees tend to be school teachers.</td>
<td>tvet AND school</td>
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<tr>
<td>Dominique .doc~1.html#S1_86</td>
<td>Marginalised groups (women, people with disabilities, people from rural areas) and how TVET can contribute to the uplifting of their skills; Links between TVET and other educational 'institutions': links between TVET at the secondary school level and training in the post secondary institutions, TVET and technology education, TVET and informal training, continuing education programs. Nature of TVET: status and prestige of TVET in some countries, consideration of upcoming areas such as ICT; 'strong need to revitalise TVET'. Individual-institutional relationships: there is mutual agreement that both are important.</td>
<td>tvet AND school</td>
</tr>
<tr>
<td>Gender.doc~1.html#S1_13</td>
<td>I am happy that there is another person in Rwanda who is participating in this e-conference ! In last march 07 I conducted my personal survey in 3 schools as sample to see how school based computer labs are working and it seems that we share the same view. In some school there were unable to pay the electricity bill, or there was lack of technician to repair the damaged materials or softwares.</td>
<td>tvet AND school</td>
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<tr>
<td>Ganda.doc~1.html#S1_213</td>
<td>Take an example of where the student has lost all the parents due to HIV/AIDS, the elder brother in the family will have to take on the young ones. In an effort to feed the family, he will have to leave school. Communities should identify such cases and help the ones in need through provision of increase in household income.</td>
<td>tvet AND school</td>
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<tr>
<td>Last bits.doc~1.html#S1_204</td>
<td>If we wish to have a 'status' for the TVET - a lot of involvement is required at all levels - starting right from the primary schooling. Parents always take pride in what the children learn in the primary school - and if they learn the right 'attitude' and a bend towards performing skills, which inculcates dignity for labour - specially the skilled person, that I believe would be great. The wish to get into higher academics is so deep rooted in our society that all - irrespective of where it would lead them into, would like to become graduates and post graduates.</td>
<td>tvet AND school</td>
</tr>
<tr>
<td>Dominique .doc~1.html#S1_7</td>
<td>Having said that, I totally and fully support the thesis by which ESD is first and foremost a frame of mind, which will eventually inform policy, among other things - but is not policy in itself. TVET would provide the specific skills and tools to implement or put in practice such frame of mind.</td>
<td>tvet AND policy</td>
</tr>
<tr>
<td>Gender.doc~1.html#S1_7</td>
<td>We all would agree that any development can no be sustainable unless women has equal participation in it - whether it be EDS or TVET. Hence at policy level or the 'mindset framework' - gender should be given equal places and roles.</td>
<td>tvet AND policy</td>
</tr>
<tr>
<td>Ylams Simon.doc~1.html#S1_70</td>
<td>Policy comes from the mind and whether the policy is sound and effective or not depends on the state of our minds. There we must begin....</td>
<td>tvet AND policy</td>
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<tr>
<td>Ganda.doc~1.html#S1_64</td>
<td>South Africa's growth economic growth since the advent of democracy in 1994 has thrown the need for skills into sharp relief, particularly technical and vocational education and training. Related to this, we are seeing major shifts in policy for education and training, and for sustainable development. My colleague, Debbie Machard has aptly captured the issues with which we are dealing.</td>
<td></td>
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<tr>
<td>Last bits.doc~1.html#S1_36</td>
<td>The policy makers are comfortable with the academic education skill set, but may not be comfortable with the technical skill set. A concerted effort is required to remedy this if TVET is to get equal consideration.</td>
<td></td>
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<tr>
<td>Last bits.doc~1.html#S1_235</td>
<td>I believe in the open system between education and training but it would need awareness of its risks and opportunities, it would need people at the policy level taking that into consideration and value both education and training, and it would need clear strategizing.</td>
<td></td>
</tr>
<tr>
<td>Ben Goodman plus.doc~1.html#S1_92</td>
<td>Employers tend to have a very pragmatic view of Nationally accredited skills. They agree with them if it helps them to identify skilled people to employ, or guarantees a level of skill in their workforce. They do not like them if it identifies their good workers (so other employers can attract them away), or allows their good employees to migrate, or forces them to pay more for their skilled labour.</td>
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</tr>
<tr>
<td>Ben Goodman plus.doc~1.html#S1_118</td>
