Special Issue

For the UNESCO International Experts Meeting “Learning for Work, Citizenship and Sustainability”, Bonn, Germany, 25 to 28 October 2004

Editorial

Orienting TVET for Sustainable Development

In October 2004, the Division for Secondary, Technical and Vocational Education of UNESCO (Paris), the UNESCO-UNEVOC International Centre (Bonn) and the German Federal Ministry for Education and Research (BMBF) will host, in Bonn, the 5 year review of progress since the Second International Congress on Technical and Vocational Education (TVET) which was held in Seoul, Korea, in April 1999. Over one hundred international experts, drawn from a broad cross section of UNESCO Member States, will attend the Seoul plus Five follow-up meeting. Proceedings will focus on two main areas, as participants:

>> Assess the extent to which TVET systems in UNESCO Member States have developed since the 1999 Seoul Congress; and

>> Examine how TVET systems may be re-oriented to contribute to sustainable development.

The question of how TVET may contribute to sustainable development, already an important topic, is likely to emerge as being of increasing importance once the UN Decade of Education for Sustainable Development commences in 2005. UNESCO is the lead agency for the decade, and the UNESCO-UNEVOC Centre is preparing to take a leadership role on this issue within the international TVET community.

Many of the articles in this Bulletin focus on how TVET, in a number of diverse settings, can be focused on aspects of sustainability. This editorial provides some background to the connection between TVET and sustainable development.

The Legacy of Seoul 1999

Discussions on the central theme of the 1999 Seoul Congress – lifelong learning and training for all, a bridge to the future – led to the conclusion that a new paradigm of both sustainable development and TVET was needed. As the Pre-amble to the Recommendations in the Final Report stated:

‘We have considered the emerging challenges of the twenty-first century, a century that will be an era of knowledge, information and communication. Globalization and the revolution in information and communication technology have signalled the need for a new human-centred development paradigm. We have concluded that Technical and Vocational Education (TVE), as an integral component of lifelong learning, has a crucial role to play in this new era as an effective tool to realize the objectives of a culture of peace, environmentally sound sustainable development, social cohesion, and international citizenship. 1

The Millennium Development Goals and TVET

The notion of a ‘new human-centred development paradigm’ was elaborated at the Millennium Summit of the United Nations General Assembly in September 2000, which agreed to a set of Millennium Development Goals (MDGs).2

The MDGs include: halving extreme poverty and hunger, achieving universal primary education and gender equity, reducing under-five mortality and maternal mortality by two-thirds and three-quarters respectively, reversing the spread of HIV/AIDS, halving the proportion of people without access to safe drinking water, and ensuring environmental sustainability. They also include the goal of developing a global partnership for development, with targets for aid, trade, and debt relief. The MDGs offer a longer-term strategic vision.

Effective TVET is integral to finding and implementing solutions to all of these issues. In this way, TVET underpins every one of the MDGs and the achievement of sustainable development. It is impossible to think of making gains in poverty reduction, job creation, health or environmental concerns without a strong and focused TVET effort, and it is equally true that a focused and well-managed TVET system can lead to huge improvements in education, gender equality and living conditions. In essence, achieving the MDGs requires the development of appropriate forms of TVET.

The Crucial Role of TVET in Achieving Sustainable Development

Reflecting such imperatives, the Seoul Congress looked to an innovative paradigm of technical and vocational education based upon ‘a learning culture’ that encourages and educates people ‘to be productive and competitive, and to care...
for the well-being of its people. It was agreed that ‘a vibrant training culture is a key factor in attaining that goal … and empower[ing] youth and adults to play a part in the new development paradigm.’ As a result, the Final Report of the Congress stated:

‘Technical and vocational education, as an integral component of life-long learning, has a crucial role to play in this new era as an effective tool to realise the objectives of a culture of peace, environmentally sound sustainable development, social cohesion and international citizenship.’

‘… the TVET of the future must not only prepare individuals for employment in the information society, but also make them responsible citizens who give due consideration to preserving the integrity of their environment and the welfare of others.’

These statements represent a broadening of TVET from the narrow task of providing training for industry-specific and occupation-specific skills to the broader task of workforce development and lifelong learning for sustainable development and citizenship.

Thus, the Recommendations on Technical and Vocational Education for the Twenty-First Century, published jointly by the International Labour Organization (ILO) and UNESCO in 2002, state that, as ‘a vital aspect of the educational process in all countries’ TVET should:

‘(a) Contribute to the achievement of the societal goals of greater democratization and social, cultural and economic development, while at the same time developing the potential of all individuals, both men and women, for active participation in the establishment and implementation of these goals, regardless of religion, race and age;

(b) Lead to an understanding of the scientific and technological aspects of contemporary civilisation in such a way that people comprehend their environment and are capable of acting upon it while taking a critical view of the social, political and environmental implications of scientific and technological change;

(c) Empower people to contribute to environmentally sound sustainable development through their occupations and other areas of their lives.’

Key Questions for Bonn 2004

These ways of re-conceptualising TVET are central to orienting TVET for sustainable development. But what has been the progress in individual countries? How has TVET been re-oriented to sustainable development? What successful approaches have been developed in pre-employment courses and in worksite-based training? Which industry – and training – sectors have led the way? Which ones have lagged? What factors are essential to success? What further actions need to be taken – by individual instructors and trainers, TVET colleges and managers of TVET systems? What support roles can be played by UNESCO-UNEVOC Centres?

In particular, what actions can UNESCO undertake to support instructors, schools and colleges and continuing TVET systems? This is especially important as the United Nations has declared 2005 – 2014 to be a special Decade of Education for Sustainable Development and has recommended that all countries take progressive steps to integrate sustainable development into their education plans at all levels and in all education sectors.

Questions such as these will be discussed at the UNESCO International Meeting of Experts on ‘Learning for Work, Citizenship and Sustainable Development’ in Bonn in October 2004.

The UNESCO-UNEVOC International Centre in Bonn, in consultation with a number of UNEVOC Centres and partner agencies, prepared a Discussion Paper which provides an overview of key concepts, trends and issues in the field of TVET for sustainable development in order to inform the discussions at the Seoul plus Five Meeting in October.

Objectives of the Meeting

In considering the topic of TVET for sustainable development, the meeting will:

1. Review national initiatives in integrating sustainable development into TVET policies, programmes and practices, identifying common and contextually specific influences that have encouraged and limited the success of these initiatives.

2. Review initiatives by business, industry and civil society groups to integrate sustainable development into TVET policies, programmes and practices, identifying ways in which they can be scaled up to encourage wider adoption and support national initiatives.

3. Identify problems and issues facing the integration of sustainable development into TVET policies, programmes and practices and ways in which these can be addressed through policy review and development, curriculum and professional development, networking, research and evaluation.

4. Develop a draft action plan to guide TVET initiatives during the United Nations Decade of Education for Sustainable Development.
From Productivism to Ecologism

As a major supplier of skilled labour, TVET is directly implicated in the reproduction of ‘productivism’, the predominant ethos which assumes that economic growth is a permanent and necessary feature of human existence, regardless of its environmental impact and consequences. Productivism prioritises the needs of ‘industry’ over all others, and relies ‘work’ (as paid employment) as the principal source and measure of social worth.

At present, TVET is based on two normative assumptions; that the principal, if not sole, purposes of TVET are to: promote economic growth through the development of the human resources required to increase productivity and profit; and produce skills for work, thereby enhancing employability.

Productivism and the ‘training-for-growth’ and ‘skills-for-work’ assumptions no longer constitute a rational or legitimate basis for TVET. Scientific evidence of deep-seated and potentially irreversible environmental problems shows that permanent economic growth is untenable. The demise of full-time, standard employment largely invalidates the ideology of ‘work’ and the discourse of ‘employability’.

The time has come for a new post-productivist vision of TVET, based on values and assumptions that promote learning for the new world of work, global citizenship and ecological responsibility. TVET learners should develop a more reflexive and holistic understanding of their roles as ecological actors, and of the consequences of their production and consumption activities in and beyond the workplace.

TVET institutions and teacher educators have a responsibility to teach effectively, but they also have a dual responsibility to initiate a critical examination of the social and environmental consequences of economic growth, and facilitate lifelong learning and skills development for ecological sustainability. If TVET is to serve the interdependent interests of nature, society and economy, productivism and the myth of perpetual economic growth must be replaced as the bedrock of TVET by a new ethos of ‘ecologism’ and the global imperative for democratic, equitable and sustainable development.

Using Work-Based Learning to Develop Education for Sustainability

Education for Sustainability (EfS) advances traditional environmental education by adding a social dimension and critiquing behaviour such as mass consumerism. Dr Neil Taylor (University of New England School of Education) and Dr Richard Coll (University of Waikato) suggest in a joint article that work-based learning could act as a vehicle for delivering EfS.

They indicate three possible models:

The first involves ‘EfS training occurring in the workplace’. The education that occurs in the workplace also involves enculturation of newcomers into a ‘community of practice’, in an apprentice/student-master type of relationship. This clearly has a social component and might, for example, allow near graduates to come to an understanding of EfS issues as part of their workplace experience.

Second is a model in which EfS training occurs in the classroom and is later taken into the workplace by students. They could be taught about EfS in specific classes, or as part of technology, management or related classes. Such courses would provide students with an understanding of EfS allowing them to take knowledge of such issues into their work placements. Students going on placement are often hesitant about addressing potentially emotional issues like sustainability. It would seem appropriate that they have the necessary information available to inform their decisions.

The third model is one in which work-based learning and EfS are integrated. Work-based learning is seen by proponents to be most effective when it involves work-integrated learning. Indeed, this is a key feature of sandwich degrees and one of the main reasons for ‘sandwiching’ the work placement between on-campus learning. In work-integrated learning students are expected to take knowledge into the workplace and to bring back workplace knowledge into the classroom after completing their work placements.

The World Association for Cooperative Education (a professional body that advocates work-based learning) suggests that students bring their on-the-job experiences back to the classroom for further analysis and reflection. Hence, the third model is essentially a combination of the first two models described above. For example, students could be required to report about sustainability issues in appropriate classes (e.g. using case studies about their placements) or on open-days when they give presentations (e.g. the ‘industry day’ at British universities).

For a description of other forms of experiential learning, see the ‘International Handbook for Cooperative Education’ referred to in the section ‘Publications’ at the end of this Bulletin.

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Skills to Last for the Canadian Workforce

If the principle of sustainable development is to be implemented successfully there is a need for a workforce which is equipped with sustainable-development-related knowledge, skills and attitudes (KSAs). There is a general consensus that the workforce must be prepared so that it can contribute to national sustainable development goals. However, the implementation of workforce education and training for sustainable development pre-supposes that sustainable-development-related knowledge, skills and attitudes are known. An extensive review of literature indicated that this is not the case.

The National Centre for Workforce Development (UNEVOC Canada) conducted a study to identify the broadly transferable sustainable development skills required by the Canadian workforce. In Phase I of the study, an extensive review of literature and research was conducted to identify KSAs related to the three elements of sustainable development: Environment, Society and Economy. In Phase II, these KSAs were validated using a focus group of individuals representing Canadian diversity, and with expertise in environment, sustainable development and workforce development. The experts confirmed that the great majority of the KSAs were relevant to the goals of sustainable development. Six major themes emerged:

1. Ethics and Values are defined as the attitudes needed to behave and act ethically.
2. The Integrated Decision-Making theme is defined as the knowledge and skills needed to process information effectively and efficiently.
3. Responsible Use of Resources is defined as the knowledge and skills needed to use resources responsibly.
4. Valuing Diversity is defined as the knowledge and skills needed to contribute to, and support, diversity.
5. The Healthy Lifestyle theme is defined as the knowledge and skills needed to maintain workplace health and safety.
6. Continual Improvement is defined as the knowledge and skills needed to improve quality of life.