<td>66 consensus of what Vocational education is. Is it (A) a formal system of buildings, staff, equipment, training and all the administrative apparatus that delivers credentials and comparable standards; or is it (B) an outcome - useful skills with people who need them?</td>
<td></td>
</tr>
<tr>
<td>Ben Goodman plus.doc~1.html#S1_130</td>
<td>In our context (organization's per se) sustainability in TVET is an issue that can categorically divided into: (a) long term employment (self-employed or waged-employed), and (b) TVET program maintenance as to industry skills demands.</td>
<td></td>
</tr>
<tr>
<td>Anita Sharma .doc~1.html#S1_4</td>
<td>This project is called NVTS and belongs to Ministry of Labour and Employment in India and GTZ. Under this, we have collaborated with selected skills training providers and are in the process of building their capacities in better management of the skills training system. As the products of the project, we have supported the partners in developing effective non-formal training packages which are modular, flexible and target holistic training - technical skills, business skills and life skills.</td>
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<tr>
<td>Anita Sharma .doc~1.html#S1_79</td>
<td>- It should become an essential part of all qualifications - so that no person is without any marketable skills - in whatever area they are.</td>
<td></td>
</tr>
<tr>
<td>Gabriel and Rnada Hilal.doc~1.html#S1_18</td>
<td>In fact, there is a whole area of reflection one may need to consider possibly in addressing the issues of sustainability and/or sustainable development and that is whether post-secondary institutions should play a role in providing technical education and training to the marginalized since the human resource needs now are increasingly for fairly high level of skills.</td>
<td></td>
</tr>
<tr>
<td>Gabriel and Rnada Hilal.doc~1.html#S1_94</td>
<td>It had played a positive role by providing youth with employable skills that enables them to work and support...</td>
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<tr>
<td>Author</td>
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<tr>
<td>Ann MacCann.</td>
<td>Ann MacCann.doc-1.html#S1_89</td>
<td>*Equity Toolboxes are developed to meet specific groups. Thus far those groups include Indigenous learners, visually impaired learners, youth and Toolboxes aimed at improving learners literacy and numeracy skills.</td>
</tr>
<tr>
<td>Ann MacCann.</td>
<td>Ann MacCann.doc-1.html#S1_93</td>
<td>I agree with you that job skills are a priority, but sometimes these need generic skills as a backup - we also include team skills in some learning resources.</td>
</tr>
<tr>
<td>Dominique</td>
<td>Dominique .doc~1.html#S1_41</td>
<td>The quality of the training, the accreditation, and what our industry partners want for skills ensure are most important in our programs. This is the success that drives more people to want to take training (familial word of mouth) and more industries to want to partner with us to create a workforce. Please check out our website or e-mail me if you have any ideas on ways to create more economic viability because we are only limited by the dollars we have!</td>
</tr>
<tr>
<td>Gender.</td>
<td>Gender.doc~1.html#S1_58</td>
<td>South Africa’s growth economic growth since the advent of democracy in 1994 has thrown the need for skills into sharp relief, particularly technical and vocational education and training. Related to this, we are seeing major shifts in policy for education and training, and for sustainable development. My colleague, Debbie Machard has aptly captured the issues with which we are dealing.</td>
</tr>
<tr>
<td>Thanks e-mails.</td>
<td>Thanks e-mails.doc~1.html#S1_8</td>
<td>Thank you for that last comment which summarises a crucial aspect which we currently face as tertiary institutions - many HE and TVET institutions co-exist or have merged with outdated preconceived and stubbornly held ideas regarding programmes, staffing, students, qualifications, status quo and much more. However we can only begin to change if we try to work together in order to move together. There is a lot of deconstruction that needs to take place regarding knowledge and skills and their intrinsic value.</td>
</tr>
<tr>
<td>Ganda.</td>
<td>Ganda.doc~1.html#S1_22</td>
<td>Indeed Ben and Anita are right sustainability should include skills development for the informal sector. Surveys conducted on skills development in my country is usually related to the formal sector and we tend to forget that the informal sector also provide opportunities for our people to develop appropriate skills which are valuable assets for a proper livelihood.</td>
</tr>
<tr>
<td>Ganda.</td>
<td>Ganda.doc~1.html#S1_123</td>
<td>Your collaboration to this Eforum is interesting and your point of views on TVET is true and so much grounded in realities of today. It is commonly accepted and in several countries that TVET is for underachievers and only people who could not follow the usual stream to reach a University end up in a TVET training centre or training organisation as we call them in several countries. What we tend to forget is that learners develop skills, knowledge, aptitudes and attitudes which are valuable assets to enter the job market.</td>