These skill clusters were used to organise and classify the KSAs. This activity generated the Sustainable Development Skills Profile (SDSP). The SDSP provides a list of the broadly transferable, sustainable-development-related knowledge, skills, and attitudes required by the Canadian workforce in order to apply the principles of sustainable development in their day-to-day activities, regardless of job function, sector of activity, and level of education and training. It is broadly applicable to general education, adult education and TVET.

Under the address below, readers can get a complete skills profile and/or the full report of the study.

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Pushing ‘Learning to Last’ up the Policy Agenda in the UK

Between 2001 and 2003 the Learning and Skills Council (LSC) in the UK funded two phases of small scale development projects which the Learning and Skills Development Agency (LSDA) led and managed. They were called Learning to Last projects and their outputs (Good Practice Guide; Learning to Last Toolkit) can be found on the LSDA website. The LSDA wanted to push sustainable development for TVET up the policy agenda and so commissioned two strategic reports, published in September 2004. The main aim was to explore ways in which TVET for sustainable development could be located within existing priorities for the learning and skills sector and in the language that practitioners understand.

The first commissioned report, written by Martin Yarnit, has provided an analysis from cross-government policy documents of what is meant by the notion of sustainable communities (learning communities, active communities etc.) and the implications for the learning and skills sector. Yarnit features the definition of sustainable community provided by the recent Egan Review and welcomes this as a national ‘starting point’ for the debate.

Egan advocates that learning providers should be part of a national campaign to raise the profile of the core occupations for this agenda, that is: environment professionals like planners and architects; decision-makers like local authority members and officers; and influencers like leaders of community and voluntary organisations. He highlights the central need for a continuing programme of professional development for staff. Learning providers’ contribution to sustainable communities should be recognised in inspection and funding regimes so that there is an incentive to take part. (The Egan Review is also referred to in the section ‘Publications’ at the end of this Bulletin.)

Yarnit challenges the learning and skills sector and providers to:

>> Assess what Egan means for the forthcoming LSC sustainable development strategy;

>> Assess how sustainable development should impact on planning and funding the sector;

>> Assess how sustainable development should be integrated into the national Skills Strategy.

The second commissioned report is written by Stephen Martin and shows how to tackle the issue expressed in the third bullet point above. It takes TVET policy as its starting point. There is room here only to cover Martin’s thoughts on the Government’s Skills Strategy and its central theme of gaining greater engagement with employers across the whole of the TVET system. He sees this as a major opportunity to maximise the integration of sustainable development into the planning, design and delivery of demand-led provision because sustainable development has profound implications for all occupations. He argues that providers in the TVET system should target business leaders in ethical, environmental and sustainable development terms to forge strategic and operational partnerships in order to create new forms of provision.

Targeting industries where sustainable development practice is already developed, the LSDA is working with its Centres of Vocational Excellence to engage with these employers and allow them to teach the new sustainable development skills.

Both of these reports focus on major TVET policy imperatives – and offer a sustainable development contribution. It is a win-win situation. If adopted, this would improve implementation of policy, develop sustainable development practice, and offer interesting learning experiences for both students and teachers.

More information
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More than ever before, every member of staff in the organisation must be excellent and efficient at work in planning and realising the organisation’s targets, in order to meet this challenge. JEA cannot afford to pay salaries to non-governmental, voluntary-based organisations. As an organisation which is partially donor-funded, JEA has to meet the requirements of both the supplier and the customer. The main aim is to provide members with skills, knowledge and abilities for them to implement and sustain JEA’s activities independently. An example is the annual school-based Environmental Olympics project. The best learners become members of JEA and help to run the project in the following year.

Contextualising Learning in a Developing Context
The training needs of JEA change according to the changes in the Angolan context. The skills demanded by the market change in such a rapid way that often school curricula cannot follow immediately. Therefore, JEA develops training programmes which are contextualised according to the current environmental issues and skills and knowledge required to address these issues. The programmes vary in contents, methodologies and materials according to the provinces where the activity is taking place.

Developing Accessible and Flexible Learning Support Materials
Many of JEA’s training activities are implemented by using learning support materials. JEA is not able to run environmental education and training everywhere, thus, materials which are accessible (in terms of costs, contents and language) are produced and widely disseminated. These materials are also flexible, so that they can be used in a one-week training course, half-day session or environmental media programme.

Exploring the Relationship between Research and other Sources of Knowledge
JEA undertakes constant research projects which also draw extensively on other sources of knowledge, particularly indigenous and local knowledge. These create synergies which enable JEA to provide responsive, culturally appropriate and locally relevant TVET.

Apart from these four basic principles, JEA’s TVET programmes focus on learning by doing – the importance of praxis in environmental education – and education as a continuous process towards the development of skills, knowledge and abilities to address current and emerging environmental issues. This is done in a way that fosters skills for lifelong learning in every member of JEA.

Sustaining Human Resources
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ional staff development were combined with other forms. This included shorter or more flexible training courses as well as innovative certification methods. Furthermore, the protection of the environment was strongly integrated in TVET curricula. TVET still plays a key role in economic, social and ecological sustainability in areas of qualification which are relevant for the future, for example:

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**Increased vocational flexibility by emphasis on individual capacities to find and create employment**;

**Improved general education combined with hands-on technological qualifications and commercial knowledge for self-employed income generation (in particular for the poor)**;

**Distinctive skills for individual and group training (up to 80% of vocational learning takes place at the workplace) in industry, integrating aspects of environmental protection in industrial based production**.

Capacity Building International (InWEnt) established in its training programmes for experts of the TVET sector of developing countries the following priorities:

**German know-how is based on a differentiated functional responsibility, which links**

understanding of the labour market and vocational training with efficient occupational information systems and proficient policy advice. ‘Neighbouring areas’ (labour markets, employment systems) must be taken into consideration to achieve employability and consequently social and economic sustainability.

**From a German perspective, management of vocational training functions in a way which is based on co-operation and co-determination of capital and labour. This triggers off dynamics of innovation that purely bureaucratic systems without private participation can only dream of. Private sector participation provides strong links to the prevention of ecological problems in industrial production – a precondition for environmental sustainability.**

**Nowhere else in the world do we find technological qualifications accompanied with a systematic integration of environmental protection in TVET curricula.**

The outlined fields of action provide a basis to compose detailed programmes for specific countries with respect to the local requirements. Forms of co-operation which are relevant to promote business and/or fight poverty, and which are adapted to the dynamics of change and social problems, are just as important as systems approaches embedded in sustainable strategies.

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**Centres for advanced and applied technology training and services** increase productivity, innovative power and competitiveness of small and micro-enterprises. GTZ focuses on the establishment of institutions to improve the technological competence of enterprises through the training of technical and management staff and the provision of complementary advisory services.

**Employment-oriented training for and in the informal sector** aims at direct poverty reduction. It provides target groups – such as socially marginalised groups, victims of wars and natural disasters, former combatants – with the necessary skills to earn their own income through (self-)employment and with the ability to articulate and represent their interests. GTZ focuses on the establishment of institutional networks, including an appropriate political framework, steering mechanisms and measures for specific target groups.

Social and economic sustainability are interdependent with political stability. Obtaining economic and social progress in politically unstable systems is difficult. Conversely, political stability is hard to achieve without economic and social advancement. GTZ TVET aims to prepare target groups not only for the world of work, but also promotes their ability to actively par-
A pyramid can illustrate how training, education and curriculum development; government studies all the way to leadership training and further education opportunities and work-integrated university studies all the way to leadership training with international assignments within the General Motors organisation.

Vocational Training in Technical and Commercial Professions

With approximately 844 apprentices (as per 31 December 2003), Adam Opel AG is one of Germany’s largest providers of vocational training opportunities. The company currently offers 17 different training programmes, twelve in technical areas and five in commercial professions.

At Opel, building social and personal skills is just as important as developing job qualifications. Making a car or being responsible for a model range requires the ability to be productive within a team. That is why teamwork and communication skills are important areas in the Opel vocational training approach.

Work-Study Programmes

Opel also takes the initiative when it comes to combining academic studies with job training. With the Co-operative Systems Engineering Degree Programme inceptioned almost two years ago, mechatronics apprentices can obtain a Systems Engineering Degree in association with the local University of Applied Sciences. The unique course programme, in which the classroom ex-
Apprentices in a modern workplace

A Broad Spectrum of Ongoing Education Opportunities

Opel employees can choose from a broad range of continuing education and training programmes. The company actively encourages employee qualification at its training centres, in areas such as new technologies, workplace safety, business administration, communication, data processing and foreign languages. In addition, employees can take advantage of the extensive curriculum of General Motors University (GMU).

The targets of PABLO are, for example, to:

>> Make possible the qualification of 81,000 teachers and supervisors of the Ministry of Education;

>> Develop the possibility of distance education programmes using Internet in the country;

>> Provide technical assistance and training to develop educational materials;

>> Develop a blended learning model which best adapts to the curriculum defined by the Ministry of Education;

>> Evaluate the students during the different stages of their training.

Umberto: Training for Product Life Cycle Analysis With Modelling Software

With regard to regional and global impacts and damages to health and the environment caused by the production and consumption of goods, sustainable development has become the leading concept for improved processes, products and services.

Global supply chains and production systems have reached such a complexity that product or process improvements are a great challenge for researchers, engineers and decision-makers who have to judge alternatives. Changes in the making or buying of products or any adaptation of a process have to be assessed with regard to the impacts on the three dimensions of sustainability along the whole life cycle of the product.

Furthermore, legal or other market-driven requirements, such as product declarations or the ban of certain substances, put enterprises under pressure to adapt instruments that have been developed to support sustainable development. The enterprises require trainees and young employees to be capable of using instruments such as Material Flow Analysis, Material Flow Accounting and Life Cycle Assessment. The basis for any assessment and improvement is transparency concerning the related material and energy flows for the relevant production processes of the life cycle.

The very old and simple truth that one can only improve an object that one knows, totally applies in the field of sustainable development. Reaching a better understanding of complex systems can be supported to a high degree by modelling software tools. Such tools allow graphical visualisation of complex models and provide a functionality to assess environmental, economic and social impacts related to the production systems.

Based on the commercial modelling and assessment tool Umberto, courses and technical trainings have been developed by the University of Lüneburg in co-operation with ifu Hamburg GmbH and the University of Hamburg in Germany. The courses are offered to students of environmental science, environmental engineer-
ing, economics, computer science, geo-ecology and other subjects. The trainings provide both knowledge on relevant methodologies, as mentioned above, and modelling skills. For the trainings two case studies have been used to develop e-learning units: one example of a brewery and one of cement production.

In other universities students also do data collection in enterprises that are interested in introducing one of the instruments for process or product innovation and develop the first models for a part of the production process. Students then work in groups quite independently like consultants for the enterprises. They receive guidance and model reviews by their professors or more experienced students.

Umberto based trainings are widely used at German universities, but also in Latin America and Asia. Contacts and information about special conditions for train-the-trainer packages in developing countries can be requested under the addresses below.

More information
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SEQUA: Twinning International Business Organisations for Demand–Driven TVET

The Foundation for Economic Development and Vocational Training (SEQUA) is a non-profit development agency established by the German chambers’ and employers’ organisations. SEQUA’s experience shows that TVET projects are more likely to contribute to sustainable development if they are based on demands of the private sector and try to facilitate a close co-operation between government and enterprises. The following case study analyses in detail how such a co-operation can be initiated and brought to sustainable results.

The State of Pernambuco in Northeast Brazil is the least developed part of the country, with 60 percent of the local urban population living below the poverty line. With about 140,000 jobs, mainly for women, the clothing industry is the most important sector in Pernambuco. It consists mainly of small and medium-size enterprises (SMEs).