</tr>
<tr>
<td>Last bits.</td>
<td>Last bits.doc~1.html#S1_43</td>
<td>Within industry there are many skilled persons who actively train others in their skills. To do this requires them to deconstruct their work and sequence it for the trainees, and then mentor them. These are high level skills which are difficult to recognise in the present credential system.</td>
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<tr>
<td>Last bits.doc~1.html#S1_115</td>
<td></td>
<td>I do agree with some participants who mentioned that sometimes learners might view training only to provide specific skills for certain occupation on the other hand some view academic qualifications as more appropriate to enter the labour market.</td>
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<tr>
<td>Last bits.doc~1.html#S1_256</td>
<td></td>
<td>About vocational relevance in general education: some of the skills required to be a competent citizen are hard to link to employability; for example, the knowledge test now required to become an Australian (British or Dutch) citizen is difficult to link to employability, other than knowledge of the environment in which the vocation operates.</td>
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<tr>
<td>Anita Sharma .doc~1.html#S1_89</td>
<td></td>
<td>I should say that this issue has been raised more by people from 'developed' countries, but I think that we should think about some solutions that are applicable for developing countries as well. So far we have a clear indication that environmental issues are nice, but not a priority, social sustainability might be a priority.</td>
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<tr>
<td>Dominique .doc~1.html#S1_23</td>
<td></td>
<td>In fact, there is a whole area of reflection one may need to consider possibly in addressing the issues of sustainability and/or sustainable development and that is whether post-secondary institutions should play a role in providing technical education and training to the marginalized since the human resource needs now are increasingly for fairly high level of skills.</td>
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<tr>
<td>Dominique .doc~1.html#S1_171</td>
<td></td>
<td>The only thing &quot;sustained&quot; will be the economies of the wealthy nations. With an apparent contradiction, it seems that at the local/regional level, what we do to address sustainability may be critical to the long term micro-economies of many small towns and villages. Certainly, at the ethical level, both country policies and local practices ought to address the issues inherent in ESD.</td>
</tr>
<tr>
<td>Gender.doc~1.html#S1_144</td>
<td></td>
<td>I've been reading your introductory messages and it seems to me that it's going to be a very interesting exchange with people from a variety of contexts sharing their views on issues affecting Education and sustainable Development in our countries today.</td>
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<tr>
<td>Last bits.doc~1.html#S1_40</td>
<td></td>
<td>One of the issues facing a sustainable TVET is the issue of credentials. I hear contributors raising the issue of academic qualifications required to teach TVET. To me this seems to be the wrong direction for sustainable TVET as it restricts TVET teaching to the minority who are comfortable in both academic and skilled worlds (with an emphasis more on the academic as qualifications rise).</td>
</tr>
<tr>
<td>Ben Goodman plus.doc~1.html#S1_41</td>
<td></td>
<td>This leads me to agree with Anita Sharma that sustainability must include skills development in the informal sector, particularly in the rural areas.</td>
</tr>
<tr>
<td>Ben Goodman plus.doc~1.html#S1_95</td>
<td></td>
<td>Within TVET the skills certification system is just one of the various entrenched bureaucracies that will resist change. They will attempt to sustain themselves. How do we deal with this when we consider the sustainability of TVET as a system?</td>
</tr>
<tr>
<td>Anita Sharma .doc~1.html#S1_107</td>
<td></td>
<td>Looking from the employability point, the industries want to have employees who are 'trainable' - not those who have learnt some obsolete skills and believe they know all. What</td>
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<td>Name</td>
<td>Text</td>
<td>Concepts</td>
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<tr>
<td>Dominique</td>
<td>I can understand is that the concept of TVET needs to be packaged differently - skills</td>
<td></td>
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<tr>
<td>Gender</td>
<td>I think both accreditation and skills are essential for self-sustainability. This sustainability is not only for the individual and the family but also the institution. When someone graduates from a program, whether is it Accounting or Welding, they are made to feel that their new skills and abilities are the most impressive, and rightly so. Concepts: sddev AND skills</td>