The growth of the sector is threatened by a lack of qualified textile technicians (middle management level). Until recently, training courses for these technical managers were unavailable in the federal state. Three new vocational training centres were established by the parastatal national institution for vocational training SENAI.

In one of the centres 60 technicians for the garment industry are trained per year. Each full-time course lasts three years and is financed by SENAI. The other two vocational training centres offer special courses for the garment industry, which last between 8 and 120 hours each. They are paid by the participants themselves, but partly subsidised.

The local association of the garment industry (SINDIVEST-PE) successfully lobbied for this innovation. Instead of establishing its own training centre, which would have been a heavy financial burden for the small 300-member association, SINDIVEST-PE lobbied vis-à-vis local governments and parastatal institutions to adapt existing training facilities to the needs of local enterprises. Now SINDIVEST-PE is responsible for the supervision of the quality of the training and for the development of new curricula.

A crucial factor for this successful expansion was the long-term twinning with the training centres of the Bavarian Employers’ Associations (bfz) in Germany, which increased SINDIVEST-PE’s credibility. Furthermore, the German partners advised SINDIVEST-PE’s board and staff on how to improve their lobbying and assisted the new schools in the training of trainers. The donation of equipment proved to be an important stimulus for the Brazilian government to establish and conduct the training centres.

Lessons Learned

>> Twinning up an organisation with an international partner can bring about a constituency for change.

>> The exchange of technical expertise and staff training lies at the heart of these twinning arrangements.

>> A co-operation between government and private sector can deliver better results than activities of one party in isolation.

>> Successful public private partnership requires the participation of private sector representatives in the decision-making boards and committees.

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> UNESCO – Education for Sustainable Development <

An exciting international consensus emerged following the 1992 Earth Summit in Rio de Janeiro and became even stronger at the 2002 World Summit on Sustainable Development in Johannesburg: Education is central to achieving sustainable development. The United Nations Decade of Education for Sustainable Development (2005 – 2014) and the designation of UNESCO as the lead agency for the promotion of the Decade provide an important opportunity for all partners to:

>> Advance progress made in human resource development, education and training to promote development which is socially desirable, economically viable and ecologically sustainable;

>> Recognise that the ‘education’ in Education for Sustainable Development is not just formal schooling but embraces a wide range of learning experiences and programmes;

>> Understand that education for sustainability concerns not only education, but also health, environment, natural resources, planning, agriculture, commerce, and many other issues.

>> Promote an education that is relevant to the key problems of living in the twenty-first century, that empowers people to exercise their rights, and that cultivates good citizenship locally, nationally and globally.

As the lead agency for the Decade of Education for Sustainable Development, UNESCO is required to:

>> Develop a draft international implementation scheme by establishing its relationship with the educational processes already in existence, especially the Dakar Framework for Action and the UN Literacy Decade; consulting with the UN agencies, international organisations, governments, NGOs, youth etc.
Improving Sustainable Livelihoods of the Rural Poor

In developing countries, where typically most of the population and the employment are located in rural areas, TVET for sustainable development should better focus on promoting sustainable rural livelihoods and on addressing the needs of the rural poor.

Agriculture contributes to economic growth, employment generation and poverty reduction. However, there is a need to recognise that agriculture is no longer the only source of labour and income for rural people. Skills development issues in rural areas are determined by the transformation of rural labour markets. Rural non-farm employment tends to flourish in dynamic rural areas. Depressed rural areas tend to rely much on farm income. Nevertheless, the diversification of economic activities through skills development can complement low agricultural income and improve the livelihoods of rural poor communities.

There is evidence that education is a determining factor to access off-farm employment and better paid work. While persons with low levels of education are found in non-qualified occupations, those with higher educational levels can access better paid and more qualified positions.

However, in most countries, education policies, including in the field of vocational training, do not pay specific attention to rural areas. The government apparatus is usually more geared towards urban settings. By definition, ministries of agriculture are rural-oriented but mainly preoccupied with farming, other rural activities and people being underserved. Progress towards rural sustainable development, therefore, requires an expansion of the scope of rural training policies beyond agriculture. It also involves a clear recognition in basic education of the distinct, yet diverse, needs of rural people.

The Education for Rural People (ERP) global flagship initiative, officially launched during the World Summit on Sustainable Development in 2002, aims to build awareness of education for sustainable rural development. Furthermore, it will involve improved articulation between basic education and vocational training, formal and non-formal approaches. Such convergence would facilitate appropriate skills development to meet local needs and contribute to achieving the international objectives of food security, Education for All, gender equity and poverty reduction.

For more information, see the UNESCO ESD website (www.unesco.org/education/desd) in English, French and Spanish. This site shares elements of the framework for developing a draft international implementation scheme for the United Nations Decade of Education for Sustainable Development in Johannesburg in 2002. The concept of education for sustainable development and its relationship with Education for All, the United Nations Literacy Decade and the Millennium Development Goals is clarified. These illustrate that quality education is a prerequisite for education for sustainable development at all levels and in all modalities of education.

> UNESCO-UNEVOC Partner Agencies <

COL: Curriculum Development for Literacy and Livelihoods

The Commonwealth of Learning (COL) developed in the 1990s a Core Curriculum in TVET specifically to offer training in pedagogical skills to practicing technical and vocational teachers who are strong in their specialisation but lack teacher training. It was originally a joint venture between the Caribbean Community Secretariat (CARICOM) and COL to introduce staff to the use of ODL and the difference between face-to-face training and ODL.

The project began in Nassau, Bahamas, in 1992, where TVET representatives from 14 countries developed the action plan. Between 1993 and 1999 COL contracted distance educators with curriculum development skills in TVET throughout the Commonwealth to write units and modules for the Core Curriculum. The University of Technology, Jamaica (Utech), agreed to call it Special Diploma in Technical and Vocational Teaching (In-Service).

By 2000, COL and Utech had worked toward accrediting this Core Curriculum as a distance programme for technical and vocational teachers in the Caribbean. Tutoring workshops were held in both the Bahamas and Saint Kitts & Nevis in late 2000.