<td></td>
</tr>
<tr>
<td>Ganda</td>
<td>The challenge of linking SD and skills development is huge. From having worked in very poor areas (rural and urban), where people are most concerned about whether they will eat and have a shelter that protects them from the elements, I know that environmental concerns are not a priority, but rather a &quot;nice-to-have&quot;. This is the conundrum of policy implementation in a way that is meaningful to the majority of people. Concepts: sddev AND skills</td>
<td></td>
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<td>Ganda</td>
<td>It is from that perspective that I find your definition of sustainability interesting. To me a sustainable future is sustainable development, which is about transferring skills to raise capacity so that people can do the task (whatever it is) by themselves without external assistance. Concepts: sddev AND skills</td>
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<td>Last bits</td>
<td>As the Call for Action is aimed at policy makers who are all academically trained, it is written in terms they understand. There are references to research (an academic exercise) but not much about skills, which is what TVET is about. This is one of the problems with making TVET sustainable. Concepts: sddev AND skills</td>
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<td>Anita Sharma</td>
<td>One aspect that has not come up so far is the 'Gender issues' in Sustainable development. We all would agree that any development can no be sustainable unless women has equal participation in it - whether it be EDS or TVET. Hence at policy level or the 'mindset framework' - gender should be given equal places and roles. Concepts: sddev AND policy</td>
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<td>Gabriel and Rnada Hilal</td>
<td>Our universities too dont seem to value integrating entrepreneurship in their training which would in my view lead to SD. Sometimes we accuse of politicians of lacking political will but we trainers and policy makers need to have a new mindset and political will to ensure that we have a relevant education and TVET system that is useful to its recipients. This requires hard work. Concepts: sddev AND policy</td>
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<td>Dominique</td>
<td>[2] The Universal Declaration on Cultural Diversity (UNESCO, 2001) tells us that &quot;cultural diversity is as necessary for humankind as biodiversity is for nature ( ) one of the roots of development understood not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence.&quot; Cultural diversity becomes therefore a policy area of sustainable development. Concepts: sddev AND policy</td>
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<td>Gender.doc~1.html#S1_88</td>
<td>This means the way of thinking and implementation also might have a gap. In the developing country most people (and might be the policy maker in the government) way of thinking still at the stage of fulfilling the people/community basic needs (cloth, food and roof). Once this overcome, then people start to think about the future including sustainable dev.</td>
<td>Concepts: sddev AND policy</td>
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</tbody>
</table>
Conference moderator

Dr Margarita Pavlova

Margarita works at the Faculty of Education at Griffith University, Australia. She is lecturing within the Bachelor of Technology Education program and is a Deputy Director of the Griffith Institute for Educational Research where she is also leading a research program on education for sustainable development. For the five years to 2006 Margarita was also an Adjunct Professor at Nizhny Novgorod Institute for Development of Education, Russia, and Scientific Director of the "Technology & Enterprise Education in Russia" Program. She has two PhD’s, one from Russia and the second one from Australia. Margarita has worked in a number of European countries (including Germany, France, Russia, Finland and the UK) as well as in the USA and Australia. She recently completed two international projects with UNESCO-UNEVOC. One, on current TVET issues in Countries in Transition (South East Europe), the other, on ICT and education for sustainable development for the Baltic region.

Margarita is the author or co-author of seven books and numerous journal articles and book chapters. She has been a convener of several international conferences and over the past 5 years has presented keynote addresses in a number of countries including Mongolia, China, Australia, Russia, Germany, USA and Finland. She works as a consultant within the technology and vocational education field with international, state and national agencies, including the World Bank; UNESCO-UNEVOC; Queensland Studies Authorities, and the Ministry of Education of Russia. This work has involved developing policies, approaches and resources for technology and vocational education, and exploring related issues.

This report is prepared by M. Pavlova.