In 2003, the University of Education, Winneba, Ghana (West Africa), started a distance education programme for a Bachelor of Education in Technical and Vocational Training using open and distance learning (ODL). The programme consists of 56 courses in total, making use through adaptation of the existing Diploma of Technical and Vocational Teaching (In-Service) materials developed by COL in conjunction with the Utech.

The Fiji Institute of Technology (FIT) is keen to use the COL/Utech Diploma Programme but is currently working hard to become dual mode. A FIT staff training has taken place in April 2004, to introduce staff to the use of ODL and the differences between face-to-face training and ODL.

Tuvalu has been introduced to the concept of ODL and is developing capacity and processes to deal with the difficulty to increase human resource capacity.

Several learning models based on video materials produced by the small island states have been produced for the local context.
developed (working with timber and working with bricks/block and concrete). They have lead to the development of four further modules (motor mechanics, small engines, plumbing, and electrical) and will also serve as template for the development of other materials by the islands themselves.

Saint Lucia and Grenada started up the process of promoting social dialogue and, above all, modifications are combined with and supplemented and its particular economic, cultural and institutional patterns. Thus, the traditional objectives of improving young and adult workers’ qualifications are combined with and supplemented by innovative actions, technological transfer, gender-sensitive equity policies, measures to promote social dialogue and, above all, development strategies set up by actors in these fields.

The issue of sustainable development stands in a focal point in these experiences: not as an additional objective or content, but rather as a cross-cutting dimension of local and sectoral development strategies, where institutions and their networks of centres participate along with other actors.

In contrast with centralised training schemes – where the network of centres basically implements decisions and programmes designed by central levels – training centres are increasingly seeking to insert themselves in regional, local and sectoral development strategies. They are working on an equal footing with other actors: municipalities, universities, enterprises, trade unions, social organisations, etc.

As a result the relevance of the training on offer is enhanced. It is defined on the basis of the demands and needs of the community or sector. On the other hand, many of these centres take advantage of their operative capacity (infrastructure, equipment), their staff and their knowledge to offer more services than strict training: applied research, technical and technological assistance, consulting etc.

Cinterfor/ILO has been co-operating with vocational training institutions, basically through documentation and dissemination of experiences from Latin America and the Caribbean, as well as from other regions. Publications, the Centre’s website (www.cinterfor.org.uy), and technical assistance activities – all help to inform on the main lessons learned from initiatives such as the National Technology Centres (SENAITECs) of SENAI (National Industrial Training Service), from Brazil; the Training and Technological Services Units of INA (National Training Institute), from Costa Rica; or the National System for Generating Technologically-Based Enterprises, promoted by SENA (National Training Service), from Colombia. In this way, training institutes in different countries strengthen their groundwork for exchanging information and learning and, fundamentally, for developing horizontal technical co-operation.

Some countries have engaged in processes which de-stigmatise the disease, move private suffering up to a Public Health Agenda at global scale, and provide concrete help. The World Health Report 2004 of the World Health Organization (WHO) presents African companies, which begin to distribute antiviral drugs free of charge to their workers – unfortunately years after their ‘human resources’ were tangibly vanishing.

TVET will be a tool for supporting health competence development in two ways:

1. Working people have a chance to learn how to keep their competitiveness up, in terms of professional skills, but also by maintaining their physical and mental health conditions.

2. The workplace as a ‘classroom’: TVET presents opportunities to reach previously untouched audiences. A majority among workers did not get adequate education. ‘Lifelong and continuous learning’ provides opportunities for enterprises to stabilise their staff, and in addition, to upgrade the health competence of the whole society by knowledge that is ‘carried home’.

In this spirit, the agenda is to be developed towards sustainable health management at community and enterprise level. In the industrialised world, a specific set of actions and mechanisms exists, suitable for an organised system with workers’ rights, public and occupational health services and the respective legislation. TVET might also become a tool that supports health competence in another type of working environment: illegal, unprotected and exploiting labour under working conditions destructive to health, supervised by powerless authorities, inappropriately equipped public and occupational health services. This is the reality for millions of workers around the world.
The systematically organised services need and get their specific attention through the global engagement of the International Labour Organization (ILO), supported by WHO, UNESCO and other specialised international bodies. Success at a global scale is equally dependent on the competence of individuals, who will be less dependent on the direct support or intervention from the health professional side.

The experiences presented during the 20th Agora included: education associating TVET and high-level sport (Finland); football used to bring back isolated youngsters – facing educational or professional deadlock – to a normal social life (Scotland); creation of high-level sport clubs within companies to encourage workers to participate in sport activities (Germany).

All these experiences were successful, but their sustainability depends on policy-makers. To convince policy-makers, one has to show them concrete and immediate results: for example, that physical activity reduces workers’ stress, and consequently absenteeism. Furthermore, the practice of sport helps people to acquire professional competencies such as responsibility, team spirit, and the ability to define strategies and reach goals within a framework of rules – all of which can only increase productivity.

Perhaps the main positive aspect of sport goes beyond that. When Erica Terpstra, former Olympic medal-holder from the Netherlands, tells us that ‘before learning how to win, one has to learn how to lose’, is this not a statement that is valid for all the different stages of life, personal as well as professional? Finally, the main benefit of sport is maybe to provide those who practice it with a better sense of personal balance in their lives – or to use the Latin expression: Mens sana in corpore sano (A sound mind in a sound body).

The question of TVET for sustainable development is an integral part of the common framework of TVET planning which consists of four main components:

- Definition of the political orientations and strategies;
- Central management of the system;
- Curriculum development; and
- Local provision of TVET.

Several working groups, set up with regard to regions and subjects, deal not only with the contents and the organisational and operational aspects, but also with the question of access to national and international funding.
**UNESCO Brazil: Minimising Poverty and Inequality**

Over the last few decades, Brazil has faced three outstanding challenges: the high level of poverty, extreme inequality in terms of income distribution, and significant regional differences. The country has sought to create a more equitable and just model for integral sustainable development.

Within the framework of co-operation with the Brazilian Government, UNESCO has tried to develop a policy strategy that aims to show the economic and social importance of education as a means to minimise poverty and inequality. For example, UNESCO has participated in the development of the Professional Education Expansion Programme (PROEP) of the Ministry of Education. The objective of this programme is to implement the reform of TVET in Brazil. The initiative is supported by the Inter-American Development Bank and the Ministry of Labour.

UNESCO Brazil points out to its partners the importance of offering conditions for students to develop scientific, technological and social-cultural knowledge in a manner that favours their intellectual autonomy and their social citizenship skills. The Organization highlights the need for management tools that make it possible for social, economic and environmental dynamics to be observed. Thus, TVET can be permanently supervised and its quality and reach can be evaluated. In addition, UNESCO emphasises the need for TVET to be seen as a lifelong process that is an integral part of basic education for all.

The future of TVET depends greatly on the success of the Brazilian Government in terms of creating sustainable development models that make development and growth possible for the country while maintaining control over inflation. In addition, its future will depend on the development of strategies for TVET policies. These policies should make the creation of a national system possible in order to guarantee articulation and dialogue between different participants.

UNESCO believes that Brazil can face these challenges.

**More information**

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**Yemen: TVET and Clean Water Supply**

As the rate of water consumption in Yemen is higher than the rate of renewable water creation, several measures have been taken to (at least) balance the situation. For example, the aquifer under Sanaa, the capital city, will be exhausted within the next ten years if water continues to be mined at the present rate.

Application of the concept of sustainable development in the water industry depends highly on the full understanding and commitment of this sector's employees to this concept. Therefore, the concept of sustainable development has been incorporated in the long-term training programme of the Yemeni water industry. Yemeni Water Utilities in co-operation with the TVET sector (including engineering faculties) have implemented an ambitious sustainable-development-oriented training programme aiming at developing the skills of utility staff working at the operation and maintenance (O&M) levels.

Over the last two years, the different training courses aimed basically at:

- **Conserving the scarce water resources;**
- **Improving the satisfaction of the consumers by providing continuous supply of clean water and safe disposal of wastewater.**

The training courses targeted all levels of O&M management, such as operatives and supervisors. They focused on ground water management (e.g. basics of ground water, water abstraction monitoring, operation and maintenance of submersible pumps) and water supply system management (e.g. leak detection and repairs).

In designing the training courses, it was considered that:
- **Participants possess valuable knowledge and experience that can be utilised;**
- **Participants have specific demands that are expected to be met.**

In implementing the training courses, several principles were incorporated, such as:
- **Establishing an encouraging learning environment;**
- **Adopting a holistic and demand-driven approach;**
- **Encouraging the self-centred learning approach in which trainers act as facilitators.**

**Lessons Learned and Suggestions for Improvement**

An assessment analysis has shown that the strengths of the training programme are for example:
- **Selection of training subjects is demand-based;**
- **Training is practical, with less theory;**
- **Participatory adult learning approaches are applied.**

However, there is still room for improvement, for example:
- **Establishment of a national training centre for the water industry;**
- **Encourage training institutions in cities other than the capital to extend their services towards the water sector;**
- **Introduce the concept of sustainable development to all engineering departments that deal with water industry (civil and mechanical engineering);**
- **Build a pool of water-industry-related professional trainers, preferably those with some professional background in the water industry (not fully academics);**
- **Introduce the competency-based training approach that is based on the modular concept and recognition of prior learning;**
- **Finally, it is advisable to develop a certification system for the water training. The certification should be linked to salaries.**

**More information**

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TVET Normative Seminars for the Arab States and Central Asia

UNESCO continued with its initiative of reinforcing standard setting in TVET in the Member States through two more advocacy seminars for high-level education policy-makers. The regions that benefited from this round of seminars were the Arab States and the Central Asian Republics. These seminars followed similar activities that were held for Asia and the Pacific, Eastern Europe, Latin America and West Africa.

The UNESCO normative instrument, the ‘Revised Recommendation concerning Technical and Vocational Education’ (2001), which was published together with the ‘Conclusions concerning Human Resources Training and Development’ of the International Labour Organization (ILO), has been the key resource material for this seminar series. The objective of these activities has been to convince education policy-makers to implement the internationally acknowledged sound standards and practices described in these two documents, in their national TVET systems.

The seminar for Central Asia was held in Almaty, Kazakhstan, from 15 to 17 June 2004. This activity, too, brought together about 50 high-level education policy-makers and other TVET stakeholders. The transition economies are eager to modernise their TVET systems in order to enable the workforces to seize the opportunities that arise from globalisation as well as from the rapidly growing petro-chemicals industries. A major concern in the region is the need for lifelong learning and training for the re-skilling of older workers who find themselves redundant as formerly protected industries modernise in response to the dictates of liberalised economies.

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Congress on Quality Management of Education and Training Systems in Rabat

Development of TVET to meet social and economic changes in the Arab States has been the focus of TVET policy-makers, experts and professionals with the objective that TVET should be an integral part of social and economic growth in the region.

The UNEVOC Centre in Morocco (L’Ecole Normale Supérieure de l’Enseignement Technique, ENSET-Rabat) organised the first International Congress on Quality Management of Education and Training Systems (Rabat, 14 to 16 April 2004). More than 300 participants from Africa, Asia, Arab States, Europe and North America attended the Congress. The topics of discussions and recommendations were: new visions for education and training systems; engineering of training and quality management; approaches of effective education and learning systems; and evaluation.

The Congress programme is part of Morocco’s effort to improve the linkages between education, training and the world of work.

Both the UNESCO Beirut Office and the UNESCO-UNEVOC International Centre in Bonn provided technical and financial support to the Congress. Moreover, ENSET-Rabat organised a sub-regional co-ordination meeting for North African Arab States to discuss the joint proposals on cooperation in TVET. UNEVOC Centre directors from Algeria, Mauritania, Morocco and Tunisia attended the meeting.

The combination of knowledge, skills, culture and human capital development were seen as key factors in attracting young generations in the region to TVET programmes and specialisations. It is very important for parents and other groups of society to understand the social and economic values of TVET.

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Lamphun Technical College: Extending the UNEVOC Network in Thailand

The UNEVOC Associate Centre at Lamphun Technical College, Thailand, has been considered as an excellent UNEVOC Associate Centre. The major activities of the Centre are:

- Develop the Thai Vocational Education database by collecting and processing information from research, innovations, inventions of vocational education students, and other related information;
- Establish information linkage with other institutions and UNEVOC Centres throughout the world in order to explore and update TVET information; and
- Provide information services through UNEVOC Centre networks and the Internet.

The strengths of the UNEVOC Associate Centre at Lamphun Technical College include the commitment of the Director and other administrators, its efficient IT programme and qualified staff. Incentives are provided to those who are responsible for the achievement of the Centre’s objectives.
In order to carry out the activities of the Centre effectively, the staff of Lamphun Technical College are divided into three groups. The first group is responsible for the hardware system, which involves computer and electronic technicians. They are responsible for installation, maintenance and control in order to ensure that the system is smoothly implemented. The second group takes care of the software system and consists of computer programmers and information systems managers. They develop the database system, explore information, and provide training to the Centre’s staff as well as to external participants. Since English is the second language in Thailand, translators form the third group. These three teams are working under the supervision of the IT Academic Management Committee of Lamphun Technical College.

The UNEVOC Associate Centre at Lamphun Technical College provides extensive services to students, teachers and staff. They can use 100 computer sets in the IT Service Centre in order to have access to information. Infrastructures for developing information networks and the exchange of information with other international centres are still not developed effectively, but are in the process of renovation. This is due to the Ministry of Education’s policy of reforming the infrastructure of its IT system (MOE NET).

The experiences of this Centre help the Office of Vocational Education Commission (OVEC) in Thailand in its planning to establish at least four Associate Centres in other regions of the country. This would extend the TVET communication network for sharing knowledge, experiences and innovations.

**OVEC: Thai TVET Projects for Neighbouring Countries**

The Office of Vocational Education Commission (OVEC) of the Thai Ministry of Education has provided support in terms of TVET projects to neighbouring countries like Lao People’s Democratic Republic, Cambodia and Viet Nam.

In Lao, OVEC has provided assistance to establish a TVET model school. The project started in 1994 and has been continued until today. During the first phase, Thailand assisted in designing TVET curricula in the fields of electricity, construction, agriculture, and dress-making according to the needs of Lao. Four vocational training workshops were constructed and provided with necessary equipment and teaching media. Teacher training took place both in Lao and Thailand. Study visit programmes were organised for high-level administrators and teachers. Recently, the experiences of these TVET model schools have been transferred to other TVET schools in Lao. Thailand and Lao continue their co-operation in the field of TVET curriculum as well as staff development.

OVEC has provided similar support to Viet Nam and Cambodia. The projects of co-operation in Viet Nam - e.g. with the Namdin Vocational Training Centre – have mainly focused on staff development, provision of equipment and teaching media.

A major project in Cambodia includes the following activities: staff development; teaching and learning system development; curriculum development; and equipment procurement. The focus is on four areas of specialty: electronics, electricity, agriculture, and livestock/fishery. The project aims at providing vocational education to secondary school students in order to enable them to earn their living in their communities.

In October 2003, 40 students enrolled in each of the above-mentioned specialty areas at Kampong Shertian College in Cambodia, making the total number of 160 students as targeted. Some of these students were unable to continue their studies in the second year due to the problems of poverty and students’ need to turn to the academic stream.

It has been requested that those teachers with general education background and training in vocational skills, should be retrained until they have obtained vocational qualifications. This is because the Ministry of Education of Cambodia announced that only those teachers with a bachelor’s degree in vocational fields would be allowed to teach second year students. Under this project the teachers who have been trained in vocational skills have shown a lot of effort to become vocational teachers in their specialty areas. This project started in 2001 and has been carried on until the present.

In conclusion: it is a good opportunity for Thailand to share experiences with neighbouring countries and to serve as a focal point for co-operative projects of other countries and international agencies with the aim of launching a partnership system of meaningful co-operative projects.

**Forthcoming Events**

**12th World Congress of Comparative Education Societies**

**Date:** 25-29 October 2004, Havana, Cuba; Languages: English, French, Spanish

**Organiser:** Association of Cuban Pedagogues (ACP/APC), The World Council of Comparative Education Societies (WCCES), Conference of Havana, Cuba

**Information:** http://12wcces.cujae.edu.cu/default.asp

**Third Saudi Technical Conference and Exhibition (STCEX 2004)**

**Date:** 11-15 December 2004, Riyadh, Saudi Arabia; Languages: Arabic and English

**Organiser:** General Organisation for Technical Education and Vocational Training (GOTEVOT)

**Information:** www.stcex.gotevot.edu.sa/english/

**More information**

An updated list of forthcoming events can be found at www.unevoc.unesco.org/events

**Forthcoming Training Courses**

**‘Meeting of Directors of Vocational Training Authorities for Network Creation’**

27-30 September; Turin, Italy; Language: Arabic

**‘Training of instructors on the Portworker Development Programme (PPD)’**

04-13 October; Turin, Italy; Language: English

**‘Concepción de programas de formación basados en competencias’**

22 November-03 December; Turin, Italy; Language: Portuguese

**More information**

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A group of visitors from UNESCO Afghanistan Prof. Colin Power, former Assistant Director-General for Education of UNESCO Paris (1989 to 2001), who was one of the major forces in establishing the Centre.

More information
For further publications in the area of TVET for Sustainable Development you may refer to the following website, which is permanently updated: www.unevoc.unesco.org/sustainable (click ‘Documents and Websites’).